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PULMONARY ACARIASIS: A POSSIBLE CAUSE OF ASTHMA

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During the past two years we have observed a remarkably heavy incidence of bronchial asthma among patients admitted to this hospital. Investigation resulted in the following preliminary observations:

1. A certain proportion of asthmatic patients showed a high degree of eosinophilia, ranging from 40% to over 80%.
2. These cases rarely gave a previous history or family history of asthma or other allergic manifestation.
3. The existence of alimentary parasitism, a common tropical cause of eosinophilia, was excluded by the usual pathological tests.
4. The response to treatment by antispasmodics, vasodilators, iodides, opiates, and other sedatives, autohaemotherapy, and, in severe cases, oxygen by inhalation and by subcutaneous administration, intravenous adrenaline, lumbar puncture—if of temporary benefit to the patient, and even dramatic in status asthmaticus—was unsatisfactory as regards more permanent control of the condition

Despite relief from symptoms, the eosinophilia persisted, and the patients were returned to duty, sometimes in a lower medical category, but mostly to be referred back again and again to hospital with recurrences of asthma, until their ultimate disposal was decided by a medical board who pronounced them unfit for further military service. For the period June, 1942, to June, 1944, bronchial asthma was responsible for 48% of respiratory cases and 21% of all cases invalided out of the Army through the medical division of this hospital.

There seemed no alternative disposal for these cases at the time, and when the subject was discussed at a meeting of the Clinical Society of this hospital about ten months ago, Major T. R. Jansen, C.M.C., drew our attention to a refractory case of asthma in a civilian patient with massive eosinophilic leucocytosis which had been investigated by the Civil Medical Entomological Department. This case had shown the presence of mites in the sputum, and the patient had made a remarkable recovery on treatment by administration of pentavalent arsenic. This brought to our notice the research being carried out at the Ceylon Entomological Department by Carter, Wedd, and D'Abrera, who have since (1944) published an important paper on their preliminary observations on the occurrence of mites in human sputum and their possible significance. These observers have recovered from the sputum of 17 out of 28 patients suffering from respiratory complaints various types of mites, including species of the genera *Tyroglyphus, Tarsonemus, Carpoglyphus, Glyciphagus,* and *Cheyletus.* These mites were species commonly present in stored products, dust and debris of houses, shops, and stores, etc. Arsenical treatment was found to reduce the numbers of mites in the sputum and, in three cases with eosinophil counts of 38%, 42%, and 66%, to decrease the eosinophilia, with improvement in the respiratory condition. That the work of Carter, Wedd, and D'Abrera constitutes a significant advance in the study of the pathogenesis of certain respiratory disorders seems evident to us from their preliminary report and from the application of their methods of investigation to the study of a series of cases of asthma with marked eosinophilia among soldiers under our observation.

Investigations

Our own investigations, which make no claim to completeness in scope or detail, were prompted by a search for some effective means of control over the number of asthmatic cases being invalided out of the Army, and were directed chiefly towards the aetiological significance, if any, of occupation and environment in relation to the precipitation of this asthmatic syndrome, and towards the therapeutic merits of arsenic in effecting a durable degree of recovery that might enable these asthmatic soldiers to be returned as fit for duty. Our series of cases comprises, up to the present, Ceylonese soldiers from various regimental units who were admitted to hospital with asthma associated with an eosinophilia of over 4,000 per c.mm. The patients were kept under observation in a special ward with facilities for careful supervision of the examination and treatment carried out during this investigation. Discharge from hospital was decided, not by the clearing up of the asthmatic condition alone, but by the return of the eosinophil count to a satisfactory level.

Each patient's history was carefully scrutinized with special reference to any pre-existing personal or familial tendency to allergic diathesis as might be indicated by manifestations of hay-fever, urticaria, eczema, or migraine, in addition to asthma itself; pulmonary tuberculosis and other respiratory diseases; cutaneous and intestinal affections attributable to parasitic infestation; and blood diseases. Special attention was directed towards the patient's occupation and environment in a search for such factors as might expose him to inhalation of a mite-laden atmosphere.

Pathological data were collected from investigations which included the following: (1) Examination of blood for leucocytosis, eosinophilia, and alterations in the erythrocyte sedimentation rate. Differential counts were carried out daily by the method of 1,000-cell counts. (2) Examination of faeces repeatedly for ova, cysts, parasites, and Charcot-Leyden crystals that might indicate intestinal infection or infestation. (3) Examination of sputum for *B. tuberculosis* repeatedly and by special technique for mites.

The examination of sputum for mites is a prolonged and tedious procedure involving special methods of preparation of the specimens and rigid precautions against contamination of the material by mites from extraneous sources. Twenty-four-hour specimens of sputum were collected direct in rubber-stoppered flasks and large test-tubes which had been specially prepared by thorough washing and flushing in running water to ensure adequate decontamination; the stoppers, which had been similarly decontaminated, were removed by the patient and held in his hand just long enough to permit the expectorated sputum to be discharged into the vessel, which was immediately re-stoppered tightly. The preparation of the sputum for examination was carried out according to the method described by Carter, Wedd, and D'Abrera.

> "The fresh sputum was treated in the first place with an equal quantity of 1% potassium hydroxide; this was shaken and allowed to stand until the muco-purulent material had disintegrated. After a few hours, when the mixture had become more or less clear,

from 5 to 10 drops of Loeffler's alkaline methylene blue were added and the solution again shaken. Formalin sufficient to give a 10% concentration was then introduced and the mixture left until next morning (18 to 24 hours). The mixture was then centrifuged and the supernatant fluid drawn off; the deposit was examined under a binocular microscope."

Throughout this entire procedure scrupulous precautions have to be adopted against contamination of the sputum with mites from outside sources The material has to be systematically searched under the microscope for the presence of mites, and the examination of a few smears, as for tubercle bacilli, is not sufficient for this purpose. The amount of labour and time involved in this procedure will be evident.

For radiological study of the course of the cases, skiagrams of the lungs were taken on admission of each case to the ward and repeated before discharge. Some of the patients were similarly examined during the course of treatment and the progress of their pulmonary condition observed by means of the altering appearances of the serial skiagrams.

A daily clinical check was maintained on the patients throughout the period of observation with the object of noting any relation between the degree of intensity of the asthmatic condition and that of the eosinophil count. While such clinical features as temperature, pulse rate, or eosinophil count could be accurately measured and charted, signs and symptoms of the nature of expiratory dyspnoea, prolonged expiration, or sibilant and sonorous rhonchi obviously do not lend themselves to similar methods of recording. However, an attempt was made to record the variations in the clinical course of each case by means of a block graph which served to provide a rough chart of the relative severity of the asthmatic condition from day to day.

Treatment was carried out in two stages: first, with routine anti-asthmatic remedies, and thereafter with specific therapy, the variations in response being recorded by means of the eosinophil chart and the clinical block graph. Routine treatment consisted of the pharmacopoeial "mist. asthmatica," comprising the usual remedies—potassium iodide, tincture of belladonna, and tincture of stramonium—but excluding any arsenical preparation. Additional measures for relieving severe dyspnoeic attacks—e.g., ephedrine, adrenaline, pituitrin—were employed whenever necessary, particularly when sleep was disturbed by nocturnal paroxysms. Specific treatment consisted in the oral administration of pentavalent arsenic. Stovarsol was the drug used at first, in the form of 0.26-g. tablets containing 27% arsenic. At an early stage of the investigation supplies of this drug ran out, and we decided to substitute carbarsone until it was again available. Carbarsone was administered in 0.25-g. tablets containing 28.85% arsenic. The daily dosage employed was one tablet twice daily of one or other of these preparations. No special dietary restrictions were imposed during treatment, the "ordinary diet" of the hospital regime being allowed in every case except during febrile periods, when "milk diet" was substituted.

Case Records

Our present series comprises 30 patients, representing various military units: Army Service (10), Engineers (5), Artillery (6), Infantry (2), Medical Corps (3), Signal Corps (1), Military Police (2), Pioneers (1). For considerations of space detailed case histories are not reproduced here, but a tabulated analysis of the more significant positive findings is appended instead, together with notes on the aetiological, clinical, pathological, and therapeutic observations recorded during our investigation.

Tabular Analysis of Cases

Case No.	Age (Years)	Service (Mths.)	Duration of Asthma (Prior to Admission)	Occupation, Duties, Environment (Prior to Onset of Asthma)	Leucocyte Count		Eosinophil Count				Sputum Report	Treatment	
					Initial	Final	Initial		Final				
					Per c.mm.	Per c.mm.	Per cent.	Per c.mm.	Per cent.	Per c.mm.		Routine (Days)	Arsenical (Days)
1	18	3	3 weeks	Ration store sentry	37,000	7,000	73	27,010	4	280	Mites +	24	10
2	38	16	8 months	Quartermaster's store clerk	28,000	8,000	62	17,360	3	240	,, ,,	30	16
3	28	18	3 weeks	Grocery store salesman	15,000	7,400	48	7,200	9	666	,, ,,	11	28
4	32	18	3 months	Ration store steward	13,200	6,400	81	10,692	9	576	Mites not seen	30	14
5	42	19	2 weeks	Ration truck driver	17,000	6,800	63	10,710	11	748	Not examined	21	10
6	26	11	8 ,,	Ration store orderly	16,000	7,000	70	11,200	8	560	Mites +	30	18
7	26	24	3 years	General store salesman	15,000	6,800	56	8,400	5	340	Not examined	33	9
8	29	6	2 weeks	Tinker, petrol service depot	16,000	7,000	70	11,200	5	350	Mites not seen	40	18
9	24	12	2 years	Ration truck driver	14,000	7,600	56	7,840	3	228	Mites +	14	26
10	20	22	8 weeks	Quartered in hut near ration store	14,200	6,800	58	8,236	5	340	,, ,,	12	25
11	26	3	2 ,,	Quartered in hut near ration store	15,400	8,100	80	12,320	4	324	Mites + +	15	20
12	19	27	3 months	Ration store sentry	10,600	8,800	59	6,254	10	889	Not examined	16	24
13	26	26	6 weeks	Quartered in disused ration store	19,200	6,400	38	7,296	6	384	Mites not seen	31	22
14	19	24	7 months	Ration orderly in cookhouse	16,400	6,500	54	8,856	7	455	,, ,, ,,	33	26
15	18	12	5 ,,	Ration-loading orderly	20,000	7,000	46	9,200	5	350	,, ,, ,,	20	33
16	26	20	4 ,,	Carpenter	17,000	6,400	54	10,880	5	320	Not examined	19	30
17	23	30	18 ,,	Ration-loading orderly	10,200	6,400	56	5,712	6	384	Mites +	11	17
18	27	18	4 weeks	Ration store and cookhouse orderly	15,400	6,400	54	8,316	2	128	Not examined	18	17
19	21	42	1 year	Pack and linen store orderly	16,000	7,800	46	7,360	4	312	Mites +	14	20
20	27	60	3 weeks	Ration truck duty	18,000	8,000	57	10,260	5	400	Mites not seen	10	17
21	29	24	5 months	Quartered in hut near ration store	28,000	7,600	62	17,360	3	228	Not examined	24	6
22	[illegible]	30	2 years	Quartered in hut near ration store	17,200	7,100	33	5,676	3	213	Mites +	24	27
23	29	48	1 month	Ration store orderly	11,000	6,900	50	5,500	4	276	,, ,,	10	19
24	38	22	2 weeks	Quartered in hut near ration store	27,000	8,000	76	20,520	7	560	Mites not seen	13	10
25	32	24	1 month	Ration store and cookhouse orderly	24,200	7,600	70	16,940	4	304	Not examined	8	20
26	32	24	2 weeks	Ration transport orderly	18,600	7,000	38	7,068	5	350	Mites not seen	10	23
27	23	11	1 year	Grocery store salesman	14,800	7,000	72	10,656	7	490	Not examined	13	20
28	30	28	2 months	Ration-loading orderly	23,000	7,200	62	14,260	6	432	,, ,,	8	20
29	20	24	6 ,,	Quartered in hut near ration store	25,000	7,000	70	17,500	7	490	Mites not seen	14	[illegible]
30	30	42	9 ,,	Ration store orderly	11,800	6,800	38	4,484	3	204	,, ,,	14	8

Actiological Observations

The ages of the patients ranged between 18 and 42 years, and their periods of military service varied from 3 months to 5 years. With the exception of Nos. 14 and 19, who had suffered from lobar pneumonia, none of the patients gave a history of having been affected by any respiratory ailment other than that under investigation. Two patients (Cases 5 and 21) had been treated for mild attacks of dysentery of unspecified nature. None of the others gave a history of any intestinal infestation or of any cutaneous affection that might be associated with eosinophilia. Malaria figured in the past histories of 7 patients (Cases 5, 11, 12, 14, 16, 20, 22), but not in any prominent degree. There was no evidence of any tendency to an allergic state prior to the onset of asthma, which in all cases but three (Cases 7, 9, 27) had occurred after enlistment in the Army. The interval between enlistment and the onset of asthma in the other cases varied from 2½ to 35 months.

There was no indication of any familial tendency to allergic diathesis or to any respiratory disease or blood disorder in the case histories, with the exception of that of Case 19, where it was stated that one brother suffered from chronic bronchial asthma and another from early pulmonary tuberculosis, and that of Case 13, where a sister was said to be tuberculous.

Significant aetiological information was collected from an inquiry into the nature of the occupation and environment of the patients before the onset of asthma. No fewer than 25 of these 30 patients either had been engaged in orderly or sentry duties in ration stores, in loading or transporting rations, or had been quartered in the neighbourhood of ration stores. Of the remaining cases Nos. 2, 7, and 19 had worked in other dusty stores where linen, clothing, boots, pack articles, and miscellaneous goods of various descriptions were handled, while the carpenter (Case 16) had obviously been exposed to inhalation of sawdust and the tinker (Case 8) had worked in a dusty petrol service store.

Clinical Observations

The onset of the condition was invariably slow and insidious, with an intermittent dry cough which became progressively more frequent and troublesome, particularly at night. Gradually the patients began to suffer from spells of expiratory dyspnoea with wheezing. These attacks, though generally mild and intermittent at first, became more and more frequent, causing increasing loss of sleep with a feeling of lassitude, malaise, and asthenia in the mornings, leading to a gradual impairment of general health and physical fitness. The duration of the asthmatic condition varied from 2 weeks to 3 years, and the constitutional symptoms rarely troubled the patient before his asthma had lasted about a month.

On admission to hospital the clinical picture was that of the usual symptom-complex of asthmatic bronchitis—cough with expiratory dyspnoea, hyperresonance of the lungs, prolonged expiration with sibilant and sonorous rhonchi audible all over the chest, and occasional leathery rales at the pulmonary bases. The sputum in most cases was scanty and viscid and never blood-stained; in a few cases there was no expectoration at all. One patient (Case 1) coughed up fairly copious quantities of stringy, tenacious, mucus during the early stages, and felt considerably exhausted by his frequent and strenuous efforts at expectoration. Only 5 patients (Cases 3, 5, 7, 12, 28) showed a febrile temperature; but pyrexia was not a prominent feature of these cases, the temperature ranging from 99 to 101° F. and lasting from two to five days.

None of the patients showed signs of any cardiovascular disorder, enlargement of the spleen or liver, or cutaneous affection, such as psoriasis, scabies, etc. Appetite, digestion, and alimentary function were generally unimpaired, except for a mild attack of intercurrent enteritis in Case 3. No such allergic manifestation as hay-fever, urticaria, eczema, or migraine occurred in the clinical course of any of the cases.

Pathological Observations

Haematological examination showed a remarkably constant eosinophilic leucocytosis in the series of cases, with massive eosinophilia in many of them. The total leucocyte count ranged from 10,200 to 37,000 per c.mm., while the eosinophil concentration varied between 33% and 81%. It is from the absolute leucocyte count that the blood picture can best be appreciated. While there was no appreciable alteration in the total numbers of polymorphonuclear cells and lymphocytes, there was an enormous increase in the number of eosinophils, ranging from 4,484 to the massive concentration of 27,010 per c.mm. In assessing the degree of eosinophilia, therefore, the absolute count was used as the criterion of our initial and final records, but a percentage calculation based on daily 1,000-cell counts was employed for charting the course of each case. The eosinophils were mature cells that stained well and showed no abnormality. In a few cases the eosinophil count showed a sudden drop to a relatively low level without any special treatment, but only to rise after a brief remission. A good example of such a spontaneous temporary remission was patient No. 22, who on a previous admission to hospital recovered from his asthma with a sharp drop in his eosinophil count from 65% to 5% and was discharged, but was readmitted later with a recurrence of asthma and an eosinophilia of 33%. This case taught us the need for keeping such patients long enough under observation to decide whether the remission is temporary or not. In a few cases we found that asthmatic signs and symptoms were mild, or even temporarily in abeyance, while massive eosinophilia persisted. But in general there was a recognizable parallelism between the eosinophil content of the blood and the intensity of the asthmatic condition.

With the exception of a mild degree of secondary anaemia in a few cases there was no abnormality in the erythrocyte count or haemoglobin content of the blood. The erythrocyte sedimentation rate generally showed no appreciable deviation from the normal, apart from a few recordings of a slightly accelerated rate that was attributable to associated bronchitis.

The sputum did not show red blood cells, acid-fast bacilli, or any specific organisms on routine microscopical examination, but eosinophil leucocytes were sometimes observed. Mites of either *Tyroglyphus* or *Tarsonemus* were found in 11 out of 21 cases whose sputum was examined by the special technique described by Carter, Wedd, and D'Abrera. This procedure—a tedious one involving prolonged and patient searching through a comparatively large mass of material in which the mites may rarely be present in more than scanty numbers—was a limited application in the circumstances. Some of the examinations lasted as long as five days (besides the two days or more needed for collecting and preparing the specimens) before mites were detected. Search was abandoned in cases in which no mites were seen within this period. There was rarely time for the examination of more than a single specimen of sputum from each patient. It was found that the chances of detecting mites seemed most favourable within three or four days of starting arsenical therapy. The scanty numbers of mites observed in our cases—rarely more than one or two—may be partly due to the fact that search was rarely continued after the first mite was detected in each specimen of sputum. In Case 11, however, about 14 mites were found in a specimen collected on the third day of carbarsone treatment.

Repeated examination of faeces showed mild infestation with *Ancylostoma duodenale* in Case 5; *Ascaris lumbricoides* in Cases 18 and 19; *Trichuris trichiura* in Cases 11, 12, and 18; *Blastocystis hominis* in Cases 4, 6, and 9; and *Trichomonas faecalis* in Case 12. Appropriate anthelmintic treatment was administered, but this produced no reduction in the eosinophil count, which in one of the roundworm cases actually rose afterwards. The urine showed no abnormality to routine chemical and microscopical tests, and there were no clinical indications for any special investigations such as for detection of mites in the urine.

Radiological Observations

Analysis of the radiological findings before treatment showed the frequent appearance of a pronounced catarrhal reaction of the finer lung markings, resulting in diffuse linear striations of a strikingly even and symmetrical distribution in both lung fields; this was suggestive of an acute inflammatory process resulting in a bronchitic or bronchiolitic reaction rather than of tuberculous infiltration. In addition there was a remarkable mottled effect produced by small, discrete, ill-defined spots disseminated throughout both lung fields; they were usually more evident in number and size in the hilar and basal zones. The hilar shadows often showed increased density. The combined effect of the shadows produced by the accentuated finer lung markings and by the mottling resulted in a hazy, ground-glass appearance, which proved to be so characteristic of the condition that several of the later cases received the concise radiological diagnosis, "Appearances of eosinophil lung present." These appearances seemed to be displayed best in the earlier cases, but were evident even where the asthma had lasted from 1 to 3 years (Cases 19, 9, 7). The chronic cases, however, more often showed appearances of certain associated changes such as chronic bronchitis, pleural thickening, emphysema, or prominence of the pulmonary artery. The mottling was not evident in a few cases the clinical condition of which was mild.

Re-examination of the lungs after arsenical treatment showed a remarkable change in the lung picture. The nodular opacities causing the mottling had disappeared and the linear striations had similarly disappeared or had subsided in intensity. The clearness of the lung parenchyma was in striking contrast to its original hazy appearance.

Therapeutic Observations

Each patient acted as his own therapeutic control by undergoing a course of routine treatment for asthma before being given arsenic. This stage of treatment varied from 10 to 50 days, some of the patients having already been under such treatment in other wards of the hospital before being referred to us. During routine treatment the eosinophil count dropped in Cases 4, 5, 11, 12, 14, 16, 18, and 21, and rose in Cases 1, 2, 7, 8, 13, 15, and 20, remaining at a relatively stationary level in the others. The most marked fluctuations were a sharp drop from 80% to 18%, with a subsequent rise to 52%, in Case 11; a drop from 60% to 28%, with a rise to 50%, in Case 12; a rise from 35% to 70% in Case 15; and a rise from 25% to 60% in Case 20. The clinical response to routine treatment was generally unsatisfactory, most of the patients showing no improvement, others obtaining only temporary relief from their asthma. In Cases 2, 8, 10, 16, and 18 adrenaline injections were required to alleviate severe asthmatic paroxysms, mostly nocturnal; 8 injections of adrenaline m. vii with pituitrin 0.5 c.cm. had to be given in Case 16. Only Cases 9 and 12 showed any appreciable relief from routine treatment.

The stage of arsenical treatment varied in duration from 6 to 33 days, two tablets of carbarsone or stovarsol being administered daily. The response to arsenic was uniformly good and sometimes dramatic. Patient No. 7, who had suffered from asthma for 3 years, obtained no relief during 48 days of routine treatment, while his eosinophilia rose from 56% to 65%; from the very start of carbarsone treatment his eosinophil count dropped rapidly, and he was free from asthma in 3 days; he needed only 9 days' treatment with 18 tablets of carbarsone to complete his cure. Equally dramatic was the response in Case 21, in which the eosinophils dropped from 62% to 3%, with complete relief from asthma and restoration of pulmonary radiolucency, after 12 tablets of carbarsone in 6 days. Cases 1 and 5 completed treatment in 10 days with 20 tablets—of stovarsol in the former, and of carbarsone in the latter. Most of the patients showed a gradual haematological response to arsenic, Case 2 being a typical example; but alleviation of clinical symptoms was comparatively rapid in all cases. Several patients had exacerbation of symptoms between the third and sixth days of arsenical treatment. Cases 2 and 8 developed status asthmaticus on the fifth and fourth days respectively; the former was relieved by the continuous adrenaline injection technique of Hurst, but the second was more refractory and required lumbar puncture, which resulted in almost instantaneous control of the condition. The alarming manifestations in these two cases led to some diffidence about arsenical treatment on the part of other patients in the ward, and one was found secreting his tablets in a hollow tooth; thereafter the drug was administered in solution to prevent patients shirking treatment, which might have accounted for the delayed response in some of the cases. The criterion of cure was not the control of the clinical condition (which was generally effected in 7 to 10 days) but the reduction of the eosinophil count to a satisfactory level, and arsenic therapy was continued accordingly. There was no appreciable difference between carbarsone and stovarsol as regards the clinical response and control of asthmatic symptoms; but the former generally produced a more satisfactory and prompt haematological response, while the delayed reaction of the latter drug in this respect entailed a more prolonged period of medication. Both drugs were well tolerated, considering that several patients were under treatment for over 20 days.

Up to the present (over 9 months since the first patient was discharged from hospital) no recurrence of asthma has been reported in any of these patients by their regimental medical officers, while several who have been re-examined have shown a normal haematological picture.

Conclusions

This series represents a distinct group of asthmatic cases with marked eosinophilic leucocytosis and characteristic radiological appearances of the lungs. They showed no familial or pre-existing susceptibility to the disease. The response to orthodox methods of treatment was strikingly unsatisfactory in comparison with the remarkable control produced by pentavalent arsenical therapy.

The syndrome appears to correspond with that described in India by Frimodt-Möller and Barton (1940) as "a pseudo-tuberculous condition associated with eosinophilia," by Weingarten (1943) as "tropical eosinophilia," by Treu (1943) as "pseudo-tuberculosis of the lungs with eosinophilia," by Simeons (1943) as "benign eosinophile leukaemia," and by Chaudhuri (1943) as "eosinophil lung." Similar cases had been reported from Ceylon by Carter, Wedd, and D'Abrera (1944), from Egypt by Parsons-Smith (1944), and from the United States (in an ensign eight months after his return from India) by Emerson (1944).

The duration of asthmatic symptoms in our cases varied between 2 weeks and 3 years. The symptomatology differed from some of the cases reported by previous observers in the absence of splenic enlargement and the infrequency of pyrexia, while the occurrence of bronchial asthma in every one of our patients was due to the fact that the investigation was particularly directed towards this condition.

Diagnosis.—The differential diagnosis involves the exclusion of pulmonary tuberculosis, pneumoconiosis, and bronchomycosis as causes of the respiratory manifestations, and of helminthiasis, cutaneous infestations, and certain haematological disorders in relation to the eosinophilia.

Pulmonary tuberculosis is negatived by the absence of *B. tuberculosis* in the sputum, by the haematological findings, by the lack of clinical evidence, and by the remarkable response to arsenic therapy. The diffuse and symmetrical infiltration seen in the skiagrams of the lungs is alien to tuberculosis, though the mottled appearance due to the disseminated nodular opacities may simulate miliary tuberculosis; but the spots are smaller and less clearly defined, and the linear striations more accentuated, than in miliary tuberculosis.

Pneumoconiosis was a not unlikely possibility in our patients, whose lungs showed a suggestive radiological picture after a definite history of exposure to a dusty environment. But the mottled effect and the absence of diffuse fibrotic changes in the skiagrams, the rapid restoration of normal pulmonary radiolucency after arsenic therapy, together with the fact that eosinophilia is not pathognomonic of pneumoconiosis, serve to eliminate this condition from the diagnosis.

Bronchomycosis, which might have been suggested by some of the skiagrams, was excluded by the absence of fungal hyphae or blood in the sputum, and by the therapeutic response, not to potassium iodide, but to arsenic.

Helminthiasis might play a part in the production of eosinophilia and even in producing transient localized pulmonary infiltrations as in Loeffler's syndrome, where it has been presumed that the migration of helminth larvae through the lungs may be responsible for these changes. Negative evidence of any significant helminthic infestation precluded these factors in our cases.

The possibility of cutaneous infestation, psoriasis, and eczematous and other dermatoses as causative factors in eosinophilia did not arise in any of our cases.

Eosinophilic leukaemia—a rare blood disorder associated with massive eosinophilia in which the leucocytes show evidence of immaturity in size and form—was excluded by the absence of any such abnormality in the cells seen in our cases, and by the absence of splenomegaly. Simeons has remarked that many of the eosinophils show evidence of having reached a more advanced stage of development in nucleation and lobulation.

Such anomalies as "idiopathic eosinophilia" and "hereditary eosinophilia" can be excluded on aetiological, clinical, and radiological grounds. Mite infestation might provide a satisfactory explanation of the former condition where haematological changes might be the sole reaction.

Spirochaetal agency might be suggested by the specific response to arsenic. The pre-eminent virtues of arsenic as a spirochaeticide need not preclude its therapeutic efficiency in other conditions any more than in the case of potassium iodide, mercury, or bismuth. Syphilis is not suggested in this condition by the clinical, radiological, or haematological findings. Serological tests by previous workers have provided no evidence of a syphilitic pathology in this syndrome, apart from coincidental infection in a few cases. Postulation of some obscure spirochaetal agency on grounds of the therapeutic reaction must await satisfactory confirmation. Meanwhile, the discovery of mites in the sputum of these patients is a positive factor upon which further inquiry and investigation can be based.

Treatment.—The eminently successful and often dramatic response of this syndrome to arsenical therapy is now well established. This was first observed by Weingarten in 1936, through one of his cases contracting syphilis; after four injections of neoarsphenamine the patient's subjective symptoms vanished and his eosinophilia showed a remarkable drop. In 1941 Treu obtained similar results by the trial of acetylarsan intramuscularly. Simeons used mapharside in 10% calcium gluconate with equal success. Since then other observers have confirmed the excellent therapeutic response—clinical, haematological, and radiological—to arsenic in this condition. Our present series of cases was treated by oral administration of carbarsone or stovarsol with a view to determining the value of such measures under circumstances in which facilities for parenteral therapy are not readily available, and our results justify the view that, even if the haematological response be sometimes delayed, oral treatment provides a very satisfactory means of dealing with this condition. From our experience, the period of treatment would seem to be appreciably curtailed by the use of carbarsone. Arsenic is not a new drug in the therapy of asthma. Aromatic arsenicals empirically added to asthma mixtures have given good results in the hands of the older practitioners, while more prominent success has followed the use of arsenic in organic form in recent times. The effect of this well-known parasiticidal drug in an asthmatic syndrome associated with mite infestation may well provide a possible explanation of its long-standing merits in bronchial asthma.

Pathogenesis.—The demonstration of *Tyroglyphus* and *Tarsonemus* mites in the sputum of some of our cases lends support to the discovery of Carter, Wedd, and D'Abrera already referred to. The collection and examination of sputum specimens in our series were subjected to all possible precautions against contamination by mites from extraneous sources. One other case, referred from another ward of the hospital with a mite-positive sputum report, is not included in the present series as the precautions against extraneous contamination of the sputum seemed to be of doubtful efficiency. Carter, Wedd, and D'Abrera have eliminated the possibility of the mites being derived from the mouth or nasal passages of the patients by examining several specimens of saliva and nasal washings, none of which showed mites. Controls, using distilled water without precautionary measures, were carried out at times when specimens of sputum were being collected; and vessels containing distilled water were exposed overnight in the vicinity of mite-infested patients. No mites were found in any of these controls. In all patients whose sputum contained mites the findings were confirmed by subsequent examination, while in 11 negative cases no mites were found at any time. The evidence collected by these observers strongly points to the inference that mites invade, and even breed in, the lungs and bronchi of patients, obtaining access by inhalation. We have adduced evidence to justify the inference that our patients had acquired their disability after the inhalation of mite-laden air. The majority of our cases had been exposed to dust emanating from rice and other cereals, pulses, flour, sugar, tea, coffee, cheese, dried fish, dehydrated vegetables, spices and other condiments, and various other dry rations and grocery products such as are issued in bulk through ration stores. A few patients had worked in depots where military equipment and miscellaneous articles such as linen and leather goods were stored. The frequent existence of tyroglyphid and tarsonemid mites in stores and stored products being recognized, all these patients must be regarded as having been exposed to the risk of inhalation of these mites, which were later recovered from their sputum in certain cases. Chronic respiratory disabilities are known to occur in workers exposed to inhalation of wood dust; this material is sometimes infested with fungi of various types, particularly when derived from decaying timber in dilapidated houses subject to "dry rot," and from sawdust from unseasoned woods. Mites of the genus *Glyciphagus* have been known to occur in sawdust, and this may explain the case of one of our patients, a carpenter, who had been exposed to inhalation of sawdust, chiefly from immature and unseasoned timber. In this connexion it would appear that the possibility of a similar causation in the condition that has been recently described as "bagassosis"—a respiratory affection occurring among workers in bagasse or the residue from crushed sugar-cane—deserves investigation in view of the fact that tarsonemid mites are known to occur on sugar-cane, causing serious damage to crops, while the frequency of tyroglyphid mites in sugar is notorious. In bagassosis, however, eosinophilia does not seem to occur, while spontaneous recovery from the clinical and radiological changes appears to be common. The pathogenic significance of acarine mites seems, so far, to have received but scant attention in the literature. Certain references to this subject cited by Carter, Wedd, and D'Abrera are of interest:

> "Invasion of the human alimentary and urinary tracts by tyroglyphid and tarsonemid mites has been held responsible for certain pathological effects. Various forms of dermatitis have been known to occur through mite infestation—e.g., 'grocer's itch' in workers in shops and stores where *Tyroglyphus* mites abound; 'grain itch' and 'straw itch' among those handling certain crops infested with *Tarsonemus* mites—rice and other grains, tea, sugar-cane, pineapples, etc. Cutaneous and asthmatic symptoms in mill-workers have been attributed to their handling of grain infested with the mite *Pediculoides ventricosus*. Horses fed on maize infested with *Tyroglyphus* and other mites have been reported to have sickened and died as a consequence of respiratory and alimentary disorders. Monkeys are known to harbour parasitic mites of the genera *Pneumonyssus* and *Pneumotuber* in their respiratory organs, and these mites are stated to be capable of causing serious pathological conditions."

The pathological changes underlying the present syndrome remain obscure owing to lack of knowledge as to its morbid anatomy. The condition is essentially benign, though it may run a chronic course if untreated, and the possibility of a case going to necropsy is remote, except through some fatal intercurrent complication. The views of previous observers on the possible pathogenesis of this condition have been based on certain interpretations of the haematological and radiological findings:

Frimodt-Möller and Barton have expressed the view that an allergic origin is implied by the fact that eosinophilia dominates the syndrome. Weingarten at first favoured an allergic explanation of the condition, but later decided that such an interpretation is not acceptable, and emphasized the unquestionable influence of environment as an aetiological factor. This observer has also drawn attention to the striking similarity between the distribution of the radiological mottling of the lungs and that of the bronchial tree, and considers that the mottling represents bronchopneumonic infiltration of groups of alveoli, probably caused by peribronchial lymphatic spread. Chaudhuri has suggested that a widespread pulmonary infiltration by eosinophils with large granules might explain these radiological appearances. Treu has made the observation, in reporting one of his cases in which an intercurrent pneumonia interfered with arsenical therapy but was followed by complete cure of the original condition, that the pneumonic infection might be assumed to have acted as a severe protein-shock therapy. Simeons considered that eosinophilia with the changes he has noted in the nuclei and lobulation of these cells is pathognomonic of the disease, while radiological changes in the lungs are inconstant. He has also found that injections of liver extract increase the haematological abnormality. He considers the condition identical with the "grande éosinophilie sanguinaire" of French authors.

Eosinophilia being regarded generally as the prominent feature of this syndrome, it is interesting to note that Osler has mentioned that the eosinophil count may rise as high as 53% in asthmatic patients. The view that the mottling of the lungs seen on radiological examination may be due to focal eosinophilic infiltrations obtains support from two observations—the frequent expectoration of eosinophil cells, and the concurrent disappearance of both the radiological and the haematological abnormalities after treatment. Although massive eosinophilia and radiological mottling of the lungs are frequent and dominant features in this syndrome, the view that they are essential characters of the condition remains open to question, for atypical variations lacking one or both of these features would seem possible:

In 5 of the mite-positive cases examined by Carter, Wedd, and D'Abrera the blood picture was normal; in 5 others eosinophilia of 6% to 12% was observed. We have seen spontaneous remission of the clinical and haematological condition in 3 patients, one of whom (Case 22) later returned with a recurrence, the others (not included in the present series) being still under observation. Weingarten has remarked that radiography in chronic cases shows only pulmonary changes identical with chronic catarrhal bronchitis. This was also evident in a few of our cases, particularly among patients with mild clinical manifestations. Since our investigations were started several asthmatic patients admitted to other wards of this hospital with eosinophil counts of from 3% to 15% and no characteristic radiological appearances, who have failed to respond to routine treatment, have been successfully treated with arsenic. The number of asthmatic patients discharged cured from this hospital has shown an appreciable rise, while the number of men invalided out of the Army for this condition has correspondingly declined, since the introduction of pentavalent arsenic therapy.

If the view advanced by Carter, Wedd, and D'Abrera that this syndrome may, in part at least, be explained on the basis of mite infestation of the respiratory system be accepted, the question that next arises concerns the role of the mites in the pathogenesis of the condition. Even if the asthmatic symptoms be interpreted as due to reflex irritation of a hypersensitive bronchial system, the eosinophilia does not bear explanation in these terms, and an allergic causation would seem to be the more likely explanation. German authorities, cited by Carter, Wedd, and D'Abrera, have expressed the opinion that alimentary, respiratory, and cutaneous disorders may result as allergic reactions to infestation with tyroglyphid mites. Further research is necessary, and doubtless will be forthcoming, to ascertain whether the mites occurring in the sputum of patients suffering from this syndrome are capable of producing a respiratory allergen—as, for example, some exotoxin or other secretion.

In the light of present knowledge this syndrome, which has hitherto been recognized as a fairly common tropical respiratory disease of obscure aetiology and pathology, would appear to be due, in some cases at least, to pulmonary acariasis caused by the inhalation of a mite-laden atmosphere and possibly inducing allergic reactions in the respiratory system. Although our investigations have so far concerned patients who have lived or worked in obviously mite-infested surroundings, such as ration stores, the liability to pulmonary acariasis from less evident and unsuspected sources must not be overlooked, for mites are widely distributed.

While living in an old house in Colombo, long ago, one of us (E. S.) developed asthma, which cleared up with a change of residence. Another occupant of that house was badly affected with asthma for many years. About thirty years later a medical colleague went to live in the same house, and he, too, developed asthma, which left him when he moved from there. This seems more than mere coincidence, and some obscure factor in the environment of that house—e.g., some constituent in the house dust or some particular flowers in its garden—must have been responsible for the asthma. Flowers have borne their share of blame for causing asthma over many decades. Mites are recognized pests of various cultivated plants and flowers; orchids, grown so freely in tropical gardens, and certain fragrant flowers much in vogue for personal adornment, household decoration, and temple offerings, are notable examples of this. The inducement offered by flowers to inhale their perfume has no doubt enhanced the reputation of their pollen as an asthmogenic agent. May it not be likely that mites harbouring in flowers are justly entitled to some share of this reputation?

The possible coexistence of pulmonary acariasis with other lung affections cannot be overlooked. Three cases of asthmatic bronchitis now under observation in this hospital, but not included in our present series, have shown eosinophilia with radiological evidence suggestive of tuberculous infiltration of the lungs; in one case the presence of both *B. tuberculosis* and *Tyroglyphus* mites in the sputum has been demonstrated. Mites have been found in the sputum of two cases of pulmonary tuberculosis recently examined at the Civil Medical Entomological Department of Ceylon.

In conclusion, the possibility that pulmonary acariasis may be responsible for other respiratory disorders besides asthma should not be ignored. Though our present investigations, for reasons already stated, were restricted to patients suffering from asthma, some of the cases described by previous observers as “pseudo-tuberculosis,” “tropical eosinophilia,” “eosinophil lung,” etc., have not been typical of bronchial asthma. Such cases, particularly when associated with a suspicious aetiology and resistance to orthodox therapeutic measures, might well be manifestations of pulmonary acariasis. The treatment of all such cases, whether asthmatic or otherwise, by the administration of pentavalent arsenicals is eminently worthy of consideration not only in the Tropics but anywhere that mites exist.

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THE URINARY ELIMINATION OF NICOTINAMIDE METHOCHLORIDE IN SUBJECTS WITH NORMAL GUMS AND WITH ACUTE AND CHRONIC GINGIVITIS

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The apparent similarity of acute ulcero-membranous gingivitis to pellagrous lesions of the mouth led Platt (cf. King, 1940) to suggest that nicotinic acid deficiency might play a part in the aetiology of the former condition. Subsequently King (1940, 1943, 1944) investigated the therapeutic effect of nicotinic acid and its amide on both acute and chronic gingivitis, and found that these compounds were highly beneficial. Other workers, however, have been unable to confirm these findings (Miller, Greenhut, and Roth, 1940; Ungley and Horton, 1943).

It was noted by Najjar and co-workers (1940, 1941a, 1941b, 1942) that a fluorescent pigment, “F_2,” could be obtained from the urine of normal dogs and normal human beings. The amount obtained was increased after the ingestion of nicotinic acid and several related compounds, but the pigment was absent from the urine of pellagrins and from that of dogs suffering from black-tongue. Further work (Huff and Perlzweig, 1943) suggested that “ F_2 ” was nicotinamide methochloride, but two of us (Ellinger and Coulson, 1943; Coulson and Ellinger, 1943) have shown that nicotinamide methochloride in aqueous solution was non-fluorescent, that the substance present in the urine was also non-fluorescent, that this urinary substance was identical with nicotinamide methochloride, which gave rise to fluorescent “ F_2 ” after alkalinization and transfer to isobutanol, and that fluorescent “ F_2 ” is probably a mixture of the *p*- and *o*-carbinol of N-methyl-dihydro-nicotinamide.

Before the nature of the compound had been established a method of assay for “ F_2 ” in urine which gave relative but not absolute results was developed (Coulson, Ellinger, and Platt, 1942; Coulson, Ellinger, Glock, and Platt, 1942). Recently Coulson, Ellinger, and Holden (1944) have developed a quantitative method of assay for urinary nicotinamide methochloride. This method of assay forms the basis of a convenient test to indicate the nicotinamide level of the body.

This paper, which reports part of an investigation into gingivitis in the Royal Air Force initiated by Air Marshal Sir H. E. Whittingham, Director-General of Medical Services, presents the results obtained from the estimation of nicotinamide methochloride in the urine of subjects with gingivitis and those with normal gums.

Methods

Chemical.—(*a*) During the earlier part of the investigation, the composition of “ F_2 ” or its precursor not having been determined, the method of assay which was used gave results in arbitrary units comparable with each other. (*b*) Subsequent to the identification of the precursor of “ F_2 ” the quantitative method developed by Coulson, Ellinger, and Holden (1944) was used for the assay of urinary nicotinamide methochloride. The results of the first method cannot be converted into absolute values, since other factors, such as urinary electrolyte content, which were found to influence the assay, were controlled in the second method but not in the first.

The principle of both methods of assay is as follows. Aliquot portions of urine, the excretion rate of which was known, were absorbed on a Decalso column, which was subsequently washed with water and eluted with potassium chloride. The eluate was divided into two halves, both of which were extracted with isobutanol, one after alkalinization with sodium hydroxide. The alkaline extracts were fluorimetrically compared with standards, while the neutral extracts served as reagent blanks.

Clinical.—The gums of all subjects who took part in this investigation were examined, and were classified into the following groups, described in greater detail by Smart (1944). A: Normal. B: Non-ulcerative gingivitis. C: Gums without an active lesion, but which showed evidence of past inflammation and tissue destruction. D: Chronic ulcerative gingivitis. E: Acute ulcero-membranous gingivitis and gingivo-stomatitis, (i) arising on gums which appeared to have been previously healthy, (ii) arising on gums with evidence of former inflammation or ulceration.

Experimental.—The investigations may conveniently be divided into two groups, according to the method of assay employed for urinary nicotinamide methochloride.

(i) *Those investigations in which the earlier, relative method of assay was used were carried out at each of 4 Royal Air Force stations (I, II, III, and IV)*.—A random sample from all the airmen at each station was examined. The gums of these subjects were classified into the groups described above, and each person with gingivitis, together with the next with normal gums, was selected for the purpose of the experiment. Each was instructed to collect the whole of the urine which he passed on waking in the morning, to note the time of this collection, to note the time at which the bladder was last emptied on the previous night, and to estimate the muscular energy required for the duties performed on the day preceding that on which the urine was collected. The volume of each of these specimens was measured and samples were sent to the Lister Institute for assay. This was repeated, where possible, on three successive mornings, but leave, postings, duties, etc., made this impracticable for a number of subjects. A few gave data that were either incomplete or were suspected of being inaccurate.

(ii) *Investigations on groups of subjects—R.A.F. and civilians—in which the urinary content of nicotinamide methochloride after the oral intake of nicotinamide was quantitatively determined*.—It had been found that the daily variation in the early morning urinary content of nicotinamide methochloride was so great that an attempt was made to develop a test which gave more consistent results. This was obtained by following the urinary nicotinamide methochloride content after the ingestion of a test dose of nicotinamide. Consistent results have also been obtained from 24-hour samples, but it was impracticable to collect such samples from airmen on duty or from out-patients. In preliminary experiments 200 mg. of nicotinamide was given by mouth, the urine being collected immediately before this test dose and at intervals afterwards. It was found, however, that a considerable time (over 13 hours) elapsed before the urinary nicotinamide methochloride returned to normal levels, and it was impracticable to observe the subjects for such a long period. Satisfactory results were obtained by giving a test dose of 100 mg. nicotinamide by mouth and determining the amount of the methyl derivative eliminated in the urine during the following 7 hours, at the end of which period the level had returned almost to normal. This test was carried out on two groups of healthy laboratory workers, on a group of airmen, on a group of civilians who were attending the Newcastle-upon-Tyne Dental Hospital with acute ulcero-membranous gingivitis, on a group of healthy adults living in the Newcastle-upon-Tyne district, on a group of medical in-patients in the Royal Victoria Infirmary, Newcastle-upon-Tyne, and on four housemen, residents at this hospital. In addition, in all but one of these groups of subjects the test dose of nicotinamide was repeated on five successive mornings, and the amount of nicotinamide methochloride eliminated in the urine for 7 hours thereafter was determined on any of these days which was found to be practicable.

Results

Table I summarizes the results obtained from airmen at Stations I, II, III, and IV. The mean values are lower in those groups with gingivitis than in those with normal gums. The difference is not statistically significant on any one station, but the probability is approximately 50 to 1 against chance selection resulting in the difference between the average for all normal personnel and for all those with gingivitis.

The results obtained during the preliminary tests on groups receiving 200 mg. nicotinamide are given in Table II. No difference was found to exist in the urinary content of nicotinamide methochloride of airmen with non-ulcerative gingivitis, Type B, and those with normal gums, during the two hours after the ingestion of 200 mg. nicotinamide. Civilians suffering from acute ulcero-membranous gingivitis, Type E, however, had lower initial levels, and their response to 200 mg. nicotinamide was less than that of either group of airmen.

TABLE II.—*Mean Nicotinamide Methochloride Urinary Content in µg./hr. among Civilians at Newcastle-upon-Tyne with Type E Gingivitis and among Airmen with Normal or with Type D Gums, before and after the Oral Intake of 200 mg. Nicotinamide*

	Immediately before Nicotinamide	1 Hour after Nicotinamide	2 Hours after Nicotinamide	Nos. Examined
Type E civilians ..	32·3	709	1,203	21
Type B airmen ..	158·6	4,406	7,207	10
Normal airmen ..	158·6	3,248	7,144	10

Table III gives the results obtained from those groups who received 100 mg. nicotinamide. After the first test dose the group of airmen had the highest urinary output of nicotinamide methochloride, the hospital residents were next, and they were followed by the two groups of laboratory workers. There was no significant difference in the responses of Newcastle working-class patients with healthy gums and of those with acute ulcero-membranous gingivitis, both of which were lower than that of the other groups. Neither the airmen nor the hospital in-patients showed any increase in the response after successive doses of nicotinamide, but an increase was found among the laboratory workers, hospital residents, and patients with Type E gingivitis.

TABLE III.—*Average Nicotinamide Methochloride Elimination, in mg., during a 7-hour Period after the Intake of 100 mg. of Nicotinamide for One Day or for Five Consecutive Days*

Group	No. of Subjects	Nicotinamide Methochloride (mg.)				
		Day 1	Day 2	Day 3	Day 4	Day 5
Healthy lab. workers I ..	10	14·87	—	—	19·14	—
Healthy lab. workers II ..	8	15·18	—	21·73	—	22·25
Airmen, edentulous, with normal gums or Type B gingivitis	18	22·80	—	19·26	—	22·36
Hospital residents (normal gums)	4	19·34	—	—	—	36·22
Hospital in-patients ..	12	11·24	11·70	12·82	12·02	10·27
Healthy working-class subjects	6	8·43	—	—	—	—
Subjects with Type E gingivitis	8	10·44	—	—	—	—
	9	9·37	—	—	—	14·64

Discussion

Since, as stated by Najjar and Holt (1940, 1941a, 1941b, 1942), no fluorescent "F_2" pigment can be obtained from the urine of pellagrins or from that of dogs suffering from

TABLE I.—*Mean "F_2" Content of Night Urine, in Arbitrary Units, among Airmen at Four Royal Air Force Stations, Grouped according to Gum Conditions*

Camp	Date (1943)	No. of Exams.	Mean F_2 Output in Arbitrary Units	Gums									
				Normal		Abnormal							
				A		B		C		D		Total	
				No.	Mean	No.	Mean	No.	Mean	No.	Mean	No.	Mean
Fighter Station I	Feb. 2, 3, 4	86	7·14	45	9·90	24	2·65	5	2·90	12	7·50	41	4·10
Fighter Station I	May 5, 6, 7	140	3·72	90	3·79	38	4·32	3	1·10	9	1·42	50	3·61
Fighter Station II	Feb. 16, 17, 18	91	7·45	46	8·37	31	7·32	8	4·30	6	5·30	45	6·51
Bomber Station III	March 3, 4, 5	122	6·84	66	7·75	49	5·75	—	—	7	5·84	56	5·77
Bomber Station III	June 9, 10, 11	117	4·21	56	5·17	48	3·15	3	10·70	10	2·03	61	3·33
Bomber Station IV	March 10, 11, 12	123	4·78	65	4·72	48	4·86	1	1·10	9	5·28	58	4·85
Totals		679	5·50	368	6·22	238	4·71	20	4·28	53	4·59	311	4·66

black-tongue, and since the ingestion of nicotinamide, nicotinic acid, or various related compounds results in an increase in the urinary content of "F_2," it is reasonable to suppose that a measure of the urinary elimination of this substance would provide some indication of nutritional status so far as nicotinamide is concerned. Other factors have been found, however, which influence considerably the amounts of "F_2" found in the urine (Ellinger and Coulson, 1944), and in order to lessen their effects early morning specimens of urine were used for the assay during the earlier part of the investigation.

As can be seen from Table I, a difference ($P=0.02$) was found in the urinary "F_2" output of airmen with gingivitis, for the most part Type B, and of those with normal gums. However, the difference is small and the statistical significance is not high. Furthermore, very great daily variations were observed, not only in individuals but also in groups (Table IV shows the results obtained on three successive days at R.A.F. Station IV), and the amount of physical energy expended during the previous day was also observed to affect the urinary excretion, as can be seen from Table V. It is therefore concluded that no aetiological significance can be attached to the slight difference in early morning urinary "F_2" found between airmen with normal gums and those with gingivitis.

TABLE IV.—*Percentage of Airmen (Station IV) Falling into Each of Four Urinary "F_2" Levels on Three Successive Days*

Urinary "F_2" Arbitrary Units	→ 3·4	3·5–6·9	7·0–10·7	10·5 →	Total No. Examined
Day 1	27·6	27·6	23·4	21·3	47
Day 2	65·9	29·5	2·3	2·3	44
Day 3	42·5	40·0	7·3	10·0	40

TABLE V.—*Mean "F_2" Content of Night Urine in Arbitrary Units, from Airmen Grouped according to Previous Day's Work*

Camp	Date, 1943	Work					
		Heavy		Medium		Light	
		No.	Mean	No.	Mean	No.	Mean
Fighter Station I	May 5, 6, 7	15	3·87	98	3·83	28	2·44
Bomber Station III	Mar. 3, 4, 5	26	7·42	68	6·44	30	3·78
Bomber Station III	June 9, 10, 11	40	3·40	70	4·82	20	2·88
Bomber Station IV	Mar. 10, 11, 12	23	7·60	64	4·32	29	3·54
Totals ..		104	5·40	300	4·75	107	3·20

So many variables, known and unknown, affected the early morning urine content of nicotinamide methochloride that it was considered necessary to develop a more satisfactory test. It has been found more suitable to estimate the amount of methochloride which is eliminated in the urine during the 7 hours after the ingestion of nicotinamide. Not only are the results obtained consistent on different occasions in individuals with routine habits, but the variation is not great between individuals living under similar conditions. Among 18 airmen living at the same station and eating at the same mess, the mean urinary output of nicotinamide methochloride during the 7 hours after the ingestion by mouth of 100 mg. nicotinamide was 22.8 mg., with a standard deviation of 5.64 mg. and a coefficient of variation of 24.75. The same men were examined on three separate days, and Table VI shows that the individual variation was not great, each man's urinary output of methochloride from day to day tending to remain in the same position relative to the group as a whole. Furthermore, the results obtained from pellagrins give very low values (unpublished data, Ellinger and Benesch); one subject suffering from alcoholic peripheral neuritis whom we have examined eliminated only 3.76 mg., and groups which for social and economic reasons might be expected to be better fed had higher values than groups whose conditions were less satisfactory. It is therefore reasonable to suppose that this test forms a fairly reliable index of nicotinamide nutrition, although other factors do probably influence the results.* No reasons can yet be given for the different reactions of the various groups of subjects to repeated doses of nicotinamide.

TABLE VI.—*Correlation in Urinary Nicotinamide Methochloride Output of 18 Airmen for 7 Hours after receiving 100 mg. Nicotinamide on Three Separate Days*

Group	Means (mg. Nicotinamide Methochloride)		
	Day 1	Day 3	Day 5
A. (The four airmen with lowest outputs on Day 1)	15·9	12·0	14·8*
B. (The five airmen with next lowest outputs on Day 1)	21·0	20·2	21·6
C. (The five airmen with highest outputs on Day 1, excluding those in Group D)	23·7	19·2	19·9
D. (The four airmen with highest outputs on Day 1)	30·3	25·4	32·7
Totals	22·8	19·3	22·4

* Only three airmen of this group examined on this day.
Correlation ratios: Days 1 and 3, + 0·78; Days 2 and 3, + 0·82. (Derived from individual outputs.)

It can be seen from Table III that, within the same groups, there is no significant difference between those with gingivitis Type B or Type E and normal subjects. In view of this, it is concluded that it is unlikely that nicotinamide deficiency played any important part in the development of gingivitis of any type in the subjects who were examined during this investigation. These conclusions are supported by the results obtained after the ingestion of 200 mg. nicotinamide (Table II), but, for reasons stated above, it was found to be impracticable to continue this test.

Summary

The amount of nicotinamide methochloride in the early morning urine of airmen with normal gums was found to be higher than in the urine of those with various types of gingivitis. This difference, although statistically significant, was not considered to be of aetiological importance, since other factors were observed to have a marked influence on the results.

A test has been described which is considered to give a fairly reliable indication of the state of nicotinamide metabolism.

The results obtained with this test were related to standards of feeding. Those getting the best food eliminated the greatest quantities of nicotinamide methochloride after a test dose of 100 mg nicotinamide.

Among subjects who had similar standards of feeding—i.e., who were in the same economic or social class—the response of urinary methochloride to 100 mg. nicotinamide was the same whether gingivitis was present or not.

It is concluded that nicotinamide deficiency probably did not play any part in the development of gingivitis of any type among the subjects examined.

We wish to thank Air Marshal Sir H. E. Whittingham for providing facilities and for his interest and encouragement; Air Cdre. T. McClurkin, Director of Hygiene, for constant and ready help in the organization of the experiments; Wing Cmdr. T. F. Macrae, who inspired much of the work; Dr. B. S. Platt, for taking part in devising the experimental scheme; Dr. Bradford Hill, for help in sampling and for advice concerning the statistical evaluation of the results; Prof. R. V. Bradlaw, for granting exceptional facilities at the Dental Hospital, Newcastle-upon-Tyne; the commanding officers, medical and dental officers of the Royal Air Force stations at which the experiments were carried out; members of the research and technical staff of the Lister Institute, for volunteering as experimental subjects; and Corp. A. E. Wrigglesworth, W.A.A.F., for technical assistance.

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* The importance of the intestinal flora for the nicotinamide requirements of man has been described by Ellinger, Coulson, and Benesch (1944).

THE ERYTHROCYTE SEDIMENTATION RATE IN INFECTIVE HEPATITIS AND IN MALARIA

BY

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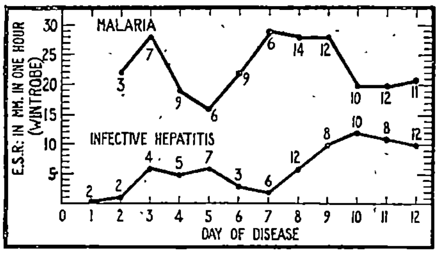
In his lucid and balanced survey of the problems confronting us concerning infective hepatitis Witts (1944) writes: "A major difficulty in the pre-icteric stage is the differentiation from clinical malaria . . . and a simple laboratory test for infective hepatitis would be an immense help." It is the purpose of this short paper to show that in the erythrocyte sedimentation rate we already have such a test at our disposal, subject to its usual limitations, especially as an aid in the differentiation mentioned.

The behaviour of the E.S.R. in 35 unselected cases of infective hepatitis was normal during the first week or ten days, whether there was fever or not. It rose slowly and steadily during the period of biliuria, to reach a maximum commonly between 15 and 30 mm. in one hour (Wintrobe). During the stage of recovery, when the urine was free from bile, the E.S.R. returned slowly to normal, a minority of cases showing further acceleration before this occurred. These conclusions were supported by sporadic readings in other cases, especially the fact that the E.S.R. was normal or low in the febrile or pre-icteric phase, and below 10 during the first week. The accompanying Graph depicts average readings on each day of the disease up to the twelfth day. The numeral above each reading indicates the number of cases from which an average was obtained. This graph does not distinguish febrile from afebrile cases.

The behaviour of the E.S.R. in malaria is in sharp contrast. The Graph shows the average difference during the first 12 days, the malaria graph being constructed in the same way as that just described for infective hepatitis. As no essential difference was observed between M.T. and B.T. cases, nor between fresh attacks and cases of relapse, they have all been shown as one group. The general trend was confirmed by single readings in other cases. The diagnosis rested on a positive blood smear in every instance, and treatment with quinine, gr. 10 t.d.s., was started as soon as it was made. It is not known whether this influences the test; many of the cases had mepacrine also. During the first 10 days the E.S.R. ranged between 12 and 60 mm. in one hour in 28 cases, and was below 10 in only 4; if cases in which only one estimation was made are added, these figures become 43 and 8 respectively. In other words, the E.S.R. during the first 10 days of malaria was over 10 in 84% of 51 cases.



In the infective hepatitis cases, during the first 10 days the E.S.R. was below 10 in 25 instances, and ranged between 10 and 20 in 5; if cases in which only one estimation was made are added, these figures become 30 and 5 respectively. Thus during the first 10 days of infective hepatitis the E.S.R. was under 10 in 86% of 35 cases, and was never higher than 20. In malaria it fell between 20 and 60 mm. in one hour in 23 out of 32 cases, or in about two-thirds of them.

The slow E.S.R. in the early phase of infective hepatitis serves to distinguish it from certain other fevers, but further work is required in this field. The important thing is that in the E.S.R. and in the white count we have two non-specific tests which serve to place a P.U.O. into a certain class or group. It would be helpful if other non-specific group tests could be discovered which would further narrow down the field of differential diagnosis. No attempt was made to investigate the cause of the slow rate in infective hepatitis. It may depend upon the relationship of liver function to fibrinogen and to the serum albumin–globulin ratio.

It was found that the raised E.S.R. in malaria may persist for several weeks. This may be of value in helping to decide whether a case treated as clinical malaria really was malaria or some short-term fever. Of 72 measurements made between the 10th and 20th days in malaria, 60 ranged between 11 and 53 mm. in one hour and 12 were 10 mm. or under—i.e., 84% were raised, often considerably. In a group of 42 cases of short-term fever in North Africa and Italy, without physical signs and with no localizing or upper-respiratory-tract symptoms, the E.S.R. was normal by the end of the first week in 30, and was approaching normal and was under 20 by the end of the second week in the remainder. Some of these cases were probably sandfly fever.

Conclusion

The E.S.R. is shown to be of value in the early diagnosis of infective hepatitis, especially in its differentiation from clinical malaria.

In the first 10 days of infective hepatitis about 85% of cases have an E.S.R. below 10 mm. in one hour (Wintrobe). In the first 10 days of malaria about 85% of cases have an E.S.R. above 10 mm.

An E.S.R. above 20 mm. in one hour during the first week of a P.U.O. practically excludes infective hepatitis; on the other hand, such a reading occurs in about two-thirds of all cases of malaria during the first week.

The E.S.R. serves to distinguish clinical malaria from short-term fevers of uncertain aetiology. In malaria the acceleration is maintained for at least two or three weeks in about 84% of cases; in short-term fevers the E.S.R. is commonly normal within one or two weeks of the onset.

I wish to thank the medical officers in my division for their co-operation in this investigation; the work was theirs, not mine.

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TREATMENT OF PLACENTA PRAEVIA, WITH SPECIAL REFERENCE TO THE USE OF WILLETT'S FORCEPS

A REPORT ON 134 CASES

BY

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Methods of Treatment

Broadly speaking, the present-day methods of treatment of placenta praevia may be summarized under two main headings:

1. *Methods which Aim at the Control of Haemorrhage by Producing Pressure on the Bleeding Area.*—An essential feature of these methods is the maintenance of the pressure until full dilatation of the cervix allows of delivery of the child *per vias naturales.* The various methods of producing pressure on the placental site include:

(*a*) *Version.*—In England probably more cases have been treated in the past by "early version and slow extraction" than by any other means. Version (external, bipolar, or internal, in order of preference) is performed, one leg is brought down, and bleeding ceases under the pressure exerted by the half-breech on the placental area. Results in large series of cases show an average maternal mortality of about 7% and a foetal mortality in excess of 70%.

(*b*) *Bag.*—Another method of producing pressure—not very popular in England—is by the insertion of a de Ribes bag or metreurynter through the ruptured membranes. Mild traction on the filled bag produces compression of the placenta against the wall of the lower uterine segment. Reports in the literature show a similar maternal mortality to that seen in version, but a somewhat lower foetal mortality.

(c) *Willett's Forceps.*—In 1925 Willett introduced a simple and effective method of producing pressure on the placenta by fixing a toothed forceps to the scalp of the child and exerting slight continuous traction on the head. The chief advantage claimed for this method is that the foetal mortality is brought down to about 50% or even lower, and that the maternal death rate is reduced to about 3.5%.

(d) *Rupture of the Membranes.*—In a fair proportion of less serious cases rupture of the membranes alone allows of the descent of the head on to the dilating cervix, and the pressure produced by uterine action is sufficient in itself to stop the haemorrhage. In cases in which this simple treatment suffices the maternal mortality drops to about 2%, and a foetal mortality in the region of 30% is found.

2. *Caesarean Section.*—This method represents a much more radical approach to the problem, and was first used in England for the treatment of placenta praevia by Lawson Tait in 1898. After the abdominal delivery of the child, preferably by the lower-segment operation, removal of the placenta is carried out under direct vision and the haemorrhage automatically ceases. This is undoubtedly the method of choice in patients with central and marginal placenta praevia whose general condition is relatively good and in whom sepsis is not a complicating factor. Large series of cases show maternal mortalities varying from 0 to 6.4% and foetal mortalities ranging between 10.5 and 24.5%.

In exsanguinated patients blood transfusion plays a part of the greatest importance, both during and after labour, and has saved many lives in borderline cases. Vaginal packing, formerly employed so frequently, has now fallen virtually into disuse, and is resorted to only on rare occasions when the violence of the haemorrhage makes it essential to use it as a temporary measure.

In Hong Kong, during the period 1936 to 1941, 134 cases of placenta praevia were treated by the university obstetrical unit, with only one maternal death (0.75%) and a combined stillbirth and neonatal death rate of 54.0%. This represents a placenta praevia incidence of 1 in 128, or 0.78% of the 17,099 cases delivered during that period. The main forms of treatment employed were, in order of frequency, Willett's forceps, rupture of the membranes, version, and Caesarean section. An analysis of these cases presents certain features of interest in relation to the indications for the various forms of treatment (see Table I).

TABLE I.—*Treatment Used in 134 Cases of Placenta Praevia of All Types*

Method of Treatment	No. of Cases	Result to Mother		Result to Child		
		Living	Dead	Living	S.B.	N.D.
Willett's forceps ..	46	45 (97·8%)	1 (2·2%)	20 (44%)	16 (34%)	10 (22%)
Rupture of membranes	42	42 (100%)	—	27 (63%)	8 (18·5%)	8* (18·5%)
Version	28	28 (100%)	—	2 (7%)	23 (82%)	3 (34%)
Caesarean section ..	18	18 (100%)	—	13 (72%)	1 (5·5%)	4 (22·5%)
Totals	134	133 (99·25%)	1 (0·75%)	62 (46%)	48 (35·5%)	25* (18·5%)

S.B. = Stillbirth. N.D. = Neonatal death.
* Figures include premature twins.

The type of treatment used was found to depend very largely on four factors: (*a*) the variety of placenta praevia; (*b*) the condition of the cervix on admission; (*c*) the amount of bleeding already sustained by the patient; (*d*) the presence or absence of sepsis. Other factors, such as the parity of the patient, the duration of the pregnancy, the presentation of the foetus, and the existence of additional obstetrical complications, were naturally of importance also in deciding upon the treatment to be employed in individual cases.

The relation between the variety of the placenta praevia and the treatment used is shown in Tables II, III, and IV, dealing with the results in central, marginal, and lateral placenta praevia respectively. It will be noted that 16% of the 134 cases were central placenta praevia, and that there were 40% of the marginal and 44% of the lateral varieties respectively. Broadly speaking, the tables show that Caesarean section was the treatment favoured in central placenta praevia; that Willett's forceps were used most frequently in marginal cases; and that more conservative measures, such as rupture of the membranes, had the most prominent place in dealing with cases of lateral placenta praevia.

TABLE II.—*Treatment of 21 Cases of Central Placenta Praevia*

Method of Treatment	No. of Cases	Result to Mother		Result to Child		
		Living	Dead	Living	S.B.	N.D.
Caesarean section ..	15	15	—	12	—	3
Willett's forceps ..	3	2	1	1	2	—
Version	3	3	—	—	3	—
Totals	21	20	1	13	5	3

TABLE III.—*Treatment of 54 Cases of Marginal Placenta Praevia*

Method of Treatment	No. of Cases	Result to Mother		Result to Child		
		Living	Dead	Living	S.B.	N.D.
Willett's forceps ..	28	28	—	10	10	8
Version	14	14	—	1	12	1
Rupture of membranes	10	10	—	5	2	3
Caesarean section ..	2	2	—	1	—	1
Totals	54	54	—	17	24	13

TABLE IV.—*Treatment of 59 Cases of Lateral Placenta Praevia*

Method of Treatment	No. of Cases	Result to Mother		Result to Child		
		Living	Dead	Living	S.B.	N.D.
Rupture of membranes	32	32	—	22	6	5*
Willett's forceps ..	15	15	—	9	4	2
Version	11	11	—	1	8	2
Caesarean section ..	1	1	—	—	1	—
Totals	59	59	—	32	19	9*

* Figures include premature twins.

The method of treatment employed was also influenced to a very large extent by the state of the cervix on admission. Under the conditions prevailing in Hong Kong patients tended to delay coming to the hospital until repeated haemorrhages had taken place, by which time outside examinations had frequently been done and active labour was very often in progress. In the present series of cases it was found that only 22% of the patients were not in labour at the time of admission. Of the remainder, 36% showed varying degrees of cervical dilatation up to 5 cm. (half dilatation), and the other 42% had a cervix which was from half to fully dilated. As many as 22% showed a fully dilated cervix on admission. These facts explain the relatively low incidence of Caesarean section in the series, the operation often being contraindicated in an exsanguinated patient actively in labour and already potentially infected. Caesarean section was chiefly reserved for cases of central placenta praevia with little or no dilatation of the cervix, and in no case was the operation performed when the cervix was more than half dilated. Willett's forceps were most frequently applied when the cervix was 4 cm. (two fingers) dilated, which was the case in about one-half of the applications. In 25% the diameter of the cervix was less than 4 cm. and in the remaining 25% it was greater than 4 cm. at the time the treatment was applied. Version was relatively seldom used on account of the satisfactory results obtained with Willett's forceps, but in the majority of the cases in which it was employed it was reserved for patients in whom the cervix was more than half dilated. In a large number of those with an advanced degree of cervical dilatation simple rupture of the membranes sufficed to control the haemorrhage, particularly in cases of lateral placenta praevia.

The measured or estimated amount of blood loss in this series of cases averaged 912 c.cm. in central placenta praevia. 623 c.cm. in the marginal cases, and 490 c.cm. in the lateral variety. Losses ranged in individual instances from 120 c.cm. to 2,200 c.cm. Blood transfusion was indicated and carried out in numerous cases, but in spite of the routine performance of blood grouping it was not always possible to obtain donors, and massive infusions of saline and glucose had to be substituted on many occasions. Actually, however, no death from haemorrhage occurred in this series.

The presence of sepsis, whether real or potential, was not infrequently of decisive importance in regard to the treatment employed. In this group of 134 cases only 16 had received any antenatal care, thus giving a proportion of 12% booked cases to 88% emergency cases. In many instances outside examinations had been done by unskilled persons, and potential, if not actual, infection was therefore present. Under these circumstances Caesarean section was ruled out in a large number of patients who would otherwise have been suitable candidates for the operation. Version carried with it the risks of intra-uterine manipulation. Use of Willett's forceps came to be regarded as the least risky measure for the patient, if simple rupture of the membranes failed to control the bleeding. The single death in the series was due to sepsis in an emergency case of central placenta praevia complicated by a Bartholin's abscess.

Results

The results of the various methods of treatment are shown in the above tables.

Caesarean section is undoubtedly attended by the best results for both mother and child, and is the treatment of choice in cases of central placenta praevia and severe cases of marginal placenta praevia. In the 18 cases of this series there was no maternal death and only one stillbirth, but there were 4 neonatal deaths—an unduly high figure which was mainly due to prematurity and malnutrition. For the reasons detailed above Caesarean section was not performed more often. Caesarean hysterectomy was done in one case (a 7-para aged 37) on account of persistent haemorrhage from an atonic uterus after removal of the placenta.

Rupture of the membranes, with or without other conservative measures, such as the application of an abdominal binder and the occasional use of low forceps, gave the next best results. The 42 cases in which this treatment was used were, however, the less severe ones, as evidenced by the fact that the average blood loss was only 480 c.cm. in this group. In many cases in which it had been intended to apply Willett's forceps it was found that the simple rupture of the membranes sufficed to control the haemorrhage and that further treatment was unnecessary. No maternal mortality occurred in these cases, and there was a 63% survival rate of the infant.

Version.—This method was used in 28 cases, and, although attended by no maternal deaths, it showed the customary unfavourable result for the child. There were 23 stillbirths, 3 neonatal deaths, and only 2 surviving children. The average amount of blood lost by the mother during labour was 545 c.cm.

Willett's Forceps.—This method of treatment was employed in 46 of the patients. There was one maternal death in a bad case of central placenta praevia with a discharging Bartholin's abscess containing positive cultures of gonococcus, *Staph. albus*, and *Str. faecalis*. Caesarean section was contraindicated, and as a last resort Willett's forceps were applied. Delivery was effected with a blood loss of only 600 c.cm., but the patient succumbed to sepsis on the seventh day of the puerperium. With this single exception all the mothers survived. The average maternal blood loss was 650 c.cm., and the haemorrhage usually ceased dramatically on the proper application of Willett's forceps with light traction. Of the babies, there was a survival rate of 44%, and there were 34% stillbirths and 22% neonatal deaths. Prematurity and asphyxia accounted for nearly all the cases of infant death. It must be borne in mind, also, that the nutritional standard of the mothers was generally very low and that many of them were suffering from beriberi—a factor which undoubtedly had an influence on the foetal death rate. In the great majority of cases the punctured scalp wound healed rapidly with no complications, and was often difficult to detect on the day after delivery. In a few cases a cephalhaematoma developed beneath the site of application of the forceps. In one case a baby of 38 weeks' maturity, weighing 4½ lb., developed infection of the scalp and died on the eighth day.

Discussion

While it is granted that, under ideal conditions, the most favourable results in the treatment of placenta praevia are to be obtained by the judicious use of Caesarean section, the obstetrician must be prepared to treat cases under less favourable conditions, where the operation is contraindicated. The above series of cases is of interest in that it represents a group in which less favourable conditions prevailed. Caesarean section was frequently ruled out on account of the presence of sepsis and other complications, and was therefore used in only 14% of the series. In the treatment of cases in which delivery by the vaginal route must be undertaken, it is our opinion that Willett's forceps should occupy a leading place.

In 1925 J. A. Willett first described the forceps that have been called by his name, and they have been used more or less extensively since that date. Modifications of the instrument have been introduced by Gauss (1934) and DeLee (1939). Of recent years, however, there has been a tendency to decry the use of the forceps. Bourne and Williams (1939) stated that "Willett's forceps have fallen somewhat into disuse, but are still of value in the treatment of lateral or marginal cases in which artificial rupture of the membranes and the application of a binder have proved insufficient to control haemorrhage." F. J. Browne (1939), after an experience of two cases in which the use of the forceps was followed by *B. welchii* infection of mother and foetus, has gone so far as to conclude that Willett's forceps should have no place in the treatment of placenta praevia, in spite of the fact that the maternal mortality of 252 reported cases was only 3.5% and the foetal death rate 46.4%.

The *disadvantages* of Willett's method are: (*a*) It is only applicable to vertex presentations. (*b*) The forceps may pull off, but this seldom happens if an adequate fold of foetal scalp is secured and a traction weight not exceeding 1 lb. is used. (*c*) It may fail to stop the bleeding, but this is rarely seen after an efficient application of the forceps. (*d*) Maternal infection may occur, as in the cases reported by Browne. (*e*) Wounding and infection of the foetal scalp may be seen, and are more likely to occur if there has been more than one application of the forceps or if the instrument has been allowed to tear off.

On the other hand, the *advantages* claimed for the method are: (*a*) The use of the foetal skull as an instrument for compressing the placental site compares very favourably with that of the breech, a bag, or gauze packing, on account of the smooth and accurate manner in which it fits the lower uterine segment. (*b*) The method can be used when the os will admit only one or two fingers, at a time when it may be difficult or impossible to bring down a leg. (*c*) Efficient application of the forceps and the exertion of mild traction, never exceeding 1 or 1½ lb., are nearly always followed by abrupt cessation of the haemorrhage. (*d*) Very little internal manipulation is required to make the application, as compared with that necessary to perform version or to insert a bag, thus minimizing the risk of introducing sepsis or of aggravating infection which may already exist. (*e*) The foetal mortality is relatively low: it may be stated in round figures that with Willett's forceps the survival rate for the child is in the region of 50%, whereas with version the mortality rate is in excess of 70%.

The value of the method is therefore very clear, and it would appear that its advantages distinctly outweigh its disadvantages when compared with version, which is its chief rival in the therapeutic field. In remote districts where facilities for Caesarean section are not available, or where the practitioner is confronted with a case requiring immediate treatment, the use of Willett's forceps has often proved to be a simple, efficient, and life-saving measure. We have come to the conclusion that the use of Willett's forceps should take pride of place in the treatment of placenta praevia in cases in which Caesarean section is contraindicated and in which simple rupture of the membranes and the application of an abdominal binder fail to control the haemorrhage.

Summary

A series of 134 cases of placenta praevia is reported, of which 16% were central, 40% marginal, and 44% lateral in their situation.

There was one maternal death (0.75%) in the series, and the combined stillbirth and neonatal death rate for all methods of treatment was 54.0%.

The child mortality rate accompanying the different methods of treatment was as follows: Caesarean section 28%, rupture of membranes 37%, Willett's forceps 56%, version 93%. An unusually high neonatal death rate was encountered in this series, due to the frequent combination of prematurity with malnutrition and B_1 avitaminosis in the newborn.

The use of Willett's forceps in the treatment of placenta praevia is advocated in cases in which Caesarean section is contraindicated and in which artificial rupture of the membranes fails to control the haemorrhage.

We desire to make due acknowledgment to the former Director of Medical Services, Hong Kong, through whose courtesy clinical facilities were made available for the treatment of these patients.

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NYLON FOR BURIED SUTURES

BY

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"All real surgeons have been interested in wound repair" (Whipple, 1940). The nature of the material used for suturing wounds has an important influence on their healing, and it behoves all whose work involves the inflicting and the repair of wounds to give much thought to the subject of suture materials.

Catgut

Catgut is easily the most popular substance for buried sutures. Most surgeons get what appear to be reasonably good results with it, and the property of absorbability is one which has a popular appeal. Nevertheless, its disadvantages are not few, and they have been repeatedly pointed out in surgical literature. Inherently infected with spore-bearing organisms as catgut is, its sterilization has always been a difficult problem. The serious infections which all too often followed its use caused Kocher, quoted by Halsted (1913), to exclaim, "Away with the catgut," and persuaded him to use silk instead. In recent years the sterilization of catgut has become effective on the whole; it is stringently supervised, and rightly so. Nevertheless there is always a possibility of a dangerous infection arising from its use.

The fact that catgut is an animal material capable of absorption in the tissues of the body is in some respects a disadvantage. Catgut can produce an allergy, when its subsequent use results in a marked local reaction, rapid absorption, and disruption of the wound (Kraissl, Kesten, and Cimiotti, 1938). Furthermore, it can be absorbed only by provoking an inflammatory reaction, with leucocytic infiltration and exudation of serous fluid, accompanying the resolution of which is an extensive fibrosis. This reaction often causes a serous discharge from the wound which delays healing. Babcock (1935) reported oedematous wound-edges which separated and remained moist for several weeks following the use of subcuticular catgut sutures in thyroidectomy. This did not occur when silk was used. Dunphy and Botsford (1939) and Puestow (1940) reported identical findings. Jenkins and Dunham (1943) attributed part of the inflammatory reaction to the irritant hydrocarbons with which the catgut is treated during its preparation. That wounds sutured with catgut gain tensile strength more slowly than those repaired with silk was shown by the experiments of Howes (1933) and of Localio, Casale, and Hinton (1943). Confirmation is found in Whipple and Elliott's (1938) findings that the incidence of wound disruption was more than eight times greater after catgut had been used than after silk. Jenkins (1937) noted a marked degree of catgut digestion, and Fallis (1937) an inflammatory reaction with serous exudation in disrupted wounds after catgut suture. Parsons (1937) had a recurrence rate of 12.7% for hernias repaired with catgut and only 3.5% with silk, using the same technique.

In his famous paper on surgical technique Halsted (1913) remarked: "It should be borne in mind that during the greater part of the period of its disintegration the catgut suture is not only serving its purpose but is playing the role of necrotic tissue, of a culture medium." This dead animal tissue is indeed a favourable soil for bacterial growth, maintained as it is at body temperature in wounds, and it is not surprising to find that observers have noted that wounds in which catgut has been buried are peculiarly prone to infection. Meleney (1935), in a large series of clean cases, found that the incidence of infection in wounds sutured with catgut was three times as great as in those sutured with silk. Whipple (1940) extended the same series to several thousand cases, for which the figure was 2.5. In Shambaugh's (1937) series of hernias catgut repairs were infected twice as often as silk, while the incidence of minor complications, such as serous discharge, was eight times as great in the former as in the latter. Elkin (1940) found the incidence of infection after catgut to be 4.5 times as great as after silk. Meleney (1935) reported Vivier's findings that, of experimental wounds sutured aseptically with fine silk and catgut, the latter contained more bacteria throughout the healing period. Shambaugh and Dunphy (1937) found that experimental wounds sutured with silk tolerated bacterial contamination better than those in which catgut was used, and Cutler and Dunphy (1941) concluded that the degree of infection in infected wounds sutured with silk was, on the whole, less than in those repaired with catgut.

It is obvious, from this mass of evidence, that catgut is by no means the ideal suture material.

Silk, Linen, and Cotton

In the field of non-absorbable materials silk, cotton, and linen threads have been used with success in clean wounds. Halsted (1913) stated that the results with silk, properly used, were so perfect that he thought its use would become general. It has been the experience of many, however, that infection in a wound sutured with these materials often results in a discharging sinus which will not heal until the sutures and ligatures have been expelled—a process which may take several months. The reason for this severe drawback to their use probably lies in the fact that the threads are made up of many filaments, among which bacteria may multiply beyond the reach of the body's defences.

Nylon

Nylon is a new-comer to the field of filaments. Being a synthetic product it is sterile when manufactured, and it cannot harbour organisms in its interior. It is in common use as a substitute for silkworm-gut in skin sutures, but it has been little employed as a buried material. Nylon is obtainable as a solid, or monofilament, thread and as a woven or twisted multifilament thread. Nichols and Diack (1940) tested the latter in experimental wounds and found that it produced about the same cellular reaction as silk, both being much less irritant than catgut. Aries (1941) found that monofilament nylon produced still less reaction, and that when wounds were infected the inflammation and leucocytic reaction subsided more rapidly round nylon than round silk. Melick (1942) confirmed experimentally the minimal foreign-body reaction of nylon, and he used the multifilament material for the repair of 25 inguinal hernias with satisfactory results. Stonham (1942) used nylon for buried sutures in some operations, and concluded that it was superior to silk and silkworm-gut in clean wounds. Localio, Casale, and Hinton (1943) found that the tensile strength in wounds increased more rapidly when nylon was the suture material than when silk, cotton, catgut, or steel wire was used.

In a series of experimental wounds in the abdominal walls of rats, sutured with nylon and with catgut and examined from 2 days to 8 weeks after operation, I found that those sutured with catgut were always the more inflamed and more oedematous, were adherent to the overlying skin, and in 10% of them pus was present round the catgut. The wounds sutured with nylon healed smoothly and rapidly, with a minimum of inflammation and fibrosis.

In 300 operations I have used nylon for all buried sutures and ligatures, as well as for skin sutures, and have never had cause to regret it. The range of operations was very comprehensive, and the extremes of age were 12 hours (repair of exomphalos) and 91 years (cholecyst-gastrostomy). Even in the presence of infection (for example, 76 appendicectomies, in many of which free pus was present) there was no tendency for the sutures or ligatures to be extruded. Colostomies, too, have been closed without trouble. Wounds healed rapidly and soundly, and with a noteworthy freedom from complications. Sutures have been removed on the sixth post-operative day, as a rule, in abdominal cases, and it has been my experience that it is not safe to remove them so early when catgut has been buried in the wound, particularly if the superficial fascia has been sutured with it. On several occasions, when a second operation was necessary, the previous nylon sutures were found to have a minimum of surrounding fibrosis. The cases have been followed up for periods of from 1 to 9 months and no symptoms referable to the buried nylon have been elicited.

Technique

Several points of technique should be mentioned. Sterility is achieved by immersion in boiling water for 30 minutes. For nearly all purposes the fine (No. 3) monofilament nylon, prepared in 40-inch lengths, is used, the strong (No. 5) being reserved for the ligation of large vessels and where there is tension. Suturing is facilitated by tying the nylon to the eye of the needle with a half-knot. At first Halsted's principle of universal interrupted sutures was adhered to, but it was soon found that continuous sutures could be used with impunity.

It has been said that monofilament nylon is difficult to use because of its springy nature, its smooth surface which makes knots tend to slip, and the small diameter which makes it difficult to feel between the fingers. The technique of using it is easily acquired, however, and it soon becomes very pleasant material to handle. The smoothness with which it glides through the tissues is quite a revelation after catgut or silk. The so-called "nylon knot" is tedious to tie, and it slips easily; the one which I employ is made by tying two half-knots with one end—the long one—held taut (Fig. 1). The ligature is run up tight, and is locked by a third half-knot tied with the short end held taut (Fig. 2). This knot does not slip, and I have used it in the ligation of large vessels, including the femoral artery. Long ends should not be left, and assistants are trained to cut them close to the knot. Tension sutures are not employed, for I am not convinced that they contribute materially to the strength of the wound, and they produce unsightly scars across it and delay healing.

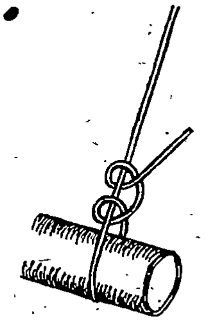

FIG. 1

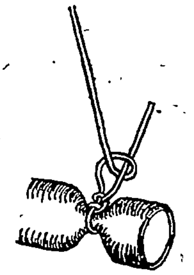

FIG. 2

It is not suggested that there is no place for catgut. I still employ it for the mucosal sutures in most bladder and stomach operations, because non-absorbable sutures may cause trouble in these sites. Nevertheless, for nearly all sutures and ligatures nylon has definitely established its superiority in my cases. An additional consideration is the fact that the cost of nylon for surgical work is only one-eighth that of catgut.

Summary

The presence of catgut in a wound leads to increased inflammation and induration, greater exudation of serum, delay in healing, and an increased incidence of wound infection and breakdown.

Silk, linen, and cotton threads are free from these disadvantages, but may cause great delay in healing if infection is present.

Nylon causes a minimum of tissue irritation, and its use as a buried suture material in 300 operations has shown its superiority to the materials in common use. Wounds healed rapidly and with no complications.

I wish to express my thanks to Prof. Burn, of the Pharmacology Laboratory, Oxford, for providing the facilities for the animal experiments.

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Medical Memoranda

Parotitis due to Unusual Foreign Body in Parotid Duct

References in the literature to foreign bodies in the salivary ducts are few. Mittermaier (1929) mentions "bristles, fish-bones, hair, grain and seeds, splinters of wood, etc."; Illingworth and Dick (1941) state that "on rare occasions a foreign body, such as a piece of straw, a fruit seed, or mycelia of actinomyces, may form a nucleus for stone formation"; and Tramer (1938) reported a case in detail. The following account may therefore be worth recording.

CASE HISTORY

The patient was a girl aged 6 years who complained one evening of pain in the right side of the neck, which within a few hours had become swollen below the ear. On examination next day the right parotid gland was moderately enlarged and tender, and thin purulent fluid was seen escaping from the orifice of the right parotid duct. The mouth and throat were otherwise normal, and nothing could be felt on palpation of the duct; the temperature and pulse were 100.5° F. and 120 a minute respectively.

The following day the temperature was 98.4° F. and the pulse 100, but the local swelling and tenderness were more marked. After cleansing the mucosa round the duct orifice with spirit before taking a swab of the pus, slight pressure was made on the duct. Purulent fluid appeared from the opening, and was followed by what seemed to be a bristle, one portion (the last to leave the duct) of which was coated with pus. Chewing-gum was given to help drainage by stimulating the salivary flow, and a course of sulphapyridine was started. The fluid seen flowing from the duct next day was indistinguishable from normal saliva, and as it seemed unnecessary the sulphapyridine was stopped after a total of 6 g. had been given. Two days later the gland was no longer enlarged; the temperature was normal, and, except for slight local tenderness, which disappeared after a further five days, recovery was complete.

Dr. J. B. Penfold examined the pus and the foreign body and reported as follows: "Film: Many pus cells, few epithelial cells, and numerous mixed organisms. Culture: Mixed growth of normal mouth organisms. Foreign body: Husk of seed 6 mm. by 1.5 mm. diameter, with tail 4 mm. long." He submitted the husk to Dr. E. J. Salisbury, Director of the Royal Botanic Gardens, who identified it as "a floret of one of the cultivated forms of the common rye grass, *Lolium perenne*. This form has a fairly long finely barbed awn, which was no doubt responsible for setting up irritation."

Foreign bodies are more common in the submandibular duct on account of its larger size and the position of its orifice on the floor of the mouth (Mittermaier, 1929). Both the site and the nature of the foreign body are unusual in this case. Tramer (1938) describes the case of a child 6 years old who developed parotitis lasting, with fluctuations in its severity, for well over one month: on the forty-first day an incision was made into the parotid, from which pus (giving a mixed growth of organisms) discharged for 31 days. A foreign body was seen in the wound on the thirty-first day and removed; at the end of a further six days the wound was healed completely. The foreign body proved to be a fragment of grass seed, consisting of a husk and a piece of stalk, but was too incomplete for exact identification.

The present case and that of Tramer both occurred in young children, who are more likely than adults to put unusual objects in the mouth. In this case the possible origin of the husk from some cereal food is rendered unlikely by its completely undamaged condition, and as the child lives on a farm she has ample opportunities for eating raw grass seeds.

I wish to thank Dr. J. B. Penfold, pathologist to the E.P.S. Laboratory, Billericay, and Dr. E. J. Salisbury, Director of the Royal Botanic Gardens, Kew, for examining the specimens.

R. H. Trinick, M.B., B.Ch., B.A.O.

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A Domestic Case of Chlorine-gas Poisoning

During the past few years much time and much energy have been devoted to the detailed organization of schemes for dealing with the effects of the possible use of gas warfare by the enemy. Fortunately these schemes so far have not been put to the test, and as a result the personal knowledge of many of us on this subject is almost entirely theoretical. It was therefore with no little interest that a clinical case of chlorine-gas poisoning came to our notice recently, and it is rather ironical to reflect that this solitary gas casualty occurred as a result of mixing two common household cleansing agents. The history of the case was as follows.

Case History

At about three o'clock one afternoon Mrs. X., a Birmingham housewife, began to clean her bath. Her husband had recently decorated the bathroom and she was particularly anxious to remove all stains from the bath, and accordingly decided to use both harpic and parozone. She sprinkled harpic liberally into the bath, using about 2 oz., and then poured on about half a pint of parozone. The bath was quite dry at the time and the door of the bathroom was closed. She noticed the sizzling which occurred on mixing the two substances, but did not attach any importance to it, and as she had lost her sense of smell in childhood she remained quite unaware of any possible danger, and continued with her cleansing, leaning well over the bath for the purpose and scrubbing vigorously. Her eyes soon began to water and she felt a pain in her chest on breathing; then she must have fainted, because the next thing she remembers is lying on the bathroom floor. She couldn't stand up, but crawled to the head of the stairs and eventually got down them and out into the garden. Here she was violently sick. Breathing was very difficult and painful; she felt as if she was choking, and was quite certain she was going to die. There was no one else in the house and, finding that her voice was too weak to call for assistance, she threw stones to attract her neighbours, but was unsuccessful in doing so. After a considerable time she managed to crawl upstairs and on to her bed, where she was found by her family on returning from work between 5 and 6 p.m.

One of us (L. M.) saw the patient about 7 p.m. and found her lying on her right side on the bed fully dressed. Her breathing was obviously distressed, the lips were cyanosed, and the pulse was strong and regular and the rate 100. Rales and sibilant rhonchi were present over the front and sides of the chest: a detailed examination was not deemed advisable because of her general condition. Treatment consisted of rest in bed and an expectorant mixture, but on the following day a linctus had to be substituted for the expectorant mixture because of incessant coughing. Her progress was satisfactory, and she was allowed up after three days; but three weeks later she still complained of unusual fatigue.

Comment

It was decided to investigate the effect of mixing parozone and harpic, and accordingly samples of each were bought and submitted to the city analyst, who reported as follows:

> "Parozone is a solution of sodium hypochlorite containing 5.8 w/v of available chlorine. Harpic is impure acid sodium sulphate containing 77% $NaHSO_4$. Harpic, acting as an acid, liberates the chlorine from parozone. If 1 oz. of parozone is mixed with 1/3 oz. of harpic all the available chlorine is liberated and about 1.4 g. (equal to 500 ml.) of the gas would be given off. This amount would be reduced considerably if water were added, the solubility of chlorine in water being about 8 g. per litre. The limit of insupportability—i.e., the highest concentration which a person can breathe for 1 minute—is given as 100 mg. per cubic metre, so that a mixture of 1 oz. of parozone and 1/3 oz. of harpic would produce 14 cubic metres (equal to 450 cubic feet) of insupportable air. An average bath would have a capacity of approximately 50 cubic feet."

The 2 oz. of harpic used by Mrs. X. would be enough to liberate all the available chlorine from 6 oz. out of the 10 oz. of parozone used, so that about 3,000 c.cm. of chlorine gas must have been given off, and as the bath was quite dry all the gas would remain in the atmosphere. Being a relatively heavy gas, the highest concentration would be expected in the bath itself, and as Mrs. X. leant well over the bath, and was presumably breathing fairly heavily from her exertions, there can be little doubt that she must have inhaled an appreciable quantity of chlorine gas. It is likely that anyone with a normal sense of smell would have withdrawn from the atmosphere very much sooner than the patient did, and for this reason no general conclusions should be drawn from this isolated case.

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J. F. Warin, M.D., D.P.H.

A Case of Accidental Intestinal Myiasis

The following case seems to be interesting enough to be placed on record.

Case Report

A previously perfectly healthy man of 22 was carried into sick quarters at 10 o'clock one morning, having suddenly collapsed. He had felt quite well when he got up at 7 o'clock, was very hungry, and ate a good breakfast. Approximately 1½ hours afterwards he suddenly "broke out" in a cold sweat, nearly fainted, and then had a violent urge to defaecate. This proved impossible. He had no tenesmus. This desire to defaecate was immediately followed by nausea, severe vomiting, and vertigo. At no time did he have abdominal pain.

On examination the face was pale, the skin cold and clammy. The pulse rate was 64, weak but regular, and respirations were 16 a minute. The temperature was normal. The tongue had a heavy white coat, the pharynx was normal, the breath was not foul. The eyes were normal, the pupils being equal and reacting normally to light and accommodation. The abdomen and all other systems showed no abnormality on careful examination. The patient had vomited violently before arrival at sick quarters, and consequently the vomit was not available for examination, which later proved rather unfortunate.

He was admitted and put straight to bed, with hot bottles. No food was permitted, and an excessive fluid intake was encouraged. He was retching continuously, but did not vomit again. The retching was successfully treated with a few drops of tincture of iodine in water. During the afternoon his bowels moved once, but beyond being rather loose showed no other obvious abnormality. The next morning all nausea had vanished. He passed a very loose motion which was full of blood and mucus. This specimen was sent to the laboratory, and the following report was received: "Pus, blood, mucus, and macrophages present. Faecal debris, *nil*. No ova or parasites seen. Culture: No pathogens isolated." An ounce of castor oil was given and the starvation diet continued, the patient being allowed only fluids. In the evening he developed a temperature of 101° F. and a severe frontal headache; the next morning, however, the headache had gone and the temperature was normal. The patient himself was looking and declared that he felt much better, though still rather weak. He had a strong desire to eat. No physical signs were found in the abdomen. The motion was still very loose, and contained a large proportion of blood and mucus. It was also found to contain large numbers of live, highly active larvae. These were at once isolated, sent to the laboratory for identification, and proved to be the larvae of *Stomoxys calcitrans* (the stable fly), a fly reported to be capable of producing intestinal myiasis. He was given a further ounce of castor oil, and during that day his bowels opened five times. Each motion contained macroscopic blood and mucus, but no more larvae were passed. On the morning of the third day of the illness the patient was feeling considerably better, and had by then developed a ravenous appetite. The diarrhoea had cleared, but the two specimens he passed that day both contained more larvae, though these were no longer active. A further specimen was examined at the laboratory, and the report received was: "A few pus cells and undigested vegetable cells. Larvae still present."

On the fourth day only one motion was passed. This was normal, and no further evidence of larvae was found. On the morning of the fifth day another normal motion was passed, and the patient appeared to have recovered completely. No larvae could be found. The patient was allowed to eat, and in the evening he was permitted to get up. The next day he was given a full diet and allowed to walk around the ward all day. All symptoms had cleared, bowel motions were normal, and no further evidence of larvae appeared. He was finally discharged on the morning of the seventh day of the illness apparently completely recovered, and no relapse of symptoms had been reported up to the time of writing this report, 14 days after discharge from sick quarters.

On finding the larvae, coupled with the fact that the patient had a strong desire for food—an unusual finding in a patient suffering from acute bacillary dysentery—supported also by the fact that culture of the faeces had produced no pathogenic growth of organisms, a diagnosis of intestinal myiasis was made. In view of the species of larvae discovered it was felt that this case was almost certainly "accidental." On questioning the patient he stated that a few days previously he had eaten a large number of cherries and plums, which he had not washed, and that he had placed them whole in his mouth without first examining them or removing the stones. It is believed that this constituted the source of infection. The fruit must have been harbouring the larvae round the stones, and the patient had eaten them, subsequently developing the acute attack described.

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Reviews

A BOOK ON MEDICAL DIAGNOSIS

Medical Diagnosis. Applied Physical Diagnosis. Edited by Roscoe E. Pullen, A.B., M.D. (Pp. 1,106; illustrated. 60s.) Philadelphia and London: W. B. Saunders Company. 1944

This textbook of medical diagnosis aims at greater comprehensiveness than the ordinary students' manual. Regions like the skin, the breasts, and the extremities are dealt with at some length, and there are separate sections on the endocrine and the reproductive systems, and on the sterility survey. Psychological and psychiatric diagnosis are also included, and industrial and military medicine are not forgotten. The book is well produced, and Chapter VIII, on the examination of the breasts, to give only one example, is a brilliant exposition of teaching by text and illustration. Nevertheless this is not a book we can whole-heartedly recommend, and a paragraph from the chapter on examination of the skin will serve as a text for our criticism:

> "*Eggshell* nails, soft, somewhat transparent, easily bent and split may indicate arthritis, peripheral neuritis, leprosy, or hemiplegia. *Beau's lines,* transverse lines or superficial sulci, may occur after acute infectious diseases, syphilis, tuberculosis, or nervous diseases. *Onychomadesis,* or shedding of the nails, has been observed in arsenical poisoning and diabetes. *Hypertrophic* nails may result from neglect or chronic dermatoses. They may indicate an endocrine disease. *Heaped-up detritus* under the free edge of a nail may be due to fungous infection or psoriasis, particularly that type of psoriasis which occurs in association with arthritis. A painful 'paronychia' may actually be a syphilitic chancre. The presence of epitrochlear adenopathy should be noted."

Uncorrelated factual information of this type is quite unsuitable for the undergraduate student. What he needs to learn is the principles of clinical examination, and this string of facts has no more relevance to them than a list of Solomon's concubines to the study of theology. On the other hand, the information is much too incomplete for a book of reference. Koilonychia, or spoon-nails, is not mentioned in the text or the index. The experienced graduate, in fact, would find that the kind of uncommon information he wanted about finger-nails was not given here, and he would have to seek it in one of the standard works on dermatology. Turning to another section, we looked for guidance on the examination of a painful shoulder and failed to find it. It seems to us, in fact, that Dr. Pullen and his collaborators have failed in a task which ought never to have been attempted. That task is the divorcement of physical diagnosis from the other aspects of the study of disease. A good deal of nonsense has been written lately about the alleged lack of powers of observation shown by modern medical students. Most of the writers would be unable to say what was the colour of the eyes of the last person they saw, what side he parted his hair, or whether or not he had a moustache, in spite of the fact that they may be quite good doctors. They have overlooked the fact that medical diagnosis is a quite specialized type of observation, like judging the points of a cow or the weight of a cheese. The duty of medical teachers is to inculcate this specialized type of observation, and yet keep alive in their pupils the generalized and unconventionalized powers of observation which are characteristic of an intelligent small boy. This is not an easy task, and we do not think Dr. Pullen's book will make it any easier.

PRACTICAL ANAESTHETICS

Textbook of Anaesthetics. By R. L. Minnitt, M.D., D.A., and John Gillies, M.B., Ch.B., D.A. Sixth edition. (Pp. 487: illustrated. 25s., plus 9d. postage.) Edinburgh: E. and S. Livingstone.

This well-known textbook, originally written by Ross and Fairlie, now has the name of J. Gillies added to the title-page. The subject-matter has obviously undergone an extensive revision, and new chapters on trilene, endotracheal, intravenous, and dental anaesthesia added. Full descriptions of practical matters will make this book appeal particularly to the beginner in what is, after all, a very practical specialty. The general standard of the book is so good that it is difficult to choose any one section for special commendation. The chapter on the choice of the anaesthetic serves as an example; it gives a liberality of sound advice for which mature experience has been responsible, and which can be followed with confidence. Some of the theoretical matter in the book is open to question. For example, the opinion that anaesthesia without rebreathing causes acapnia and may be harmful will not find general acceptance. Fig. 46 is marred by a failure to account for liquid nitrous oxide in a cylinder the pressure in which has already fallen considerably.

A short section on local analgesia is also included. This is not up to the general high standard of the book in so far as its usefulness to the novice is concerned. While serving as a brief account for pre-examination revision, the descriptions are too short and the illustrations too scanty to be of use to one who intends producing regional anaesthesia for the first time. Only 5½ lines are given to heavy nupercaine spinal analgesia, while the spinal techniques of Sebrechts and Lake receive a paragraph each, and 10 pages are devoted to local analgesia for dentistry.

The book is beautifully produced by E. and S. Livingstone, Ltd., and is undoubtedly an important modern textbook on anaesthetics.

THE FAMILY SITUATION

Family Situations. An Introduction to the Study of Child Behavior. By James H. S. Bossard and Eleanor S. Boll. (Pp. 265. 18s. 6d.) Philadelphia: University of Pennsylvania Press; London: Oxford University Press.

In the study of behaviour we must consider the individual and the environment, and the elements of the environment are termed "situations." For the child the most important situation is the family situation, which is the subject of this book. The study of situations is the province of sociology, and the object of the book is to show how the study may be systematized and made more scientific. Situations may be regarded from three points of view—structure, process, and content. Social situations are not constructed as are those of the physiologist and often of the psychologist, but are found as they are and merit careful independent study. Family situations can be so studied and classified in the three groups mentioned. The second part of the book consists of examples culled not from original observation but from literature and "the literature." These are dealt with under the headings: (1) Intrafamily relationships, which include the divided home, the new-arrival home, the mother-controlled home, and so on, with their effects on the child's security; (2) family patterns, such as the nomadic family, the social-climber family, the over-religious family, and so on; and (3) external factors, such as the farm family, the city family, and the home of the invalid. Finally there is a chapter on how the sociologist should approach this study, which is obviously an important one.

This is an interesting book. It will give all those who are concerned with the study of how the individual reacts to his environment (and what doctor should not be?) much food for thought.

ORTHOPTICS

The Practice of Orthoptics. By G. H. Giles, F.B.O.A., F.S.M.C. Foreword by Air Vice-Marshal Sir David Munro. (Pp. 366; illustrated. 25s.) London: Hammond and Hammond.

An authoritative exposition of the possibilities and limitations of orthoptic treatment in squint is as yet to come. It is not a slur on Mr. G. H. Giles that his book hardly satisfies these exacting criteria; the subject is still too fluid and the present book reflects the uncertainties of this field of study only too well. The author would, however, have done better to have confined himself strictly to the field he has attempted to survey rather than include a mass of more or less irrelevant detail on refraction. The whole structure of the book reflects the limited outlook of the non-medically trained optician. Refraction work is dealt with here as part of the particular anomaly of squint, instead of being regarded as a standard method of investigation. Again, the stress on the psychological factor, while undoubtedly valid in viewing the problem as a whole, somehow ends in this treatise with a quasi-judicial assessment of "naturopathic" methods. None the less there is here a mass of useful information drawn from the scattered literature, but patience as well as interest is needed to read its exposition.

Notes on Books

A Bibliography of Aviation Medicine Supplement, by P. M. HOFF, E. C. HOFF, and J. F. FULTON, is distributed for the Committee of Aviation Medicine, National Research Council of America, by C. C. Thomas, 327, East Lawrence Avenue, Springfield, Ill., at $2.50 post paid. The previous *Bibliography of Aviation Medicine* gave a very complete list of references upon all subjects which relate to aviation medicine, up to about the time of America's entrance into the war. The present *Supplement* brings the earlier list up to date. It is of course only up to date so far as it includes all papers which have been published, but it is everyone's misfortune that most of the more important papers will have to remain unpublished until hostilities have ceased. With this single serious qualification the *Supplement*, which is most admirably compiled and set up, can be heartily recommended.

The Lady of the Hare: A Study in the Healing Power of Dreams, by JOHN LAYARD, D.Sc. (Faber and Faber; 12s. 6d.), is a study of Jungian psychology by a non-medical psychologist who had undertaken the treatment of a countrywoman with a mentally deficient daughter and a neurotic sister (so is the diagnosis). Twelve interviews at roughly weekly intervals were all that were needed to cure the patient of rheumatism and dyspepsia, to improve the intelligence of the daughter and the temper of the sister and the relationship of all three. The dreams of the patient are recorded, and especial attention is drawn to one in which she sacrifices a hare. This is made the central theme of the narrative of how the purifying and revealing forces of the unconscious well up and influence not only the individual but those in contact with her. The hare was the symbol of redemption for this patient, and the author later discovered that the hare figured in folklore in a similar connotation all over the world. This folklore is described in the second part of the book and certain aspects of Jungian philosophy are discussed, especially the interplay of animus and anima (the father and mother, masculine and feminine symbols) and the complementary nature of conscious and unconscious. The author also relates the struggle between the instinctive and spiritual qualities with the resurgence of religion. This book will interest those brought up in the school of Jung and others concerned with mythology and psychological theories, but many plain medical practitioners will find it hard to understand or to be convinced by it.

Preparations and Appliances

AN ANAESTHETIC FACEPIECE FOR USE IN THORACIC SURGERY

Dr. H. J. V. MORTON, senior anaesthetist, Hillingdon County Hospital, Uxbridge, Middlesex, writes:

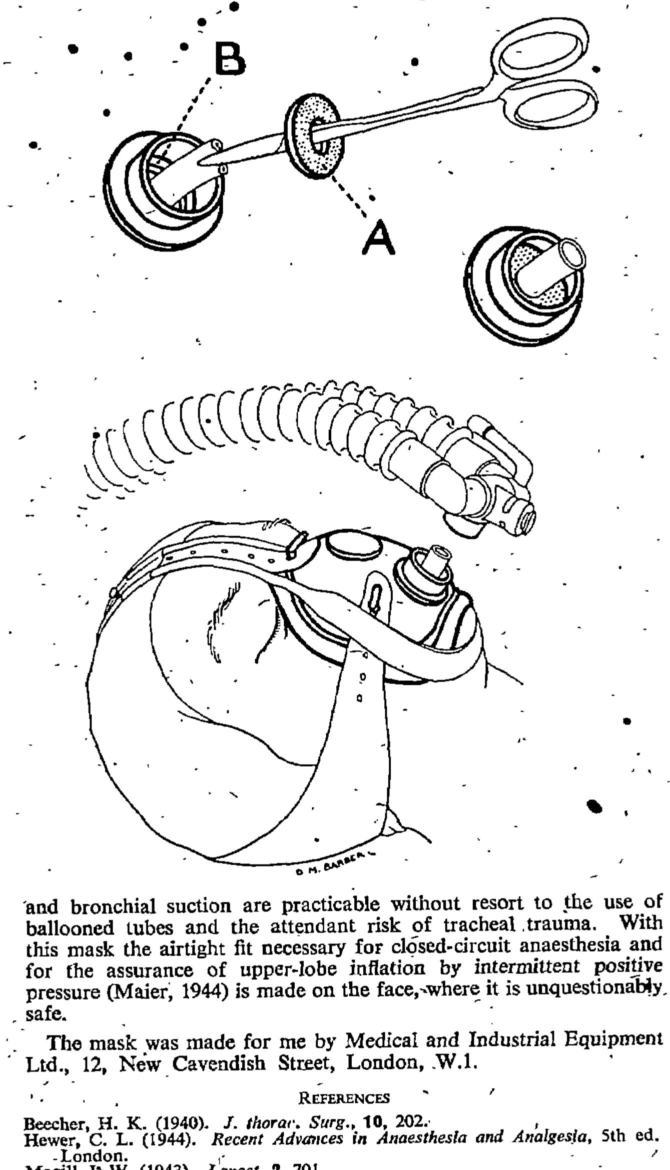
This facepiece facilitates the carrying out of anaesthesia for intrathoracic surgery following the method described by Beecher (1940). The procedure is as follows:

The modified McKesson type mask with a special outlet tube over the mouth, together with preferably Magill's (1943) flexible connector, is used in the ordinary way during induction. After anaesthesia is established the larynx is lightly cocainized by spraying during inspiration with a suitably curved Rowbotham's spray introduced through an oropharyngeal airway. Direct laryngoscopy is performed and a wide-bore Magill's tube passed through the mouth. The tube also may with advantage be sprayed with a little anethaine or 10% cocaine along its distal half immediately before insertion. These manœuvres are sufficient to ensure the smoothness of the subsequent general anaesthesia and supersede formal cocainization of the larynx with its attendant unpleasantness for the conscious patient.

After the tube has been passed a London Hospital airway is threaded over it to give protection against the teeth. In an edentulous patient a Thornton's gag is used. The mask is put on again. With the aid of a Spencer Wells forceps a sorbo washer (A) is threaded over the end of the tube and pushed down until it rests on the flange (B). Magill's connector is then plugged in. The outlet tube of the mask is of such a length that the end of the connector when pushed right home presses the washer firmly against the flange and seals off the joint between intratracheal tube and connector from the cavity of the facepiece and makes it airtight. A Clausen's harness and chin-strap hold the whole assembly firmly in position. With the patient's head extended the intratracheal tube should be long enough to reach from just below the larynx to just above the outlet tube of the mask, as shown in the diagram.

During operation the patient is kept in the Trendelenburg position, and in wet lung cases bronchial secretions run down the trachea and collect in the facepiece. When occasion demands, Magill's connector is unplugged, thus exposing the end of the intratracheal tube, down which a lubricated suction catheter can be easily passed.

The advantages and disadvantages of this type of technique have been fully discussed—Beecher (1940), Nosworthy (1941), Hewer (1944). It is enough to say here that if it is decided to use such a method for lobectomy or pneumonectomy the facepiece described considerably simplifies the practical problems of anaesthetic administration, especially with cyclopropane. Controlled respiration and bronchial suction are practicable without resort to the use of ballooned tubes and the attendant risk of tracheal trauma. With this mask the airtight fit necessary for closed-circuit anaesthesia and for the assurance of upper-lobe inflation by intermittent positive pressure (Maier, 1944) is made on the face, where it is unquestionably safe.



The mask was made for me by Medical and Industrial Equipment Ltd., 12, New Cavendish Street, London, W.1.

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The Marriage Guidance Council (78, Duke Street, Grosvenor Square, W.1) held its annual general meeting recently at the Caxton Hall, Westminster. The report for the past year showed that the membership had doubled, that new branches had been formed in the Provinces, and that the London Marriage Guidance Centre had dealt with 650 cases. Opportunity for further extension of the work was hindered somewhat by lack of funds and of office staff. Before this meeting a conference had been held. The first session dealt with "Preparation for Marriage" from (1) the medical, (2) the psychological and spiritual points of view. The value and content of an interview between engaged couples and a doctor were explained by Dr. Lilias Jeffries. The Rev. Gilbert Russell, M.B., B.Ch., spoke of his own method of imparting advice and information. The second session dealt with "Marriage Guidance." Dr. Edward Griffith reported in detail certain cases illustrative of the help that can be given to couples in difficulties. He was followed by Mr. Claud Mullins, the Metropolitan magistrate, who reaffirmed his belief in the value of conciliation work done by trained officers before a couple appeared before the court, where their case would not be considered from its human aspect but argued on its legal basis only.

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PATHOLOGY OF INFECTIVE HEPATITIS

It is a sad illustration of man's unreasoning acceptance of authority that a mistake by Virchow in 1865 should have misled pathologists and clinicians as to the true nature of the lesion in simple or, as he termed it, "catarrhal" jaundice for three-quarters of a century. Bright and Addison were on the right lines in their *Practice of Medicine*, which was published in 1836, when they observed of subacute inflammation of the liver that "cases of the less acute kind . . . generally yield to treatment . . . and they form a large proportion of the cases of simple jaundice which present themselves in practice." This correct view of the place of simple jaundice in nosology was upset by the dictum of the German morbid anatomist, subsequently to be handed from teacher to student and from book to book, that the disease originated in a catarrh of the duodenum which involved Vater's ampulla and led to the plugging of the orifice of the common bile duct with mucus. The story was plausible enough: there were nausea and distaste for food as evidence of gastro-enteritis, the pressure of bile is so low that a mucus plug might well be conceived to obstruct the flow, and there was the asseveration of the Master that he had observed this *in situ*. All this has now gone by the board, and even those who, with the late Sir Arthur Hurst, claimed that on clinical grounds they could differentiate a hepatitic type of jaundice from a "catarrhal" type have now, it is believed, been converted to the view that all forms of simple jaundice—as distinct from gross obstructive jaundice, haemolytic jaundice, and toxic jaundice—arise from a hepatitis.

If this be granted, there still remains the question of whether the hepatitis, which may seemingly be produced in a number of different ways, is a single disease or is capable of differentiation into various types which have in common the symptom of icterus. It is recognized that jaundice of this variety may be sporadic or epidemic, or, as observations scattered over the last ten years have shown, be produced by the injection of human blood, plasma, or serum, in which in some instances an icterogenic agent is present. Into the latter category it seems that "arsphenamine jaundice" must now come—a regular, if capricious, visitant of V.D. clinics which for years has been regarded as a manifestation of an idiosyncrasy to arsenic. The accumulating evidence seems to show that the principal agent in setting up this hepatitis is human blood which has been injected from one patient to another, through a single syringe being used for multiple inoculation without effective sterilization. It is not possible in this brief space to review the evidence of the unity or plurality of hepatitis, but there seem solid grounds for concluding that the type of infection is the same in all cases, and that these may correctly be grouped under the heading of "infective hepatitis." Certainly on pathological grounds—as the biopsy studies of Dible, McMichael, and Sherlock[1] have shown—the hepatic lesion is the same in all instances, which, to put it no higher, is consistent with a like aetiology.

Jaundice has long been recognized as a "disease" apt to occur in epidemics. This characteristic had rather been neglected before the present war, but we find that the American Civil War, the Franco-German War, the Boer War, and the war of 1914–18 all had their epidemics of jaundice. Epidemiologists placed the incubation period round about thirty days, but came to no certain conclusion on the mode of transmission or degree of infectivity of the disease. In all considerable epidemics of jaundice there is a definite low mortality, of between 0.13 and 0.44%, and in the fatal cases there are found in the liver the characteristic changes of acute yellow atrophy. The relation of the severer disease to simple jaundice is clear, and might well have suggested an analogous aetiology and a similar pathological change, but owing to the worship of Virchow this escaped recognition until Eppinger, during the 1914–18 war, had an opportunity to examine the livers of three soldiers who were killed in action while suffering from jaundice, and he described a hepatitis which was likened to acute atrophy in little; there was no obstruction of the bile ducts. The full comprehension of the pathology of acute hepatitis, or acute infective hepatitis, was revealed by the biopsy studies of Roholm and Iverson[2] and the more extensive ones of Dible, McMichael, and Sherlock. These observers, by making sections of small cylinders of liver aspirated from the living patient by means of a hollow needle, were able to construct the picture of the pathological changes present during life and to follow these towards recovery or death. They showed that there is a definite hepatitis, characterized by severe cytological changes and more or less acute necrosis and autolysis of liver cells, leading to a diminution in the size of the lobule and often to a disorganization of the columns of liver cells. Along with this there is a considerable invasion of the lobules, especially of their portal zones, by leucocytes and histiocytes. Successive biopsies revealed that in recovery there is a restoration of the liver even in cases in which disorganization is severe—a complete *restitutio ad integrum*. Where death took place the picture in the terminal stages was one of acute yellow atrophy. Recently a most valuable paper upon the pathology of infective hepatitis and the post-mortem changes in fatal cases has been produced by Lucké.[3] This investigation is based on an analysis of 125 fatalities from over 52,000 cases of the disease in the U.S. Army in 1942. The author divides the condition into pre-icteric, intermediate, and final phases, the duration of the first being about 7 days, of the second about 26 days, and of the last about 10 days. There was no clinical or other indication in the earlier stages that the course of the disease would not end favourably; the final phase was usually ushered in by nervous symptoms (a characteristic noted by Graves in 1843) and associated with ascites and vomiting. Haemorrhages were common in the late period, especially in the intestine and lungs. The changes in the liver were invariably those of acute yellow atrophy, with characteristic red zones of complete liver-cell destruction and survival of vessels, bile ducts, and supporting tissue; and other yellow areas of hyperplastic surviving liver cells, with bile-duct proliferation and an appearance of liver-cell formation from proliferating bile ducts. An additional finding in a number of cases was a phlegmonous inflammation of parts of the gut; this was always associated with ascites and was evidently a terminal phenomenon.

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[1] *Lancet*, 1943, 2, 402.
[2] *Acta path. microbiol. scand.*, 1929, **16**, 42
[3] *Amer. J. Path.*, 1944, **20**, 471.

Do these new observations throw light on the mechanism of jaundice in this disease? As there is no obvious lesion and no evidence of bile retention in the main ducts and their interlobular branches, a straightforward obstructive mechanism appears to be ruled out. Lucké supports the view previously put forward by Dible, McMichael, and Sherlock, that there is nevertheless an obstructive element which operates in the intralobular bile canaliculi, found by both groups of observers to contain bile thrombi. It is possible that there may also be some escape of bile into the blood stream in the central areas of the lobules, where the liver cells are most badly damaged and the lobular arrangement most disorganized, and where the cells may be incapable of taking up bile and passing it on to the bile canaliculi.

MITES, ASTHMA, AND ARSENIC

In straightforward asthma the eosinophilia is usually moderate in degree and there are no gross changes in the lungs. There is, however, a series of conditions in which an excessive blood eosinophilia may be associated with changes in the lung fields which are visible in a skiagram. In Löffler's syndrome[1] eosinophilia is associated with transient pulmonary infiltrations. There need be little in the way of symptoms, and the condition clears up spontaneously. Eosinophilic bronchitis[2] is a more serious and persistent disorder in which troublesome cough and asthma-like dyspnoea may be accompanied by lassitude, anorexia, and loss of weight. In the form of eosinophilic bronchitis described by Weingarten in India,[3] now often known as tropical eosinophilia, miliary shadows are seen in the lungs on *x*-ray examination, and the eosinophilia is of a high order, from 40 to 80%. At present it is difficult to define where eosinophilic bronchitis ends and the more serious conditions known as vascular allergy[4] and periarteritis nodosa begin. The latter are generally regarded as morbid responses to bacterial or protein sensitization, and they tend to a fatal issue. The most important discovery in this field has been made by Weingarten, who found that tropical eosinophilia could be cured by a course of injections of neoarsphenamine. Later authors have shown that other forms of arsenic may be equally effective, including acetarsol or carbarsone by mouth,[5] and that arsenical treatment is curative in cases of eosinophilic bronchitis in which the patient has not been in India.[6]

Some cases of Löffler's syndrome have been attributed to the migration through the lungs of the larvae of the roundworm *Ascaris lumbricoides*. In a paper in this issue of the *Journal* it is suggested by Soysa and Jayawardena that tropical eosinophilia is due to pulmonary infestation by mites, or acariasis. The two names "ascaridiasis" and "acariasis" are sufficiently alike to be confused unless care is taken. *Acarus scabiei* is an important parasite in man, and the itch has been one of our wartime worries, but in the absence of secondary infection its effects do not go very deep. Nevertheless more serious diseases are produced by mites in other creatures. Isle of Wight disease in bees, for example, is caused by infestation of the respiratory tract by tarsonemid mites. Carter and his colleagues[7] in Ceylon found mites in the sputum of 17 of 28 patients suffering from chest complaints. The frequency of finding of mites was proportional to the time that could be devoted to the examination and the number of specimens examined, for the mites are neither frequent nor constant. Even when collections consisting of 5 to 40 c.cm. of sputum were examined it was unusual to find more than one or two mites in any one sample. The mites found were similar to those which could be demonstrated in the dust of the hospital and the laboratory, the bedding of patients, and similar situations. They were not contaminants of the sputum, as great care was taken to exclude this source of error; nor were they mere air-borne transients in the bronchial tree, for in some cases all stages from eggs to adults were demonstrated. Carter and his colleagues thought the evidence suggested strongly that the mites were not just living in the bronchial tree as commensals but that they were actively pathogenic and responsible for the bronchial irritation and the eosinophilia. Soysa and Jayawardena have now collected 30 cases of eosinophilic bronchitis in Ceylonese soldiers, all of whom did well on oral treatment with acetarsol or carbarsone. Improvement was often preceded by a temporary exacerbation of symptoms, a phenomenon noted by others. Mites were found in 11 out of the 21 patients whose sputum was examined by the special technique of Carter and co-workers, and the authors conclude, like Carter, that a proportion of cases of tropical eosinophilia are due to the pathogenic effects of mites. Most of the patients were working in proximity to ration stores or equipment depots, where mites were numerous

It is clear that eosinophilic bronchitis is much commoner in the Tropics than had been realized, and that arsenic is effective in treatment. The part played by the mite is more controversial. The presence of excessive secretion in the asthmatic bronchus favours the growth of bacteria and moulds, and certain types of Gram-negative bacilli and yeasts, which are almost certainly saprophytic and the result of the asthma, are sometimes found in pure culture. Mites are evidently common in the atmosphere of Ceylon, and they might therefore be expected to colonize the airway in eosinophilic bronchitis. It is even possible that the mite acts as the vector for the specific agent of tropical eosinophilia. If the mite is the primary cause of the illness it is a little difficult to understand the therapeutic action of arsenic, which is not particularly effective against mites. Moreover, one would expect to get positive skin reactions with extracts of materials heavily infested with mites. A more practical question for the doctor in this country concerns the criteria for the diagnosis of eosinophilic bronchitis and the selection of patients for treatment with arsenicals. In a typical example the asthma is of the acquired type, and there is no family history of asthma or previous history of allergy. The total eosinophil count is over 4,000 cells per c.mm. and the percentage over 30. The *x*-ray appearances in the lungs are said to be almost pathognomonic. Only when these criteria are fulfilled would it seem desirable to submit patients to vigorous treatment with a toxic drug such as arsenic.

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[7] *Indian med. Gaz.*, 1944, **79**, 163.

ARSENIC IN THE TREATMENT OF MALARIA

The cinchona alkaloids, and especially quinine, have until recently held the field as being for all practical purposes the only specific remedies against malaria, and treatment consisted almost entirely in the dosage and methods of administering quinine. This traditional view was modified when plasmoquine and then atebrin (mepacrine) had been shown to be equally specific in their action, and there began a period of search over wide fields for new and possibly more effective antimalarial drugs. The problem was not entirely or even mainly one relating only to effectiveness against the acute attack. That the ordinary attack of malaria can be clinically cured by either quinine or mepacrine has long been established. But there are directions in which these drugs are not always capable of performing all that is desired of them. This is particularly so in the failure as a result of treatment to eliminate that most troublesome characteristic of malaria—the liability to relapses. In a recent letter to this *Journal*[1] Capt. R. Good has suggested that arsenical treatment might be tried in cases of naturally acquired malaria which do not respond to quinine, etc., having found that in induced malaria (*vivax* infection) a single intravenous injection of neokharsivan (0.45 g.) invariably cut short the attacks without subsequent relapses. In another letter[2] Prof. Blacklock pointed out that in 1917–20 in a long series of studies in the treatment of malaria a team of workers at the Liverpool School tested, among other drugs, arsenicals of the novarsenobillon type, as well as liquor arsenicalis alone and in combination with strychnine or quinine. The cases treated were long-standing infections which had relapsed frequently in spite of much treatment with quinine. The immediate effect of the arsenobillon on *Plasmodium vivax* was strikingly good, being even more rapid than that of quinine in causing all forms of the parasite to disappear. The ultimate results, however, were disappointing, as practically all the cases relapsed, even after a dose of 0.9 g. In *falciparum* and *malariae* infection arsenobillon in the same dosage was not much use.

The experiments referred to by Prof. Blacklock are not the only ones leading to the same conclusions—viz., that, although the intravenous injection of arsenicals may lead to rapid clearing of the parasites from the blood in *vivax* malaria, it has little or no effect against *falciparum* and *malariae* infection. Moreover, arsenicals, though immediately effective against the *vivax* parasite, do not eliminate the liability to relapses. Goldman,[3] in 1938, found that in 90% of cases a single injection of 0.4 to 0.6 g. of mapharsen sufficed to terminate *vivax* malaria permanently, and the same claim seems implicit in Capt. Good's letter. The important point here, which is not stressed, is whether these results in respect of subsequent relapses were obtained with cases infected by blood inoculation or by the bite of infected mosquitoes. Both S. P. James[4] and Warrington Yorke[5] have drawn attention to the marked difference in reaction to treatment under these two conditions. Both agree as to the non-liability to relapse after even the mildest treatment in cases in which malaria has been induced by blood inoculation, but not in mosquito-infected cases. It is also important to recognize that the effect of intravenous arsenic appears to be entirely confined to *vivax* infection, so that its usefulness for treatment of malaria in the Tropics would be limited. Administration of mapharsen or other arsenical compounds would appear at present to find little place in the treatment of malaria, though it may have a use in special cases.

LIVESTOCK FERTILITY

The fertility of farm animals can be increased by raising the number of young born in each litter or by producing heat and conception outside the normal breeding season. In 1940 Parkes and Hammond[6] reported preliminary results of their efforts to use gonadotrophic extracts for this purpose. Injections of horse pituitary extract into ewes during anoestrus brought on oestrus, though the ewes would not accept the ram until given a second injection 15 to 17 days later. Of 7 ewes so treated 4 became pregnant, and 7 lambs were the result. The number of ova shed after such treatment was within the normal range. During the breeding season superovulation was induced by injections in the last 3 to 4 days of the cycle—that is, in the follicular phase. As many as 9 ova were shed by one animal, and up to 7 fertilized eggs were recovered. In one instance 5 embryos were still present half-way through pregnancy. More extended results published later[7] showed that pregnant mares' serum or oestrogen would also cause normal ovulation in anoestrous ewes, but heat did not follow the gonadotrophin injections except in the presence of a regressing corpus luteum. In oestrous animals the presence of an active corpus luteum appeared to suppress both ovulation and heat, but superovulation, with as many as 12 ova, was obtained by giving horse-pituitary gonadotrophin a few days before the corpus luteum was due to regress. In cows and heifers Hammond and Bhattacharya[8] stimulated ovulation in a majority of cases by giving 1,500–5,000 i.u. of pregnant-mare-serum gonadotrophin from 5 days before to 3 days after manual expression of the corpus luteum from the ovary. As many as 30 ovulations in a single animal were obtained, but in a small series that were allowed to go to term the number of young born was within normal limits, though twins and triplets were abnormally frequent. Folley and Malpress[9] find that the threshold dose of serum gonadotrophin necessary to stimulate the ovary is 1,000–2,000 i.u., while maximal responses are evoked by injections of 3,000–4,000 i.u. Ovulation was produced only during the follicular phase, though horse-pituitary gonadotrophin was effective in this respect at all stages of the cycle.

In America a group of workers in the University of Wisconsin have carried out similar researches on cows and sheep. Subcutaneous injections of unfractionated or follicle-stimulating extracts of sheep pituitary, followed by intravenous injection of a luteinizing extract from the same source, brought on ovulation in calves and cows. The eggs shed in this fashion were fertilizable, but only in an abnormally small percentage of cases. In the cows such injection procedures during the breeding season only increased fecundation when given in the second half of the cycle, and there was evidence of early foetal death in such hyperfecundation. In sheep, Warwick and Casida[10] brought about superovulation by a similar series of injections, though only when given in the follicular phase of the cycle. When the injections were made in the luteal phase of the cycle or during anoestrous, ovulation was consistently produced but oestrus was not, while variations were noted in attempts to fertilize the shed eggs by artificial insemination.[11] Eggs shed during the luteal and anoestrous phases were all unfertilized, while of 24 ewes treated during the follicular phase 7 had no fertilized eggs. The total number of eggs recovered was 357, and in the 17 animals in which fertilization took place there were 153 fertilized eggs.[12] Failure to maintain hyperfecundation was also confirmed by subsequent mating or artificial insemination of ewes in which superovulation was produced by the usual injections during the follicular phase. The average number of embryos per ewe was 9.2 at 2 to 5 days, 3.4 at 14 to 27 days, and 0.8 at 30 to 37 days.[13]

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[1] Oct. 28, 1944, p. 579.
[2] Nov. 18, 1944, p. 671.
[3] *Amer. J. med. Sci.*, 1938, **196**, 502.
[4] *Trans roy Soc Trop. Med Hyg.*, 930-1, **24**, 105.
[5] Ibid. (Discussion), p. 5 6.
[6] *Proc. roy. Soc Med.*, 1940, **33**, 483.
[7] *J. agric. Sci.*, 1942, **32**, 308.
[8] Ibid., 1944, **34**, 1.
[9] *Proc. roy. Soc.*, B, 1944, **132**, 164.

Present results show that it may be possible to work out methods for inducing out-of-season breeding, but that hyperfecundation, if produced, is not maintained, and that the number of young can be increased only by increasing the incidence of twin and triplet births. The value of these investigations is, however, not confined to their practical outcome on the farm, for they also help in the elucidation of normal ovulatory mechanisms; this must be completed before we can hope for any general success in the treatment of human infertility.

DIASONE IN TUBERCULOSIS

It does no harm to recall that it was Buttle in this country who introduced the diphenylsulphones as chemotherapeutic agents. Diasone is the disodium formaldehyde sulphoxylate derivative of 4-4′diamino-diphenylsulphone, a compound synthesized by Raiziss. It is related to promin, which was shown by Feldman, Hinshaw, and Moses[14] to be of value in the treatment of tuberculosis in guinea-pigs. Petter and Prenzlau[15] have now described their results with diasone in 44 patients, and it must be admitted that these do not look unpromising.

All the patients received diasone for 120 days or more, and the majority for 164 days. The total daily dose was 1 g. There appear to have been no serious reactions. The drug made about half of the patients feel tired and listless at first, and those with fresh exudative lesions had an initial rise of temperature. One patient developed a skin rash: it is interesting to note that by withholding the drug for a few days and then slowly increasing the dose from 0.1 g. per day she was finally able to take 0.66 g. a day without a reaction. There was some cyanosis, and nausea in about one-quarter of the patients; vomiting was rare. Some patients suffered from headache and photophobia, but these symptoms diminished. There were no renal symptoms or signs, and there was no leucopenia or agranulocytosis. The haemoglobin value and red cell count fell, however, particularly in the second to fourth weeks, when the composite haemoglobin figure had dropped from 12.5 g. to 8.7 g. per 100 c.cm. It is true that the haemoglobin rose again, and by the twenty-first week had reached 11 g. per 100 c.cm., but certainly the drop is alarming. The patients were radiographically examined beforehand, and sputum analyses were made. Most had already had the usual sanatorium treatment without making progress. No collapse therapy was undertaken during administration of the drug, and 18% were not confined to bed.

Signs of improvement were seen as follows: Between 45 and 125 days 60% of the group became sputum-negative. This occurred in all the lighter cases and in two-thirds of the moderately advanced group. Even one-third of the far-advanced group became negative. The sputum examination was thorough. In 34 of the 44 patients the sedimentation rate fell from a mean value of 45 mm. per hour to a mean value of 11 mm. per hour in 25 weeks. *X*-ray examination showed that some resolution of infiltration occurred in 90%. Of the cavities present before therapy 43% disappeared. The authors consider they observed marked improvement in 18% and moderate improvement in 50%. They present their evidence plausibly, emphasizing the fallacies. They reach what appears to be a justifiable conclusion that "diasone points the way to further advances in the treatment of tuberculosis in man."

THE WALTER AND ELIZA HALL INSTITUTE

A quarter of a century has now passed since the Walter and Eliza Hall Institute of Research in Pathology and Medicine began to function in Melbourne, three years after its foundation in 1916. The twenty-fifth annual report is signed by Dr. F. M. Burnet, F.R.S., a distinguished worker in the field of medical science who in March last succeeded Dr. C. H. Kellaway, F.R.S., as Director when Dr. Kellaway came to England to take up the post of Director-in-Chief of the Research Laboratories of the Wellcome Foundation. Dr. Burnet records that for 20 years Dr. Kellaway guided and developed the Institute to its present status. When he took over in 1923 a useful foundation had been laid, but the subsequent expansion of the activities and the reputation of the Institute were due wholly to his scientific ability, his enthusiasm, and his skill and wisdom in human contacts. In the interval between Dr. Kellaway's appointment by the Wellcome Foundation and his departure from Melbourne an invitation to deliver the Dunham Lectures at Harvard Medical School gave Dr. Burnet an opportunity to visit laboratories in the United States and Canada before taking over the directorship. The subject of these and his other lectures in America was research in virus disease. The work of the Walter and Eliza Hall Institute has continued to be directed mainly towards problems concerned with the medical aspects of the war. With the impending transfer of the Royal Melbourne Hospital to the new buildings in Parkville it will again be possible to have a closer association between the Institute staff and those concerned with the routine pathological and biochemical services. During the year under review most of the work of the Virus Department again centred round the problems of influenza in its relation to Army personnel. Until he left for England Dr. Kellaway, in collaboration with Mr. W. A. Rawlinson, continued his studies on heat injury in the Physiology Department. Mr. H. F. Holden's work in the Biochemical Department has again been largely concerned with investigations required by the Services. The Institute carried out blood grouping for the Services in Victoria, but on a smaller scale than in the previous year. Blood tests have also been made, as before, on donors for the Red Cross Transfusion Service and the Blood Bank. Serological work has been expanded to include research on the Rh factor and the setting up of a large enough panel of Rh-negative donors.

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[10] *Amer. J. vet. Res.*, 1943, **4**, 76.
[11] *Endocrinology*, 1943, **33**, 169.
[12] *J. Animal Sci.*, 1944, **3**, 12.
[13] Ibid., p. 22.
[14] *Proc. Mayo Clin.*, 1940, **15**, 695.
[15] *Amer. Rev. Tuberc.*, 1944, **49**, 308.

RESUSCITATION METHODS FOR RESCUE BOATS

BY

F. C. EVE, M.D., F.R.C.P.

Resuscitation is in the melting-pot. We have lost our old confidence that if Schäfer's ritual is faithfully performed nothing better can be done. We now realize that resuscitation is a trinity—of ventilation of the lungs, warmth, and restoring circulation to the nerve cells of the brain, of which the last is often the most important. For the circulation, Silvester's method appears to be better than Schäfer's, and the rocking method (Eve, 1932) much the best on present evidence (Hemingway and Neil, 1944). Ventilation is adequate by the older methods in mild cases, but not in bad cases when chill, delay, and asphyxia have nearly killed the vital nerve cells. Then the diaphragm loses tone, stretches, and is pulled up by the elastic lungs into a contracted condition of extreme expiration. At that stage Schäfer's method is impotent: no air will enter or leave the lungs, which obviously need expansion, not compression. But the rocking method, in which the weight of the abdominal contents pushes and pulls the diaphragm up and down like a piston, still acts perfectly—being independent of muscular tone. These considerations led the Royal Navy (in which the results of the Schäfer method had been very disappointing) to adopt the rocking method when possible (Gibbens, 1942).

This, very briefly, is the present position, which rescuers should know. Evidently it is in the rescue-boat that lives can be won or lost: the victim may be too far gone for resuscitation by any method by the time that ship or shore is reached. This problem has never been systematically studied, and it is different for each type of boat. The men who will man the boat in an emergency must try out *beforehand* the method best suited to their boat and submit their plans to an appropriate doctor. For instance, the seats may be too short or crowded to permit Schäfer's method; the thwarts may be too deep or the floorboards too wet for the older manual methods. I am told that in a speed-boat the thumping on the waves makes Schäfer impossible, and hence the rocking method is being substituted by the R.A.F. Cmdr. Michelmore took me a trip in the smaller type of National Lifeboat. It was so cluttered with necessary gear that we agreed that to make a flat place with life-jackets for Schäfer's method was the only solution.

I now submit two methods which seem worthy of trial under actual rescue conditions: (1) manual rocking (Eve, 1943); (2) the Lap-Silvester method (Eve, 1944).

(1) The Manual Rocking Method, as applied in a Rescue-boat (Figs. 1–3)

Two men stand facing, gripping each other's hands (or, better, a bandage twisted into a small ring). The victim lies face downwards across the two pairs of linked forearms, which support his thighs and upper chest. His arms and head dangle limply. It is preferable for each bearer to place his forearm under both thighs and grip the trousers, as photographed. The two men, by swaying from their hips, rock the casualty through about 45° each way, starting head down and pausing till all water has drained out before inducing inspiration by the feet-down tilt. This rocking is continued 10 or 12 times a minute till the patient breathes naturally, when he can be laid down, prone at first. This was done to me in a very large ship's lifeboat. I did not have to breathe, so the ventilation must have been adequate. The stalwart pair said they could have rocked my 10½ st. easily for a quarter of an hour at least. A heavy casualty would be unsuitable: a child can be rocked by one person. I believe that with their legs astride a thwart the two operators (now linked into a quadruped) will have considerable stability. In a sea-way they could sit down if preferred (Fig. 3).

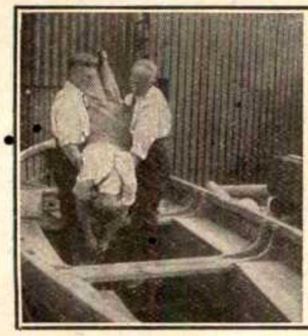
FIG. 1

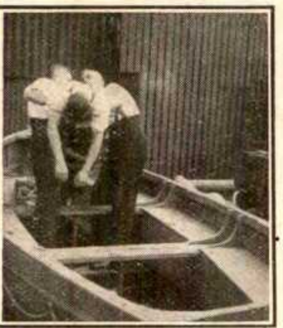
FIG. 2

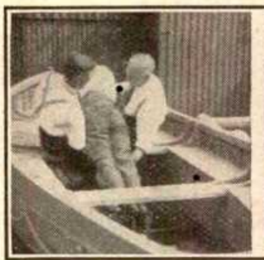
FIG. 3

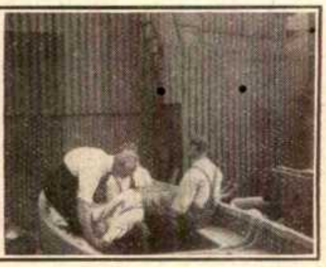
FIG. 4

A Child Revived by Manual Rocking.—A little girl of 4 was immersed for some 5 minutes in the pit of a stationary mill-wheel near Truro last Easter. Pte. Jack Collings descended, and also slipped into the water. At once he performed manual rocking through quite 45° a dozen times a minute. In the confined space this was the only prompt method. Respirations returned in 10 or 15 minutes, and recovery was complete. The first head-down tilt emptied at least half a teacup of water through the mouth. Fortunately, in his first-aid class, the operator had himself been rocked on the usual rocking stretcher. So that the credit of this first resuscitation by *manual* rocking must be shared with his instructor, Supt. Schoon, who supplied me with these particulars.

(2) The Lap-Silvester Method (Fig. 4)

This idea was originally suggested to me by the ladies of the Tunbridge Wells Red Cross (Dr. Taylor's class). The casualty lies face upwards on the laps of two bearers sitting on a thwart (oilskin trousers donned on the outward trip). It is better that they should face opposite ways so that the victim is oblique to the thwart. The operator stands astride the thwart and uses Silvester's method, grasping the forearms and alternately extending them horizontally, and compressing the chest with them, firmly but not violently. (There is no room for the orthodox outward sweep of the arms, which I fancy, after personal trial, is redundant.) The thigh of the first sitter gives room for the head to dangle right back, a posture in which one throat specialist assures me the tongue will not block the glottis. This is confirmed by the radiograph of the airway of a young adult in this posture, kindly taken by Dr. Bannen. The first sitter flexes the neck during expiration so that the brain is alternately congested and emptied of blood (important for its circulation). As necks vary, he should also watch the tongue in inspiration. The second sitter during expiration leans his weight forward so that his forearm compresses the abdomen (more effectual than the hand). This pushes up the diaphragm and also propels blood from the abdomen to the heart. This method is available if the victim is too heavy or the rescue-trip too long for manual rocking.

Dr. R. R. Macintosh, Nuffield Professor of Anaesthetics, investigated this method at Oxford and kindly allows me to quote the unpublished results. Mr. J. Roberts, a healthy athlete, submitted altruistically to anaesthesia with apnoea caused by hyperpnoea, in which the state of drowning was simulated. The ventilations produced by each rock (ten a minute) through 45° each way on a stretcher were: Schäfer, 530 c.cm.; Silvester, 650; rocking, 850 c.cm. These figures confirm the previous (Macintosh, 1943) historic experiment on Squad. Ldr. A. E. Pask, which are proportionally similar (340, 400, and 580 c.cm.), and were done by the same team of experts. Rocking Mr. Roberts face upwards was less effective than prone (570 c.cm. at 30°; 635 at 45°). If the piston action of the diaphragm was impeded by a pillow under the abdomen, rocking face downwards was only half as efficient (325 c.cm. con 725 at 30°). An interesting novelty was the excellent ventilation produced (630 and 670 c.cm.) by merely lifting the pelvis or coat when prone, thus allowing the abdomen to sag and pull down the diaphragm. (This should be useful to remember when doing the Nielsen modification of Schäfer.)

The *Lap-Silvester*, done on two laps with straightish spine (too much bent in Fig. 4), gave the adequate ventilation of 530 c.cm. improved to 600 c.cm. by abdominal pressure (cf. Schäfer, 530 c.cm.). With a Beverley team, I saw that the Lap-Silvester method is practicable in a 6-oared ship's lifeboat of 6-ft. beam (Fig. 4). Its merits are: warmth and dryness on laps; ventilation proved adequate; the dangling head should obviate traction on tongue or jaw; adequate abdominal compression for diaphragm and circulation; alternate congestion and emptying of cerebral blood vessels (probably important). Hence this method seems worthy of trial in a rescue-boat, but neck or spine must never be forced backwards.

Summary of Conclusions

1. Resuscitation must be started *immediately* the victim is hauled aboard over the lee stern quarter: ship or shore may be too distant for revival. Water must first be drained out by a steep head-down tilt (Fig. 1).

2. If space allows, Schäfer may then be used provided that air can be felt or heard going in and out of the mouth.

3. If this is not satisfactory, or resilience feels absent in the lungs, do not persist in the Schäfer ritual, but change at once to the manual rocking method, especially in a child or light subject. Personally, I would start with this method, after draining out water.

4. For heavy subjects or longer boat-journeys, the Lap-Silvester method is suggested as being warmer and providing more circulatory aid to the brain and heart than plain Silvester or Schäfer.

5. Rescue-boats differ greatly; each type is a separate problem in methods of resuscitation, which need to be tried out *beforehand* by rescue teams who dwell beside deep waters.

Methods must be judged by records of successes and failures, which I should be glad to collect and collate until there is some official channel.

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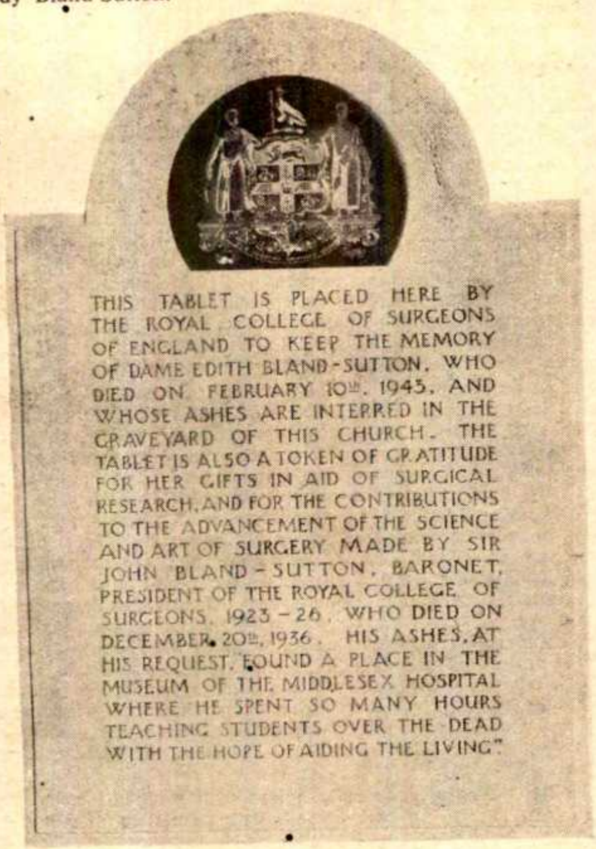
A BLAND-SUTTON MEMORIAL

At the instance of Sir Alfred Webb-Johnson, President of the Royal College of Surgeons, we are able to reproduce below a photograph of a mural tablet in memory of Sir John and Lady Bland-Sutton.



THIS TABLET IS PLACED HERE BY THE ROYAL COLLEGE OF SURGEONS OF ENGLAND TO KEEP THE MEMORY OF DAME EDITH BLAND-SUTTON, WHO DIED ON FEBRUARY 10TH, 1943, AND WHOSE ASHES ARE INTERRED IN THE GRAVEYARD OF THIS CHURCH. THE TABLET IS ALSO A TOKEN OF GRATITUDE FOR HER GIFTS IN AID OF SURGICAL RESEARCH, AND FOR THE CONTRIBUTIONS TO THE ADVANCEMENT OF THE SCIENCE AND ART OF SURGERY MADE BY SIR JOHN BLAND-SUTTON, BARONET, PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS, 1923-26, WHO DIED ON DECEMBER 20TH, 1936. HIS ASHES, AT HIS REQUEST, FOUND A PLACE IN THE MUSEUM OF THE MIDDLESEX HOSPITAL WHERE HE SPENT SO MANY HOURS TEACHING STUDENTS OVER THE DEAD WITH THE HOPE OF AIDING THE LIVING."

A Faculty has been granted by the diocesan authorities of Canterbury for the erection of this tablet in the Parish Church at Ringwould, Kent, where Sir John and Lady Bland-Sutton regularly worshipped when they were in residence at Villa Vita, Kingsdown, Deal. The memorial was designed by Alner W. Hall, *M.C.*, F.R.I.B.A.

KING EDWARD'S HOSPITAL FUND

The Speaker of the House of Commons presided, in the absence of the Duke of Gloucester, at the meeting on Dec. 11 of the general council of the King Edward's Hospital Fund for London. He referred in his opening address to the discussions which representatives of the Fund, "with their impartial and at the same time intimate knowledge of so many hospitals," had had with the Minister of Health, and to the help this would mean to the Minister in framing his proposals. Work on hospital diet was, he added, very much to the fore, and Sir Jack Drummond and his committee were now preparing a second memorandum offering more detailed advice based upon the experience of surveys at a good many hospitals.

Sir Edward Peacock as treasurer reported that in view of the heavy expenditure which would confront the hospitals after the war it had been thought wise to continue the slight reduction in the annual distribution, which was again £280,000. Subscriptions and donations, estimated at £38,000, were about the same as last year. Income from investments, at £213,000, showed an increase of £10,000 over the previous year, but this included certain arrears and other non-recurring items. These figures did not include the £300,000 received from the Nuffield Trust for the special areas and the transfer from this amount of £250,000 to Guy's Hospital.

Speaking of plans for a national health service, Sir Edward said that during the summer a statement of principles was prepared in close concert with the Voluntary Hospitals Committee and the British Hospitals Association, which underlined the meaning of partnership between voluntary and municipal hospitals, laid stress upon the need for a Central Hospitals Board and on regional and local machinery, dealt with the financial issues raised by the White Paper, and pointed out the importance of making it quite clear that payments from public moneys would be payment for services and not subsidies. The proposal of the White Paper, he continued, that all hospital services should be free of necessity cut at the roots of the contributory schemes which had become such a valuable feature of the life of this country. Everything must be done to preserve as large a part of the voluntary support of hospitals through such schemes as was possible. It would be almost criminal if, in our endeavour to secure another valuable thing, we should destroy that unique organized contribution of millions of pounds by millions of people to their hospitals.

The Public Instinct about Hospitals

Sir Alfred Webb-Johnson, in proposing a vote of thanks to the Speaker, said that the instinct of the people had been sound in regard to the type of hospital which the people had built for themselves—the great general and special hospitals, which acted as centres for consultation; the intermediate type of hospital, which served the immediate needs of a populous area; and the home or cottage hospital, which met the needs of the general practitioners in the smaller communities. This instinct had also been sound on the distribution of hospitals. The great consultant hospitals were based on university centres and their influence spread over large areas. People went to these consultation centres not because of any geographical arrangement, but because they served natural "catchment areas." National or county boundaries did not count; when a man was sick and his people were anxious about him they wanted to go where facilities were best and where the advice they sought was accessible and available. In the management of the voluntary hospitals the instincts of the people had again been sound. They had given absolute freedom to the professional men who work in the hospitals, had sought their advice in their corporate capacity through the medical committees, and had sought their aid in the management of the hospitals.

But in spite of all this there was need for more co-ordination and expansion, and it was to be hoped that the Government would follow the example of the King's Fund, and would guide and not control, would help the voluntary hospitals and not hinder them. It was important that the contributions under the National Health Insurance scheme, which were not really enough to meet the general practitioner service, should be devoted entirely to that service, and that the hospitals should be maintained by rates, taxes, and voluntary contributions. This would do something to preserve the voluntary contributions, because insured persons would not be told that they had already subscribed directly to the voluntary hospitals.

The people of this country must retain the advantages which they had gained for themselves, and the way to do this was for experts in hospital matters to have a responsible part in the planning and administration of the hospital services. Those experts—the representatives of the voluntary hospitals and representatives of the medical profession—must have their place in the council chamber.

In conclusion Sir Alfred spoke as follows: "When we talk about the freedom of the profession we are not talking about some vested interest. We are talking about one of the fundamental liberties of the subject—his right, within a free community, to obtain free and independent advice from professional men, whether it be in law, medicine, or any other profession. The people are entitled to a free professional opinion. This implies freedom for independent practice. In specialist work the natural place for independent practice is within the precincts of hospitals. I hope that in future nothing will be put in the way of independent practice inside hospitals or in the precincts of hospitals. It would be a retrograde step if that independent practice were to be dispersed into separate clinics."

The vote of thanks was seconded by Sir Henry Tidy.

NEW YEAR HONOURS

The names of the following members of the medical profession were included in a New Year Honours List published in a *Supplement* to the *London Gazette.*

Baronetcy

Sir Alfred Webb-Johnson, K.C.V.O., C.B.E., D.S.O., President of the Royal College of Surgeons.

K.C.B. (Military Division)

Sir Harold Edward Whittingham, K.B.E., LL.D., K.H.P., F.R.C.P., Air Marshal, R.A.F.

Knighthood

Arthur Murray Cudmore, C.M.G., M.B., F.R.C.S. Colonel. President of the Medical Board of the State of South Australia. For public services.

Claude Howard Stanley Frankau, C.B.E., D.S.O., M.S., F.R.C.S. Director, Emergency Medical Services, London and Home Counties.

Alfred Bakewell Howitt, C.V.O., M.D. Member of Parliament for Reading since October, 1931. For political and public services.

Diwan Bahadur Arcot Lakshmanaswami Mudaliyar, LL.D., M.D., D.Sc. Vice-Chancellor, University of Madras.

Lionel Ernest Howard Whitby, C.V.O., *M.C.*, F.R.C.P. Brigadier, Territorial Army, Reserve of Officers; lately Bacteriologist, Middlesex Hospital. For services in development of the sulphonamide group of drugs.

C.B. (Military Division)

Andrew Grant, C.B.E., M.B., K.H.S. Air Vice-Marshal, R.A.F.

David Turnbull Richardson, *M.C.*, M.B., K.H.S. Major-General, R.A.M.C.

William Ross Stewart, C.I.E., M.B., F.R.C.S., K.H.P., V.H.S. Col. (Temp. Brig.), I.M.S.

C.S.I.

John Simon Stuart Martin, M.B., M.R.C.P., K.H.S. Major-General, I.M.S., seconded I.A.M.C. Deputy Director of Medical Services, Central Command, India.

C.M.G.

Henry Spelderwinde de Boer, *M.C.*, M.R.C.S., D.P.H., D.T.M.&H. Colonial Medical Service; Director of Medical Services, Uganda.

William Ellis, Lieut.-Col., R.A.M.C. (ret.). Press Attaché at His Majesty's Consulate-General, Tangier.

C.I.E.

Rai Bahadur Tridib Nath Banarji. Principal, Prince of Wales Medical College, Patna, Bihar.

Donald MacDonald Fraser, M.B. Lieut.-Col. (Local Brig.), I.M.S., seconded to I.A.M.C. Inspector of Medical Services, General Headquarters, India.

William Calder Paton, *M.C.*, M.B., F.R.C.S.Ed. Major-Gen., I.M.S. Surgeon-General with the Government of Bengal.

C.V.O.

Walter Graham Scott-Brown, M.D., F.R.C.S.

C.B.E. (Military Division)

Thomas Benjamin Dixon, M.R.C.S., K.H.P., V.D. Surg. Capt., R.N.V.R. (ret.).

Edward Cyril Knowes Henry Foreman, M.R.C.S. Gp. Capt., R.A.F.

John Struthers Fulton, M.D., M.R.C.P. Col. (Temp. Brig.), R.A.M.C., T.A.

C.B.E. (Civil Division)

Mrs. Mary Georgina Blacklock, M.B. Lecturer, Liverpool School of Tropical Medicine.

Hugh Ernest Griffiths, M.S., F.R.C.S. Surgeon, Albert Dock Hospital, and founder of the Fracture Clinic and Rehabilitation Centre.

Thomas Baillie Johnston, M.D. Superintendent and Professor of Anatomy, Guy's Hospital; Sector Hospital Officer, Emergency Medical Services, London.

James Rognvald Learmonth, Ch.M., F.R.C.S.Ed. Surgical Director, E.M.S., South-Eastern Area of Scotland; Professor of Surgery, Edinburgh University.

Alfred Alexander Webster Petrie, M.D., F.R.C.P. Lieut.-Col. Medical Superintendent, Banstead Mental Hospital.

George Blyth Walker, M.B., D.P.H. Colonial Medical Service; Deputy Director of Health Service, Nigeria.

O.B.E. (Military Division)

Joseph Alexander Bingham, T.D., M.B., F.R.C.S.Ed. Lieut.-Col. (Temp. Col.), R.A.M.C.

Thomas Francis Crean, L.R.C.P.&S. Surg. Cmdr., R.N.

Agnes Lilias Dovey, M.B. Squad. Ldr. Employed with R.A.F. Medical Branch.

George Harvey Duthie, M.B. Acting Squad. Ldr., A.A.F.

Richard White Bernard Ellis, M.D., F.R.C.P. Acting Wing Cmdr., R.A.F.V.R.

William Loren Fennell, M.D. Lieut.-Col. (Acting Col.), I.M.S.

Leslie Fletcher, M.B. Major (Temp. Lieut.-Col.), R.A.M.C.

John Cary Gilson, M.B., M.R.C.P. Squad. Ldr., R.A.F.V.R.

Thomas James Myles Gregg, M.B. Acting Wing Cmdr., R.A.F.O.

Cecil William Kidd, M.D. Acting Wing Cmdr., A.A.F.

Ian Morrison Orr, M.D., M.Ch., F.R.C.S. Major (Temp. Lieut.-Col.), R.A.M.C.

Basil Gerald Parsons-Smith, M.R.C.P. Acting Squad. Ldr., R.A.F.V.R.

James Frederick Sandow, M.R.C.S. Acting Gp. Capt., R.A.F.

Norman Ralph Smith, M.R.C.S. Acting Wing Cmdr., A.A.F.

James Elliott Snow, M.R.C.S. Major (Temp. Lieut.-Col.), R.A.M.C.

Thomas James Logan Thompson, *M.C.*, M.B. Lieut.-Col. (Temp. Col.), R.A.M.C.

Edward James Starbuck Woolley, M.B. Surg. Lieut.-Cmdr., R.N.V.R., late Senior Naval Officer i/c Naval Detachment Station, Tristan-da-Cunha.

O.B.E. (Civil Division)

Arthur Edgar de Chazal, M.S., F.R.C.S. For public services in Mauritius.

Peter Alphonsus Clearkin, M.D., D.P.H. Colonial Medical Service; Government Bacteriologist and Pathologist to Public Hospital, British Guiana.

Keith Simpson Fitch, F.R.C.S.Ed. Lieut.-Col., I.M.S. Deputy Surgeon-General, Famine Relief, Bengal.

Anastasios Gavrielides, Consulting Surgeon, Medical Department, Cyprus.

Roy Mervyn Humphreys, D.M. Senior Physician, Sudan Medical Service.

Alan Alexander Pullar, M.B., F.R.C.S. Major, I.M.S. Presidency Surgeon, Bombay.

Wenefride Thompson, M.B.E., M.R.C.S. St. Luke's Mission Hospital, Lakhimpur, Dibrugarh, Assam.

The Rev. Felix Gordon Veitch, M.D. For public services in Jamaica.

M.B.E. (Military Division)

Avyaktanand, Capt. (Temp. Major), I.A.M.C.

Hannah Billig, *G.M.*, M.B., B.S. Capt., I.M.S.

Kollemparampil Eapen Eapen, Lieut., I.A.M.C.

Emmie Dorothy Fenwick, M.R.C.S. Squad. Ldr. Employed with R.A.F. Medical Branch.

Oliver Garrod, M.R.C.S. Capt., R.A.M.C.

Geoffrey Hale, M.B. Fl. Lieut., R.A.F.V.R.

Thomas Theodore Schoales Hall, M.D. Major, R.A.M.C., T.A.

James Harper, M.B. Fl. Lieut., R.A.F.V.R.

Edward Watson Hart, M.B., M.R.C.P. Capt. (Temp. Major), R.A.M.C.

Gwilym Murray Jones, M.R.C.S. Fl. Lieut., R.A.F.V.R.

Andrew Derek Kelly, M.B Capt. (Temp. Major), R.A.M.C., T.A.

Albert James Lawlor. Capt. (Temp. Major), R.A.M.C.

Abdul Hague Mallick. Capt. (Temp. Major), I.A.M.C.

Malcolm John May, M.R.C.S. Temp. Surg. Lieut., R.N.V.R.

William d'Auvergne Maycock, M.D. Capt. (Temp. Major), R.A.M.C.

Edward James Pell. Capt. (Temp. Major), I.A.M.C.

Athol George Riddell, M.R.C.S. Acting Squad. Ldr. R.A.F.V.R.

Alexander Skene, M.B. Fl. Lieut., R.A.F.V.R.

Alastair William Smith, L.R.C.P.&S. Temp. Surg. Lieut., R.N.V.R.

Vernon Donald Van Someren. Capt. (Temp. Major), E.A.A.M.C.

Derek John Wigginton, M.R.C.S. Capt. (Temp. Major), R.A.M.C., T.A.

Harold Geoffrey Wolskel, M.R.C.S. Fl. Lieut., R.A.F.V.R.

M.B.E. (Civil Division)

Ramiro Cauchi Inglott, District Medical Officer, Malta.

Sharat Shashi Kundu, M.B. Officiating Civil Surgeon, Manipur State, Assam.

William Cecil Wigan, M.R.C.S. For welfare service in Nyasaland.

Kaisar-i-Hind Gold Medal

Perakathu Verghese Benjamin, Medical Superintendent, Union Mission Tuberculosis Sanatorium, Arogyavaram, and Technical Adviser to the Tuberculosis Association of India, Chittoor District, Madras.

Norman Macpherson, F.R.C.S. Surgeon, United Missions Hospital, Vellore, and lately i/c Afghan Mission Hospital, Peshawar.

Henry Edward Shortt, C.I.E., M.D., D.Sc. Col., I.M.S., Inspector-General of Civil Hospitals, Shillong, Assam.

Frank Tomisman Simpson, *M.C.*, M.B. Lieut.-Col., lately Medical Officer in the Coalfields, Bihar.

(To be concluded)

Correspondence

Prisoner-of-War Mentality

SIR,—Because there is delay in the arrival here of my *Journals* I have only recently read the correspondence on the prisoner-of-war mentality. I am amazed to find in Dr. Harkness's letter of April 22, 1944, the statement that "*the very large majority of our returned prisoners-of-war will be problems for their lifetime.*" (My italics.) It has been my privilege for the last three and a half years to administer the medical affairs of large groups of wounded and disabled prisoners. These groups consisted of some of the worst of our *grands blessés*—the totally blind, the double or single amputated, the extensively burned, the paralysed, and the major orthopaedic cases. Nearly all of these patients had known several years of captivity; nearly all of them had suffered hard disappointment when the first attempt at repatriation broke down at Rouen in October, 1941, and they returned to the prison camps instead of going home.

No one realizes more acutely than I do the pressing psychological problems which in certain cases have resulted from years of enforced idleness, of monotony, and of physical suffering and disablement. If any group of prisoners-of-war was likely to present psychological problems it was the kind of group with which I had to deal. Nevertheless I most emphatically deny that anything approaching a majority of prisoners will be "*problems for their lifetime.*" Rather would I say that the majority of these men have gained in tolerance, understanding, patience, forbearance, and courage. They have acquired a bigger concept of comradeship and of community life. They have more fully recognized the need for the individual to pull his weight in the interest of the group. If a man was disabled it became a matter of pride to him to be one of the "muckers"—the man who was ready to "muck in," to lend a hand, and accept his responsibilities. The average prisoner has demonstrated a high standard of adaptability, and will do so again when he returns home to a post-war world. He will be out of touch in much the same way as any normal man who has been abroad during the changes of the last few years. He will need time to pick up the threads of his life again, but he will not have a peculiar mentality. I have shown Dr. Harkness's letter to several of the men here—cheerful, average, level-headed individuals. They expressed themselves as follows: "Afraid he doesn't altogether know what he is talking about: a few special cases, yes! but not the very large majority."

By all means let us arrange for physical and mental rehabilitation where it is needed. By all means let us make some allowances for the fact that the average prisoner-of-war is not adjusted to the change of the last five years. But do not let us discuss the majority as if they were psychopathological problems. Above all, let us avoid discussing their "mentality" in the lay press. If Dr. Harkness's statement were true, and if we were to follow his recommendation for wide publicity, "the powerful advocacy of the Press" would hardly be sound psychological treatment for the prisoner; nor would it encourage employers to select him as a worker. It is my belief that the responsible Departments of the Government will make a true assessment of the problem, and will provide adequate means of rehabilitation. It will not be difficult for them to obtain accurate information based on actual observation by medical officers and by laymen, who have been with the prisoners over long periods and under changing circumstances.

I have lived with prisoners-of-war of all ranks, of all the Services, from all the European fronts. On their behalf I resent any implication that they are below average in the qualities of balance, steadiness, patience, perseverance, tolerance, or good humour. The average prisoner is not a "problem" to himself, his companions, or his future employer. Surely Dr. Harkness takes a very pessimistic view of the mental and moral stamina of our race.—I am, etc.,

D. L. CHARTERS,
Major, R.A.M.C. (P.O.W. 23911).

Stalag IX B.

Underwater Blast Injuries of the Abdomen

SIR,—The article "Underwater Blast Injuries of the Abdomen" by Major T. Moore in your issue of Nov. 11 is of great interest to personnel of general hospitals receiving survivors of sea battles. Considerable numbers of such cases were seen as the result of naval incidents in the Eastern Mediterranean, particularly the battles of Matapan and evacuations from Greece and Crete. The surgeons concerned no doubt came to similar conclusions and obtained comparable results to those of Major Moore, but there appears, even with Major Moore, to be some doubt as to the exact mechanism of the causative agent within the abdomen.

The release of pressure from a dense to a less dense medium is transformed into the effects of a blow, which is easily understood in its possible effect on the walls of a submarine or the soft walls of an abdomen. This would surely be increased at depth, and lessened on the surface where the vastness and compressibility of the adjoining lesser medium of the air would take up and absorb the blow effect. This would explain why the floating body is less affected than the vertical. If this were the only explanation one would expect to see similar changes in the abdomen of a person exposed to blast on dry land, making due allowance for the density of air as against that of water—i.e., at a much smaller distance from the explosion the initial blow would be as severe. This is leaving out of account any other injuries sustained by the immediate negative pressure of blast effects in air.

It is thought that all the effects as described by Major Moore could be caused by the application of a sudden pressure blow to the soft and relaxed perineum as well as to the abdomen. In either case this by conduction would be transmitted along a gas- or fluid-containing hollow viscus like the colon, with disruptive effects at the first area of resistance—a mass of faeces, the bend at the splenic flexure, etc. If the blow is less severe but nevertheless sudden enough to be exerted before external reflex resistance could be established the effect might be transmitted further along and around bends of the large intestine, but would be multiplied and become disruptive in its effect on coming to a dead end or by being transmitted into a lesser lumen as at the ileocaecal junction and at further bends along the course of the ileum.

A simile could be found in the hydraulic brake system of a motor car, in which a gentle pressure on the foot pedal transmits through the master cylinder sufficient energy in the small-bore brake tubes to operate strong and powerful brakes. Anyone knows how a sudden jab at the brake pedal in this system is transmitted into a terrific multiplication of energy at the brake end of these small-bore tubes, sufficient to lock the brakes or even to disrupt the joints.

The man with a "Mae West" applied under his armpits has difficulty in assuming any position other than the vertical. He flexes his lower limbs in order to prevent spinning and to help to get away from the centre of the fray or the sinking ship. He backs away, his abdomen and his perineum are exposed and relaxed. The man floating on his back has his legs extended, the perineum is retracted, covered, and protected, and his abdomen is close to or exposed to the more expansile medium of the air. If a "Mae West" could be so adjusted that one could lie extended along it many casualties of the nature described might be avoided.

If the suggested explanation of the mechanism of this injury is correct it should not be difficult to introduce a drill in order that one should know what to do if ever unlucky enough to be a bit of flotsam in the midst of a naval engagement with underwater explosions going on around one. The views of others would be interesting and I feel sure would not be unwelcome to Major Moore.—I am, etc.,

J. MELVIN,
Colonel.

The Hospital Physicist in the Services

SIR,—The attention of bodies responsible for radiological appointments has, on a former occasion, been drawn to the need to ensure that men serving with H.M. Forces do not stand at any disadvantage as compared with their colleagues at home.

We are now requested to draw attention to the position of physicists at present serving with the Forces who may soon be returning to civilian life, and some of whom may very well, we trust, become interested in the possibilities of hospital physics as a career. During the war a number of hospital physicist appointments have been made from among men who, for various reasons, have been directed to work in civilian hospitals, and who have thereby become experienced in the work and have acquired the "hospital outlook" which is so essential for proper co-operation with the radiologist. It would obviously be unfair if, by comparison, the man who has been serving in the Forces stood at any disadvantage, and we have reason to believe that the hospital physicists concerned are themselves anxious that this should not be the case.

It is therefore urged that hospital and radiological authorities should do everything possible to help the "return to normal" of physicists now in the Services, and to ensure that war service and lack of special experience are not a handicap in applications for physicist posts. In our opinion his probability of appointment should at least correspond to that which a physicist might have expected if he had remained at home and not joined the Services, and, if necessary, allowances should be made for him to undertake the concentrated training required to bring his knowledge up to date and up to standard.

The importance of the physicist in radiological departments is now generally recognized, not least by the radiologist, and it is felt that some acknowledgment of this can be made by radiological bodies in attempting to secure a fair deal for their physicist colleagues who have been on service.—We are, etc.,

L. H. GRAY,
HUGH DAVIES,
Hon. Secretaries, British Institute of Radiology.

J. F. BROMLEY,
Hon. Secretary, Faculty of Radiologists.

Faculty of Radiologists, W.C.2.

The G.M.C. Elections Decision

SIR,—In the debate on the Address (Hansard, Dec. 14) the Deputy Prime Minister deprecated the holding at the present time of the election of 39 members of the General Medical Council, 7 of whom only are elected by medical practitioners, on the grounds that "the medical electorate numbers somewhere about 65,000. The strain on the medical profession at the present time is immense. The fact is that people do not know where a large proportion of those 65,000 members are. A large proportion of them is over-seas. A great many of the other doctors have been moved about the country according to the exigencies of war." Dr. Russell Thomas very usefully directed the attention of the House to the Deputy Prime Minister's argument against present changes affecting doctors and declared that "the Rt. Hon. Gentleman on behalf of the Government has made it perfectly clear that the medical profession cannot be expected to come to any decision on any matter at the present time." The election of 7 members of the General Medical Council is surely a less important matter than the decision of the conditions of future medical practice in this country. I submit, Sir, that the Deputy Prime Minister has shown a more realistic appreciation of the facts as they are than the Prime Minister and the Government, who propose to introduce legislation revolutionizing medical practice in defiance of the clear undertaking given by the Prime Minister himself in the House on Oct. 13, 1943, in the following explicit terms: "There is no question of far-reaching changes of a controversial character being made by the present Government unless they are proved indispensable to the war. Another Government might take a different view, but not this one. I certainly could not take the responsibility of making far-reaching controversial changes which I am not convinced are directly needed for the war effort, without a Parliament refreshed by contact with the electorate."—I am, etc.,

House of Commons, S.W.1. E. GRAHAM-LITTLE.

Time of Ovulation

SIR,—I thank Prof. W. J. Hamilton for his interesting comments (Dec. 9, p. 768) on my observations concerning your annotation on the time of ovulation. The matters raised need further consideration. References have already been given to the works cited below and are not repeated in this communication.

1. Prof. Hamilton claims that had pregnancy not supervened in the Davies-Harding case the present cycle would have been 24 days (compared with the previous regular 28-day cycles). He bases this opinion on my report that the endometrium on the 20th day was as far advanced in the secretory phase as that on the 24th or 25th day in other patients with 28-day cycles, who probably ovulated about the 14th day, and on the findings of Rock and Hertig, who estimate the interval that they would expect to elapse before the next catamenia by the stage reached by the endometrium in their specimens. But Rock and Hertig themselves admit that this estimated time is "uncertain" and "imponderable." I had previously considered this deduction (in the Davies-Harding case), but I rejected it because there is no conclusive evidence that the duration of activity of the corpus luteum (of menstruation) is rigidly constant. To make matters plain, I believe the available evidence indicates that, while the secretory phase will be *attained* early in the cycle if ovulation is early, this phase will be *maintained* so long as the corpus luteum remains active; the next menses will not ensue until this body ceases its activity, and there is no certain means of foretelling the time of this latter event.

2. Prof. Hamilton questions the conclusions drawn from their own evidence by Miller, Engel, and Reimann, but, while quoting the paper recently published by Rock and Hertig (*Amer. J. Obstet. Gynec.*, 1944, **47**, 343) in connexion with the endometrial structure, he ignores the important fact that in the same paper these authors estimate from a study of 3 unfertilized and 11 fertilized ova that the interval between ovulation and the next expected menses in these cases ranged from 11.5 to 17 days. In the case of the fertilized specimens these figures were obtained by adding the estimated age of each embryo to the estimated interval between operation and the next catamenia as judged from the condition of the endometrium (although, as stated above, they admit that this last estimation is "uncertain" and "imponderable"). When they computed the lengths of the estimated post-ovulatory phase in terms of "percentiles" of the estimated lengths of the menstrual cycles they found that the average of these percentages did not deviate from that calculated, by using the theoretical figure of 14 days for ovulation time, sufficiently to interfere with the indication that ovulation occurs about 14 days before the expected onset of the next period. But these results relate to the average for the series of 11 cases; it appears to me that they cannot be safely applied to individual cases, and I believe they mean nothing more nor less than that ovulation most frequently occurs round about 14 days before the next menses, but that it may occur outside this limit, as is indeed revealed by the figures in their individual cases.

3. When all the evidence in the literature (including the recovery of tubal ova and young intra-uterine embryo) is weighed up I maintain that we can infer, as I stated in my previous letter, that while ovulation commonly occurs round about 14 days before the expected onset of the next menses it may occur outside these limits. I anticipate that, as more and more cases are scientifically investigated (preferably by the methods which do not interrupt the normal cycle), the range in ovulation time will be found to extend considerably beyond the narrow limits of 14 ± 1 days before the next period. Prof. Hamilton's discovery of another two ova which indicate that ovulation occurred within the narrow limits does not materially affect the argument, since no one denies that this is the optimum time for hunting for ova in a series of women; obviously if the search were confined to these limits no ova would ever be found outside them.—I am, etc.,

Anatomy Department, University of Sheffield. FRANCIS DAVIES.

Skin Sterilization by Colourless Flavine

SIR,—Concerning our paper on this subject, that appeared in your issue of Aug. 12, 1944, Mr. Kearney wrote you a letter a few weeks later suggesting commercial spirit in place of rectified spirit to reduce the cost. We therefore prepared our solution thus modified and subjected it to further tests, the results of which show that its efficacy is not lessened by the substitution.—We are, etc.,

VICTOR BONNEY.
H. SANDEMAN ALLEN.

Treatment of Varicose Ulcer and Eczema

SIR,—The introduction of elastic adhesive bandages has greatly improved the treatment and ultimate prognosis of varicose ulcers. There are, however, certain difficulties and disadvantages:

(1) A number of patients are sensitive to the chemical constituent of the adhesive surface which causes extensive local and general dermatitis, and very soon the patient decides to bear the suffering from the ulcer rather than the irritation and pain of dermatitis resulting from the treatment. Application of these adhesive bandages is particularly hazardous in cases of varicose ulcer where some degree of eczema is coexistent with the ulcer. Some 20% cases fall in this category. To meet this difficulty the manufacturers have produced a half-spread adhesive bandage where the adhesive surface comes in contact with the foot only, the non-adhesive half of the bandage being in direct contact with the leg. If the sensitivity of the patient's skin is localized to the ulcer area this device meets the situation. But very often one comes across patients with varicose ulcers, possessing a high degree of sensitiveness to this adhesive material, and in such cases the result is painful dermatitis.

(2) Another very serious though fortunately very rare complication of this form of occlusive dressing is sudden and alarming haemorrhage from the large area of granulating surface of the ulcer at a healing stage. A large quantity of blood may accumulate underneath the bandage and may not be obvious to the patient for some time. When it is, the patient may have great difficulty in removing the bandage promptly.

(3) There is great scarcity of these bandages at the present time. The modified treatment I suggest will result in considerable economy of material, more comfortable treatment, and avoidance of the risk of haemorrhage.

The promotion of healing of these ulcers depends on the elastic property of the bandage, which by compression of the varicose veins causes more prompt return of the venous blood and improved nutrition of the diseased part. The adhesive quality of the bandage is not an advantage but a disadvantage. For the last five years I have discarded the use of elastic adhesive bandages, and have treated 112 cases of varicose eczema and ulcer with 100% success by using elastic web bandage.

The ulcerated or eczematous surface is cleaned with soap and water and dried. Then it is painted with 2% aqueous solution of crystal violet. A generous quantity of a powder consisting of zinc. oxidi ʒii, calamini ʒii, kaolin ad ℥ii is sprinkled on the ulcer and a pad of gauze is applied and bandaged over with an ordinary bandage. The limb is then enclosed in a 2½-in. or 3-in. wide elastic web bandage in a spiral fashion from the base of the toes to below the knee, with light pressure over the ulcerated area and more tightly above. This procedure is repeated every morning. Before going to bed at night the patient removes the elastic web bandage. To be able to remove the bandage at night is greatly appreciated by patients. In a few days a clean hard crust is formed over the ulcer; whereas in the occlusive treatment with elastic adhesive bandage the accumulated discharge causes a very disagreeable odour. In cases of varicose eczema no dusting powder is used, unless a good deal of discharge is present, which is unusual. Otherwise the procedure is the same.—I am, etc.,

Burton-on-Trent. MANIK GHOSH.

Surgical Approach in the Obese

SIR,—I was recently asked to operate on an exceedingly obese young woman suffering from an acute appendix, her height being about 5 feet and her weight approximately 16 stone. It was realized from the first that she would probably be a bad case for surgery, as in all obese patients the approach to the abdomen is usually a difficult problem.

In order to overcome the thick mass of fat through which one had to operate, it was felt that a better approach could be obtained by adopting a horse-shoe incision to reflect a flap such as that used in cranial surgery, the flap in this case being the skin and fat down to the abdominal muscles. An incision was therefore made starting just above the mid-Poupart area curving outward and upwards to just above the umbilicus. From this incision was dissected upwards and inwards the whole mass of skin and fat, which on being swung inwards exposed a complete area of external oblique muscle ready for further steps. The rest of the operation was carried out by the usual gridiron method. During the period of the operation the flap was well protected by hot towels wrung out in saline.

The chief impression left by this procedure was the ease with which the essential parts of the operation area could be approached as compared with the meagre space one has when operating directly downwards through fat. While claiming no originality for the method, none of my colleagues or myself have seen any reference to this mode of approach, and it is felt that if such procedure is in use it should be given more prominence. It is an approach which could have many variations, and possibly in this case it might have been better to have turned a flap outward from the midline instead of inwards.

Whether this type of flap could not be used on huge fat limbs for a better approach is also another point which might be taken. In any case I feel that the procedure would answer many of the difficulties in the operative approach to the obese person.—I am, etc.,

Caernarvon. W. HILTON PARRY.

Smoking and Duodenal Ulcer

SIR,—If I may very shortly reply to Sir Adolphe Abrahams (Dec. 16, p. 798) I would like to say that the remark of my cynical friend about tobacco dividends is, of course, wholly untrue, and that in print it does not look as well as I thought on hearing it.

As regards smoking I emphasized the cigarette habit, and did not concern myself with pipe smoking, which was the general form of tobacco indulgence 40 to 50 years ago, when cigarette smoking and duodenal ulcer were both uncommon.

As to the present-day prevalence of duodenal ulcer among women an *x*-ray expert, even six or seven years ago, while he scoffed at the cigarette idea, agreed that he was seeing a number of cases of duodenal ulcer among women; and in a letter dated Dec. 7, 1944, a doctor wrote to me: "It was formerly very uncommon for women to suffer from these ulcers, but I have recently seen quite a lot—all heavy cigarette smokers."

As to the time taken for the development of a duodenal ulcer I would urge that it takes many a drop of water to wear away a stone and many a gill of gin to produce a cirrhotic liver. I wonder how many years it took for that type of cirrhotic liver to be accepted as due to gin.—I am, etc.,

Southwater. V. S. HODSON.

Certification for Extra Milk

SIR,—It may at this juncture be of interest to your readers to learn of this experience of mine. I have been in the habit of prescribing priority milk supplies under the heading I, II, etc., and the Food Registration Officer writes to say:

> "I have received several certificates issued by you bearing only the class number (I or II) and no indication of the category (a, b, c, etc.). . . . I must ask you to comply with the Ministry's instructions in this respect."

In the course of my reply I wrote:

> "You have my sympathy in this matter of the formal demands of the Ministry; but unfortunately the Ministry appears not to have realized fully the difficulty in which a doctor finds himself. You will no doubt remember that it was in response to representations by the medical profession that the Ministry agreed that the doctors need not give the diagnosis (name of the disease or disorder) in respect of which the patient was being given milk certificates; but it was very cleverly forgotten by our 'form-mongers' and 'red-tape people' at the Ministry that the other requirement—viz., that the class (I, II, III, etc.) together with the subheading denoted by a letter (a, b, c, d, etc.)—was equivalent to the diagnosis in most cases. For example, I a told the whole world that the case was one of tuberculosis; I d says plainly gastric or duodenal ulcer; I f, operation; I g again reveals the possibility of tuberculous disease; and I h one or other form of malignant disease. Class II may be analysed in the same manner.
>
> "Now, Sir, there are many people who object to anyone knowing of their physical disabilities; I have indeed at the present time three patients who have very strong objections on several counts that their doctor should reveal to anyone the nature of their maladies, and I need hardly remind you of the duty of the doctor in the matter of professional secrecy. So that whensoever I feel that I should be acting indiscreetly by doing otherwise I shall continue to issue certificates in the form which you say I must modify to be in keeping with the Ministry's demand. . . . I can only suggest

that in order to place yourself in a safe position you should send this letter to the Ministry of Food and possibly the Minister of Health for their further instructions; and in the meantime please allow the validity of my certificates so that the public I serve may not suffer."

I have not heard again from this functionary.—I am, etc.,

Acton, W.3. A. R. EATES.

Preamble to Post-war Food Education

SIR,—Mr. Le Gros Clark (Dec. 9, p. 763) must begin with foundations. It is not "a matter of changing views and practice of women in the kitchen," but, as Rowntree and Huxley have shown, of securing food of proper quality in the shops and money in housewives' pockets to buy it with.

When attempting to persuade a rural authority to compost its refuse in 1940 I learnt from the Director of Rothamsted (Sir John Russell) and from the Professor of Horticulture at Reading (Dr. Stoughton) that there was no sort of experimental evidence to show that food (either animal or vegetable) grown on chemically fertilized soil would maintain fertility in succeeding generations. It would, of course, sustain life and strength (though not necessarily health) and was therefore admissible in wartime to preserve an island race from starvation. But it cannot compare with the product of biological fertilization as a basis for the exuberant health we plan for the future (McCarrison, Howard, etc.).

Prof. Miller of the Royal Veterinary College has said that "scientific" feeding has produced a deterioration in the health of farm animals, that the 3,000-gallon cow often aborts and becomes barren, and that the 320-egg fowl too often develops leukaemia, tuberculosis, or fowl paralysis. How are we to know that the flesh of these animals will maintain the human race in health and fertility? Can we not demand experimental evidence to equal that of Orr, Wrench, and the aforementioned authorities, before the chemical industry is allowed completely to dominate food production?—I am, etc.,

Caernarvon. GRIFFITH EVANS.

Medical Reciprocity with France?

SIR,—I venture to suggest that it would be a friendly if not actually a sound diplomatic gesture if the G.M.C. would admit to the *Medical Register* doctors who are in possession of a French degree. As it is, I know of at least one medical man who is actually a British subject and who is M.D.Paris and is disqualified here. He is not even allowed to take the final professional examination. There is, or was, reciprocity between this country and Italy. Is there any very good reason, therefore, why there should not be the same reciprocity with regard to France, especially in the case of those who are British subjects and who hail from one of our possessions?—I am, etc.,

Edinburgh. JAMES BURNET.

*** This is a matter for the Privy Council under Section 17 of the Medical Act, 1886.—ED., *B.M.J.*

Breathing and Coronary Circulation

SIR,—The death rate from angina pectoris and coronary artery thrombosis has rapidly risen in the last 30 years. In 1911–21 52 per million died from these complaints, in 1930 303 per million, and in 1940 967 per million. A patient aged 59 recently came to be examined because he had noticed so many people died suddenly, especially men. Acquaintances of mine who have died suddenly include a well-known provincial cardiologist from a coronary thrombosis, a Naval officer aged 53 was found unconscious suffering from a coronary thrombosis, and three doctors aged 55, 62, and 45.

Can nothing be done to check this increased mortality? Certainly no drugs or dieting will help. Is there any physical method that would help? It is possible that sustained increase of well-oxygenated blood to the heart would help. The problem is to produce this condition; the left ventricle, elastic arteries, and gravity help the outflow to the tissues; but the return of the blood to the heart is retarded by gravity and the lack of elasticity and poor valves in the veins; to the rescue comes the suction action of the thorax during inspiration. Unfortunately in so many men the thorax scarcely moves during inspiration, but it is otherwise in most women. If physical means will help, the exercises to be given are:

(1) To put most of the body weight on the balls of the toes when standing and also when sitting. This stance tones up the muscles of the feet, the legs, the thighs, and the abdominal muscles, and thus helps veins and lessens the action of gravity.

(2) To see that the thorax moves sufficiently when breathing This is done by keeping the shoulders tightly back and slightly down and holding them steady there during inspiration and expiration. To keep the shoulders tightly back is done with least effort by getting the pull in the back just below the axillae.

(3) In addition to the above, deep thoracic breathing should be undertaken, say, twice a day, and the range of movement should be checked in front of a mirror to be sure the thorax is really moving.

Naturally this idea and its results cannot be proved, but it is common sense to ensure plenty of blood to the arteries and muscles of the heart if the heart is to keep free from disease. All, especially men who fear that these complaints may be their weakness, would do well to follow these simple suggestions of breathing and stance during the day.—I am, etc.,

Ealing, W.5. R. H. DIXON.

Colonial Medical Services

SIR,—You have recently published many letters criticizing the various Colonial Services and their organization which would tend to make the reader at home rather ashamed of those services. Those letters, too, may well have a worse effect—that of preventing the young doctor at home from applying for appointments abroad. It is well to realize that any service, especially a medical one, is open to criticisms, and often is unable to reply completely to them.

The majority of Colonial Medical Services have fewer than fifty British doctors. This staff is responsible for administration, surgical, medical, and public health work throughout their own territory. That territory often comprises a few busy crowded towns, but in the main is African bush inhabited by different tribes speaking different languages and having different customs. The doctor should be able to adjust himself so that he can institute the essential medical services under many and varied conditions. Only too often is he hampered in his work, not by red tape and officialdom, but by the ignorance and non-cooperative attitude of the native. Superstition and magic still play their part, and modern medicine, no matter how high may be one's ideals or how energetic one's enthusiasm or how capable one may be, is still an uphill job. This is only too true in the towns, where one would expect a little enlightenment and co-operation.

During the last few years of war those medical services have had an even more difficult task. The civilian doctors have been recruited as medical officers in the various native Army Corps that have done such fine work for the Allies. The remaining civilian doctors, short of staff, short of drugs, and with little leave, and as often as not separated from their wives and families for prolonged periods, have not only maintained these essential services but in many instances have improved them. They have been faced with new problems such as yellow fever; they have had to man base hospitals and do military work of all kinds in addition to their own civilian job.

These times of stress have naturally brought to light some of the age-old grumbles. To shout these from the house-tops and to allow letters to be published decrying our Colonial Services is not fair to those who have done the job. There are doubtless many causes of complaint which could be settled internally, and will be settled after the war. As a member of a similar service for the last twelve years I beg to make the following suggestions:

1. No one should come out and expect to start as a specialist. A sound general knowledge of the difficulties in all parts of the territory is necessary. Every doctor, no matter how specially qualified, should do his turn of administration, public health, and so forth.
2. The administrators must be men of personality, who know the country. Personality and the power of leadership are essential qualities for a director of medical services. Without these even the most ideal man, with the most generally accepted and ideal policy, will not go far.
3. Regular facilities for study leave must be organized and granted to all.
4. Promotion on merit and not on mere seniority should be the rule. Merit includes suitability for the post.

5. Opportunities for members of the medical service to travel and see how other Colonial Medical Services work should be provided regularly.

6. Much medical work is hampered by lack of funds. Grants from the home Government should be made more frequently to enable the medical services to be more effective.

All medical services among African communities need not only first-class British doctors but also first-class British nursing sisters to train and supervise the nurses in native wards. These are not always forthcoming, but they are as essential as the doctors. I have had the opportunity of seeing something of the medical services in the Sudan, Uganda, Kenya, and of meeting some of the medical officers from Nigeria, as well as of seeing something of the medical services in the Belgian Congo and French Equatorial Africa. I have been amazed that so few doctors have managed to achieve so much under such difficult circumstances. They might have achieved more if all their grievances had been attended to, or if they were given more opportunity by the natives themselves. We must look at these services in their true perspective. In my opinion they have achieved something of which British medicine may well be proud.—I am, etc.,

"CREDITOR."

The Young Married Doctor

SIR,—I was interested to read "Married Doctor's" letter (Dec. 23, p. 835). The lack of accommodation for married men in hospitals, where the appointments are not for six months or a year but are so-called permanent posts, is a source of much distress and discontent, which is inevitably reflected in the quality of the service. This is bound to be less wholehearted than would be given by the same men in happier circumstances. Those responsible for hospital administration should realize that if they alter their attitude to this question their hospitals would gain not only by the increased efficiency which results from good working conditions but also by the retention in their service of men of high qualifications and attainments, who are forced at present to take up other branches of medicine if they wish to marry and have a normal life.

Industrial psychologists teach that a high labour turnover is indicative of an unhealthy organization; this is true of hospitals as well as of factories. It is particularly true when the turnover occurs, as in this case, among responsible officials, so that there is a lack of that continuity of leadership which makes for happy and efficient teamwork. More especially is it true where patients are suffering from illness requiring long-term stay in hospital, when the advantages of a reasonably stable staff are incalculable.

But the provision of suitable married quarters is only one step on the way. Most doctors look back with real affection to their days as house-officers, working and living as the members of a closely knit community. Few would care to lead such an existence for the rest of their professional lives, yet that is what even a senior resident medical officer is expected to do at present. Sometimes the quarters and furnishings are relatively good, but it is seldom possible for him to make a real home for himself. He is usually completely dependent for food and for cooking facilities on the main or ward kitchen. He has no garden where he can sit or work in the fresh air with any degree of privacy. He is unable to have friends to visit him with the freedom which is desirable, especially when, as is often the case, he cannot leave hospital for days on end. There may be excellent reasons for a man not marrying, but there can be none to justify his being prevented from having as rich and full a life as possible. I can speak from personal experience of the recreative effect of an hour or two in a colleague's home, where one may talk "shop," but where one does escape for a little from the "institution" atmosphere, and yet be on hand if required.

There is a strong case for the provision of proper accommodation for resident medical officers holding other than house appointments. It does not necessarily follow that we think that such accommodation should be a charge falling wholly on the hospital authorities. Many would be glad to pay a reasonable rent in return for the opportunity to live their own lives when not actually at work—surely one of the rights of every individual.

This problem is closely linked with another, also the subject of recent correspondence—namely, the pay of medical officers, especially in mental hospitals. The solution of both is largely dependent on the governing bodies recognizing that the day of the underpaid, badly housed, mediocre, often intemperate hack has passed for ever, and that there are many keen, well-qualified men anxious to give of their best in hospital work if they are given a reasonable livelihood and the chance of a normal home life.—I am, etc.,

"B.1."

Medical Demobilization

SIR,—The *Journal* for Nov. 4 has just reached me [Dec. 12] in the field in Italy. I would like to comment on the statement concerning the special position of medical officers in the Government's proposals for demobilization at the end of the European war (p. 605).

I note that "recommendations for transfer of medical officers under Class B will be made by the Central Medical War Committee after consideration of applications submitted through the Local Medical War Committees." This means that for all practical purposes medical officers qualified since September, 1939, who, because they were in house appointments or were only assistants in general practice, were called up first will not have a chance of release under the Class B scheme, the reason for this being, quite simply, that as they have no practice and do not in the main belong to any local Division of the B.M.A., no Local Medical War Committee is going to put up a request for their release under Class B. They themselves do not, at least from the article quoted, appear to have any other hope of early release under the B class except through the local committee's application. Thus the fact has been completely ignored that they, more than any older officer, will want to start as soon as possible either studying for their postgraduate degree (which their E.M.S. colleague has now collected in comfortable civil life) or, alternatively, to start in general practice.

I should have thought that the Central Medical War Committee could have initiated some applications itself, in the case of younger medical officers without local associations or practices, and at the same time recruited some of the E.M.S. officers, who have so far been deferred, to take their places. These, along with those Category C men who were admittedly not fit for war but who would be quite suitable for line-of-communication duty in an Army of Occupation, and the annual number of newly qualified doctors, should be ample to release those medical officers who have served long enough to qualify under the Class B scheme or who want release under Class B.

As the matter stands now the younger medical officer, if he has to compete with the older man with a colleague in his practice to put his case up to the Local Medical War Committee, has no chance at all, and looks like stopping in the Service—that is, first in and last out.—I am, etc.,

In the Field, Italy. "SERVING OFFICER."

Débridement et Épluchage

SIR,—Mr. d'Offay is wrong when he says that *débridement* has nothing to do with debris. The first five letters are the same and are pronounced in the same way, and hence it is easy to transfer the idea of the one to the other. Etymologically, of course, he is right: *débridement* is from *débrider* and *débris* from the obsolescent verb *débriser*, as can be found out by looking up a dictionary. But something more important than etymological purities is involved. Surgery wrung a new principle of healing out of the experiences of the last war, the discovery that it is easier to get rid of organisms from wounds by robbing them of food than by bombarding them with protoplasmic poisons, and in so doing anticipated the principle of modern chemotherapy by twenty years. A surgical principle of such importance is worthy of a special descriptive term. The term "excision" will not do, as it gives no indication of what is excised; in fact, the principle of débridement, or desloughing, can often be achieved in face and scalp wounds without any excision at all, as, owing to the good blood supply, there is no tissue debris or potential slough to excise. "Wound toilet" is likewise, and for similar reasons, inadequate. Anyone who objects to the terms "débridement" or "desloughing" must find in their place an equally vivid descriptive term.—I am, etc.,

London, W.1. DAVID H. PATEY.

Obituary

T. N. KELYNACK, M.D., M.R.C.P.

We regret to announce that Dr. Theo. N. Kelynack died on Dec. 23 at his home at Harpenden, aged 78. Dr. Kelynack edited the *British Journal of Tuberculosis* for 27 years, the *British Journal of Inebriety* for 32 years, and *The Child* for 17 years. Among the many posts he had held was that of physician to the Mount Vernon Hospital before it moved from Hampstead to Northwood, and he continued his active connexion with it until it ceased to be a hospital for diseases of the chest, when the governing body appointed him honorary consulting physician.

Theophilus Nicholas Kelynack, son of the Rev. N. Kelynack, was born at Wells, Somerset, on June 26, 1866. From University College School, London, he went to study medicine at Owens College, Manchester, and graduated M.B., Ch.B. with distinction at the Victoria University in 1889. He was awarded the gold medal in 1893 for his M.D. thesis on the pathology of the vermiform appendix, and he took the M.R.C.P. two years later, after serving as house-physician, pathologist, and medical registrar at the Manchester Royal Infirmary. Before coming to London he had been demonstrator and assistant lecturer in pathology and assistant to the professor of medicine at Owens College.

Dr. Kelynack had a deep feeling of social responsibility, and in the early years of this century began to write on the alcohol problem. He compiled many health manuals, and for a number of years acted as joint honorary secretary of the Royal Institute of Public Health; he was also honorary secretary of the Society for the Study of Inebriety, whose journal he edited from 1903 to 1935. In the early years of his appointment at Mount Vernon he wrote on the sanatorium treatment of consumption and edited a book, *Tuberculosis in Infancy and Childhood*, by various writers (1908); he also edited *Defective Children* and *The Drink Problem of To-day in its Medico-Sociological Aspects*, of which a second edition appeared in 1916, and *Human Derelicts*. Other publications associated with his name were the *Tuberculosis Year Book and Sanatoria Annual* (1913); the *Year Book of Open-Air Schools and Children's Sanatoria* (1914), and the *Child Welfare Annual* (1916). Dr. Kelynack was also visiting physician to the Harpenden Sanatorium for Children and medical adviser to the Shaftesbury Society and the National Children's Home and Orphanage. In 1919 he was appointed a J.P. for the County of London. His wife, the late Dr. Violet Kelynack, was medical secretary of the Medical Women's Federation, and his daughter, Dr. Agnes Kelynack, is now assistant secretary of the B.M.A., after being senior medical officer for civil defence under the Essex County Council.

CHARLES LEONARD ISAAC, M.B.CAMB., F.R.C.S.ED.

Colonel Charles Leonard Isaac died at the age of 67 at Swansea, his native town, on Nov. 6, 1944, after a brief illness. He was the son of a well-known solicitor, and graduated M.B., B.Ch. at Cambridge in 1904. Soon afterwards he started in practice in Swansea, and rapidly attained a place on the honorary staff of the Swansea General Hospital and was senior surgeon there from 1919; he became very well known over a large part of South Wales. In the last war he entered a new field of activity and served with distinction in the R.A.M.C. in France. Military surgery and the Army life suited him, and after the war he took a most active part in Territorial Army affairs, ultimately serving as A.D.M.S. in the Western Command. The age limit enforced his retirement from active military life shortly before the present war. During his active period he had had the distinction of being Honorary Surgeon to the King, and he had also been a deputy-lieutenant of the County of Glamorgan.

Isaac was an active member of the B.M.A. and had been chairman of the Swansea Division. In the years between the wars he took a very full part in the work of the British Legion and the welfare of ex-Servicemen. Medical and hospital politics did not attract him, though his military record affords evidence of administrative capacity. Popularity came to him unsought; it was impossible to be gloomy when Col. Isaac was present, and no circumstances of war or blitz appeared to perturb him. He was witty and very quick in response, and his friendly bantering chaff and good-natured humour were a source of joy to all who came into his circle. His quickness of mind was reflected in his work as a surgeon; he would decide rapidly whether to operate or to refrain, and when operating his technique was rapid and dexterous, a pleasure for his co-workers to see and a matter of legitimate pride for himself. Isaac enjoyed the social life and was a well-known figure in the life of his locality. He was particularly prominent as a medical witness in the courts and had achieved a merited reputation as a helpful and unbiased guide in cases of litigation. A notable tribute to his work as a witness was paid from the Bench and the Bar at the county court after his death.

As a personal friend he was generous, hospitable, and unchanging; he disliked quarrels or bickering, though quite able to assert himself effectively when occasion arose. His death deprives Swansea of a surgeon of distinction—a man well beloved by his colleagues, by a wide circle of friends in many spheres of life, and by many grateful patients. He is survived by his widow, a son now serving in India in the Royal Artillery, and a daughter serving in the W.R.N.S.

A. F. S.

The Services

Col. J. W. Vanreenen, O.B.E., I.M.S., V.H.S., has been appointed Honorary Physician to the King in succession to Col. R. V. Martin, C.I.E., I.M.S. (ret.).

Temp. Surg. Lieut. H. R. Gray, R.N.V.R., has been mentioned in dispatches. This name appears in a list of awards for gallantry, skill, determination, and undaunted devotion to duty during the landing of Allied Forces on the coast of Normandy.

Surg. Lieut. J. F. Hanratty, R.N.V.R., and Temp. Surg. Lieut. L. A. H. Willson, R.N.V.R., have been mentioned in dispatches for good work in damage control and the care of the wounded.

Lieut.-Col. D. D. Logan, D.S.O., Lanarkshire Home Guard, has been appointed O.B.E. (Military Division) in recognition of meritorious service in the Home Guard.

The *London Gazette* has announced the following appointments and awards in recognition of gallant and distinguished services in Italy:

C.B. (Military Division).—Brig. (Temp.) R. W. Galloway, C.B.E., D.S.O., late R.A.M.C.

C.B.E. (Military Division).—Col. (Temp.) J. B. S. Guy, O.B.E., T.D., R.A.M.C.

O.B.E. (Military Division).—Cols. (Temp.) G. Anderton, W. J. F. Craig, and J. C. Gilroy; Lieut.-Cols. D. McVicker, M.C., G. B. Mitchell-Heggs; Majors (Temp. Lieut.-Cols.) F. H. Bentley, H. D. Chalke, F. G. Holman, J. G. Jamieson, F. R. Langmaid, A. J. Pitkeathley, J. K. Slater, and D. T. Swift, R.A.M.C.

M.B.E. (Military Division).—Major (Acting Lieut.-Col.) C. D. Preston; Capts. (Temp. Majors) J. A. Ross, R. A. Tennent, R. J. Toleman, B. McN. Truscott, R. I. Wilson, H. J. Bell, H. W. Burge, J. M. P. Clark, G. J. Cunningham, W. Davidson, D. J. Davies, F. C. Heatley, J. N. Macartney, I. A. MacDougall, W. L. Ogle, A. Orlek; Capts. A. P. R. Borrowman, M. C. H. Kingdon, F. E. Pitt-Payne, R. H. R. Renwick, R.A.M.C., Capt. M. G. Pendharker, I.A.M.C.

D.S.O.—Major (Temp. Lieut.-Col.) P. J. Richards, O.B.E., R.A.M.C.

M.C.—Capt. (Temp. Major) R. A. Hooper; Capts. J. Braham, A. M. Glaser, O. D. Morris, L. G. Morrison, and D. F. O'Neill, R.A.M.C.

Capt. (Temp. Major) F. J. G. Slater, Capts. T. G. Cameron, J. T. A. Lloyd, A. N. MacPhail, H. D. Moore, and J. A. Perpoli, R.A.M.C., have been awarded the M.C. in recognition of gallant and distinguished services in N.W. Europe.

Capts. R. D. Barron, E. E. Miller, M.M., and W. F. MacKenzie, R.C.A.M.C., have been awarded the M.C. in recognition of gallant and distinguished services in the field.

CASUALTIES IN THE MEDICAL SERVICES

Died in Burma.—Lieut.-Col. John Dennis Francis Armstrong, R.A.M.C.

Died on service.—Fl. Lieut. Ivor Mazure, R.A.F.V.R.

DEATHS IN THE SERVICES

Lieut.-Col. SYDNEY NUTTALL HAYES, O.B.E., died suddenly on Dec. [illegible] at Lahore, India, aged 53. He was educated at the Middlesex Hospital and took the M.R.C.S. and L.R.C.P. in 1918. In 1921 he passed the F.R.C.S.Eng., and the F.R.C.O.G. in 1934. Before qualifying in medicine he served for two years during the 1914–18

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war in the Royal Field Artillery Territorial Force. In 1918 he held a temporary commission as captain in the I.M.S., and in 1921 obtained a permanent commission. Later he specialized in gynaecology and obstetrics and obtained the professorship in these subjects at the King Edward Medical College at Lahore. He published papers on the sterilization of dressings and on the operative treatment of vesico-urethral and vesico-vaginal fistulae—distressing conditions seen very commonly in India on account of the backwardness of midwifery. Col. Hayes's early death at the height of his powers and usefulness is a serious loss to his specialty in India.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

Arthur Charles Douglas Firth, M.D., F.R.C.P., senior physician to King's College Hospital, London, has been elected into a supernumerary Fellowship at Trinity Hall.

At a Congregation held on Dec. 16 the degree of M.D. was conferred by proxy on P. L. Mollison.

The following candidates have been approved:

FINAL M.B.—*Part I. Surgery, Midwifery, and Gynaecology:* D. G. Abrahams, R. C. Allison, E. L. Arnold, A. C. Arthur, D. A. Bailey, D. A. N. Barran, D. V. Bates, A. D. Beard, R. Bellamy, J. P. M. Bensted, P. F. Boreham, A. R. C. Butson, R. E. Church, H. C. Churchill-Davidson, I. F. J. Churchill-Davidson, J. M. Cliff, N. K. Connolly, J. Crichton, W. P. Dallas Ross, N. N. Davies, I. M. P. Dawson, A. G. Dingley, N. K. Dryden, A. L. T. Easton, T. A. Evershed, W. S. R. Fenton, J. W. B. Forshaw, S. G. A. Forsyth, T. C. Gibson, R. N. Grabowsky-Atherstone, R. A. Green, E. Halász, R. J. Harrison, P. H. Hewitt, W. A. A. Hodges, R. Hyde, P. M. Jeavons, P. B. Kunkler, J. B. Lawson, C. B. McKerrow, H. B. Mallows, P. R. A. May, J. B. Metcalfe, C. M. Monro, W. J. Naunton, G. R. E. Naylor, K. M. Nuttall, C. J. H. Paget, T. C. L. Parry, B. W. Pay, R. F. Payne, V. R. Pickles, J. R. H Pinkerton, D. A. Pond, D. A. Pyke, R. Randell, J. O. Robinson, J. A. Rycroft, G. H. Seale, D. N. Seaton, D. W. S. Sheldon, J. C. Sloper, J. R. Smythies, R. E. B. Spencer, R. H. Thomlinson, M. G. Thorne, O. L. Wades, P. H. Walker, R. V. Walley, J. M. Walshe, W. R. Wardill, W. Waugh, J. A. Waycott, E. J. M. Weaver, J. E. M. Whitehead, D. Wilson, R. B. Wilson, J. H. F. Wood, S. P. Wrightson. *Women:* I. M. S. Chappel, C. E. Cooper, M. E. P. Hele, J. E. Keilin, M. M. Mason, M. C. Myddelton, L. A. Norris, N. J. Pease, H. M. Russell, C. N. Smith, J. Whitham. *Part II. Principles and Practice of Physic, Pathology, and Pharmacology:* T. B. Anderson, J. D. Andrew, C. G. Attenborough, D. V. Bates, H. H. E. Batten, T. C. Beard, W. M. Bennett, J. H. E. Bergin, I. J. Carré, W. R. Cole, G. N. Cooke, P. B. S. Cooper, J. M. Davis, C. H. de Boer, C. D. Drew, J. M. Drew, E. D. Dyson, H. L English, J. J. Fleminger, T. P. S. Frew, S. A. M. Garibian, H. M. Giles, J. S. R. Golding, M. L. Graeme, P. F. Haggart, R. J. Harrison, G. Hartridge, F. G. J. Hayhoe, P. R. Headley, I. S. Hodgson-Jones, J. G. Holmes, D. G. James, E. G. Jenner, E. D Jones, J. D. S. Knight, A. G. Leatham, P. F. Lucas, D. W. R. Lyle, M. B. McIlroy, I. A. Magnus, P. R. A. May, E. T. G. Meade-Waldo, C. M. Monro, M. W. L. Mutch, E. W. Nation, G. A. Newsholme, T. J. S. Patterson, A. N. Pearson, P. K. Robinson, G. H. Seale, K. W. Symons, J. M. Thomas, W. E W. Tilleke, J. Upsdell, D. P. Wheatley, R. A. Womersley, K. A. A. Wray, M. F. T. Yealland. *Women:* E. M. Davies, M. Farquharson, M. H. Jordan, E. M. Kingsley-Pillers, S. M. Martin.

UNIVERSITY OF MANCHESTER

The following candidates have been approved:

FINAL M.B., CH.B.—H. W. Ashworth, W. C. Astley, D. J. Atherton, George Bennett, Ethel F. Caplan, Dorothy I. Elkin, G. V. Feldman Doreen H. Hayes, Margaret Laycock, H. B. Marsden, Joan E. Nuttall, M. G. Saunders, L. Shuck, Cecilia M. Smellie, Margaret M. Tutton, P. O. Yates.

UNIVERSITY OF WALES

The following candidates in the Welsh National School of Medicine have satisfied the examiners:

M.B., B.CH.—*Pathology and Bacteriology:* T. J. Anthony, A. J. Barry, A. H. Baynon, D. K. L. Davies, G. E. Davies, E. D. Edwards, D. B. Harries, J. M. Hughes, S. T. James, A. S. Jones, M. G. Jones, Nest Jones, R. L. H. Jones, Mary Lawrence, Bernice G. Lewis, J. M. Lewis, R. Medlicott, G. Owen, Barbara M. Parker, Beryl P Roberts, K. L. Roberts, S. L. Stone, W. D. C. Thomas, J G. Tomkins, D. M. Watkins.

NATIONAL UNIVERSITY OF IRELAND

The following candidates have been approved at examinations held in December:

M.B., B.CH., B.A.O.—Margaret Barry, Geraldine Casey, C. Conran, P. Conran, J. F. Cox, J. J. F. Donworth, M. D. Doyle, D. W. Harvey, J. A. Jervois, P. Kelly, P. O'Donovan, Margaret P. O'Sullivan, Noel G. Roche, J. C. Symons.

M.CH.—M. J. Kelleher, M.B., B.Ch.

D.P.H.—J. Russell, M.B., B.Ch.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At a meeting of the College held on Dec. 19, Prof. R. W. Johnstone, President, in the chair, the following who passed the requisite examinations were admitted Fellows:

R. S. Barclay, M.D.; Marjorie R E. Boyd, M.D.; R. B. W. Cole, M.B., B.S.; Leonard Goodman, M.R.C.S., L.R.C.P.; S. W. G Hargrove, M.B., B.Ch.; L. W. Hefferman, M.R.C.S., L.R.C.P.; Mary K. Lawlor, M.R.C.S., L.R.C.P.; F. J. Lorriman, M.D.; Gardiner Mitchell, M.B., Ch.B.; D. R. K. Reid, M.B., Ch.B.; Paul Steiner, M.R.C.S., L.R.C.P.

Medical Notes in Parliament

Immunization of Children in Scotland

On Dec. 8 Mr. A. EDWARDS asked the Secretary of State for Scotland whether the figure of 840,000 immunized children in the Summary Report by the Department of Health for Scotland for the year ended June 30, 1944, included all children immunized in 1940, 1941, 1942, and 1943.

Mr. JOHNSTON: Yes, Sir. I regret that through an oversight on this occasion an adjustment was not made to allow for children immunized in previous years who were no longer under the age of 15 in 1943. This adjustment cannot be precisely calculated, but it is estimated that the average number of immunized children under the age of 15 in 1943 was about 700,000. Correspondingly the number of non-immunized children in 1943 would be 540,000, not 400,000 as stated in the Summary Report. These figures make no allowance for the unknown but relatively small number of immunizations performed by private doctors outside local authority arrangements. In place of the incidence rates quoted in that report, therefore, it appears that approximately 1 in every 160 non-immunized children took diphtheria during 1943 as compared with only 1 in every 430 immunized children. The case-mortality rates quoted in the report of 1 death in 18 cases for non-immunized children as compared with 1 death in 163 cases for immunized children are not affected by this adjustment.

British Prisoners-of-War in Siam

On Dec. 19 Sir JAMES GRIGG, replying to Sir Alfred Knox, said that from the information received from the British prisoners-of-war in Japanese hands rescued by the United States Navy from the sea last September, there was no doubt that the Japanese military authorities decided to construct the railway and road between Siam and Burma with all speed and regardless of the conditions under which the prisoners worked or of the cost in human life. After the completion of the railway, conditions improved somewhat, but they were far below anything which would be regarded as reasonable for our prisoners-of-war in Europe. The men, however, had adapted themselves and become to some extent inured to these lower standards, while many of the conditions which caused such heavy sickness and death rates in the jungle camps did not obtain in the rear camps to which the men were withdrawn. As a consequence there was apparently a very marked fall in the death rate, and there was evidence to show that, on the whole, the prisoners were in fair health and good spirits when the rescued men left Siam about July, 1944. In the rear camps round Banpong their huts were weatherproof, cooking and sanitary arrangements were hygienic, and there was some space and opportunity for exercise. The Protecting Power had been asked to make the strongest possible protest regarding the past conditions in Siam and Burma. With regard to present conditions, we should continue to press the Japanese to allow all camps in Siam and elsewhere to be inspected regularly by neutral observers, to make arrangements which would enable the Red Cross to send adequate relief supplies for all our prisoners, to improve the mail service to and from prisoners, and to notify within a reasonable period all casualties, past, present, and future, affecting British prisoners-of-war.

Manufacture of Penicillin

Sir ANDREW DUNCAN said on Dec. 20 that many British manufacturers were now manufacturing penicillin or making arrangements to do so. Any firm licensed for this purpose under the terms of the Therapeutic Substances Act would be given every encouragement to manufacture. It was premature to give estimates of our production of penicillin in a year's time, but this would be substantial, though less than American production. It would not only meet military needs but provide large quantities for civilian purposes.

Leprosy in the Colonies

On Dec. 20 Dr. SUMMERSKILL asked how many people suffered from leprosy in the Colonies, and what proportion were treated in leper settlements. Col. STANLEY replied that statistics were not available, but it was known that in those Colonial territories where the disease had the largest incidence only a small proportion of the sufferers were in settlements. The policy generally followed was one of voluntary as opposed to compulsory segregation. In certain territories a stage had been reached when considerable numbers were being discharged annually from such settlements, with the progress of the disease arrested, and returned to their villages, under observation.

Medical News

The Negotiating Committee appointed by the B.M.A., the Royal Colleges, and other bodies will have its first meeting with the Ministry of Health on Jan. 12.

Lieut.-Col. C. H. Stuart-Harris will deliver the Goulstonian Lectures at the Royal College of Physicians, Pall Mall East, S.W., on Tuesday and Thursday, Jan. 16 and 18, at 2.30 p.m. Subject: "Influenza Epidemics and the Influenza Viruses."

The Medical School of St. Thomas's Hospital has vacated the temporary premises at Godalming and will re-open in the Medical School buildings in London on Jan. 9. The linked St. Thomas's Hospital at Hydestile will continue to cater for the major part of in-patient clerking and in-patient dressing.

The next clinical meeting of the Whipps Cross Hospital Medical Society will be held on Jan. 12 at 8.30 p.m.

There will be a meeting in London of the Society of Thoracic Surgeons of Great Britain and Ireland on Thursday and Friday, Jan. 25 and 26. At 2 p.m. on Thursday, at the Royal Society of Medicine, Wimpole Street, W., the subjects for discussion will be constrictive pericarditis, and foreign bodies in the air passages. On Friday morning at 10 a.m. at Manson House, Portland Place, W., there will be a discussion on the treatment of carcinoma of the bronchus. Members of the Allied military medical services and surgeons in the E.M.S. will be welcome.

The Sheffield Fabian Society has arranged a public debate on a national health service to be held on Saturday, Jan. 27, at 3 p.m. in the City (Memorial) Hall, Sheffield. The opening speakers will be Dr. D. Stark Murray (vice-president, Socialist Medical Association) and Dr. A. Macrae (assistant secretary, British Medical Association).

Dr. J. G. Porter-Phillips, F.R.C.P., has been elected a member of the Governing Body of Bethlem Royal Hospital on his retirement from the post of physician-superintendent, which he has held for thirty years.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* infectious diseases were generally lower in incidence; notifications of diphtheria were fewer than last week by 150, whooping-cough by 122, dysentery by 53, and scarlet fever by 15. Measles notifications rose by 79. One case of smallpox was notified from the metropolitan borough of Hackney.

There were no large local variations in the incidence of scarlet fever. The fall in whooping-cough was fairly general throughout the country; Lancashire reported 21 fewer cases of this disease. Diphtheria notifications were the lowest for fifteen weeks; Lancashire reported 53 fewer cases than last week, Durham 32, and Cheshire 20. The rise in measles was the smallest for the past thirteen weeks, and there were wide local variations.

Dysentery notifications at 201 were the lowest for the past eighteen weeks. There were 24 new cases notified in Dorsetshire, Sturminster R.D. London returned 27 cases, Lancashire 26, Warwickshire 16 (Birmingham C.B. 14), Glamorganshire 15 (Cardiff C.B. 13), Essex 12, Northumberland 10.

In *Scotland* more than 100 cases of measles were notified for the second consecutive week. There were 23 more cases of dysentery than in the previous week; the largest returns were Glasgow 41, Lanark County 13, Edinburgh 11.

In *Eire* diphtheria notifications fell by 20, and those for measles rose by 24.

In *Northern Ireland* there was a slight drop, 13 cases, in the high incidence of measles, and there were also 5 fewer cases of scarlet fever.

Diphtheria

According to returns received from all but a few local authorities in England and Wales, 2,243 cases of diphtheria among immunized children were notified during the first half of this year, as against 6,743 among non-immunized children. The number of deaths among immunized children was 16, compared with 368 among children not so protected.

Week ended December 23

The returns of infectious diseases in England and Wales during the week included: scarlet fever 1,906, whooping-cough 1,317, diphtheria 456, measles 8,433, acute pneumonia 715, cerebrospinal fever 33, dysentery 173, paratyphoid 3, typhoid 5.

No. 50

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Dec. 16.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1944					1943 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	37	3	18	—	1	64	5	16	—	3
Deaths		1	—				2	—		
Diphtheria	463	20	142	108	16	550	4	131	104	43
Deaths	7	—	4	2	—	16	1	3	5	—
Dysentery	201	27	101	—	—	133	47	47	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	1	—	—	—	—	4	—	1	—	—
Deaths		—					—			
Erysipelas			46	4	1			59	5	4
Deaths		—					1			
Infective enteritis or diarrhoea under 2 years				24					10	
Deaths	32	4	9	9	5	42	8	11	14	—
Measles*	8,985	114	528	37	251	416	47	59	34	1
Deaths	7	—	1	—	—	1	—	—	—	—
Ophthalmia neonatorum	76	4	22	—	—	83	3	18	1	1
Deaths										
Paratyphoid fever ..	5	—	—	—	—	1	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	725	27	5	6	—	2,593	220	66	21	10
Deaths (from influenza)	21	1	7	1	—	1,109	129	52	3	3
Pneumonia, primary ..			345	29				437	18	
Deaths		33		18	15		145		17	15
Polio-encephalitis, acute	—	—				1	1			
Deaths		—					—			
Poliomyelitis, acute ..	5	1	—	1	1	6	1	—	1	—
Deaths		—					—			
Puerperal fever		2	9		1		2	18	2	—
Deaths							—			
Puerperal pyrexia‡ ..	123	3	15	—	—	132	4	17	—	1
Deaths		—								
Relapsing fever ..	—	—			—	—	—			1
Deaths										
Scarlet fever	1,990	60	295	40	60	1,936	145	239	35	116
Deaths	2	—	—	—	—	1	—	1	1	—
Smallpox	1	1	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	7	—	1	5	—	3	—	1	104	—
Deaths	—	—	—	—	—	—	—	1	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough* ..	1,343	53	134	54	12	1,400	123	158	47	24
Deaths	3	—	2	1	—	13	2	6		1
Deaths (0–1 year) ..	350	29	70	42	36	406	53	84	60	18
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	5,069	719	699	233	150	8,502	1,404	830	301	166
Annual death rate (per 1,000 persons living)			16·1	15·1	§			18·7	19·8	§
Live births	6,806	692	906	304	266	5,825	728	815	316	244
Annual rate per 1,000 persons living ..			18·4	19·7	§			16·6	20·8	§
Stillbirths	224	13	31			208	20	38		
Rate per 1,000 total births (including stillborn)			·33					45		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London*. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Hypertension and Blood Donation

Q.—*Should hypertensive patients offer themselves as regular blood donors? If epistaxis and menorrhagia are considered "safety valves," why not blood donation? I have a patient aged 39 with a blood pressure of 210/120 and menorrhagia. In the opinion of a specialist it would be very unwise to do anything about the menorrhagia.*

A.—It is a well-known saying that many a patient has been saved from a cerebral haemorrhage by heart failure. It is equally true that a severe anaemia may mask an underlying hypertension, and most haematologists have had the embarrassment of seeing the symptoms of anaemia replaced by those of hypertension as a result of iron or liver therapy. Neither heart failure nor severe anaemia could be taken as therapeutic objectives, however, and anything less than a severe anaemia has little effect on hypertension. Bleeding is useful in hypertensive encephalopathy, but it is of little value in the ordinary course of the disease. There is always the possibility that a blood donation will be followed by fainting or some grosser vascular accident, which will be blamed on the procedure. A blood transfusion centre is no place for the unhealthy, and as a general rule we should deprecate using hypertensive patients as regular blood donors.

Chemotherapy of Malignant Endocarditis

Q.—*Would you clarify the question of treatment of malignant endocarditis, including subacute bacterial, in regard to sulphonamides and penicillin.*

A.—The response of subacute bacterial endocarditis to any form of chemotherapy is very variable, much depending on the stage of the disease and the sensitivity of the responsible organism to the drug used. Various sulphonamides have been employed for some years past with only occasional lasting benefit. If the particular streptococcus is sufficiently sensitive to the drug, blood cultures become negative and the general condition improves, but recurrence after cessation of treatment is the rule. The simultaneous administration of heparin to prevent further fibrin deposition on the vegetations gives the drug a better chance, but involves a serious risk of causing cerebral haemorrhage. Prolonged treatment with massive doses of sulphadiazine has recently been advocated. Ideally, choice of drug should be determined by tests of the sensitivity to it of the patient's own streptococcus.

The treatment of subacute bacterial endocarditis with penicillin was the subject of recent comment in this *Journal* (Sept. 16, 1944, p. 380). Penicillin has undoubtedly a more powerful antibacterial action on the streptococci concerned in this disease than any of the sulphonamides, but the sensitivity of different strains varies enormously (M. H. Dawson *et al.*, *Proc. Soc. exp. Biol.*, N.Y., 1944, **56**, 101), some being so resistant that treatment cannot be expected to succeed. This doubtless accounts in part for some of the failures reported; on the other hand, among cases treated in the U.S.A. there has been a substantial proportion of apparent cures—or perhaps it would be safer to say prolonged remissions. The total dose required may be 5,000,000 units or more, and since this amount will save a number of lives endangered by other infections it has not been thought justifiable to treat subacute bacterial endocarditis in this country until the supply position improves.

The same considerations apply to the treatment of more acute forms of bacterial endocarditis. It is well known that this complication greatly worsens the prognosis in the penicillin treatment of septicaemia due to any of the pyogenic cocci; in fact the existence of an endocarditis is the commonest explanation of failure in treating staphylococcal septicaemia. Its recognition might be held to call for increased dosage, but there is no evidence that this will succeed.

Functional Uterine Haemorrhage

Q.—*Are oestrogens indicated in the treatment of functional uterine haemorrhage? If so, what are the rationale of their use, their dosage, and times of administration?*

A.—Functional uterine haemorrhage is generally believed to be associated with a failure of ovulation and thus with failure of development of the corpus luteum. The endometrium is thus constantly under the influence of oestrogenic hormone. The primary defect is believed to be a disorder of the anterior pituitary. It is difficult to understand how oestrogenic hormones can benefit such cases, and the most hopeful line of treatment seems to be the administration of pituitary gonadotrophic hormones. Clauberg has claimed success in these cases with "oestrogen shock therapy." The rationale of this is based on the fact that a single large dose of oestrogenic hormone may be followed first by inhibition of the anterior pituitary and storage of the gonadotrophic hormone, and then by release of this hormone and ovulation. This has been confirmed experimentally in animals. A single large dose (100,000 to 200,000 units) of oestrogenic hormone is given a few days after cessation of haemorrhage in cases where bleeding is intermittent.

In assessing all methods of treatment of functional uterine haemorrhage—and the large number of substances that have at one time or another been used for this condition suggests that the ideal method remains to be found—it must be remembered that spontaneous recovery is no uncommon occurrence.

Vitamin K and Post-partum Haemorrhage

Q.—*Is there any recent evidence regarding the value of vitamin K in the prevention of post-partum haemorrhage and haemorrhagic disease in the newborn? What is its value in purpura haemorrhagica? What dosage is suggested?*

A.—There is no doubt that the administration of vitamin K to the mother and/or the newborn child prevents the fall in the coagulating power of the blood which commonly occurs during the first week of life. It would be a much harder task to show that vitamin K prevents the occurrence of haemorrhagic disease, just because the disease occurs so rarely. The incidence in the U.S.A. from 1874 to 1934 was apparently fairly constant at 0.5%. To show an improvement on this figure which was statistically significant it would be necessary to treat 10,000 babies with vitamin K. No one has done this up to date. What many authors have tried to show is that the neonatal mortality from intracranial haemorrhage is reduced by vitamin K. This is a very different proposition, since a coagulation defect is probably not the most important factor in intracranial haemorrhage. Nevertheless it is generally believed that the incidence of intracranial haemorrhage is reduced by vitamin K. One dosage schedule recommends the administration by mouth of 20 mg. synthetic vitamin K to the mother before delivery and 5 mg. to the infant at birth; alternatively a single dose of 10 mg. to the infant is equally effective. Other authors have had success with smaller doses. Vitamin K is of no value in post-partum haemorrhage or purpura haemorrhagica.

Ptomaines

Q.—*Is it true that ptomaines are innocuous when taken by the mouth, and poisonous only when injected?*

A.—The name "ptomaines" was given by Selmi to bodies of the nature of diamines isolated by him and others from putrefactive food. Subsequently a number of such bodies were isolated, including *putrescine*, *cadaverine*, and *neuridine*. When injected into laboratory animals most were highly toxic. The majority were prepared between 1860 and 1884, and at that stage of bacteriology it was not unnatural to assume that they were the cause of food poisoning. Hence originated the use of "ptomaine poisoning" as synonymous with "food poisoning." Subsequent investigations showed, on the one hand, that they were only produced as quite *late* degradation products of putrefaction, when the food would certainly be rejected as too nasty to eat, and, on the other, that their toxicity was exhibited only when injected into animals and that by mouth they were almost completely non-toxic. There is no evidence that any of them are toxic to man by mouth. In all food-poisoning outbreaks (except botulism) the food at fault is indistinguishable in appearance, taste, and smell from sound food, while there is no evidence that the consumption of food in any stages of putrefaction is harmful to man unless the food concurrently contains the toxins of specific food-poisoning bacilli. Savage (*J. Hyg.*, Camb., 1921, **20**, 69) repeatedly fed a series of kittens daily with meat or fish allowed to putrefy at different stages, but most with meat in a highly offensive condition. Apart from some loss of weight, there were no symptoms of ill-health.

An important point is that ptomaines are not specific products of particular bacteria, but are merely late degradation products of the protein molecule, produced by a whole series of putrefactive organisms. The expression "ptomaine poisoning," therefore, should never be used, as it implies that food poisoning may be due to degradation products in food without the presence of any specific causative organism. Actually all food-poisoning outbreaks when investigated are shown to be due to the specific products of particular organisms, such as *Bact. botulinum*, Salmonella strains, certain staphylococci, etc. The use of the term "ptomaine poisoning" is to be strongly deprecated as directing attention away from a specific cause to a non-specific causation which has no existence in fact, and which is merely a "Mrs. Harris" of medicine.

Anaesthetic for a Primigravida with Tuberculosis

Q.—*A primigravida undergoing A.P. treatment for pulmonary tuberculosis is expecting to be confined at an early date. Most authorities advise forceps delivery when the cervix is fully dilated and the head well down in the pelvic cavity. Gas and oxygen is the anaesthetic recommended, but if this is not available what would be the "next best"? Dare we use intravenous anaesthesia (pentothal sodium or evipan)?*

A.—Evipan and pentothal sodium are employed in midwifery, but owing to their depressant action on the respiratory centre their disadvantage is possible difficulty in initiating respiration in the baby. However, there are many reports of the use of such anaesthetics for obstetric operations—even for Caesarean section—without indicating any undue foetal risk. The use of evipan for low forceps delivery and perineal repair in general practice is described by K. M. Robertson in the *British Medical Journal* (1941, 1, 815). Nevertheless, in this particular case great care would be necessary, and a dose sufficient for the purpose might cause respiratory embarrassment in the mother, if not in the child. Perhaps local analgesia, by infiltration of the perineum, vulva, vaginal walls, and paravaginal tissues, including levatores ani, would be the ideal for this patient, but it would require some experience in the technique. The case seems to call for special care, and there is every indication for delivery under hospital conditions with all facilities available—including the services of an expert anaesthetist. In such circumstances there should be no real difficulty, and cyclopropane would be very suitable; indeed many would regard it as the anaesthetic of choice.

If it is quite impossible to arrange for delivery under favourable hospital conditions, there is something to be said for open ether—on the grounds of safety. It is usual to regard this anaesthetic as being contraindicated in pulmonary tuberculosis, but many experts no longer subscribe to this view. In a case of this kind the choice of anaesthetist is more important than the choice of anaesthetic, and I would repeat that the patient should be delivered in a hospital adequately staffed and equipped.

Chronic Blepharitis

Q.—*What is the best treatment of chronic blepharitis in a young adult who has no refractive errors? Triple dye in spirit, silver nitrate 1% to 10%, and golden eye ointment have been tried without much improvement. The seborrhoeic scalp has been treated with sulphur and salicylic ointments well massaged into the roots, but again without any permanent success. No penicillin is available.*

A.—Chronic blepharitis is apt to be obstinate and may not clear for several months. General treatment should aim at improvement of the patient's condition and hygienic surroundings, and avoidance of too much sugar. Local treatment involves attention to any infection of the tarsal glands, and expression of such as are choked by pressure between a finger outside and a glass rod inside the margin of the lid. Complete epilation helps in obdurate cases. Attention should be given to any lacrimal sac infection. Before the application of any ointment or paint can be effective, all crusts must be removed thoroughly with warm H_2O_2 or sodium bicarbonate 2% lotion. The lid should be dried, and then the following ointment applied: ung. hyd. ammon. dil. 1%, or ung. resorcin 1%. A good excipient is equal parts of lanoline and vaseline, but it must be fresh; a rancid ointment keeps the condition alive. Of the paints, liq. tinctorum is best, but iodine 2% and optochin 2% have been found useful. Silver nitrate 1% or 2% applied not more than three times a week clears up any raw spots. As a last resort a vaccine may be tried.

Facial Hair and Sex Hormone

Q.—*A man aged 23 has almost complete lack of facial hair growth and shows some retardation of normal hirsutism generally. He is otherwise well developed and healthy; external genitalia within normal limits, and sexual functions appear to be normal too. The complaint is the psychological effect of the deficiency, of which he is acutely aware. Is hormone therapy advisable, and if so, what?*

A.—One occasionally meets with the apparent anomaly of subnormal facial hair growth together with normal sex function and development, and it must be attributed to local lack of response or sensitivity to the normal level of androgens in the blood. It is sometimes possible to overcome this refractoriness by the administration of exogenous androgens, and the best method of securing a local concentration is probably by inunction of unguentum testosterone, 25 mg. per gramme. It is unlikely that this method of administration could have any untoward effects, but large doses of testosterone intramuscularly might temporarily suppress testicular function by inhibiting the secretion of pituitary gonadotrophic hormone. In practice it is doubtful whether this really constitutes a risk, especially if therapy is intermittent.

Morphine Administered by First-aiders

Q.—*Are there any contraindications for giving morphine to seriously injured miners? The Home Office has agreed to authorize first-aid men employed in or about mines to administer the drug; it will be used in an ampoule-syringe form, which will ensure that the needle is clean, that no overdose is given, and that there is no morphine left about. Are there any parts of the body which they should always select if available? Will it be sufficient to keep a D.D.A. book in the surgery, or should I keep one in each rescue station or colliery where the morphine is stored?*

A.—Morphine is given to an injured person to relieve pain, diminish shock, and calm the mind. Sometimes it has an initial effect of exciting the imagination, but its usual action is to dull sensibility and produce mental quietude. The chief danger from morphine is due to the fact that it depresses the respiratory centre; it should not, therefore, be given to those suffering from serious head injury or severe shock attended by depression of that centre, as shown by slow and shallow respiration. The young and the old are much more sensitive to the drug, and the following remarks must be taken to apply to those between the ages of 18 and 60 years.

In cases attended by pain and unaccompanied by any respiratory depression the drug is usually tolerated well; in such cases it is quite safe to administer a quarter of a grain of morphine tartrate, and if the pain still persists this dose can safely be repeated within two or three hours. Even in the absence of pain it would be advisable to give a similar dose in cases of fracture prior to any movement of the patient which is likely to give rise to pain. The injection can be given subcutaneously or intramuscularly into any easily accessible part of the body. If given into the limbs it is well to choose the proximal part, for there the circulation is likely to be better and absorption quicker. The lateral part of the abdominal wall is also a suitable place for injection. Intravenous injection should only be done by the doctor.

The last point raised is, I think, dealt with under 11D of the Dangerous Drugs Regulations, 1937, which requires that a separate register shall be kept in respect of each set of premises at which the authorized person carries on his business or profession. Clearly, it is desirable, in order to avoid confusion, that a record shall be kept at each colliery or rescue station where the morphine is stored and used.

Mixed Inhalant Solutions for Allergy

Q.—*Does it suffice to give a mixed inhalants solution in a case of allergy, or is it advisable to determine the exact causal agent and then give an appropriate desensitizing solution?*

A.—The mixed inhalants solution contains the usual common inhalant causes of allergy as determined by skin tests—feathers, dust, orris root, and animal hairs (horse, dog, and cat). It is advisable to test each patient individually because (1) it may be necessary to add pollen if the patient reacts to pollen, or to use the combined pollen vaccine if there is a large reaction; (2) it may be necessary to add other occupational dusts if the patient's job suggests such a sensitivity, such as flour-dust for a baker or miller, tomato fungi for those affected by hot-house tomato plants, or insecticides in agricultural workers; and (3) it is essential to find out how sensitive the patient is: if very sensitive, the weak "initial" solution must be used and the irritants removed so far as possible; in only slightly sensitive cases the stronger "continuation" course can be used to begin with. The initial solution must always be used in cases very sensitive to horsehair. It is rare for a patient to react to one irritant alone. In such cases it may be wise to give the exact desensitizing solution, but if the specific causative substance is contained in the mixed inhalants solution it is probably better to use this, as the other proteins contained may act as additional non-specific desensitizers.

Myocardial Degeneration

Q.—*A patient aged 74 has had two attacks of severe oedema of the lungs since 1940. Treatment with morphine and oxygen with the B.L.B. apparatus has brought relief. A third attack was more severe, and the patient seemed to respond to treatment only when an injection of nikethamide had also been given. The outer border of precordial dullness is 4 inches from the middle line. There is a presystolic murmur. The blood pressure is 145/80. I would welcome advice about preventing such attacks.*

A.—These attacks are usually provoked by over-activity. There is, no doubt, intrinsic myocardial degeneration in this case, and so the deterioration is likely to be progressive, although this may be slow at the age given. If definite over-activity has directly brought on an attack, this must be avoided. If the attack has come at night, the day before may have been too full. During sleep the patient should be well propped up if possible, and a late meal should be avoided. Distension of stomach, bowel, or bladder may be a provoking cause. The daily administration of 2 grains of the powdered leaf of digitalis may increase cardiac efficiency. Morphine in quite small doses often suffices in the aged.

Rosacea

Q.—*Some years ago I read a note in the* JOURNAL *on the occurrence of red noses in adolescents. A girl of 17, in perfect health, of fine physique and good looks, is occasionally afflicted in this way, the tip of her nose only being affected.*

A.—The pathogenesis of rosacea is complicated and probably involves a number of different factors, such as a seborrhoeic disposition, gastro-intestinal dysfunction, including achlorhydria, and according to some authorities a psychological factor. Thus R. Klaber and E. Wittkower (*Brit. J. Derm. Syph.*, 1939, **51**, 501) in a comprehensive review suggest that rosacea may result from emotional changes, and this may explain the phenomena in the case related above.

Left-handedness

Q.—*What is the proper attitude to adopt to a left-handed child aged 4½ years (a) by parents, and (b) by kindergarten school-teacher? Is it true that insistence on using the right hand may cause the child to develop a stammer or some other psychological aberration—e.g., obstinacy?*

A.—If the child is predominantly left-handed he should be allowed to continue so both by parents and by kindergarten school-teacher—if his inclination is to write with his left hand he should not be forced to use his right hand. When the predominance of the left hand is clearly defined, outside interference may lead to a stutter, the speech defect resulting from the attempt at adaptation to right-handedness when the inclination and probably the architecture of the cerebrum are towards left-handed predominance. There is no reason to suppose a relationship between left-handedness as such and stuttering; the important factor is the *enforcement of right-handedness* in a left-handed child, and many well-authenticated cases have been recorded in which stuttering developed as a result of attempting such a change. Similarly, minor psychological abnormalities may result in some children owing to frustration in the use of the left hand.

It should be stated, in general, that more exact definition of left-handedness is still required, as well as more satisfactory tests.

Action of Phenobarbitone

Q.—*Barbiturates containing the phenyl radicle are believed to depress particularly the motor cortex, hence their use in epilepsy. But phenobarbitone appears to be the barbiturate most commonly used as a general sedative. Would not subhypnotic doses of hypnotics, such as buto-barbitone, be more rational?*

A.—Experience with phenobarbitone and the other barbitones shows that the action of phenobarbitone is by no means confined to the motor cortex. The effect of buto-barbitone is a hypnotic one, and it is very useful for procuring sleep. Phenobarbitone is probably as widely used for its sedative as for its anticonvulsant action, and clinicians have a clear picture of its double effect. In epileptics it is valuable in controlling fits, with very little of the depressant effect of bromides, unless comparatively large doses of, say, 2 or 3 grains are used. With these large doses patients sometimes complain of feeling drowsy in the afternoons and evenings. Anxious patients, on the other hand, describe a very beneficial result from smaller doses of phenobarbitone, which in them has a prolonged and mild hypnotic effect, causing a diminution in their mental symptoms. This effect, which is not produced so easily by other barbiturates, is so evident that some say that phenobarbitone has a greater action on neurotic subjects than on others. This is unlikely to be the case—the sedative action is simply more evident in them. It is because of this that phenobarbitone is so widely used.

Coated Tongue

Q.—*What is the basic cause of a coated tongue? Why is it worse on waking up in the morning, and especially after an upset digestion, fevers, etc.?*

A.—The chief causes of furring of the tongue are toxaemia, diminished friction from inadequate mastication, and inadequate salivation. The fur is a collection of desquamated epithelial debris and minute food particles which have become entangled in it. A small amount of fur which tends to collect overnight is compatible with perfect health, and is the rule rather than the exception in adults, especially smokers. Excessive proliferation of the papillary endothelium occurs in toxaemic states. This, combined with the dry tongue of dehydration, is sufficient to cause a thick, offensive fur. A pretty example of fur collecting because of poor mastication is seen in cases of trigeminal neuralgia. In these patients furring is seen only on the side of the tongue that is painful and protected from friction.

LETTERS, NOTES, ETC.

Dose of Pethidine

Dr. F. PRESCOTT (London, N.W.1) writes: In your "Any Questions?" of Nov. 18 (p. 687) the dosage of pethidine is given as 25 mg. to 50 mg. This dose is, generally speaking, much too low. The optimum effective dose is of the order of 100 mg., and in the case of severe pain this is best given parenterally. In some cases 150 mg. to 200 mg. is needed. It would be better to give the range of dosage as 50 mg. to 100 mg. orally or parenterally, increased if necessary to 200 mg. This is the opinion of Batterman (*Arch. intern. Med.*, 1943, **71**, 345), who has studied the effect of pethidine on over 1,000 patients. Rarely does 25 mg. relieve severe pain. The correct dosage is important when using a new drug, because if the dose recommended is too low the drug is liable to be discredited. In the case of pethidine this would be a pity, as it appears to be a very valuable drug. The answer does not bring out sufficiently clearly the most important use of pethidine—namely, the relief of pain associated with spasm of smooth muscle. It is less effective in relieving pain of neuritic or muscular origin. The use of pethidine in obstetrics is not mentioned in the answer. There are now a number of papers on this in the literature (*British Medical Journal*. 1944, **1**, 176, 179; 1944, **2**, 498; *Amer. J. Obstet. Gynec.*, 1943, **45**, 318, 320; 1944, **47**, 93). The dose is 100 mg. intramuscularly, repeated an hour later, with further injections of 100 mg. at intervals of 2 to 4 hours. Pethidine can be combined with scopolamine or barbiturates.

Nausea and Vomiting of Pregnancy

Dr. MARGARET ROUND (medical officer in charge, Evangeline Booth Hospital for Women and Children, Madras Presidency) writes: About 1932 I read in the *British Medical Journal* that it is of great help to pregnant women to give them a calcium preparation—e.g., calc. lactate—5 gr. daily throughout the pregnancy, and to give quinine hydrochlor. (or sulph.) 2 gr. daily as well as the calcium during the last six weeks of pregnancy. I began that procedure then, and have found that complications of pregnancy, particularly vomiting, cramps, eclampsia, and overdue labour, are eliminated in those who follow the treatment. When a patient first comes to me with nausea and vomiting I give intravenous calcium gluconate, 10 c.cm. of 10% solution, daily if necessary; very seldom are more than three or four injections needed. One case of hyperemesis in England (2 years' practice) failed, but that cleared up promptly when I suggested that hospitalization was the only thing left for us to try. In five and a half years in my present appointment at the Salvation Army Hospital for Women and Children, Nidubrolu, I have contacted many pregnant women—322 new cases in the last twelve months. There is a small percentage with nausea and vomiting. I have not known intravenous calcium gluconate not to give relief. We have a large number of women brought to us at the last moment with severe albuminuria and eclampsia. The first step in the treatment is to give intravenous calcium gluconate, then follow with the usual stomach and bowel wash and mag. sulph. Our mortality rate is very low for eclampsia. In cases having the calcium treatment from the early months there has been no albuminuria and no further nausea and vomiting after beginning the calcium. When quinine is given in the last six weeks as well as the calcium, delivery usually takes place two to seven days before the calculated date for delivery. Primiparae as well as multiparae deliver in from four to eight hours; the time is definitely shortened, apprehension lessened, and no tears are produced by the shortened labour. If one believes all one reads in medical journals these days, calcium has fallen into disrepute. I have neither time nor equipment to find out why calcium does help very definitely nausea and vomiting of pregnancy, but my patients can show by their well-being that they are helped.

Colt or Filly?

Dr. L. KILROE (Rochdale) writes: Dr. Hobart Nixon in his letter (*Journal*, Dec. 16) appears to have overlooked one gift which Rocksand displayed in the remarkable performance he is credited with in that communication—namely, female impersonation; otherwise, how could a colt compete in and win the Oaks?

The Young Married Doctor

Dr. A. W. N. DRUITT writes: The letter on the young married doctor (Sept. 23, p. 419) prompts me to add a further statement, that it is not only the junior hospital officers who are denied, and will be denied, the privilege of living with their families, but the senior officers too. In practically all hospitals (a small percentage being excluded) no accommodation is made for the wife of a senior officer, and I regret to say that even in the modern hospitals, built just before the war, the resident surgical officer is given one small room like the other junior house officers, and maybe expected to hold that appointment for anything up to two years or more. It is certainly time that hospital authorities provided better "living" accommodation for its "resident" house officers and, if necessary, their wives.

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THE EVOLUTION OF MODERN THERAPEUTICS*

BY

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It is not only quite logical that treatment should come last in a textbook description of diseases; it also follows the historical sequence of our knowledge. Fifty years ago it must be admitted that this section was very summarily dealt with, often consisting merely of vague statements. Nor is this surprising, when we were taught that in treatment "the first thing is diagnosis, the second diagnosis, and the third diagnosis." We should agree that the first thing is diagnosis, but if treatment stops there we should rightly find a dissatisfied patient.

Let me go back very briefly to the beginning. In Ancient Greece we find two cults side by side: the Aesculapian, with its methods of psychotherapy and suggestion; the Hippocratic, observational but dominated by the doctrine of the four humours—not much stress on medicines, though Hippocrates prescribed ox liver for anaemia. But both cults laid great emphasis on cleanliness, fresh air, attractive surroundings, and, where practicable, exercises. Galen placed much more reliance on drugs, as we are reminded by the persistence of the term "galenicals" in pharmacy. He carried the doctrine of humours to the point of saying that if, for instance, the patient was hot and wet, the appropriate treatment was cold and dry, thereby showing himself more of an "allopath" than the homoeopaths declare us to be.

After Galen comes the crash, and any attempt at medical science virtually vanishes from Europe. The reason is clear: in the Roman Empire, which was synonymous with the civilized world, physicians came to be treated as slaves, and medicine can flourish only in an atmosphere of freedom. Hippocratic medicine, it is true, flickered still at Salerno; for the rest, it was just kept alive by the Arabs. Otherwise there was a reversion to magic and witchcraft, with no real advance for more than a thousand years. True, a number of useful drugs derive from witchcraft and folklore, such as belladonna, hyoscyamus, aconite, valerian, cinchona, and digitalis.

The Beginnings of Scientific Medicine

Scientific medicine begins with the Renaissance—with the anatomy of Vesalius, the experimental methods of Gilbert, the physiology of Harvey, and the morbid anatomy of Malpighi. But their application to clinical medicine could scarcely be made effective while chemistry remained in such a confused and elementary condition. The crude attempts of the iatro-chemists, such as Sylvius, came to very little. Meanwhile observational clinical methods made advance under Glisson, Willis, and Sydenham. Yet treatment could hardly advance until a more scientific study of drugs was made in the middle of the 18th century by William Heberden, who lectured on materia medica at St. John's College for ten years and did his best to found a rational pharmacology.

Still, it remains true, as Sir Francis Fraser says, that the beginning of the 19th century found treatment much the same as 1,500 years previously. The fundamental idea of disease as something added to the body, which had to be got rid of, still ruled the practice of therapeutics, which was therefore largely of an eliminative character—emetics, purgatives, diuretics, diaphoretics, and bleeding. As a better appreciation of the complex changes in disease developed, doubts gradually arose as to the wisdom of such heroic efforts to expel the disease from the body. It is not fanciful to see in this idea of expulsion an unconscious persistence of the more primitive idea of disease as due to demoniacal possession or influence.

With the 19th century came new methods of diagnosis—auscultation and percussion—which certainly made medicine more scientific. This led to a close comparison between the physical signs detected during life and the lesions revealed post mortem. In this way a solid body of knowledge was built up, but it led to some neglect of therapeutics by diverting attention from the beginnings of disease to its end-results, which produced a nihilistic attitude towards treatment by drugs. A rather comic sidelight is thrown on this aspect, that when I became medical registrar at Bart's the post-mortem book was still labelled "Register of Complete Cases." There you have it: no case complete until the necropsy is reached! Meanwhile anaesthetics and antiseptics were enabling surgery to shoot ahead.

It was not until the last quarter of the 19th century that therapeutics began to take a new course. Although salicylate had been synthesized for commercial purposes in 1874, the first synthetic preparation used clinically was antipyrine, or phenazone as it is now more usually called, which was prepared in 1883 by Filehne, whom I remember when he came here a few years later to work at antipyretics. The name "phenazone" has the advantage of reminding us that it, like salicylate, is a phenol derivative and therefore contains a benzene ring. It is very interesting to observe this in the earliest artificial products designed to influence metabolism, for a good many years were to elapse before it was found that a benzene ring or rings were an essential basis for products formed by the body to regulate its own metabolism. Thus adrenaline contains one such ring and thyroxine two, while the sex hormones and vitamin D contain four, condensed into the so-called phenanthrene ring.

The Biological Approach

The last decade of the 19th century saw yet a newer approach in therapeutics—the biological one, as seen in immunology and endocrinology. G. R. Murray introduced thyroid therapy in 1891, and active extracts of the adrenals and pituitary followed within the next few years. Hitherto the ductless glands had been regarded as excretory in character, the elimination theory cropping up again in a new guise. The bloated aspect of the myxoedematous patient might well suggest this; but Addison's disease was regarded as a failure on the part of the adrenals—anatomically so close to the kidneys—to detoxicate the body, until Sir Humphry Rolleston in his Goulstonian Lectures for 1895 adduced the evidence of its being an "atony" due to the loss of an internal secretion, the existence of which he predicted. And even quite recently hyperparathyroidism was attributed to a failure to eliminate guanidine. However, the conception of internal secretion, hitherto vaguely and fitfully held, was firmly established by Starling's hormone theory, which he put forward in his Croonian Lectures for 1905. This, by showing that the body prepared active chemical substances for its own use, had a marked influence in restoring belief in the efficacy of drugs to influence its reactions. But no wave of advance is without a backwash, and the early triumphs of thyroid therapy misled us into thinking the problem simpler than it has proved to be. Moreover, a new polypharmacy arose, and I have seen prescriptions of an extraordinary conglomeration of animal extracts, quite unrelated to any evidence of their activity. Such abuses were a partial justification for Swale Vincent's sweeping declaration that organotherapy was administration of extracts of unknown value to a credulous patient by a still more credulous physician! Fortunately a more scientific attitude prevails to-day, and we have also learned not only that endocrines can influence the nervous system but that the converse is also true.

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* A presidential address to the Cambridge Medical Society.

The other great advance in biological therapeutics—immunology—was, of course, an extension of the old empirical treatment of smallpox, first by inoculation and then by vaccination. The bacterial conception of disease gave a great impetus to research on these lines. Pasteur's work on rabies was the first scientific approach, but 1892 saw the early triumph of diphtheria antitoxin, and I recall with interest that two years later I was clinical clerk to the first patient to be treated by it in this country. You will not expect me to deal with the niceties of active and passive immunity. It would generally be agreed now that the passive immunity conferred by sera is suitable for acute diseases, while active immunity achieved by vaccines is principally useful in prophylaxis. Vaccines for established disease have, on the whole, proved disappointing, and I expect that most of my hearers find they are using them much less than 10 to 20 years ago. Routine inoculation by normal intestinal flora is, I hope, discarded: after all, it is a poor bowel that can't grow anything! In parenthesis it is an entertaining illustration of the changed point of view to read again Bernard Shaw's *Doctor Dilemma*; its contempt for clinical medicine and its emphasis on the marvels of opsonins read strangely to-day; for whoever hears of opsonins now? Nothing becomes out of date so quickly as the very up-to-date. Conclusions in clinical observations are difficult to reach, but, once achieved, they have a way of persisting. Thus in my professional lifetime the laboratory has given three different interpretations of Addison's disease, but no one has surpassed his clinical description of it.

Recognition of Deficiency Diseases

But to resume my main thesis: immunology and endocrinology had as their underlying principle the application of Nature's methods so far as was possible. The next step, for which we had to wait until the 20th century, was the recognition of deficiency diseases—the realization that, as it were, a minus could cause a disease as well as a plus. Not only has their study given us new therapeutical weapons, but it has given us new insight into the chemistry of the cell, which employs vitamins as powerful and essential catalytic agents. Endogenous catalytic agents we had recognized, and Garrod traced most inborn errors of metabolism to a congenital absence of one or another such agent. But here were exogenous catalysts; acquired needs as the biochemistry of the body became increasingly complex. As an example let me take R. A. Peters's work on vitamin B_1. Of all tissues in the body the brain cells are most sensitive to oxygen lack, and this intracellular oxygen is supplied by dextrose. If an overdose of insulin has locked up too much of this for the metabolic needs of the moment the patient is convulsed and then becomes unconscious. This we knew; but Peters showed that vitamin B_1—aneurin—is necessary to the breakdown of dextrose so that its oxygen is presented in a suitable form for the brain cell to accept.

We owe, indeed, a great debt to the biochemist and the organic chemist. The latter has provided us with an enormous number of synthetic remedies, while, linked with the biochemist, he not only has unravelled the complexity of, for instance, the structure of the sex hormones, but has actually produced artificially substances of a simpler constitution and yet more potent than the natural ones. If you ask why did not Nature make them, the answer is ready to hand. The natural product has to be prepared within rigid limits of temperature and *p*H. The laboratory methods would often be fatal to the survival of the cell.

The Action of Drugs: A New Conception

I now come to a line of work which seems to me to have introduced a new conception of the action of drugs and has led to a new generalization: that every nervous stimulus to the tissues is mediated through a chemical reaction. The outline of the history of these researches is interesting. In 1901, soon after the isolation of adrenaline, Langley pointed out that its effect on any tissues was the same as if the sympathetic nerve to that part had been stimulated; but the enormous significance of this observation was not realized for some years. In 1906 Langley and T. R. Elliott independently found it necessary to postulate the existence of a receptive substance between the nerve ending and the tissue supplied. It had long been known that in many instances atropine would block the passage of a nervous impulse, while pilocarpine or physostigmine would facilitate its passage and increase the response. Thanks to Dale and to Loewi, these observations were combined and extended to reach a striking conclusion. It was found that when a sympathetic nerve was stimulated adrenaline was liberated at the post-ganglionic nerve ending. This explains Langley's observation and enables us to realize that the adrenal medulla contains an emergency store of adrenaline to motivate widespread sympathetic effects when necessary. The other nerve endings of the nervous system liberate acetylcholine, which activates the appropriate tissue. Thus we can divide the nerve endings into adrenergic and cholinergic, according as they liberate adrenaline or acetylcholine.

Now when atropine paralyses the vagus, for example, it does so by preventing acetylcholine from getting into the receptive substance, though just as much of it is produced as before; and when physostigmine—or eserine, as it is more usually called—prolongs or intensifies the effect of parasympathetic stimulation it does so by preventing the destruction of the acetylcholine set free. The pharmacology of the future will have to study the natural history of these receptive substances and find out in what way they can be helped by drugs, both positively by facilitating their reactions, and negatively by blocking the way against the entrance of toxins.

Attempts to utilize acetylcholine therapeutically have been disappointing and have led to a search for more satisfactory synthetic substitutes. By varying their composition it might also be possible to produce more selective reactions. Of such doryl—otherwise known as carbachol—and mecholin are examples which have met with some limited success. On the adrenergic side ephedrine and benzedrine are familiar examples of drugs which imitate sympathetic action, though there are several other examples that have hardly come as yet into general use. We are getting to know more about their absorption and fate in the body, and in future more uses for them may be found.

Turning to the other side of such reactions, we find, for instance, in eumydrine and prostigmin synthetic drugs which have a more selective action than their native congeners in blocking or facilitating the action of acetylcholine. Eumydrine, which is the methyl nitrate of atropine, is particularly useful in relaxing pyloric spasm. Like physostigmine, prostigmin prevents destruction of acetylcholine at the end-plate, but for a much longer period. Dr. Mary Walker introduced its use in myasthenia gravis, which we may now attribute to some toxic substance—produced by a diseased or, at any rate, an enlarged thymus—which has a curare-like effect in blocking the end-plate between nerve and muscle. The clearing up of this point has naturally encouraged surgeons to treat myasthenia gravis by thymectomy, and Geoffrey Keynes has performed the operation 28 times. The results are variable but in some cases very successful, though the ultimate elimination of the toxin may not be effected even for several months after operation. It is an interesting example of the biochemist indicating the scientific basis to justify the intervention of the surgeon.

We see, then, that drugs may help or bar the entrance of stimuli into the cell. Another way in which they may have this effect is by adsorption on to the cell envelope: thus the barbiturates oppose the entrance of thyroxine, and it is interesting to recall that practitioners were using them empirically before this action was known. A much more selective action against thyroxine is provided by the new drug thiouracil, but its therapeutic effects are still on trial. Its discovery has, however, called attention to other selective actions against endocrines, such as alloxan against insulin and the temporarily sterilizing effect of sulphapyridine in males, while thallium salts appear to be specific against the whole endocrine system. The only therapeutic value in these latter substances is the possible treatment by alloxan of spontaneous hypoglycaemia from hyperinsulinism.

Chemotherapy

The last great advance, chemotherapy, is so much in the news to-day that I need refer only to certain general principles involved. When, in 1907, Ehrlich put forward his theory of side chains, haptophores, and amboceptors to account for the formation of antitoxins, it was, after a preliminary welcome, rather discounted as the kind of thing a German would evolve out of his own inner consciousness. Yet it contained a germ which very soon grew into chemotherapy, for there was the idea of a chemical substance attaching itself to some link in the invading microbe and thus completely sterilizing it. Salvarsan was the result, and, although it has not fulfilled the expectation of its discoverer that it would cure syphilis in one dose, it has proved to be the greatest advance in the treatment of that disease. Ehrlich, as we know, was profoundly interested in dyes, and it was the *intra-vitam* selective staining by methylene blue which gave him the original idea. This is doubly interesting, since it was the dye industry which gave us sulphonamide. This substance was synthesized in 1908 and employed to increase the fastness of dyes. It was thought that this quality was due to the union of the substance with the protein cells of the wool. Although in 1919 some of such dyes were noted to be bactericidal, no clinical application of this observation was begun till 1930, when prontosil was reported upon favourably in the treatment of erysipelas and Domagk came to the conclusion that it had no effect *in vitro* but acted only in living tissues. Later work shows that the action of the sulphonamides must be regarded not as bactericidal but as bacteriostatic, holding the growth of bacteria up until the natural defences of the body could come into action. We now know more of the way in which this is accomplished, for it has been shown that sulphonamides successfully compete with p-animobenzoic acid for the favours of the cell, and thus literally starve the bacteria into surrender if present in sufficient concentration.

I have pointed out that since the 'nineties the trend of therapeutics had been towards applying Nature's own methods, and chemotherapy at first appeared a diversion in an entirely different direction. Now it is seen that sulphonamides act, as one may say, biologically, producing a deficiency disease in bacteria. In a sense earlier observations on salvarsan pointed to a similar conclusion, for just as the body can be educated by small doses of a toxin to resist larger doses, so the *Spirochaeta pallida* can become resistant to bigger doses of salvarsan if first given inadequate ones.

The multiplication of sulphonamide derivatives goes on apace, and already sulphapyridine has been displaced as first favourite, even against the pneumococcus, by sulphadiazine and sulphathiazole. I need not go into details beyond mentioning that, clearly, when a local action is required the less soluble forms are preferable; thus for dysentery sulphaguanidine is the drug of election.

The sulphonamides are not the only drugs to show bacteriostatic powers: gramicidin, for instance, is a crystalline polypeptide intensely toxic to pneumococci and haemolytic streptococci. The underlying principle is the same: to attach linkages to the main agent in such a way as to diminish its toxic and to increase its therapeutic effect. Thus salvarsan contains enough arsenic to be violently toxic if it had not been linked with certain organic groups. We have an instance of this in a drug which does not come within the present definition of chemotherapy; I mean salyrgan or, to give it the official name, mersalyl. It has long been known that mercury is toxic to the convoluted tubules of the kidney, and if given in sufficient strength can necrose them. Yet its organic compound mersalyl is used as a diuretic. Apparently it does so by throwing the absorptive power of the tubules out of action while allowing filtration to go on unhindered, with the result that a large quantity of dilute urine is passed. The toxic action of mercury has been greatly reduced, but it must be observed that it is still acting in a mild and selective way against the efficiency of the tubules to concentrate, and is thus a risky diuretic in kidney diseases.

The aim in chemotherapy may be said to be achieved when the toxic action of the drug is practically *nil* and its therapeutic effect is at the maximum. It is easy to prepare an antiseptic strong enough to destroy bacteria, but the tissues of the host would be damaged to a varying extent. Penicillin seems to have achieved the desired end of bacteriostasis without any such toxicity. It is only one of a whole series of such agents elaborated by micro-organisms and fungi, but is so far the best and most easily handled. By this time we have become familiarized with both its successes and its limitations. We know that its antibiotic power can be exercised in dilutions of one part in a million, and in its pure form even one in 50 millions. Like other chemotherapeutic agents, it differs from antiseptics in that it selectively attacks the organism causing the disease without doing serious injury to the tissues. We can now realize that, in malaria, quinine acts in exactly the way of a chemotherapeutic agent.

The discovery of penicillin by Fleming illustrates Pasteur's dictum that chance enters only the mind that is prepared. Many people, including Pasteur himself, must have seen their culture plates contaminated by moulds, but only Fleming saw the significance of the sterile ring surrounding the spot of contamination. However, just as it required Best to turn Banting's discovery of insulin to practical purposes, so have Florey's researches achieved this for Fleming's discovery.

The Endocrine Orchestra

To turn to an entirely different development of therapeutics: 12 years ago I delivered myself of the statement that the pituitary was the leader of the endocrine orchestra—a statement frequently repeated since. To-day I would add: and the hypothalamus is the conductor, for in the interval it has become clearer that the endocrine system is much more influenced by the nervous centres for emotional expression in the hypothalamus than was recognized 12 years ago. For an important part of this knowledge we are indebted to the anatomists. My analogy fails at one point, for in some ways the hypothalamus and the anterior pituitary form one unit, and diabetes insipidus, for instance, may result from a disorder of any part of it. But, changing the metaphor, we have in the pituitary a great transformer of nervous into chemical activity, which in its turn stimulates or inhibits other ductless glands by the appropriate trophic hormone. The hypothalamus in its turn receives impulses from the cortex, so that the psychic state can play on the endocrines through the pituitary, just as the endocrines can modify the psychic state. One has only to think of the influence of hyperthyroidism or hypogonadism to realize that it is not a one-way traffic between cortex, hypothalamus, and endocrines. This conception has greatly added to the interest in the treatment of mental states by physical means, which well accords with the prevalent psychosomatic view of disease in general. So the benefit of insulin-produced convulsions—accidentally discovered, I believe—fitted into the picture. Originally used for schizophrenia, they were soon replaced by electrically induced convulsions. The present view, I gather, is that insulin is still to be preferred for schizophrenia, but electricity for autonomous depression. The success of the latter is undoubted, but of the former more variable. And the electric method has far fewer unpleasant side-effects. It is difficult to see how the benefit is conferred, but it looks as if the violent convulsions may break down some resistances between association cells. Now that the surgeon is taking a hand and performing leucotomy, and is claiming successes, it would certainly appear that *something* at any rate is broken down. It is not surprising to learn that leucotomy is sometimes followed by a lack of initiative and tact, though intelligence and artistic capacity are claimed on occasion to be actually increased. It has been stated that the fundamental change is a diminution of self-consciousness, as if a pathological point in the cortex had been cut off from its mental connexions. To me it seems a desperate remedy, to be reserved for desperate cases.

Other physical methods in the treatment of psychoneuroses and psychoses include continued narcosis and partial loss of consciousness under light anaesthesia. The latter procedure is used for recovery of buried memories by hypnotic suggestion during the recovery period.

Psychological Aspects of Disease

But such methods are for the severest types of cases. The point which concerns all of us is the striking change from the materialistic outlook prevalent in my student days to the modern recognition of the psychological aspects of disease. On this let me quote Sir Francis Fraser, himself trained in the strictest sect of organic medicine. Speaking of the criticism that the medical schools give too scientific a training and send men out knowing next to nothing of the care of patients or of the personal side of practice, he says: "I am sure it is a just criticism, but maintain that hospital practice is not 'too scientific'—it is not sufficiently scientific. . . . Treatment based on the deduction that one patient's inefficiency is due to family troubles is just as scientific as that based on *x*-ray evidence of duodenal ulcer in another patient. To say 'there is nothing the matter' because the physical examination, *x*-ray evidence, and laboratory tests fail to disclose a cause of the trouble is, on the other hand, unscientific. If there was more exact knowledge of how the material and mental surroundings of our patients affect their functions and activities . . . clinical instruction would more nearly meet the needs of private practice, and it would be more scientific, not less."

This was written 10 years ago, and I am sure that the author would admit that since then it has been shown that the psychological factor plays a considerable part in the causation even of the organic lesion he selects—duodenal ulcer. And so the latest phase in the evolution of modern therapeutics is recognition of the psychosomatic factors in disease—thereby in a way completing the circle by a return to Aesculapius.

Discarded Methods

The path of this progress is littered on either side by discarded theories and practices. It is a chastening experience to turn over one's old case records. One suddenly realizes that some formerly favourite treatment has been completely forgotten. My belief is that we practise continually an almost unconscious revision, and in this way a consensus of opinion is reached: no one has openly attacked the treatment, perhaps—it has just passed silently into oblivion. And I suspect that a scrutiny of past literature from manufacturing firms would show that they have found it advisable to cease making a good many formerly vaunted remedies.

On this matter Trousseau's advice to his students remains as true as on the day when it was spoken: "Always use the new remedies while they still have power to heal." How is it that people were formerly cured by Bulgarian soured milk or by Bulgarian belladonna and are no longer? How is it that the routine use of vaccines therapeutically is fading out while their prophylactic use is increasing? One could quote many such examples. I think that admirable clinician the late T. A. Ross supplied the explanation. He noted that his experience of the result of the Weir Mitchell treatment fell into three periods. In the first the results were excellent and in the second variable; the third group was a failure. Then he realized that in the first he himself firmly believed in the method, in the second he had come to doubt it, while in the third he had ceased to believe in it and used it only at the request of others. I had the opportunity of studying Sir Lauder Brunton's methods fairly closely nearly 50 years ago. I attributed his undoubted therapeutic successes to two things—he had a genuine and deep sympathy for human suffering, and he always felt sure that he knew the precise remedy—preferably a new one from Germany—which would exactly suit the individual patient.

Conclusion

Well, I hope I have been able to show that gradually and by painstaking effort the profession has come into possession of a much larger number of well-attested remedies than formerly, in which we can have enough confidence ourselves justifiably to inspire confidence in our patients. We have a much clearer view of the fundamental principles of therapeutics, and the present position is full of promise for the future, for the last 40 years have shown greater advance than all the preceding centuries. We have passed away from the ancient mixture of empiricism and magic, by way of pharmacology, to a biological and indeed a biochemical approach. The tree of healing can now draw sustenance from many roots. In its present state it is still a young growth; let us see to it that its development is healthy, strong, pruned, and, above all things, honest.

SCABIES PROPHYLAXIS USING "TETMOSOL" SOAP

BY

KENNETH MELLANBY, Sc.D.

Recently I described (Mellanby, 1944a) some experiments in which attempts were made to control scabies infection. Except where therapeutic treatment with benzyl benzoate was given to all members of a closed community the results were disappointing. Since that paper was written a new method of some promise has been described (Davey *et al.*, 1944; Gordon *et al.*, 1944), and the present article describes a further prophylactic trial.

Prof. R. M. Gordon and his colleagues, in conjunction with Imperial Chemicals (Pharmaceuticals) Ltd. and Unilever Ltd., have produced a soap with good cosmetic properties which contains 10% of "tetmosol" (i.e., tetraethylthiuram monosulphide). The use of this soap has been shown to kill *Sarcoptes* and thus to cure scabies, though as a therapeutic agent at a treatment centre it is less efficient than benzyl benzoate. It is, however, so simple to use that it seemed possible that its general issue to an infected population would prevent further transmission of the disease. Whereas these authors described the therapeutic effect of tetmosol soap, they expressed the belief that its greatest value would be found in its use as a prophylactic against scabies—a property which they had already proved in the case of animals.

For a satisfactory test of the prophylactic value of tetmosol soap it was necessary to have a population showing a high incidence of scabies and to ensure that the soap was used by all individuals. Furthermore, facilities must be available for examining all subjects before and after the period during which the soap was used, in order to assess the effect on the incidence of scabies. Such conditions were found in a large mental hospital. Scabies was endemic among the patients; and the staff, having had many difficulties in combating the disease, were only too willing to co-operate in an experiment which might alleviate the position. To assess the amount of scabies present before, during, and after the experiment would obviously take a great many hours of skilled examination, but fortunately I had available at the Sorby Research Institute sufficient trained staff to make this practicable.

These facilities being available, I wished to place them at the disposal of Prof. Gordon. He decided, however, that he would prefer me to take the responsibility for the experiment, though he placed his advice at my disposal and also helped with the experiment in a number of ways.

Procedure

Before the experiment started every patient in the hospital was inspected; tetmosol soap was then supplied to approximately half of them. The details of the experiment were explained to the hospital staff, but nothing was said to the patients, who simply accepted the soap provided (it was rather pleasanter to use than that ordinarily available). All other treatment of scabies, whether in the control or in the experimental group, was discontinued for the 11 weeks of the trial.

Examination of the patients was carried out by volunteers from the Sorby Research Institute; these men had themselves had prolonged experimental infections with scabies, and were fully familiar with finding and removing acari. The examinations were all made under the supervision of Mr. W. C. Bartley. During the initial examinations I also was present, and during the latter part of the experiment Prof. Gordon and his colleagues visited the hospital on a number of occasions. The hands and wrists of all patients were carefully scrutinized, and any suspicious lesion was examined with a lens. Whenever any signs suggesting scabies were noticed but when no mites were found on the hands and wrists, the elbows were examined. A patient was said to have scabies only when a *live* mite was removed and demonstrated.

Results of the Experiment

The results of the examinations, before and after the use of tetmosol soap, are included in the accompanying Table.

Table showing the Therapeutic and Prophylactic Effects of the Use of 10% Tetmosol Soap and of Unmedicated Soap over a Period of 11 Weeks on the Incidence of Scabies in an Infected Community

Treatment	Total Patients	Observation Periods								
		Start of Experiment			After Six Weeks			After Eleven Weeks		
		Total Infected	Per cent. Infected	New Cases	Total Infected	Per cent. Infected	New Cases	Total Infected	Per cent. Infected	New Cases
Tetmosol soap 10%	705	93	13·2	—	9	1·3	—	9	1·3	—
Unmedicated soap	1,213	18	1·5	—	26	2·1	8	42	3·5	24

(*a*) *Preliminary Examination.*—Scabies was found to be much more common among the female than among the male patients; this agrees with the previous investigation (Mellanby, 1944b). Of the 1,101 women 106 (9.6%) had scabies; while an additional 41 (3.7%) showed some clinical signs of the disease but no live acari could be found—these cases were therefore omitted. The female patients lived in two separate blocks and in an admission hospital. For ease of administration and to ensure that only the right persons used the prescribed type of soap, one block containing 660 patients, of whom 89 (13.5%) had scabies, was issued with tetmosol soap for each individual, while the admission hospital and another block which contained 441 patients, of whom 17 (3.9%) had scabies, continued as before the experiment. The admission hospital had a varying population, and throughout the investigation no cases of scabies were found.

Only 5 of the 817 men (0.6%) were infected. Four of these cases occurred in one ward, which contained 45 patients, and the soap was issued here. The remaining 772 male patients (containing only one case of scabies) served as a control. The final arrangement, therefore, was that a total of 705 patients, of whom 93 (13.2%) were infected, were supplied with 10% tetmosol soap for their ablutions; while 1,213 patients, of whom 18 (1.5%) were infected, continued to use ordinary soap.

(*b*) *Examination After Six Weeks.*—As the table shows, after six weeks the situation was greatly altered. Among the 705 patients using tetmosol soap the incidence of scabies had decreased from 13.2 to 1.3%, and no new cases had occurred during this period; whereas in the control group, among 1,213 patients using ordinary soap, the incidence of scabies had increased from 1.5% to 2.1% and 8 new cases had been recorded.

(*c*) *Final Examination After Eleven Weeks.*—All the previous examinations were carefully carried out as described above, but for this final scrutiny particular care was taken to ensure that no cases were missed. Nine patients in the "tetmosol group" were found with scabies, none with heavy parasitic infections, and only three with mites on the hands. All of them showed signs of scabies at the original examination, made before the experiment started. Five of the nine cases (all with one or very few mites on the feet only) appeared clear at the six-weeks examination, but I believe that if the scope of the survey had allowed for a routine examination of other parts of the body on that date infection would have been discovered. Incidentally, three of these infected cases were bed patients who would have less access to the soap and whose feet might receive less lathering than the others. There were no new cases. A marked rise occurred in the control group, 3.5% of whom were now infected; the number of new cases had increased from 8 to 24 during the course of the experiment.

(*d*) *Sensitivity to Tetmosol Soap.*—Previous work (Gordon *et al.*, 1944) had shown that, while most individuals could use tetmosol soap for long periods without any harm to the skin, a small proportion of cases might find it irritating. Of the 705 patients originally issued with the soap three only, all of them women, appeared to be sensitive. Within a few days of starting to use the soap they developed an erythematous rash in the areas washed. These women were withdrawn from the experiment and the rash disappeared rapidly. No person developed a sensitivity after the prolonged use of the soap. None of the 45 men showed any sensitivity.

Discussion

These experiments show that tetmosol soap can act as a very efficient means of controlling scabies. It not only prevents the disease from spreading but also cures the majority of those who use it for a few weeks. There seems no doubt that its general employment would rapidly eliminate scabies from a community. Where efficient centres for treatment exist, and where it would prove difficult to enforce the use of medicated soap, benzyl benzoate is much to be preferred as a therapeutic agent, but there must be many parts of the world where tetmosol soap would have a wide field of application. It is obviously ideal for asylums and similar institutions; it would not be necessary for it to be used always, for an issue for a month or two each year (followed, the first year, by benzyl benzoate therapy for any few residual cases) would soon eliminate the disease.

The proportion of sensitive individuals unable to use tetmosol soap appears fortunately to be very small. They can be detected before any serious damage has been done to the skin, so there is little risk of causing dermatitis.

It may be noted that clothing and bedding were not disinfested in this experiment; the use of the soap alone successfully cured the majority of cases.

Summary

Patients in a mental hospital used tetmosol soap for a period of 11 weeks. Scabies, which was very prevalent at the start of the experiment, was almost entirely eliminated. Most cases were cured and the spread of the disease was prevented.

These experiments could not have been carried out but for the advice and co-operation of Prof. R. M. Gordon, Prof. T. H. Davey, and Mr. K. Unsworth. It is necessary to preserve the anonymity of the mental hospital concerned, but I wish to acknowledge that the success of the work was largely due to the help given by the medical superintendent and his staff. I am indebted to Mr. W. C. Bartley and to the men from the Sorby Research Institute for the care taken at the examinations. Also to Dr. H. A. Krebs, who had prior claim on the services of the volunteers during part of the period, for enabling them to continue with this work. The expenses of the investigation were met by the Medical Research Council, who also arranged for the supply of the soap through Imperial Chemicals (Pharmaceuticals) Ltd.

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A circular issued by the Department of Health for Scotland announces that more beds are now available for civilians in Scottish hospitals. In future there will be fewer beds reserved for the emergency hospital scheme in voluntary hospitals and local authority general hospitals. This should help to remove the difficulties which hospitals have found in providing for the needs of the civilian population. "In view of the altered war situation, which has already led to substantial reductions in the general Civil Defence Services," the circular states, "the Secretary of State considers that it is now possible to meet current and estimated future requirements in hospitals for Service casualties and other patients within the scope of the emergency hospital scheme with a smaller number of beds than have been reserved formerly for the scheme." In future, hospitals will be authorized to admit to their reserved beds other civilian patients as well as those in urgent need of treatment, when the immediate requirements of the emergency scheme permit this to be done.

ARTIFICIAL INSEMINATION

BY

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The use of artificial insemination—i.e., the deposition of semen in the vagina, the cervical canal, or the uterus by instruments—has been discussed by several authors with personal experience of the method (Seguy and Vimeux, 1933 ; Lane-Roberts *et al.*, 1939 ; Cary, 1940 ; Green-Armytage, 1943 ; Guttmacher, 1942). We ourselves have used, and in certain respects developed, the technique of artificial insemination (A.I.) during the past five years. We can present but few conclusions in what must necessarily be a developing field, and cannot discuss the biological implications (e.g., determination of ovulation, frequency of male infecundity) of our observations in this interim report to clinicians. It is hoped, however, that it may serve to dispel certain misconceptions that are constantly arising.

Scope of Artificial Insemination

Impotence.—Many impotent husbands are capable of producing fecund semen by masturbation, and some impotent men regularly indulge in masturbation. Where treatment of impotence has failed, recourse to artificial insemination is indicated. Defects in the fecundity of the wife are first attended to. The physician then carries out an artificial *vaginal* insemination and Sims test (Barton and Wiesner, 1944) in order to determine the degree of cervical invasion by spermatozoa. Provided that invasion is adequate the wife is taught to carry out self-insemination within the fecund phase of the cycle (see below). The technique is as follows: She first douches with warm water (1 pint); half an hour later the husband passes semen into a cold dry glass container and allows it to liquefy at room temperature (about 10 minutes). The wife then draws up the semen into a clean dry urogenital glass syringe, and, lying on her back with knees drawn up, she passes the syringe into the vagina and very slowly expels the semen. The prone position should be retained for about half an hour. When teaching the patient it is important to demonstrate the distance to which the syringe may be inserted. The above procedure might suitably be employed in cases of hypospadias where insemination is superficial, but we have as yet had no such case under our care. Conception should occur readily. If it has not occurred within four or five cycles the case is reviewed. We have records of 11 selected cases. Eight pregnancies resulted in these. One ended in miscarriage ; the patient conceived again subsequently and the pregnancy is progressing. Five pregnancies went to term. One other continues at present.

Dyspareunia.—In some cases of incurable dyspareunia (e.g., those developing after injury or operation) artificial insemination may present the only means of obtaining pregnancy. In our opinion A.I. should not be used in any case of dyspareunia unless persistent attempts at cure have failed ; it should be remembered, however, that in some neurotics pregnancy itself may dispose of the disability. Vaginal self-insemination is the method of choice.

Failure to Ejaculate.—There are numerous cases, difficult to detect, in which the husband, though capable of penetration and sustained erection, either fails to ejaculate during intercourse or emits only a minute quantity of azoospermic fluid. In some of these cases ejaculation of fecund semen takes place during sleep. Where treatment has failed, the patient may be instructed to wear a washable condom during sleep, and the semen may be used for vaginal insemination, provided this is done immediately liquefaction has taken place.

Inadequate Cervical Invasion.—Sterility and reduced fertility are often associated with impaired cervical invasion by spermatozoa (Sims, 1868). Spermatozoa may be scarce in, or entirely absent from the cervical mucous plug, even though the sperm count and motility *in vitro* be high (Barton and Wiesner, 1944 ; Cary, 1940). We have found that spermatozoa which fail to invade the healthy cervical ovulatory mucus from the vaginal pool and are subject to rapid death in the vagina may under certain conditions survive for prolonged periods after transfer into the cervical canal. Furthermore, the occurrence of conception after deposition of asthenic spermatozoa in the cervical canal (first reported by Seguy) shows that the cervical mucus may maintain not only their motility but also their fertilizing capacity. The most critical task in the life of the asthenic spermatozoon appears to be penetration into the cervical mucus. No extended survival results from transfer into certain types of cervical mucus (e.g., those often seen in endocervicitis or in ovarian deficiency). Both experiment and clinical experience suggest that cervical insemination with the husband's semen (A.I.H.) should be used in cases of defective invasion, provided, first, that treatment of the male has failed to procure adequate invasive potency ; secondly, that the spermatozoa show good initial motility ; and, thirdly, that the cervical mucus during the ovulatory phase is clear and not gelatinous. More precise determinations (such as viscosity) can be made by *in-vitro* tests unsuitable for clinical routine. It should be added that impairment of invasion may be mechanical (e.g., malposition or abnormality of cervical passage), and some authors (e.g., Guttmacher, 1942) regard this condition as meriting artificial insemination.

Male Sterility and Other Indications for Artificial Insemination with Donated Semen (A.I.D.).—We have employed donated semen in a limited number of cases. In some of these (e.g., bilateral cryptorchidism, occlusion of ducts, fibrosis testis, incurable impairment of ejaculation) male sterility had to be regarded as permanent ; in some others (e.g., extreme oligozoospermia) a condition of severe subfecundity had failed to respond to treatment, so that chances of conception were remote. In two cases biological considerations were decisive. In one of them deafness had recurred in three successive generations of the husband's family ; in the other, transmissible nervous disease was established. Many other reasons have been advanced by patients requesting artificial insemination with donated semen (A.I.D.). Thus some couples, too impatient to submit to treatment, prefer the easy approach of A.I.D. This attitude is common in fecund women married to subfecund men. But quite often the husband is unwilling to undergo treatment, and the suggestion of A.I.D. comes from him. Some women demand A.I.D. without the knowledge of the infecund husband, claiming that paternity would save his self-esteem ; such women are usually good and devoted wives who, having longed for children for many years of marriage, have rejected other ways of becoming pregnant. Others are impelled by different motives: e.g., they plan to force marriage by what they consider to be a guiltless conception. Neither these nor other more dubious reasons have been accepted by us ; for while we do not feel in a position to suggest the general principles which should govern the application of A.I.D. we recognize the need for the greatest caution. In our work we have taken into account not only biological and medical factors but also the suitability of the couple for parenthood, so far as this can reasonably be estimated.

Procedure and Technique in A.I.H. and A.I.D.

Choice of Date

The wife is instructed how to record her rectal temperature throughout the menstrual cycle on waking ; for as a rule the variations of the temperature not only reflect the two phases of the cycle (follicular and luteal respectively) but also indicate clearly enough the approximate date of ovulation (see Chart). Any intelligent woman, once fully instructed, is capable of recognizing the ovulatory phase by the low level and/or the peculiar preluteal drop in the waking temperature. If this be indistinct in any cycle she should attend on the first day of the luteal rise. She is also asked to observe other signs of ovulation (Mittelschmerz, spotting, etc.). The final decision concerning the performance of insemination in any given cycle depends on the condition of the cervical plug, for if it is opaque the ovulatory phase is probably no longer, or not yet, in being. It should be borne in mind that even fecund women will occasionally have a cycle with indistinct ovulatory signs, and in less fecund women this may be more frequent.

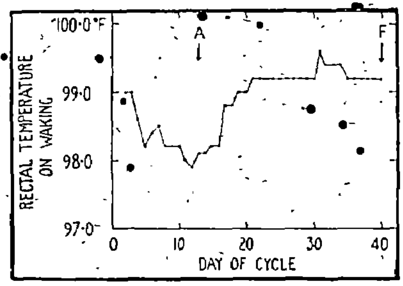

Chart of waking rectal temperature of an A.I.D. patient during only cycle under treatment. A: Day of artificial insemination. F: Day of positive Friedman test.

Insemination with Husband's Semen (A.I.H.)

We have found, in joint investigations with Dr. H. Coke (unpublished), that semen not infrequently carries pathogenic organisms which it would be unwise to deposit in the cervical canal. A bacteriological test is necessary in all doubtful cases (e.g., in sperm agglutination, pyospermia, haemospermia, etc.). Any infection should be attacked by local and systemic treatment of the husband. If these attempts fail the semen should not be used. Generally speaking, it is important to raise male fecundity to the highest possible level. Further procedure varies according to specific conditions. Where the main seminal deficiency consists in the lack of invasive power of a well-populated and viable semen the patients may be instructed to have intercourse half an hour after a thorough vaginal douche (warm water only). Semen may then be obtained from the posterior fornix within 60 minutes. The use of vaginal pools involves certain theoretical risks such as transfer of organisms from the vagina into the cervical canal. But some couples cannot adjust themselves to other methods of obtaining semen. The method is also valuable when it is undesirable, for psychological reasons, that the husband should be asked to masturbate repeatedly.

In cases of oligozoospermia and with semen of low viability masturbation specimens should be collected in suitable glass containers* just before insemination. The semen is used without additions and without any further manipulation except in cases of pronounced oligozoospermia, when it may be concentrated by gentle centrifugalization (approximately 500–1,000 revolutions per minute). In these cases the deposit is used with a small volume of supernatant fluid.

The patient is placed in the lithotomy position and the cervix, exposed by a dry unlubricated speculum, is swabbed with dry cotton-wool. A glass syringe fitted with an intra-uterine cannula or a special syringe of plated metal† is used, and a small quantity of semen (0.1–0.2 c.cm.) is drawn up into this syringe, which must be dry. As a result of certain still incomplete experiments we are under the impression that larger quantities of semen may impair the chances of intracervical survival of sperms. The tip of the cannula is passed into the cervical canal (1/4–1/3 in. of the external os). The semen is then injected *very slowly* into the canal. Most of the semen usually escapes from the cervix, but a small amount is retained. Forceful injection, recommended by Guttmacher (1942) and others, has neither an empirical nor a physiological basis; furthermore, it involves the risk of intra-uterine instillation. The patient may be allowed to leave a few minutes after insemination. Slight and passing discomfort sometimes follows cervical insemination; it is never severe, and may be disregarded.

It is an essential aspect of A.I.H. that it may have to be repeated frequently—i.e., *monthly* for a period of two years if necessary—before success is achieved or failure may be presumed. For the occurrence of conception is a matter of chance, though of high probability, even in fecund couples leading a normal married life. In infecund couples the chances are small even though A.I.H. be used, hence repeated "exposure to risk" is indicated.

A.I.D.: (1) Selection of Donors

So far as we know, no organized collection of semen for donation has ever been established, and the provision of semen is therefore entirely in the physician's hands. This inevitably involves considerable difficulty in obtaining suitable material. but has the advantage that the physician knows the donor individually. Certain facile assumptions suggested by purely biological considerations must be refuted. Thus the husband's brother might be regarded as the first choice because of genotypical resemblance; but experience shows that this choice is usually incompatible with secrecy, and that it is conducive to emotional disturbances involving both husband and wife. In fact, the prospective parents should never be aware of the identity of the donor. We have come to this conclusion as a result of disturbing observations in cases where the donor (though biologically approved by us) was chosen by the couple. It would seem that the responsible donor and the maternal woman are emotionally too deeply involved in procreation to regard their relationship with detachment. Now we carry anonymity to the point where the donor is never described to the patient save in most general terms which exclude identification; nor does the donor receive any specific information concerning the recipients. But if he wishes to limit his donation to certain types of parents his wishes are, of course, considered. In view of requests and suggestions made by medical men and others it should be emphasized that in our opinion no specimen of semen should be used for insemination except with the explicit agreement of the donor.

The principles which govern the choice of donors are designed to reduce obvious biological dangers. There must be no history of transmissible disease; the family history of the donor must be free of adverse characteristics of possible genetical significance, such as alcoholism, criminality, or tuberculosis. Excessively pronounced physical features are undesirable not only because they may be objectionable themselves. but also because they might facilitate identification of the donor.

Positive considerations concerning the eugenic quality of the donor's stock will largely be governed by the scientific views and perhaps the individual preferences of the physician concerned. Our choice has favoured men of intellectual attainments whose family history indicated that the members of at least two preceding generations were not only intelligent but also endowed with good capacity for social adjustment. Others might prefer donors characterized less by mental than by physical characteristics or achievements (athletes, etc.). In fact, we have hesitated before accepting cases for A.I.D. in which the interests of the parents were primarily athletic or sporting: and, speaking quite generally, the selection of donors with respect to the characters of the parents is a wide and complex problem. One has to bear in mind that the legal father may hope for a donated child with whose personality he might be in accord, and it must further be remembered that difficulties in the father–son relationship might be accentuated by the circumstances of A.I.D. Obviously, even the most careful choice of the donor for each case could not guarantee the desired characteristics, but it would increase the chances of matching parent and child. Present conditions make any such selection impossible.

The donor should have at least two legitimate children; this is of importance not only from obvious genetic considerations but also because his parental drive will have an available object. He must be of mature age (30 to 45), so that his character, viability, and other qualities can be properly assessed. His individual health should be adequate—primarily because it reflects constitutional characteristics. A certificate of the donor's physician is requested and a Wassermann test is carried out.

The fecundity of a donor must be reasonably high. The semen must have a volume of at least one c.cm., it must liquefy and rapidly become homogeneous, the sperm count must exceed 30 millions per c.cm., and there must be no spontaneous agglutination. Viability must be high—1% after 100 hours at 4° C. The spermatozoa must show little variation of head-lengths and include less than 15% abnormal forms. Indifferent or intermediate and pathological cell-forms (e.g., di Biasi cells) must be rare. The bacteriological cultures obtained from the fresh semen must be sterile or show but a light growth of harmless contaminants such as *Staph. aureus* and diphtheroids. These requirements are dictated not only by the desirability of a high conception rate but also by the need to reduce the risks of miscarriage. Periodic checks upon the seminal conditions, etc., are made.

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* Semen-containers and syringes should be cleaned without the addition of the usual antiseptics. They must be thoroughly dried before use.

† Supplied by A. J. Travis to our design.

The donor's blood group should be identical with that of one parent if it is desirable to minimize the possibility of bastardization. The parents usually desire donors of like race—e.g., Jewish couples usually ask for a Jewish donor. On the other hand, it is a curious reflection on the present epoch that some have specifically asked for non-Jewish donors, since they want to safeguard the child so far as is possible against anti-Semitism.

The greatest difficulties in A.I.D. arise from the fact that to most balanced men the task of donation is unpleasant, and because of the low fecundity of most mature men. Hence but a very small panel of donors has been established so far. Fortunately, the number required at any given time is not great. For while a specimen of semen should not be used for more than a few hours after emission, it can during this period be utilized for at least 20 inseminations. In theory the number of possible conceptions from one specimen is very much higher, for we have satisfied ourselves that a single insemination with 0.01 c.cm. of semen may suffice to procure pregnancy. It follows that a fecund donor submitting two specimens weekly could, with ideal conditions, produce 400 children weekly (that is, about 20,000 annually).

A series of systematic observations has shown that A.I.D. has a good chance of success on any one of three cycle days—viz., on the day of the minimum waking temperature, on the day preceding it, and on the first day of the rise. Thus the general organization of A.I.D. requires an arrangement by which fresh semen is delivered to the laboratory two or three times weekly, while the recipients are asked to attend at the corresponding hours during the presumptive ovulatory phase. But while a small panel of donors can serve the immediate purpose, it seems desirable to limit the number of children any one donor should be allowed to have, lest the risk of marriage between sibs not known to each other should assume dangerous proportions. For this reason we have set an arbitrary limit of 100 children for each donor—not yet attained by any one donor.

The instructions given to a donor are simple, and are mostly concerned with delivery of the semen in a fresh condition without contamination. A sterile glass-stoppered container is supplied by the laboratory, and the specimen is maintained at room temperature. Donated semen is used for cervical insemination as described previously for A.I.H.

A.I.D.: (2) Preparation of Parents

A couple accepted for A.I.D. are made clearly aware of its biological, legal, and other implications and difficulties. Most couples have preconceived views concerning the method. Apart from believing that a single insemination on an arbitrary date is all that is required, they also assume that the husband can be nearly reproduced by a specially chosen donor. Hence they must be told that no likeness, physical or otherwise, can be guaranteed. The explanation of potential legal complications is based, in the absence of precedent, on counsel's opinion, for which we are indebted to our legal advisers. It is emphasized that the husband might change his attitude in years to come and attempt to disown the child. Both the possibilities and the difficulties of such attempts are pointed out. The couple are further informed that the child will be legitimate if the husband is registered as the father. Such registration is demanded although it constitutes an offence. For purely formal protection of the physician a written request for A.I.D., signed by husband and wife in the presence of the physician, may be obtained. This is filed under seal, and arrangements are made for the destruction of the document at the physician's death. The prolonged consultation required at this stage provides an opportunity to impress the couple once more with the significance of their decision; and the physician can assure himself that the husband is not either acting on the spur of an ill-considered decision or submitting half-heartedly to his wife's request. On this as on other occasions an attempt must be made to establish the mutual confidence between patients and physician which is needed for their relationship and which is more important than any formal legal safeguard; the latter, in any case, could not cope with the numerous human complications which might arise in this field. Lastly, the patients are assured that complete secrecy will be observed.

Dangers

1. In our experience no dangers attach to the actual process of cervical insemination provided that no air is injected and no semen is allowed to enter the uterine cavity. But dangers may arise from the use of semen infected with pathogenic organisms, and while it seems that the healthy cervix is endowed with a defence mechanism against some semen-borne organisms it is not possible to detect impairments of cervical defence. At this point it may be remarked that we originally employed intra-uterine insemination as suggested by various authors. But on discovering the high incidence of seminal infection we abandoned this often painful procedure, which in the hands of an American author has resulted in grave injury (pelvic abscess and permanent subfecundity) (Bickers, 1944).

2. The question of dysgenic conception from the use of subfecund semen has often been raised—not only in the literature but also by patients who fear that the predominance of abnormal or asthenic sperms may be reflected in the constitution of the child. Now, this is indeed one of the most difficult problems in all animal-breeding, and yet one which has scarcely been formulated precisely—much less solved conclusively. It must be remembered that deliberate (experimental) damage to animal spermatozoa may not prevent conception but may result in non-viable zygotes, and that, in man, exposure of the father to some poisons has been stated to affect the offspring (Hamilton, 1925; DeLee, 1924). In human reproduction a close association of high miscarriage rate with semen of low fecundity has been claimed, and this association is indeed a common experience in the therapy of sterility: threatened miscarriage, usually at the end of the third month, occurs in more than one-third of the women who have conceived from subfecund semen. Cervical insemination might increase the incidence of non-viable progeny by interfering with the mechanism of cervical selection, which inhibits the invasion of the cervix by abnormal spermatozoa. In artificial insemination the cervix receives many abnormal spermatozoa which could not invade under their own power. Much more experience must accumulate before the standard of the progeny of subfecund parents can be assessed properly. But it is encouraging that normal and viable infants were born in all our cases of A.I.H. in which pregnancy went to term without accidents of parturition or gestation. Also, the frequency of tubal pregnancy and other abnormalities of gestation was no greater than might be expected in a corresponding group of unaided conceptions.

3. A potential danger arises from the tempting chance of experiments with semen. Human sperms die fairly rapidly unless specific media are employed which can be used for storing semen. Again, infected semen can be disinfected without visibly affecting the sperms. Such procedures might simplify the task of artificial insemination, but we feel that interference with the semen carries the risk of affecting the progeny—a risk which may safely be accepted in animal-breeding but never, in our opinion, in human reproduction. Non-interference with semen should be carried to the point where storage or transport over long distances (which has been successfully used in America) is avoided. Artificial insemination should follow the natural course of events as closely as possible, and perhaps even centrifugalization should be regarded with reserve.

4. Lastly, there is always the danger of psychological damage to the patients, both husband and wife—e.g., either through the inevitable interference with their sexual relations or through the consciousness of reproductive inferiority. Careful initial selection of cases and attention to the patients' reactions can reduce this risk.

Results

For a variety of reasons no useful statistical analysis of the results of A.I. can yet be presented. The method and technique of A.I. have changed much during recent years—e.g., through the systematic use of the temperature chart—and the selection of cases has tended to become more stringent; the number of inseminations carried out before abandoning a case has increased, and so on. Hence results of earlier series are of little significance. Furthermore, in assessing the results of any given group, such factors as the age of the wife, the degree of male fecundity, etc., must be taken into consideration, and these vary greatly. The primary factor, however, is represented by the assessment of the case. Cases can be so selected that

A.I.H. will be successful in most, or in hardly any case, and the same applies to A.I.D. A few illustrations are given below:

1. *A.I.H.*—In a recent series of 30 successive cases A.I.H. was carried out because of low invasive power of the semen. In addition, spermatozoal density was low (less than 10 millions per c.cm.) in six cases; and more than 15% abnormal head forms were present in the semen of five cases. Female infecundity factors—e.g., impaired tubal function, infrequent ovulation, etc.—were detected or strongly suspected in six cases. Insemination was carried out in at least four successive cycles where necessary and, as a rule, more than once in each cycle. One case is counted twice, for the patient miscarried after the first series of inseminations, and then made a second attempt. Nine conceptions occurred—in one case during the first cycle, in the others in the third or fourth cycle. Four pregnancies terminated in miscarriage in the fourth month of pregnancy or earlier; four others resulted in the birth of a viable infant. In the last case the pregnancy continues at the time of writing. In 21 cases no conception was recorded with certainty, but two conceptions may have occurred (? early miscarriage). The negative cases are characterized by a higher average age of the wives, but not by a higher frequency or greater severity of manifest infecundity factors in either husband or wife.

2. *A.I.D.*—A recent series of 15 successive cases in which donor M. was employed consisted of women in whom no serious infecundity factor was discovered, though four of them were 40 years of age or over. Insemination was repeated where necessary in at least six cycles. Conception resulted in 10 cases. The negative cases were represented by one woman in whom insemination was repeated during eight cycles and then abandoned, and the women aged 40 years or over. The fate of the 10 pregnancies varied. One was tubal and had to be terminated; one ended in miscarriage (end of the second month); five went to term uneventfully or are nearing term at present; and three terminated successfully at 45 weeks. The number of cycles during which inseminations were carried out in the positive cases varied from one to seven. It may be said that, in our experience, repeated A.I.D. is nearly always successful in reasonably young women in whom infecundity factors have not been detected. The infants produced by donor M. in this as in another series show no abnormality and are progressing favourably. Their physical types vary widely, and the parents state in every case that they are glad to have availed themselves of this service.

Summary

In some cases of male impotence, dyspareunia, ejaculatory failure, and defective cervical invasion, artificial insemination with the husband's semen may be indicated. In the first three conditions named, self-insemination by the wife is possible.

Artificial insemination with donated semen has been carried out in cases of incurable male sterility and for genetic reasons.

The procedure and technique of artificial insemination with the husband's semen and artificial insemination with donated semen (choice of cycle day, suitability of semen, method of cervical instillation) are described.

The selection of semen donors and the organization of artificial insemination with donated semen are discussed.

Some potential dangers of artificial insemination—e.g., uterine infection, dysgenic conception from defective or damaged sperms—are enumerated.

Two small series of cases are reviewed.

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A search for methods of controlling Scotland's "plague of midges" will be the task of a small committee of Scottish scientists headed by Brig. F. A. E. Crew, professor of public health and social medicine at Edinburgh University, and director of biological research at the War Office. Mr. Thomas Johnston, Secretary of State for Scotland, invited the committee to consider whether measures similar to those used in the Army against mosquitoes and other insect pests dangerous to health could usefully be employed against midges and other biting flies. The committee's first step will be to review what is known about methods of attack on insects and their breeding grounds and to advise whether these methods can be used or can be modified for use against midges.

METHYL BROMIDE POISONING

EFFECTS ON THE NERVOUS SYSTEM

BY

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Methyl bromide (CH_3Br), a non-inflammable colourless gas at ordinary temperatures and pressures, fairly easily compressible into liquid form, is used extensively as an insecticide, fire extinguisher, fumigant, and refrigerant. It is known to be toxic to man in various ways, and as it is without smell in low concentrations and is 3.3 times as heavy as air it constitutes a very real industrial hazard. The toxic effects described in the literature are: (1) on the skin, giving rise to a vesicular irritative dermatitis and second-degree burns; (2) on the respiratory system, producing bronchitis, bronchopneumonia, pulmonary congestion and oedema; (3) on the alimentary system, with gastro-intestinal upset and hepatic dysfunction; (4) on the nervous system, with both an acute and a chronic symptomatology. It is with the last that this paper deals, and although references show a familiarity with other manifestations, no attempt has been made to evaluate or define the more chronic effects on the central nervous system.

Review of Literature

Heiman (1944) has given a full review of the literature (chiefly Continental) concerning the general toxic effects of methyl bromide on man. An analysis of cases describing the acute neuropathies produced by short exposure to high concentrations shows in the majority a prodromal stage of headache, dizziness, nausea, vomiting, and generalized weakness with transient diplopia and amblyopia, followed by a period of mental excitement with focal or generalized epileptiform convulsions, muscular tremors and spasms, mental confusion, psychomotor acceleration, and restlessness, amounting at times to acute mania. This stage is accompanied by fever and occasionally cyanosis with methaemoglobinaemia, and in fatal cases is followed by coma, increase in muscular spasms, and convulsive seizures with death in hyperpyrexia.

If the patient survives, there follows a long period of convalescence, lasting up to 18 months in a few cases, in which the epileptiform attacks become less frequent, the mental confusion and excitement gradually abate, and visual disturbances slowly improve, although nystagmus and sluggishly reacting dilated pupils persist, with mental depression and insomnia. Morbid hunger has also been described in this connexion.

Pathological material confirms the involvement of the brain and meninges in the acute type of case, but no reference is made to the spinal cord or peripheral nerves. Glaser (1928) described oedema of the brain with no further details. Goldschmid and Kuhn (1920) found degeneration of the cortical cells in the cerebral hemispheres, particularly in the frontal and parietal lobes. Duvoir (*et al.*, 1937; 1939) found acute congestion of the brain and meninges, and Heiman decrease of cerebrospinal fluid, swelling of the brain with engorgement of pial veins but no haemorrhages. The brain was found to contain traces of methyl alcohol and formaldehyde, and 62 mg. of bromide in 300 g. of tissue. No microscopical findings were mentioned.

The neurological effects of long-continued exposure to small concentrations have been described in only a few cases, and no pathological material is available, except from animal experiments. Jacquet reported one case with vertigo, weakness, transient diplopia, and dimness of vision following brief exposure, and two cases with similar symptoms plus flaccid paralysis of legs and psychic disturbances after more prolonged exposure to an unknown concentration. Watrous (1942) much later reported the occurrence of mild nervous symptoms in 31 persons out of a total of 90 working in a filling-and-sealing room of a methyl bromide plant who were exposed for two weeks to a concentration of less than 35 parts per million. Headache, vertigo, difficulty in focusing, muscular pains, and dimness of vision were the symptoms observed, but no neurological abnormalities were found on examination. All these cleared up within two months of the patients' leaving the factory.

De Jong (1944) has reported three cases with involvement of the central nervous system who were exposed to methyl bromide vapour in low concentrations for an average of six months before the onset of symptoms. One of these patients had a history of numerous methyl bromide blisters on his hands. The nervous symptoms in these cases were vertigo, unsteadiness, and blurring of vision, followed by diplopia, weakness, numbness and tingling of the legs, unsteadiness of gait, and headache. No psychic disturbances were observed. Examination revealed moderate dilatation of pupils, with nystagmus, some cerebellar ataxia of the limbs, exaggerated tendon reflexes, and Babinski response in one case; diminished ankle-jerks in one case; normal abdominal and cremasteric reflexes, diminution of vibration sense in both legs with retention of position sense, and diminished cutaneous sense peripherally in one case. The C.S.F. was normal in each instance, not under pressure. Blood counts were normal, and the blood bromide varied from 9 to 13 mg. of sodium bromide per 100 c.cm. All the cases showed slow improvement over three months.

Meadows, in a personal communication, describes the case of a man aged 36—employed in the same factory as the case described below in detail—who had been working with methyl bromide for two months when he began to complain of numbness and tingling of both hands and feet, with progressive weakness of the legs. This was followed by dimness of vision, with inability to read near print, and peeling of hands and feet. On examination visual acuity was impaired, nystagmus was present, there was weakness but no wasting in the lower limbs, ankle-jerks were absent, and the left plantar was doubtful. There was loss of vibration sense in the legs, but no other sensory changes. Investigations of blood and C.S.F. were negative. The condition improved, and the patient was advised not to return to his work. It is only fair to add that at this time (a year ago) investigations failed to reveal any leakage of the gas, but when a further case arose a leakage was found in the department dealing with insufficiently filled extinguishers requiring reopening and refilling.

Animal experiments are interesting. Four investigators in America exposed rats, rabbits, guinea-pigs, and monkeys to varying concentrations of methyl bromide for varying times. The particular experiments appertaining to chronic neurological effects showed that 14 to 46 exposures to concentrations of 0.25 mg. per litre produced paralysis of a flaccid type in the limbs of rabbits and rhesus monkeys: these paralyses were bilateral, and affected equally the front and hind legs of the rabbits but chiefly the legs of the monkeys. On discontinuing the exposures when these paralyses had developed, the monkeys showed loss of equilibrium with a general ataxia of movement suggesting to the experimenters a cerebellar involvement. The reflexes became normal when the function of the limbs returned. Exposures to concentrations of 0.13 mg. per litre produced paralyses in rabbits, but had no effect on monkeys. Careful histological examination of the brain and spinal cord in the affected animals showed no abnormalities, but no mention is made of examination of the peripheral nerves.

Illustrative Case History

A male aged 17 was admitted to Staines County Hospital with the history that he had worked at a methyl-bromide-producing factory for 18 months, but had changed his type of employment a year later. During the six months before admission he had worked in the refilling department, where fire extinguishers which had been insufficiently filled were reopened and refilled with methyl bromide until they had attained the standard weight. He and the other employees in this department realized that a certain amount of gas escaped, but there appeared usually to be sufficient extraction by ventilation. The more efficient the workman the less the escape of gas. The patient was always rather clumsy, and the employees remarked on the increase of escaping gas in his work. On questioning, it was stated that the gas had a peculiar stale odour, "as though the air had not been changed for a fortnight" (this is contrary to the general belief that the gas is odourless).

Two months before admission the patient began to notice weakness of his legs, interfering with his ability to jump on chairs, buses, etc.; at the same time he felt his toes tingling and found difficulty in forming his words. His mates remarked that "he was more stupid than usual," and he developed a methyl bromide dermatitis and burns on his hands. At no time did he complain of his symptoms to the factory doctor, who examined the employees carefully each week. One month later he found that his hands were clumsy and that he was much slower in his work and unable to run owing to weakness of the legs. He had difficulty in going up and down stairs, and began to notice he was seeing double. There were no further pains or any dysaesthesiae. Three weeks later—a week before admission—he was unable to read or see things close to him, and his speech was becoming worse, although his unsteadiness of hands was stationary. On the day of admission he was hardly able to walk to work; he complained of constant double vision, giddiness, and weakness, and when he got to his job he fell down and was quite unable to get up. He said his head ached and "he couldn't see his feet." Many of his symptoms had been noticed by his fellow employees, although they had experienced none of them, and these were ascribed to his unhappy home life with a cruel stepfather. On inquiry the home life of the boy was found to be unsatisfactory, but no overt cruelty seemed likely and his diet appeared to be adequate. He had no history of sore throat.

On admission he was mildly confused, with a considerable slurring ataxic dysarthria, and was unable to stand or walk, owing to weakness of his legs. His confusion was chiefly a disorientation in time, and it was impossible to elicit any chronological history from him He was somewhat dull and retarded, but no other psychic abnormalities were found. Pulse and temperature were normal, and the only abnormal signs were found in the nervous system. His pupils were dilated, with good reaction to light but less to convergence-accommodation: he was unable to read, but had 6/9 vision in both eyes at 6 metres. Visual fields were full to confrontation, and his disks were normal. He had lateral nystagmus, and a fine rotatory nystagmus in both eyes on looking up, with diplopia at extremes of lateral movement. The upper limbs were of normal tone, without weakness, and showed diminished tendon reflexes. Slight motor incoordination was present and he was unable to perform rapid repetitive movements. There was no sensory loss. The abdominal reflexes were greatly increased and cremasterics normal. In the lower limbs undue flaccidity with marked motor weakness at all joints was observed, and the knee-jerks were just present, although the ankle-jerks could not be obtained. Motor ataxia in both legs was very obvious, and the left plantar response was Babinski. Vibration sense was absent in both legs up to the knees, and there was poor appreciation of position on the right. No superficial sensory changes were found. There was precipitancy of micturition. Lumbar puncture was performed and a clear freely communicating fluid obtained at a pressure of 100 mm. of water.

Two days after admission he began to be able to read and could move his legs about in the bed without trouble; his hands had lost their ataxia. A week after admission he showed nystagmus, ataxic dysarthria, and a broad-based staggering gait, with generalized reduction of tendon reflexes and diminished vibration sense in both legs His plantars were now flexor, and he could focus normally without diplopia. The picture was very reminiscent of hydantoinate (epanutin) intoxication. The patient's condition slowly improved and he was fit for physiotherapeutic re-educational exercises a month after admission, by which time he had a slightly slurred speech, some difficulty in turning and walking fast, and nystagmus. All other abnormalities had cleared.

Seven weeks after admission he was discharged with no residual sequelae, and was advised not to return to employment where methyl bromide was used.

Investigations.—Cerebrospinal fluid:—Protein, 40 mg. per 100 c.cm.; 4 lymphocytes per c.mm.; chlorides, 640 mg. per 100 c.cm.: bromide (sodium), 27 mg. per 100 c.cm.; W.R. negative; Lange gold curve, 0000000000. Blood count:—Red cells, 4,850,000: haemoglobin, 90%; white cells, 9,000—polymorphs 70%, lymphocytes 26%, monocytes 2%, eosinophils 2%. The urine showed no abnormality.

Discussion

In exactly half the cases of methyl bromide poisoning described in the literature (39 out of 78) subacute or chronic effects on the nervous system have appeared, and in addition animal experiments confirm this type of damage from prolonged exposure to small concentrations of the gas. The neurological signs divide themselves into central and peripheral effects, and the latter seem more important in the chronic cases. These appear to be the result of a toxic peripheral neuritis with numbness, tinglings, flaccid pareses, loss of reflexes, and few sensory changes except loss to vibration. In some cases there was muscular wasting with complete paralysis, although no increase in protein or cells was found at any time in the cerebrospinal fluid.

The central effects described comprise headache, transient diplopia, difficulty in accommodation, dimness of vision, dysarthria, generalized incoordination, and vertigo. In four cases only, with prolonged exposure, psychic disturbances appeared.

showing retardation of thought, drowsiness, mild disorientation, and slow response to questioning. Objective signs were present in 10 cases of this type, and included nystagmus, pupillary dilatation with sluggish reflexes to light, diminution of vision, cerebellar ataxia and dysarthria, and loss of vibration and position sense. Centrally, therefore, the main incidence seems to be on the optic nerves, oculomotor nerves, cerebellar connexions, and posterior columns, with occasional involvement of the higher centres producing psychic disturbances.

Treatment up to the present has been only symptomatic, as these cases improve with rest in bed and removal from exposure to the gas, and no great increase in blood or cerebrospinal fluid bromide has been found (up to 27 mg. of sodium bromide per 100 c.cm.). It is presumably the methyl combination that does the damage, as bromide poisoning is not clinically apparent until blood concentrations of above 100 mg. per 100 c.cm. are reached.

Convalescence is prolonged, with persistence of some ataxia, undue fatigue, and nystagmus long after the disappearance of the peripheral neuritis, but most of the cases seem to have recovered within a year. Two patients were returned to employment where the risk of exposure to methyl bromide was still present, and both relapsed within six months and had lost time from work owing to residual and recrudescing symptoms.

Summary

The effects of chronic methyl bromide poisoning on the nervous system are described, with a review of the literature and an illustrative case history.

These effects, on analysis, form a pattern of dysfunction mainly affecting the peripheral and optic nerves, cerebellar connexions, and certain spinal cord tracts, although the material available is not sufficient to postulate a definite syndrome associated with methyl bromide poisoning.

On removal of the patient from the toxic hazard the symptoms slowly clear up without any specific treatment and apparently without permanent sequelae, but it is inadvisable to allow return to further exposure.

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HYPOPROTEINAEMIA DURING RECOVERY FROM SEVERE ANAEMIA

BY

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Generalized oedema due to diminution of the serum proteins is not a common complication of the treatment of anaemia and does not occur unless the ingestion of protein is low during the period of regeneration of haemoglobin. It is not generally recognized that the formation of haemoglobin makes great demands upon the protein reserves of the body. Heath and Taylor (1936) state that for a gain of each 10% of haemoglobin about 80 g. of protein is required and that haemoglobin formation is accompanied by a positive nitrogen balance only when the diet contains more than 6.2 g. of nitrogen a day. They say, however, that haemoglobin formation takes place at a normal rate even in the face of a negative nitrogen balance, and that in these circumstances the demand for nitrogen for haemoglobin formation appears to be supplied by tissue and plasma proteins.

The case described below is one of severe nutritional oedema following the treatment of pernicious anaemia. Faulty dietetic habits had been present for years, and they were not fully corrected during the period in hospital preceding the onset of the oedema.

Case Report

The patient, a married woman aged 49, was admitted to hospital on June 13, 1944. She complained of increasing lassitude and loss of weight over a period of a few years. She stated that she had lost about 4 st. in the past 18 months. She had suffered from dyspepsia most of her life, and often vomited if her food "disagreed" with her. Her appetite had become very poor, and she existed mainly on a soft carbohydrate diet, rarely eating meat. She had had occasional diarrhoea during the past four years. The climacteric occurred early in 1944. There was no history of any previous severe illness.

On examination the patient was very emaciated and pale. The skin had a faint yellowish tint, but she had a malar flush. Her hair was thin and lustreless, and her general appearance suggested a mild degree of pituitary cachexia rather than pernicious anaemia. The tongue showed slight atrophic glossitis, but there was no koilonychia. She had a tachycardia of 100 a minute, but the pulse was regular and of good volume. B.P. 120/75. The heart was slightly enlarged, but there were no murmurs. Examination of the chest revealed no abnormality, and there were no abnormal neurological signs.

A blood count revealed a macrocytic anaemia. Red cells, 1,600,000 per c.mm.; Hb, 35%; C.I., 1.13; white cells, 7,500 per c.mm. A fractional test meal showed complete achlorhydria. A glucose-tolerance test gave normal figures, and the Wassermann reaction was negative. Radiological examination of the alimentary tract by barium meal and enema revealed no abnormality.

Treatment with liver extract, ferrous sulphate, and vitamin B complex was begun, and the haemoglobin and red cells increased steadily, with a maximum reticulocyte response of 10%. On July 7 a painful thrombophlebitis occurred in the left saphenous vein, and a week later a similar condition occurred in the right saphenous, both accompanied by oedema of the leg. The inflammation and oedema subsided quickly, however. On Aug. 9 the haemoglobin was 76% and the red cells 3,700,000 per c.mm. The patient felt very much better and lost her feeling of lassitude, but she could not be induced to eat the full hospital diet. She constantly refused meat, but ate moderate quantities of carbohydrate foods. On Aug. 11 gross oedema of the legs, abdominal wall, and trunk appeared, almost overnight. Ascites was present; but the oedema of the trunk finished abruptly at the mid-dorsal level—none was seen in the arms or face. There was no pain or pyrexia and the urine was normal. No pleural effusions were present, but moist sounds were heard at both lung bases. The urinary output was small (15 oz. in 24 hours). The serum proteins were low: total protein, 4.16 g. per 100 c.cm. (albumin 1.8%, globulin 2.36%); serum sodium, 346 mg. per 100 c.cm.

On Aug. 16, 80 g. of protein in the form of reconstituted plasma was given intravenously by slow drip and the patient was persuaded to eat a high-protein diet. Almost immediately a marked diuresis resulted, the urinary output often exceeding 80 oz. a day during the next three weeks, during which time the oedema almost completely disappeared. On Aug. 20 the total serum proteins had risen to 5.25%, the diuresis was still being maintained, and the oedema was steadily diminishing. On Sept. 8 the patient was out of bed and felt quite well. Very slight oedema of the feet was present, but this was probably attributable to the thrombophlebitis. The serum proteins at this date were: total protein, 5.61% (albumin 3.36%, globulin 2.25%). The liver treatment was maintained and the haemoglobin had risen to 80%. She was discharged from hospital on Sept. 23.

Comment

The above case illustrates the importance, during the treatment of severe anaemias, of maintaining a diet rich in protein so as to provide the excess of protein necessary for haemoglobin regeneration. If protein intake is inadequate the depletion of the reserves of stored protein may not become evident until a considerable amount of haemoglobin has been formed. As stated before, in order to prevent this depletion a daily intake of more than 6.2 g. of nitrogen available for protein formation is necessary. Inadequate intake of nitrogen owing to a psychological distaste for food appears to have been the main factor in the causation of the protein deficiency in this case, but it is interesting to speculate that the fatty degeneration of the liver which occurs in pernicious anaemia may have impaired the hepatic synthesis of tissue protein and that the hypoproteinaemia may to some extent have been "hepatic" as well as "prehepatic."

The treatment of clinically severe states of hypoproteinaemia with gross oedema is a matter of some urgency. When the deficiency is of the "prehepatic" type, due to inadequate alimentary intake of protein, it is an advantage to supplement an increase in orally administered protein by parenteral therapy. The transfusion of plasma is a convenient method. It was used with success by Holmes (1944) in a similar case of hypoproteinaemia following the treatment of a microcytic anaemia in a vegetarian. Large amounts of plasma may be needed to treat severe protein depletion. The actual amount used in a given case must be judged by the clinical response in the form of diuresis and reduction of oedema. In this case and in Holmes's a moderate amount of plasma was given intravenously to initiate diuresis, and the complete restoration of protein was obtained by an increase in the oral intake.

Recently the intravenous infusion of amino-acids has been suggested by several American workers (Elman, 1940; Shohl *et al.*, 1939; Farr and MacFadyen, 1939; Brunschwig, Clark, and Corbin, 1942). The material used was a hydrolysate of casein; but this is difficult to prepare in a state suitable for intravenous infusion, and unpleasant reactions are said to occur. In "prehepatic" types of hypoproteinaemia the intravenous infusion of amino-acids would appear to have no clinical advantages over plasma transfusion. If plasma is not available whole blood could be used. The casein hydrolysate containing essential amino-acids should be a useful preparation for oral administration, however, particularly in nutritional deficiency of psychological origin.

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Medical Memoranda

Gastric Drip Infusion to Combat Dehydration in Infants

In the treatment of neonatal sepsis the outlook is at present largely determined by whether or not the causative organism is sulphonamide-sensitive; whereas in future it will be a question of whether or not it is penicillin-sensitive. But besides this there will always remain the problem of how to relieve the dehydration.

Of the methods at present in common use each has its drawbacks. It is rarely possible to administer enough fluid by the subcutaneous route to overcome the dehydration in a seriously ill infant; besides which there is the danger of introducing another portal of entry of sepsis. The intraperitoneal route is inclined to be accompanied by considerable shock to the baby and is not without risk. The rectal route is usually impracticable owing to diarrhoea. By the intramedullary and intravenous routes it is always possible to give enough fluid; but unfortunately it is all too easy to give too much. This is especially so in babies, where the kidney and heart can be so easily overloaded and where pneumonia is so great a danger. Unfortunate accidents with the intramedullary method have been recorded, therefore we always attempt an intravenous drip first; and though it is fairly rare to be unable to get an intravenous drip running it is a difficult and time-consuming procedure.

In view of all these objections we began in August of this year to try the effect of a continuous drip into the stomach or the lower end of the oesophagus. It is neither an original nor a new technique, but having found it most successful we suggest that it should be more widely known and used in overcoming dehydration. We found that it was easily possible to give to a neonatal baby up to forty ounces of fluid in the day. On the other hand, compared with the intravenous route, the danger of overloading the circulation is greatly diminished. Another advantage is that it is a means of enteral medication and of gradually changing the composition of the fluid. The technique is simple, and a gastric drip can be erected in a few minutes by a competent nurse.

At present our routine is as follows. In any case in which there is severe dehydration a gastric drip is erected. If there has been much vomiting sterile water or normal saline is given in the first instance, and then this is replaced by albuminous fluids such as "secway" or egg-white. It is usually possible to relieve dehydration in one day, but if necessary the drip can be left *in situ* for much longer, provided that the tube is removed every twenty-four hours and the whole apparatus resterilized. The flask, clip, rubber tubing, and drip chamber are the same as for blood transfusion, the rubber tubing being joined to a fine (No. 5) rubber catheter by a glass connexion. The tube is passed through the nose, as we find this less irritating to the baby. It is kept in the required position with strapping on the forehead. The infusion fluid is warmed before placing in the flask and is kept warm by running the tube over a hot-water bottle, which requires frequent changing.

While originally introduced merely as a means of relieving dehydration, it occurred to us that it might at times be a useful method of feeding in weakly or dull babies such as those who are immature or jaundiced. It might have been thought that vomiting would make the technique impossible; but, on the contrary, we have found it a means of stopping even most persistent vomiting. It is very rare for a baby to vomit at all while the gastric drip is running, and we have never had to stop one for this reason. Another possible danger was the production of an oesophagitis, but in the very few cases as yet seen at necropsy this has not been found.

The following cases illustrate the uses of the method.

1. Infant S. Twelve days old on admission to sick nursery, 1 lb. 2 oz. below birth weight. Severe vomiting and diarrhoea. Baby looking moribund. Gastric drip started. Sulphamezathine tab. 1/4 q.q.h. and pulv. kaolin ʒii q.q.h. Drip continued for three days, during which time the fluid was gradually changed from saline to "secway" and then to human milk. When weighed on the fourth day it had gained 7 oz. Vomiting had stopped, the motions were normal, and it made a steady recovery.
2. Infant B. Ten days old. Admitted to sick nursery with diarrhoea and vomiting, 1 lb. below birth weight. Sulphamezathine tab. 1/4 q.q.h. and pulv. kaolin ʒii q.q.h. On account of dehydration put on gastric drip of "secway" for 24 hours. Gradually increased to 2-in-1 cow's milk–water mixture. Nine days later discharged 1 oz. over birth weight.
3. Infant J. Four days old on admission to sick nursery. Very persistent vomiting, even of saline. Marked dehydration. Found to have very inflamed ear-drums. Sulphathiazole tab. 1/4 q.q.h. given. Gastric drip of saline started. No further vomiting. Dehydration relieved. Ears cleared up. Made steady recovery.
4. Infant R. Birth weight 3 lb. Extremely weakly. Fed for one week with gastric drip, during which time it lost only 2 oz. It was then strong enough to be fed from a bottle. It is now 7 weeks old and weighs 4 lb. 12 oz

In conclusion we would say that for safety, simplicity, and effectiveness in the relief of dehydration we find the gastric drip excellent, and think that its more frequent use in neonatal and infant nurseries would save lives, time, and anxiety.

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Urinary Retention in an Infant caused by Malignant Growth

Acute retention is not a common complaint in infants. The following case occurring in a baby girl of 6 months may therefore be of interest.

CASE HISTORY

The infant was well developed and had had no ailments until a week before her admission to hospital. The doctor had been called in because the child was in obvious pain and had not passed urine that day. The bladder was distended, and about a pint of urine was withdrawn through a catheter. Catheterization had to be repeated daily for a week.

On admission to hospital a fine rubber catheter was passed quite easily and tied in to drain the over-distended bladder and allow it to recover its muscular tone. After seven days' continual drainage the catheter was removed and for three days normal micturition occurred. It was noticed during this time that the baby was constipated and often became distended with wind. Retention of urine became acute again on the fourth day after removal of the catheter, and so a general anaesthetic was given to allow of a complete examination and to insert a suprapubic self-retaining catheter.

Rectal examination revealed a large, smooth, rounded swelling arising from behind the rectum, lying in the hollow of the sacrum and almost completely filling the pelvic cavity. It was solid, moderately hard in consistence, and about the size of a Jaffa orange. It was hardly possible to insinuate the finger between the tumour and the symphysis pubis. An unsuccessful attempt to aspirate its contents confirmed the solid nature of the tumour. From the abdominal aspect nothing was visible or palpable.

A week later, although urine was draining freely through the suprapubic catheter, it was apparent that intestinal obstruction was becoming more severe. Laparotomy was decided upon with a view to determining the nature of the tumour, seeing if it could be removed, and if not, then relieving the obstruction by colostomy. Through the abdominal incision it was found that the tumour filled the true pelvis almost completely. The rectum and pelvic colon were pushed forwards and to the left, and the latter was compressed at the level of the pelvic brim. The posterior parietal peritoneum (which was intact) was incised to the right of the pelvic colon and by blunt dissection the tumour was separated posteriorly down as far as the middle of the sacrum without much difficulty. Lower down it was firmly adherent to the bone, and it became obvious that it could not be removed. A small section was taken for biopsy. Little or no haemorrhage was encountered. Sudden collapse necessitated the rapid termination of the operation, and the baby died before it could be returned to the ward.

The pathological report, for which I am indebted to Prof. M. J. Stewart and Dr. R. M. Heggie, was as follows: "This is a highly malignant and embryonic teratoid growth arising from the intermediate cell mass. It is essentially adenocarcinomatous in nature and papillary in type. The exact origin cannot be stated."

Skipton. PHILIP H. MERLIN, F.R.C.S.Ed.

Reviews

AMERICAN MEDICINE

Textbook of Medicine. Edited by Russell L. Cecil. Sixth edition, revised and entirely reset. (Pp. 1,566; illustrated. 55s.) Philadelphia and London: W. B. Saunders Company. 1944.

This well-known American textbook now reaches its sixth edition, for which it has been revised and entirely reset. It has much the same arrangement as any other general textbook. It is printed in a type that is easily read, and throughout its pages are a judicious selection of illustrations. Many of the articles are accompanied by short lists of references to the literature. The writers of the various articles must find it difficult to know what to select from the vast literature that has grown round so many of the subjects dealt with, and there must be a natural tendency on the part of the contributor to favour references to his own work. As the writers are chosen for special knowledge of their subject this is inevitable, but we cannot help feeling a doubt about the usefulness of short reference lists: within the space allotted to them much that is important must obviously be omitted.

An attractive feature of this textbook is the inclusion here and there of short historical notes in small type—for example, the interesting historical note on scurvy, in which we are glad to see references made to Sir Thomas Barlow's description of infantile scurvy; but we find in the bibliography James Lind's *A Treatise of the Scurvy,* but not Sir Thomas Barlow's article in the *Medico-Chirurgical Transactions, London* (1883, **66,** 159). The complete omission of the names of Ronald Ross and Patrick Manson from the historical note on malaria comes as a surprise to the English reader, who will perhaps find this book of most value to him as an index to therapeutic methods in current American medicine. It is, for example, interesting to read in the section on the treatment of pneumonia that the use of sulphapyridine has been almost completely discontinued because of its toxic effects, and that the drug recommended in the U.S.A. is sulphadiazine. And of alcohol in the treatment of this disease it is observed: "The consensus seems to be that it should be administered only to patients who are chronic alcoholic addicts." The article on pneumococcal pneumonia is written by the editor, Dr. Russell L. Cecil, whose contribution to the discussion on serum treatment of pneumonia before the Section of Pharmacology and Therapeutics at the Centenary Meeting of the B.M.A. in London in 1932 will be remembered by those who attended: it was subsequently published in the *Journal* (1932, **2,** 657). On the efficacy of serum in the treatment of pneumonia he observes that it now seems to be of value in the treatment of patients who cannot tolerate sulphonamides, or who do not respond satisfactorily to sulphonamide therapy within 24 to 48 hours.

This textbook is well up to date, and includes, for example, references to penicillin, an article on virus pneumonia, and new introductory chapters on such subjects as the rickettsial diseases, diseases of metabolism, and diseases of the ductless glands. A useful feature is the 3½ pages at the end of the book giving a list of "normal values for clinical examination." Dr. Cecil's textbook is a great credit to American medicine.

VENEREAL DISEASES

The Venereal Diseases. A Manual for Practitioners and Students. By James Marshall, M.B., B.S. (Pp. 384; illustrated. 21s.) London: Macmillan and Co. 1944.

For some years now, and particularly during the war, venereal diseases have assumed ever greater importance, which is likely to increase after the war is over. With the advent of the sulphonamides and penicillin it seems likely that more and more cases will be treated by the general practitioner in the future. Hitherto the medical student has received little instruction in venereal diseases, and consequently the average general practitioner knows little about them. Up to a few months ago there was hardly a single textbook on the subject published in this country which was up to date; therefore the appearance of *The Venereal Diseases* by James Marshall, following closely on *Handbook on Diagnosis and Treatment of Venereal Diseases* by A. E. W. McLachlan (reviewed in this column on Aug. 12), gives the student and practitioner the choice of two excellent textbooks, to which they may refer for anything in connexion with V.D. which is not exclusively the province of the expert. Major Marshall needs no introduction—he is well known to many Londoners as ex-senior R.M.O. at the London Lock Hospital, and to Service medical officers as command specialist, Eastern Command.

The book is divided into four parts, dealing respectively with gonorrhoea, syphilis, other venereal and allied diseases, and technique; in addition there are appendices on sociology of V.D. and on special equipment, together with a short bibliography. The section on gonorrhoea is particularly good, and sound views are expressed on the use and interpretation of the complement-fixation test. The sulphonamides are handled skilfully, though it might have been well to stress the importance of fluid output rather than intake in the avoidance of haematuria; an intake which is sufficient in temperate zones will not be enough in the Tropics. The section on syphilis is necessarily curtailed by limitations of space, but is adequate; there are numerous excellent illustrations, and most of the coloured plates are beautifully produced, though a few are somewhat lacking in definition—e.g., Plate V. The treatment of early syphilis is the continuous type and is certainly thorough—the dosage is perhaps rather heavier than that commonly employed in this country. "Other Venereal Diseases" are rather crowded out: a fuller section on non-gonococcal urethritis would have been welcome, because not only is this condition becoming much more common, but it is often very difficult to cure. The practical instructions on technique are most valuable and will be very helpful to the general practitioner.

This is a book which can be recommended warmly; if the literary standards are hardly those of Mr. Winston Churchill, the meaning is clear, and the facts are set out with commendable accuracy.

HUMAN CONFLICTS

Foundations of Human Conflicts. A Study in Group Psychology. By William A. Brend, M.D., M.R.C.P. (Pp. 212. 15s.) London: Chapman and Hall. 1944.

The late Dr. William Brend as his last literary task produced a book of great interest not only to his own two professions of medicine and law but also to all those who are concerned directly or indirectly with the future planning of society.

If individual man is improving in intellectual capacity it would appear that in the mass he is not guided by reason but is swayed by childish emotions. Yet it ought to be possible to educate society, for instinct properly defined does not seem to exert much influence on the behaviour of the nations. The individual is strongly moved by directly experienced emotion; but the behaviour of the crowd is determined by propaganda, which uses indirect derived emotion, and this is much less honest. Certainly man tends to form himself into groups, but he does not do so as a result of the action of uncomplicated herd instinct. The group is formed and maintained as the result of emotion, not reason. This may be the direct love of a leader or cause, or the indirect hate of an imaginary or propaganda-clothed enemy. Unfortunately direct love, which should result in universal brotherhood, is less potent than indirect hatred, because in private life expressions of hatred tend to be suppressed by society, and so more readily come out in the mass. The chief modern groups are nations, but neither nationality nor race has any real logical existence, and a nation is only the population or area controlled by a ruler. Patriotism is not innate and is only a derived emotion established by education. Unlike science and knowledge, which have a universal appeal, patriotism is sectional and is the real enemy to peace. War is not due to an instinct of pugnacity or to mass sadism or to the evolutionary process or to divine displeasure; these explanations are mere rationalizations; even religious conflict is not primitive. It is increased by the identification of religion with patriotism, and so a State Church is often an evil influence, for it is associated with the ruling caste and so tends to promote class conflict, which, although softened and modified by tradition, is very intense even in Britain. There is also conflict between the young and the old, and, in the author's opinion, juvenile delinquency is most often due to frustration and rebellion against restrictions imposed by the old. So, too, in the matter of sex, there are too many restrictions; the author thinks that the age of consent is too high, and at 17 both sexes should be free to marry on their own volition without having to obtain the consent of their parents. He thinks, further, that the natural healthy curiosity of children and desire to use the mind are stifled by modern education, which is concerned to instil religious emotion to promote the development of emotional loyalty and to ensure the perpetuation of established social institutions. The author's solution is the establishment of children's colonies for all over 9 or even younger, where there will be a minimum of discipline and compulsion. As to the fall of the birth rate, this is primarily due not to economic causes so much as to the postponement of marriage. Monetary grants are not the answer, but the promotion of earlier marriage and reform of the marriage and divorce laws. He would even favour the institution of temporary contracts, with State provision for children born of such contracts which did not become permanent. Finally, government should be founded on reason based on knowledge, and it must cease to further emotional and ideational conflicts for their own sakes.

Obviously many of the author's suggestions are provocative, but they are logically and lucidly presented, and even his opponents will gain much by reading his book, since if they are to refute his arguments they will have to put their own ideas into order.

Notes on Books

The second edition of Mr. EUGENE WOLFF'S *A Pathology of the Eye* (H. K. Lewis and Co.; £2 2s.) follows closely the arrangement of the first edition, reviewed in these columns on Jan. 19, 1935. The illustrations have grown from 124 to 212, without any substantial additions to the text. Room has been made for additional material by the deletion of some of the older matter, and the present volume is more consistently a textbook on the morbid histology of the eye than the original edition.

The last three editions of *Murrell's What to do in Cases of Poisoning* were prepared by Dr. P. Hamill, and the author of the new (fifteenth) edition is Dr. HAROLD G. BROADBRIDGE, coroner for the county of Middlesex Western District. The book can therefore be recommended to doctors as informing them what steps a coroner expects them to take when they are called to see a person who is poisoned. Further, they can prime themselves before attending an inquest with information which no coroner will be likely to question. The publishers are still H. K. Lewis and Co., and the price is 8s.

Preparations and Appliances

ILLUMINATED ELECTRODE FOR RETINAL DETACHMENT OPERATION

Mr. T. COLLYER SUMMERS, F.R.C.S., writes:

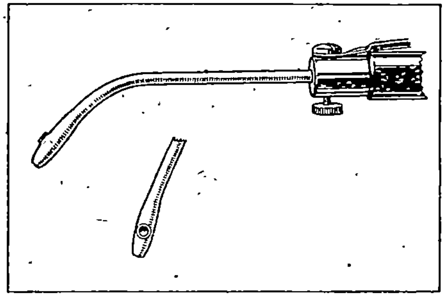
In introducing this method of dealing with retinal detachments that have posterior holes, I feel that it would be helpful if the steps which led up to the development of this operation were recounted.

In 1934, after having done detachments for some time, and having experienced late degeneration of the macula in some cases although the macula had never been detached, I came across the case reported at the Royal Society of Medicine by myself in which, before operation, only a 40-degree segment of the field was present, and this segment after operation was found to be very greatly diminished in sensitivity. This led me to think that macular degenerations and other field defects not explained after successful operations were due to the electric current used, and that more accurate location should be attempted than had been used up to that date. Various methods were tried to locate the hole more accurately, and the best of these was that introduced by Prof. Weve of Utrecht, in which the site of the hole on the sclera was shown by indirect ophthalmoscopy, the assistant then inking the spot so that the flat plate could be applied.

I then conceived the idea of finding the hole by transillumination, and designed a transilluminator, which, with the assistance and kindly co-operation of Messrs. Theodore Hamblin, was shown at the Ophthalmological Congress with other instruments. At that meeting I pointed out that the transilluminator had on one occasion shown the hole up perfectly, but that on subsequent occasions I had never been able to get it to work satisfactorily. It was considered at the time that, if it had worked once, the instrument could probably be so adapted that it would work in the future. The disadvantages of the transilluminator then in use were that it was too cumbersome and the light was too diffused.

A few months later Mr. Gray Clegg of Manchester designed an ideal transilluminator for the purpose, but for some months I was unable to obtain any successes with this instrument. The transilluminator which was being used was a perfectly naked light, and diffusion was so great that no details of the fundus could be accurately focused, let alone the edges of a hole. I accordingly suggested to Mr. Brown, of Messrs. C. Davis Keeler, who was using this apparatus with me, that ground glass be introduced into the Gray Clegg illuminator, and the result was an unqualified success. Holes at the macula showed up clear and sharp, quite as well by transillumination as by reflected light, and in one instance better. Having discovered that the hole could be seen, it was then decided to put an electrode round the light. This was done and the new instrument as seen in the accompanying sketch was devised and made by Messrs. C. Davis Keeler. In three cases this instrument has been used with success. The technique so far has been as follows for macular holes:

An incision through the conjunctiva and Tenon's capsule has been made on the outer side of the globe, the external rectus divided, and catgut stitches put in the muscle, ready for suturing to the scleral stump at the end of the operation. A perfect view of the field of operation is thus obtained. The electrode transilluminator is then introduced in the same way that any other electrode would be, with the difference, of course, that the light is on. The theatre being dark, an old-fashioned Morton non-illuminated ophthalmoscope with the mirrors removed is then used to look through the pupil. When the light is seen to be opposite the hole, which is easily recognized, the edges of the tear being almost "lit up," the technician working the apparatus then switches on the current at 120 milliamperes for 5 seconds. So far I have not observed any definite swelling of the choroid. All that has happened is that the hole has become less distinct as the current has flowed. In the cases done so far two applications have been made so as to be sure that the hole was properly covered, whether necessary or not. Fluid was let out by the 2-mm.-thick diathermy needle and suction. The cases made satisfactory recoveries, with, of course, no standard of central vision.



The technique of using this instrument has not by any means been perfected. It is definitely not easy to handle in holes not far back from the ora serrata, as I have found it impossible to keep the light in position with one hand and hold the ophthalmoscope in a suitable position with the other. One great difficulty that has been experienced, and is still being experienced, is that the patch of illuminated retina is so small that it is very difficult to find. It is important, before applying the transilluminator, to make quite certain that the sclera is dry and free from blood. This has been achieved up to now by packing off the area with stryphnon swabs.

This method is introduced as one which, when perfected, might be much better and more accurate than those used at present.

"SYNAPOIDIN"

Messrs. Parke, Davis and Co. have recently prepared for sale "synapoidin," which is a gonadotrophic preparation containing both chorionic gonadotrophin and the gonadotrophic hormone obtained from the anterior lobe of the pituitary. In animals it exerts both follicle-stimulating and luteinizing effects, and it is standardized in terms of the amount required to increase the weight of the ovaries of immature rats five-fold. It is used for the treatment of sterility when there is no physical reason, and also for the treatment of amenorrhoea, even of long duration. It seems doubtful whether the simultaneous administration of both the follicle-stimulating and the luteinizing hormones can achieve the best result in sterility. A more rational method would seem to be to inject the follicle-stimulating hormone (obtained from pregnant mare's serum) from the 5th to the 15th day of the cycle, and then to give chorionic gonadotrophin for the next 10 days when the luteinizing effect is wanted. This has been done with promising results in America by E. C. Hamblen and others. It will be interesting to discover whether the use of "synapoidin" is equally successful. It is a potent preparation to be used with care.

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LOCAL GOVERNMENT BOUNDARIES

It is a very cautious exercise in reconstruction which is presented in the new White Paper on Local Government in England and Wales.[1] If any time can be more suitable than another for recasting local authority structure it is surely at the end of a war during which a great deal that was traditional and established has already been superseded. A time also when tasks are being thrust upon local government—the replanning of bombed cities; housing, in many areas on an immense scale; educational provisions under the recent Act, and the projected National Health Service—seems to offer occasion for a survey of existing machinery, scrapping the obsolete and installing new. But the White Paper, which is the result of discussions between the Ministry of Health and the Associations of Local Authorities, contains only one recommendation—the setting up of a Boundary Commission. This will do little more—though it will certainly do it with a national perspective—than county councils in association with the Ministry can do at present in readjustment of areas.

Those who expected to see radical changes which would make the administrative map of England unrecognizable, with perhaps a dozen regions, analogous to the Civil Defence regions, in place of half a hundred counties, and the creation of large single cities to cover such "conurbations" as the Tyneside towns, will be disappointed. Even the urgent problem of London, where the county contains less than half the population of what may be called the metropolitan region, is immured from present change, although an inquiry is promised. Neither London nor Middlesex, which is a county entirely urban, without any rural districts, is to come within the ambit of the Commission.

The Government is opposed to the centralization of services hitherto accepted as local. It is opposed also to regional administration, against which, apparently, the local government associations expressed themselves unanimously. It is held that whatever changes are necessary can for the present be carried out within the framework of the existing county and county borough system. What George Borrow called the "genuine spirit of localism" is to be preserved. The existing pattern of local government is held to have justified itself, especially in the supreme test of war, though whether this result is due to the energy and enlightenment of the administrators or to the excellence of the fabric is an open question. Local government has always enlisted a vast amount of public-spirited service, often stimulated by the political feeling so marked in many towns. It has proved an excellent school for administrators, many of whom—outstanding names in this and the last generation will come to mind—have graduated from local councils to the highest places in national government. The White Paper assures us that there is no ground for any fear that the work of democratic local government will diminish. On the contrary, it seems as if the State must delegate more of its multiplying responsibilities to local bodies.

Local government areas can never be arranged quite like the squares of a chessboard, but there could be very much better concentration of authorities and readjustment and simplification of areas, with the joining up of poor areas to neighbouring richer ones so that inequalities in the standard of provision might so far as possible be redressed. It is true that there is not now the chaos to which Mr. Goschen called attention sixty years ago: a chaos of jurisdictions, rates, franchises, and areas, with 27,000 independent local authorities taxing the ratepayers by eighteen different kinds of rates. But since 1888, and even since 1929, social change and the growth of industry and locomotion have made many boundaries irrelevant. Large cities, if their municipal transport was restricted to their boundaries, would be unable to serve their own housing estates. On Tyneside the houses are continuous throughout the areas of sixteen local authorities, which authorities, incidentally, have, or had before the war, eleven separate hospitals for infectious diseases.

Under the present system county boroughs are responsible for all local government services in their areas; in the administrative counties the responsibility is shared between county councils and councils of non-county boroughs and of urban and rural districts. But county boroughs range in size from Birmingham with its million population to Canterbury with its 25,000, and the population of administrative counties varies within similar extremes. Conditions, moreover, are constantly changing, with growth and transfer of population and industry. A river or range of hills which was a natural boundary, and still is an administrative one, may become not so much a partition between communities as a spine holding them together. Numerous small boroughs with ancient charters have limits as closely fixed as a walled town of the Middle Ages, but modern transport has made large surrounding rural districts in many respects a part of the town and the town a part of the country.

The need for overriding the frontiers in order to bring most economically certain services to the community is recognized in the idea of joint authorities for planning or executive purposes. The objections to joint boards are, first, that they are not directly elected bodies, and, secondly, that the multiplication of *ad hoc* authorities is undesirable. The White Paper states that the Government does not underrate these objections, but it still holds that, as against centralization or regionalization, the method of joint authorities is to be preferred as a means of obtaining combined action where a co-ordination of services between two or more areas, whether counties or county boroughs, is necessary. The White Paper on a National Health Service proposed that, particularly for hospitals, larger areas of local administration than at present exist should be placed under the control of joint boards. It stated (Appendix C) "that the need to settle areas of proper size and resources for certain aspects of the service is urgent and that (temporarily at least) the joint-board seems to be the only practicable means of doing this." In his recent statement to the Representative Body of the B.M.A. the Chairman of Council said that since the issue of the White Paper the joint board had rather faded from the picture. But it fills the frame in this new White Paper, and although the "specific purposes" are "housing, water-supply, and so forth," hospitals are implied, because earlier in the Paper it is mentioned as an argument of those who want to recast the whole local government system that hospital services need to be planned, and in some cases administered, over a wider area than a county or county borough.

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[1] Cmd. 6579, H.M. Stationery Office. (4d. net.)

As already stated, the only recommendation is the establishment of a Boundary Commission, an itinerant and executive body, whose task it will be, by holding local inquiries, to ensure that local government units are of such size and shape and have such financial resources as to provide a satisfactory administration. It will have power to create and extend county boroughs and to reduce the status of small county boroughs and counties by uniting them with contiguous ones. It will also bring to the notice of the Minister any case in which a combination of authorities for particular purposes is desirable.

The special problem of London is left over for the time being, pending inquiry by an authoritative body. Middlesex also is left in the air. If the Commission began to create county boroughs in Middlesex it might cover the whole county with them, and destroy county government. How closely bound are the counties of London and Middlesex is instanced by the Hammersmith Hospital, to which the British Postgraduate Medical School is attached. It is administered by the L.C.C., but is at the western extremity of the county, and Middlesex is its "catchment area." The reason given why the present time is thought not opportune for extending the boundaries of the County of London is that the tasks upon which local authorities in and around London are and will be engaged in recasting their services should not be interrupted by throwing the whole problem into the melting-pot. It is extraordinary what different conclusions different minds will draw from the same premisses. Many would argue that the very fact that these tasks—the new health service, for example—are imminent calls for a reconstruction of the system in advance. There should be new wineskins for the new vintage; otherwise the skins may burst and the wine be spilt.

CHEMOPROPHYLAXIS OF RESPIRATORY INFECTIONS

The value of small doses of sulphonamide drugs in controlling the spread of infection by a sulphonamide-sensitive organism has been tested in more than one direction lately. Sulphonamide therapy is particularly effective against the meningococcus, and during the epidemic of cerebrospinal meningitis in 1940–1 it not only cured the clinical infection but also eliminated the meningococcus from the nasopharynx of affected patients and of contact carriers. It was therefore a logical step to use it for preventing the spread of infection in Army training units where the occurrence of clinical cases of cerebrospinal meningitis together with a high meningococcus carrier rate indicated the likelihood of further trouble. This has been done in more than one American camp, and the remarkable fact has been established[1] that a dose of 1 g. of sulphadiazine twice daily for two days will bring an outbreak of cerebrospinal meningitis to an abrupt end. Outbreaks of streptococcal tonsillitis and pharyngitis, with sometimes a high incidence of acute rheumatic fever in their wake, have been prevalent among both Navy and Army recruits in training units in the U.S.A., and the successful prophylactic use of sulphonamides in preventing rheumatic relapses through the winter months encouraged American workers to try the same methods for controlling respiratory, in particular streptococcal, infection in these training camps. Two recent reports show what measure of success has been attained. Holbrook[2] tested the effect of sulphadiazine in doses of 1 to 2 g. daily for short (2 to 3 days) and longer periods (up to 3 months) on the hospital admissions for respiratory infections among American Air Force personnel. He reported reductions in incidence of 50% to 75%. It was stated that about 50% of the admissions ordinarily showed clinical and laboratory evidence of streptococcal infections. Reactions due to the sulphonamide were rare. In a specially studied group of 40,000 men, only 13 (0.03%) lost time off duty, mostly with skin rashes developing within 1 to 16 days of starting the drug; two patients who developed febrile reactions gave a history of previous sulphonamide-sensitivity; one case of haemolytic anaemia responded promptly to blood transfusion. Coburn,[3] who indicts the streptococcus for the heavy toll it has taken in American naval establishments, also claimed that sulphadiazine in 1-g. daily doses could dramatically reduce the incidence of respiratory infections. For example, in one unit where "catarrhal fever," tonsillitis, scarlet fever, and acute rheumatism were all rife a sharp drop in the monthly incidence of respiratory infections from 150–200 to 20 per 1,000 men followed the introduction of sulphonamide prophylaxis in February. In another camp alternate companies were given 0.5 g. sulphadiazine daily from November on, and the subsequent incidence of cases requiring hospital treatment for respiratory infection was three times greater in the control than in the treated group. Proven clinical streptococcal infection in the control group was 24 times greater, and probable streptococcal infection (positive throat culture) 11 times greater, than in the treated group. Coburn believes that short sulphonamide courses lasting a few days are inadequate to prevent further recrudescence by checking the spread of streptococcal infection.

The possible dangers from sulphonamide prophylaxis are the induction of sulphonamide-sensitivity in the patient, the occurrence of disabling and even fatal sulphonamide reactions (toxic or allergic), and the development of drug-fastness in respiratory pathogens. With regard to the first of these risks, Holbrook and Coburn found that men put on repeat prophylactic courses showed no greater incidence of sulphonamide reactions than other groups. Coburn reported an incidence of drug reactions between 0.2% and

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[1] Kuhns *et al.*, *J. Amer. med. Ass.*, 1943, **123**, 335.
[2] Ibid., 1944, **126**, 84.
[3] Ibid., p. 88.

0.7% in all "treated" groups, mostly mild skin rashes during the second and third weeks of prophylaxis. Severe reactions—exfoliative dermatitis and granulocytopenia—occurred in 0.01% of cases. The one death in his series was ascribed to leukaemia. The production of drug-resistant strains of the haemolytic streptococcus and the pneumococcus would theoretically appear to be the greater danger. However, without producing bacteriological evidence, Coburn contends that this did not happen among his "treated" groups because (1) there was no increase of any one serological type of streptococcus during prophylaxis; (2) the streptococcus did not supplant other bacteria in the throat flora; (3) streptococcus morbidity was uniformly reduced in incidence; and (4) "treated" patients who afterwards developed streptococcal infection responded well to sulphonamide therapy. But it would be unwise to be too sanguine about this possible danger. Sulphonamide-resistant streptococci have already been observed to spread in wards where open wounds[4] and measles patients[5] were being treated with the drug, and more careful investigation of this hazard is needed.

At the moment it seems reasonable to recommend sulphonamide prophylaxis for the control of outbreaks of meningococcal and streptococcal infection, and for the prevention of rheumatic relapses. For the first of these the effective dosage of 2 g. daily for 2 to 3 days is practically without risk for the community unless there are persons in it already sensitized to the drug; for the second, a dosage of 1 g. daily would have to be continued for perhaps 3 to 4 weeks, when sensitivity is likely to show itself; for rheumatic fever prophylaxis must be continued throughout the winter. Sulphanilamide in doses of 1 to 2 g. daily has been the drug of choice, and the latest American report[6] (which also summarizes earlier work) is encouraging as regards both prophylaxis and the minimal occurrence of toxic drug reactions. Thus among 88 rheumatic patients "treated" for 181 patient-seasons there were only 5 streptococcal infections (2.7%) and 2 rheumatic relapses (1.1%), whereas in the control group of 107 patients observed for 138 patient-seasons there were 54 streptococcal infections (39%), and 19 definite plus 7 mild or possible rheumatic relapses (19%), with 3 deaths. Sulphonamide prophylaxis for the rheumatic patient may be risky, but it is justifiable.

TREATMENT OF "WOUND SHOCK"

The Medical Research Council has just published a revision of its practical memorandum[7] on the management of wound shock. The document gives an impersonal digest of practical views reached as a result of five years' observation and research. It is now realized that shock is a complex state resulting from a multiplicity of causes, but most often from haemorrhage. For this reason the word "shock" is enclosed in inverted commas throughout the document. The sequence of events in haemorrhage is carefully described, and thereafter other causal factors, such as burns; crushing injuries, infections, and fat embolism, are outlined. On the basis of this logical presentation the treatment is described. All along the line practical advances call for comment. The frequency and importance of vasovagal collapse after blood loss are stressed: this condition is characterized by a slow pulse and a fall of blood pressure due to dilatation of muscle arterioles, as shown by the workers at the British Postgraduate Medical School.[8] New views on burn shock and on crushing injuries emanate from the M.R.C.'s units in Glasgow and Newcastle. The factor of tissue trauma studied by the Sheffield group[9] is mentioned, and the importance of early removal of injured tissue is emphasized. All these parts of a wide field of research endeavour have been welded together into a practical and simple exposition by a committee including senior leaders of proven wisdom as well as such field observers as Prof. W. C. Wilson and Dr. R. T. Grant. Transfusion remains the key to treatment in the majority of cases, and the importance of transfusing until the blood pressure is normal is stressed. The place of serum and plasma infusions is carefully defined, and useful practical details are given, especially for their employment in burns. There is now less insistence on oxygen administration, and overheating is considered dangerous. An alkaline diuresis may prevent but not cure the anuria which results from crushing injuries. (A misprint here of ounces for drachms.) The great number of possible blood substitutes from isinglass to bovine albumin are wisely omitted from discussion. For use in civilian work a few words might have been added on the harmful vasodilatory influence of alcohol in cases of street accident.

There still remains much work to be done on the reactions of the body to injury. The changing outlook may well be outlined by dissecting Harkins's[10] pithy definition of shock as "progressive vasoconstrictive, oligaemic anoxia." While acute oligaemia certainly produces a common form of "shock," the Postgraduate School workers[11] have demonstrated that low blood volumes often occur in severe anaemia with a high cardiac output. Oligaemia as such can therefore be compensated by a series of reactions as yet unstudied by laboratory physiologists. Vasoconstriction was thought to be a constant feature of "oligaemic shock." But the occurrence of "vasovagal" vasodilatation after haemorrhage now makes the general accuracy of this concept doubtful. The multiple factors at work in an injured man may produce vasodilator reactions more often than has been imagined. Tissue anoxia from poor blood flow, accepted as part of the shock story a few years ago, now seems to be ill understood. Frank and Fine[12] have shown that oxygen administration, even at a pressure high enough to compensate for sluggish blood flow, will not bring about recovery in "shocked" dogs. Are parts of the circulation completely shut down, as Rous and Gilding[13] observed, so that the extra oxygen supply does not get to the parts where it is needed?

It is to be hoped that these problems will be closely pursued, for their solution may reveal new physiological mechanisms of fundamental importance. Much work on oxygen lack and cardiovascular reactions to it has been done in the Air Force under a cloak of secrecy. Is it necessary to keep this information so closely guarded any longer? Perhaps some of it may provide much-needed clues for those struggling with the problem of death from trauma in which no vital organ has been directly involved.

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[8] Barcroft, H., Edholm, O. G., McMichael, J., and Sharpey-Schafer, E. P., *Lancet*, 1944, **1**, 489.

[9] Green, H. N., ibid., 1943, **2**, 147.

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[12] *J. clin. Invest.*, 1943, **22**, 305.

[13] *J. exp. Med.*, 1929, **50**, 489.

HERPES ZOSTER

Recent interest in herpes zoster has been focused upon aetiological and bacteriological aspects, and it is now commonly accepted that the condition is due to a filterable virus related to, if not identical with, that of varicella. It is also generally believed that the virus causes inflammatory changes in isolated spinal or cranial sensory ganglia, the posterior grey matter of the spinal cord and adjacent leptomeninges, and that these lesions account for the well-known clinical manifestations of a vesicular cutaneous eruption, radicular neuralgia, segmental palsies, and sensory disturbances. The main pathological features of herpes zoster were discovered in 1861 by von Bärensprung, who gave such a plausible account of the condition that later generations tacitly assumed that his anatomico-pathological observations provided a satisfactory basis for the clinical syndrome. It is for this reason that a recent paper by Denny-Brown, Adams, and Fitzgerald[1] deserves general attention, as the authors set out to expose the inadequate evidence for views widely accepted and sanctioned by tradition. On the strength of their investigations they are led to assume that the clinical phenomena of herpes zoster require more than a ganglionic lesion for their explanation, and depend, *in part at least*, on a poliomyelitis involving the anterior horn cells and an independent motor neuritis. Likewise, the combination of a herpetic eruption in the external auditory meatus and palsy of the facial nerve, known as the "Ramsay Hunt syndrome" or "geniculate herpes," cannot be explained by the affection of a cranial ganglion alone, but presupposes an independent motor neuritis of the facial nerve. It is historically interesting to note that the geniculate ganglion from which the name of the syndrome is derived was not found involved in the case of Denny-Brown and his associates. There is, however, some suggestion, though not yet any definite evidence, that in the Ramsay Hunt syndrome the ganglia of the vagal and glossopharyngeal nerves may be affected.

TENSION IN TUBERCULOUS CAVITIES

The treatment of large, thin-walled, spherical tuberculous cavities in the lung, commonly called "tension" cavities, has aroused much discussion, because these lesions often fail to respond to the usual collapse measures. The pioneer work of Coryllos helped to explain the mechanism by which such cavities are formed, and Monaldi gave us a new method of attacking them when he described his technique of suction drainage. A recent contribution by Vineberg and Kunstler[2] to the rapidly growing literature on this subject voices a plea for careful differentiation between true tension cavities and others which, though radiographically similar, do not have a positive pressure within them. These authors state that drainage is often applied to any large cavity without differentiation, though in this country the work of Price Thomas,[3] Sellors,[4] and Maxwell and Kohnstamm[5] has pointed the way clearly to the correct use of this treatment.

After a useful survey of the literature Vineberg and Kunstler give a clear account, supplemented by useful diagrams, of the mechanism by which tension cavities are produced. In the bronchus draining such a cavity a valvular obstruction allows air to enter but not to escape from it; the usual collapse measures, such as pneumothorax or thoracoplasty, will therefore often fail to close a tension cavity—it continues to be inflated in spite of adequate collapse of the surrounding lung. But, as Price Thomas has pointed out, the collapse will sometimes alter the mechanics of the draining bronchus in such a way that it becomes completely obstructed, and the cavity then closes. Vineberg and Kunstler believe that all tuberculous cavities with a diameter greater than 2.5 cm. should be needled before any other treatment is undertaken. If the pressures in the cavity are persistently positive it should be treated in the first instance by closed drainage with the Monaldi technique, followed by continuous suction. These authors state that giant cavities, which might be called tension cavities simply from their *x*-ray appearance, are really of two types—*true tension cavities*, and others in which the intracavitary pressures are normal, showing that there is no valvular bronchial obstruction. The latter respond well to the usual collapse measures, whereas the tension cavities do not; hence the importance of ascertaining the pressures within the cavity before starting treatment.

Continuous suction drainage will often reduce the size of a tension cavity until it is no more than a tube-track, but Vineberg and Kunstler agree with Sellors that permanent closure can rarely be obtained by drainage alone. When the suction has done its work it must be followed by thoracoplasty to ensure complete healing, but a very limited thoracoplasty is often enough to achieve the desired result. In the case of certain giant tension cavities closely adherent to the chest wall, Vineberg and Kunstler state that an anterior-stage thoracoplasty before drainage will give sufficient relaxation to allow the cavity to contract; this is followed by a posterior-stage thoracoplasty when drainage has reduced the cavity to a minimum. These authors also report that, for the purpose of taking pressure readings, they have needled 150 cavities without any complication. The depth of the cavity was determined by tomography in each case, and they took great care always to obliterate the pleural cavity at the site of the puncture, and to avoid air embolism. In a small series of 25 tuberculous tension cavities treated by suction drainage, supplemented by thoracoplasty, rather more than half were closed successfully.

"A HOUSE OF BOOKS"

In 1931 Messrs. H. K. Lewis and Co., Ltd., medical librarians, publishers, and booksellers, opened their rebuilt and enlarged premises adjoining University College, London, at the corner of Gower Street and Gower Place. The year 1945 sees the completion of the centenary of that firm, so well known to the medical profession. Henry King Lewis started business in 1844 at what was then 15, Gower Street North, afterwards to be known as 136, Gower Street; the actual date cannot now be traced, but it was towards the end of the year. Mr. H. L. Jackson, nephew of the founder of the firm, whose own association with it dates back for 56 years, has for some time been preparing a short account of H. K. Lewis and his work as a publisher and bookseller, and of the later growth of the business. This book, when published, will fittingly mark the hundredth anniversary, though formal celebration of the event must wait until after the war. Mr. Jackson succeeded Mr. E. J. Sowerby as chairman of the company 20 years ago, and many readers will be glad to know that notwithstanding wartime difficulties and anxieties he continues as governing director. No one now living can tell when the cordial relations began between "Lewis's" and the B.M.A. and its *Journal*, but it is a very old comradeship in the service of medicine.

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[2] *Surg. Gynec. Obstet.*, 1944, **78**, 245.
[3] *Brit. J. Tuberc.*, 1942, **36**, 4.
[4] *Tubercle*, 1942, **23**, 239.
[5] *Brit. J. Tuberc.*, 1943, **37**, 24.

SIGHT-SAVING CLASSES

BY

N. BISHOP HARMAN, M.B., F.R.C.S.

In a leading article in the *Journal* of Oct. 21, 1944, entitled "Partially Sighted Children" there is an excellent account of Mrs. Winifred Hathaway's well-written book on the experiences of American educationists of sight-saving classes. Her figures show that there are 630 of these special classes in 31 States. This indicates how keen has been the development of this special provision for children with defective sight; but the fact that there are still some 50,000 children who are held to require it leads to a question addressed to me—namely, What are the technical requirements and potentialities of the school for the partially sighted?

All work of these sight-saving classes has been of interest to me, and I think I can do well for them by showing how they came into being. Early in this century there was no provision for the care of the eyesight of children in the increasing number of elementary schools established under the Act of Parliament of 1871. There were fine new school buildings in London; they were full of children. The teaching was good. But no one thought of the eyes of the children until Dr. James Kerr became medical officer of the Education Department of the L.C.C. When I heard it was proposed to appoint some of us young eye men to go to the schools and test the eyesight of the children I went to see him, and he allowed me to join in the work. I felt that this experience among the children of our great city would have an interesting reflection upon hospital work; I should then see the healthy as well as the sick. I was given a fine area of schools, of which Hackney was the centre. About half a dozen started this work all over London, and we spent three half-days a week at the schools. I found it of great interest in that it showed me the variations in eye health in different social conditions. I may say that at first the school teachers were hostile to this new form of school examination, but they soon learned the advantage of it.

Children's Eyesight Forty Years Ago

My Hackney district included good residential quarters in Clapton, artisan dwellings in Homerton, and crowded slum regions in Bethnal Green. In five months of one year I examined 21,893 children aged from 7 to 13. I classified my records as I judged the living conditions of the regions, and found these figures[1]:

Cleanliness	Cases of Eye Disease	Percentage
Above average	19 in 2,174	0·873
Average	134 in 9,463	1·416
Below average	197 in 10,256	1·92
Totals	350 in 21,893	1·59

The first distinctive point I noted in examining my returns was the preponderance of poor sight among the girls. That was shown clearly in Dr. Kerr's L.C.C. report in 1903 of 20,000 children, of whom rather more than half were boys. Of this group 481 boys and 617 girls had only 6/12 vision, and 645 boys and 882 girls failed to reach that mark. More than 57% of the children with poor or bad vision were girls. I reported: "This excessive incidence among the girls was in part due to the fact that the boys played about in the clean wide street [there were no motors then!], sharpening their wits and their physical reactions, while the girls were kept at home to help in domestic duties." And again: "The other part is the nature of the work done in the schools. Girls do finer work, boys do no needlework. So that in vision testing boys had an advantage, for their accommodation muscles were in a better state of tone on account of their outdoor life, and at the same time they are less fatigued by their school work."[2]

Soon I was directed by Dr. Kerr to examine all the children in the blind schools; there were 400 of them. I was shocked to find among the really blind children some who were not blind. These were the highly short-sighted or myopic children. Most of them were not blind at all. At their own distance they could see minute objects, and mentally they were as keen as any school-children. These high myopes were taught to write and read Braille, the blind print of minute humps made in paper. As I watched them (from a place where they did not see me) I saw that they read this Braille with their eyes and not with their fingers. To a person with sight Braille is harder to read than black print of fair size.

I submitted my records of all these children to Dr. Kerr, and suggested that there was good reason to set up special classes for the partly sighted children, for they had no place in the blind school. This was bad for them, and their presence upset the really blind. He agreed with my suggestion. I put the proposition before the International Congress on School Hygiene in 1907, and, happily, Miss Nettie Adler, a member of the Education Committee of the L.C.C., was in the chair at this meeting.[3] She was convinced of the rightness of the suggestion, and in a few months I was given a place where I might start the first of these classes. In a fine school in Camberwell with a wide playground there was a separate small building with two classrooms. This was the first place for these classes. Again, there was at first an unpleasant reaction by the teachers to these "new classes" in their ground, especially as the programme of work I endeavoured to obtain included them. But soon they became as keen on the service as our two special teachers.

The First "Special" Classes

The scheme of work laid down for these classes was as follows[4]: (1) Oral teaching with the normal children for such subjects as could be taught orally. (2) Literary work, such as is necessary for the knowledge of the ordinary means of communication, to be learned without books, pens, or paper, but by the use of blackboards and chalk, the writing to be done free-arm fashion. (3) A full use of every sort of handicraft that would develop attention, method, and skill, with the minimum use of the eyes.

The classrooms must have brilliant daylight; when artificial light was needed all work, other than physical exercises, oral lessons, or games, was suspended. The rooms were fitted all round with blackboards in such a position that they could be used by both teacher and children. Each child had a special desk, the top of which was flat for use in hand work, but could be lifted, giving a blackboard for the child at arm's length on which class-work could be done with chalk. For children in the higher standards some permanent record of work was needed. Exercise books were of a novel pattern, being made up of large sheets of black paper, and the writing was done with white crayon, which gave a record of fair durability but could be washed off if desired. Physical exercises entered largely into the time-table, and attempts were made to associate games with instructional work. For example, large sheets of scenic canvas were supplied to schools that had sufficient floor space, and on these the teachers painted outline maps of different countries, marking out the position of cities, rivers, etc.; the children walked about on these floor maps learning their geography by travelling in imagination. With a teacher of resource there was much interest in this.

The most difficult section of the work was manual training. Whatever work was chosen it did not have to demand fixed attention of the eyes. All sewing was prohibited, but knitting was good. For smaller children paper-folding, stick-laying, felt-weaving in colours, and some knitting were useful. Seniors were taught to do basket work. Boys did bent iron work, and girls were taught cookery and laundry. The teaching of these handiworks was in something like the position of Latin in our own public schools. Latin was later little or no use to us; so with some of these handicrafts. But with each type of child the teaching had the direction of training in care, precision, and control. Later, a long list of suitable occupations (twenty-six forms) was drawn up. The best work was that which allowed the child to be out and about, standing and moving, with a minimum of close-eye attention. Hand work was found to be of great value, for it removed them from living in a world of reading and "book-thinking."

Soon there were many of these classes both in London and in the Provinces. They became very popular in the United

States, and it was from there they got their name of sight-saving classes. Our law recognized only schools for the blind and partially blind; to have called them ".partially-blind schools." would have been disastrous. Parents would have been shocked and hostile. So we called them "myope classes." Most of the children were true myopes, but there was a percentage with scarred eyes from natal defects, from disease after birth, and from injuries. The name served well until we heard "sight-saving classes," and that became an attraction to the parents. In a paper read before the Section of Ophthalmology of the Royal Society of Medicine in 1913[4] I gave a full account of the work of these classes, and it included six pictures of the school work and equipment. As the number of children found to have defective sight—so defective that they were unfit for the normal school and too good for a blind school—increased with years it became difficult to link these classes with the normal school. So that this distinct benefit had to be given up. Schools for myopic children were established in appropriate regions.

Potentialities of Schools for Myopes

Now comes my attempt to answer the main part of the question in the leading article in the *Journal* already referred to. What are the "potentialities of the school for the partially blind"? To my mind the answer to that question is to be found in the records of the variation in the sight of boys and girls in the normal schools. I have given figures showing that the eyesight of girls was at least 10% worse than that of boys. This cannot be explained except by the differences in the lives and work of boys and girls in school years. If this difference be true for "normal" children, it must also be true for children of poor sight, especially for high myopes, whose eyes have an unnaturally soft sclerotic coat and a torn choroid about the optic disk. They have a short point of clear vision; this makes convergence excessive and so squeezes the eyeballs and increases the tendency to an elongation of the eyeglobe, and brings an increase of the myopia.

There is an ancient proverb: "Train up a child in the way he should go, and when he is old he will not depart from it." There can be no doubt that if we teach these partially sighted children how to use their eyes with intelligence they will carry on with the training that we give them after school years. It is difficult to obtain evidence of the effect of this training in school cases or even in hospital cases, for the years through which we see these persons are so few, but I have had ample evidence of the good reaction to training in private patients who have been seen over many years. At one time I was able to collect evidence from the histories of 480 myopes of more than 3D. Of these 183 were engaged in various occupations involving habitual close eye work—e.g., clerks, seamstresses, compositors, etc.—and 297 not so engaged. The comparison was summarized in a table I gave to the Government Committee[5]:

Type of Patient	Number	Breakdowns	Damage to Eyes	Total of Failures
Habitual close eye workers	183 (100%)	.70 (38·2%)	27 (15%)	97 (53%)
Others	297 (100%)	7 (2·4%)	21 (7·06%)	28 (9·4%)
Total percentage in 480	100	16	10	26

The higher total of the second section is accounted for by the number of married women among them, and it includes most of the very high myopes who were unable to do close work. Of the 53% of the close workers whose sight failed at some time of their career no less than 15% sustained permanent damage through loss of an eye. Two persons lost both eyes.

I have had three opportunities of ascertaining the reaction to these sight-saving classes in other and wide areas of the world. In 1930 I crossed Canada to the far west, and in 1935 crossed the United States of America to the Pacific, and in these journeys I saw many eye doctors; all were keen on this part of their work. Again, in 1932 there was a meeting of the Association Internationale de Prophylaxie de la Cécité in Paris. There I read a paper on "Sight-saving Classes,"[6] and the discussion with the ophthalmologists from all countries was most interesting. Those of certain countries on the continent of Europe regretted that the arrangements in the normal schools were not elastic enough to allow a full development of these classes, but they said they were striving to get more of them established.

I therefore hope the sight-saving classes will continue to do their good work for the partially sighted children, for I feel sure that they will save many of our fellow citizens from the loss of their precious sight and from the misery of blindness.

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NEW BRIDGE-HEADS FOR ATTACK ON CANCER

EMPIRE CANCER CAMPAIGN REPORT

The twenty-first annual report of the British Empire Cancer Campaign, under the able editorship of Mr. J. P. Lockhart-Mummery, again embodies brief accounts of research work or clinical investigation from about forty hospitals, laboratories, research departments, branch councils, affiliated organizations over-seas, and individual workers. Thanks to the continuing support of the public, notwithstanding so many other claims, the Campaign has been able to allocate nearly £40,000 for research in 1945.

Carcinogenic Agents

Much work proceeded during the last year on the elucidation of the way in which carcinogenic agents act and on the discovery of fresh agents. Thus in the department of pathology, University of Sheffield, progress has been made in explaining the remarkable tumour-producing properties of the compound 2-acetyl aminofluorene. It is now thought probable that the tumours are due to interference with liver function. It has also been possible to localize the carcinogenic action of acetyl aminofluorene to sites not usually affected. Thus both benign and malignant tumours of the thyroid gland have been obtained by the combined action of acetyl aminofluorene and allyl-thiourea.

Several departments have been working on the special properties of benzpyrene. In the cancer research laboratory of the Royal Victoria Infirmary, Newcastle-upon-Tyne, epidermal tumours have been produced in mice by a single application of this substance if the skin has been treated afterwards with some agent, itself non-carcinogenic, which causes epithelial proliferation. The existence of a sensitizing factor in the genesis of tumours is suggested, and it is pointed out that if the same holds good for human pathology, hyperplasia may prove to be a factor of high importance in determining the occurrence of tumours in man.

Work carried out at the Sir William Dunn School of Pathology at Oxford makes it possible to define more closely the relationship between chronic irritation and the onset of cancer. There appears to be little danger of a simple irritant producing a tumour or even a pre-neoplastic lesion by itself, but if a pre-neoplastic lesion has developed, then the subsequent development of a tumour at that site may be facilitated by the action of a non-specific irritant.

An interesting experiment under the auspices of the Marie Curie Hospital indicates that a subline of a high-cancer-incidence strain of mice which had itself lost the power of developing mammary tumours spontaneously may nevertheless transmit this power through the milk factor to a low-cancer strain, showing that the loss of power in the substrain to develop mammary tumours is due not to the milk factor but to a mutation.

Advances in Chemotherapy

At the annual meeting of the Campaign a year ago Prof. E. C. Dodds mentioned Huggins's claim that carcinoma of the prostate gland can in many instances be checked by administration of the synthetic oestrogen known as diethylstilboestrol. It has now been confirmed that such cases can be rendered symptom-free and so maintained for long periods. A report from Middlesex Hospital states that a large series of cases of carcinoma of the prostate are now under treatment with various doses of the three synthetic oestrogens—stilboestrol, hexoestrol, and dienoestrol—and the clinical and *x*-ray picture and other indications are being closely watched.

Some work has also been done at the Royal Cancer Hospital, London, and at the Christie Hospital and Holt Radium Institute, Manchester, on the treatment of cancer of the breast with another synthetic oestrogen, triphenylchlorethylene. Out of 22 cases of late cancer so treated, 10 have shown a significant, though temporary, retardation, or even partial regression of the growth of the tumour, but the initial effect of the treatment passes off comparatively rapidly, and except in one case, which has shown prolonged arrest, the ultimate course of the disease has in no way been altered. In 14 cases of carcinoma of the breast treated with stilboestrol by the same teams, 5 showed similar alterations in the growth and behaviour of the tumour. Mr. Lockhart-Mummery comments that while "the results are not of any immediate practical importance, the fact that a marked response was shown in some cases is, clearly, of the very greatest interest and provides a real incentive to the prosecution of this work."

Radiobiology and Radiotherapy

Some quantitative observations from the Strangeways Laboratory, Cambridge, on the effect of *x* rays and gamma rays of radium on tumours of the cervix uteri and also of the tongue and oral cavity seem to support the opinion given at an earlier stage of the work that the significant biological factor for the successful radiotherapy of these tumours is the capacity of the tumour cells for differentiation. In a series of tumours of the cervix the conclusion was that an increase in dose was not correlated with improvement of results in the differentiating types of growth, but with some improvement in the more anaplastic types.

In cancer of the cervix uteri treated with combined radium and *x* rays, diarrhoea and other intestinal disturbances have been not uncommon, but these have not been observed in cases treated by radium alone, and it is suggested in a report from the Marie Curie Hospital that further investigation should be made before the combined technique as a routine method is held to be justifiable.

The research department at Westminster Hospital reports promising results in radiation treatment of osteoclastomata (dose: 2,000 roentgens).

"The New Alchemy"

A brief note in the report announces that an account is in the press concerning five years' treatment of cancer cases by the million-volt *x*-ray installation at St. Bartholomew's. The scientific committees of the Campaign consider that the time is opportune for an intensified effort in this field. Prof. F. L. Hopwood, at the annual meeting, pointed out also that with the cyclotron every member of the series of natural elements can be disintegrated and transmuted. Quantities of these substances have been given a radio-activity comparable to, or even exceeding, that of the radium family of elements. In addition, beams of neutrons are being produced whose penetration into, and lethal action upon, living matter differ notably from those of *x* rays. Radio-active varieties of such elements as iodine, calcium, phosphorus, iron, and sodium can be introduced, either distributed throughout the whole body or selectively deposited in certain organs, in the form of non-toxic chemical compounds, and there they may effectively irradiate the surrounding tissue. "Thus the alluring prospect is opened up of combining radiation therapy and chemotherapy in a new method of attack on cancer. . . . The new alchemy seems to offer glittering prizes. We must beware lest it also adds to the number of martyrs to science."

Primary Gastric Cancer

Finally, the Clinical Cancer Research Committee of the Campaign presents this year a detailed analysis of 1,405 cases of primary cancer of the stomach.

The proportion of males to females was 3 to 2, and the mean age of onset was 60 in both cases. It was found that 54.5% of the patients had consulted a doctor within the first three months, and that 52% were referred to hospital at once, 13% were kept under symptomatic treatment for periods up to three months, and a further 19% for over four months. The seriousness of the position is shown by the fact that of 241 gastrectomies, only 22% were done while the symptoms were of less than three months' duration, and only 40% of less than six months' duration. Laparotomy was performed in 49% of all the cases, but in only 17% was a radical operation possible, and a palliative operation in only 15%. The survival rate after radical operation in the early stages, before the regional lymph nodes were involved, gave, on the basis of a four-year period of observation, an expectation of life of 65 to 70% of the normal. When only a palliative operation was possible the expectation fell to 40% of the normal. Operation mortalities were as follows:

	Per cent.
Total gastrectomy (20 cases)	90·0
Billroth's operation (27 cases)	25·9
Polya's operation (181 cases)	25·4
Palliative gastrojejunostomy	29·0
Simple exploration	23·0

NEW YEAR HONOURS

(Concluded from p. 23)

We print below the conclusion of the New Year medical Honours List:

O.B.E. (Military Division)

EDMUND HENRY BOTTERELL, Lieut.-Col., R.C.A.M.C.
FRANK PERCIVAL LLOYD, V.D. Lieut.-Col. (Acting Col.), R.C.A.M.C.
JOSEPH ARTHUR MACFARLANE, E.D. Col., R.C.A.M.C.
LORNE CUTHBERT MONTGOMERY, *M.C.*, V.D. Col., R.C.A.M.C.
DONALD ROBERTSON WEBSTER, Acting Surg. Capt., R.C.N.V.R.

O.B.E. (Civil Division)

JOHN BEATTIE DUNLOP, M.B. Post Office Medical Officer, Bradford, Yorkshire.
VICTOR LAURENCE FISHER, M.R.C.S. Senior Surgeon, s.s. *Strathedan*, Peninsular and Oriental Steam Navigation Company.
DONALD MCFARLANE LIVINGSTONE, M.D. Senior Medical Officer, Surrey County Council. For services to Civil Defence.
HAROLD ETTRICK MOORE, M.B. Civilian Adviser in Rehabilitation to the Air Ministry.
MATTHEW BURROW RAY, D.S.O., T.D., M.D., M.R.C.P. Col., Medical Assessor to the Joint War Organization of the British Red Cross Society and Order of St. John.
CAMPBELL KAY STEVENSON, M.D. Medical Superintendent of the Emergency Hospital at Killearn, Stirlingshire.
CHARLES LINDSAY SUTHERLAND, M.D., D.P.H. Chief Medical Officer of the Silicosis Medical Board.
ALEXANDER BOYD WILLIAMSON, T.D., M.D., D.P.H. Medical Officer of Health, Portsmouth. For services to Civil Defence.

M.B.E. (Military Division)

CHARLES HOLLENBERG, Major, R.C.A.M.C.

ASSOCIATION OF VOLUNTARY TEACHING HOSPITALS

At a meeting of nominated representatives of London and Provincial teaching hospitals, held at Westminster Hospital Medical School on Dec. 7, it was agreed to form the Association of Voluntary Teaching Hospitals of Great Britain, the object being to have an organization available which, with its specialized knowledge and experience of teaching hospital problems, will be able to represent those hospitals at all times. It is thought that it will serve a very useful purpose in any planning or negotiations arising out of the Goodenough Committee's report. Among those attending this inaugural meeting were: Dr. H. E. A. Boldero (Middlesex Hospital), Dr. W. Russell Brain (London Hospital), Dr. E. ff. Creed (King's College Hospital), Mr. W. D. Doherty (Guy's Hospital), Mr. G. B. Edwards (University College Hospital), Dr. Hugh Gordon (St. George's Hospital), Dr. F. G. Hobson (Radcliffe Infirmary, Oxford), Prof. T. B. Johnston (Guy's Hospital), Mr. G. H. MacNab (Westminster Hospital), Dr. E. F. Scowen (St. Bartholomew's Hospital), Dr. S. Cochrane Shanks (University College Hospital), Mr. Fauset Welsh (Birmingham United Hospital), Mr. J. M. Wyatt (St. Thomas's Hospital).

Further developments in the plans to deal with nutrition problems in the Colonial Empire are to be financed under the Colonial Development and Welfare Act, 1940, and a free grant of £10,000 has just been sanctioned. A grant of £3,200 to cover preliminary work in connexion with the proposed Colonial Nutrition Organization was made last June. The new scheme is to enable grants to be made for *ad hoc* proposals for interim developments—e.g., engagement of temporary technical staff, training of staff, provision of technical equipment or materials required for experimental work.

Reports of Societies

CHANGES IN MUSCLE AFTER INJURY

At a meeting of the British Orthopaedic Association, held in London on Dec. 15 and 16 under the presidency of Mr. St. J. D. BUXTON, two papers were read on the changes in muscle after injury—the first an experimental study of the vascularization of muscles by Prof. W. E. Le Gros Clark of Oxford, and the second on the changes in human voluntary muscles due to denervation and re-innervation by Miss Ruth Bowden. There were also discussions of papers on recent clinical work on war injuries, including one at Queen Mary's Hospital, Roehampton, on amputations and limb fitting.

Vascularization of Muscles

Prof. LE GROS CLARK said it was well known that most muscles were supplied by two or more main blood vessels, and injected specimens showed quite clearly that their branches effected a number of anastomotic connexions inside the muscle. But such material gave no real indication of the adequacy of these connexions for the establishment of a collateral circulation, or whether the interruption of one of the main vessels (or of one of their intramuscular branches) led to a localized ischaemia which might be severe enough to be of practical importance. These problems had been studied experimentally in rabbits by ligature of blood vessels supplying muscles, the results being assessed partly by histological examination and partly by using a highly diffusible dye—bromophenol blue. This dye rapidly coloured all normal muscles after intravenous injection, and was valuable in assessing the physiological efficiency of the circulation, as it provided an indication of the degree of interchange between the capillaries and muscular tissue, even where a feeble circulation in the main blood vessels might still be present.

The efficiency of the anastomotic connexions varied much in different muscles. In some, such as the tibialis anterior, ligature of one of the vessels of supply led to a sharply defined area of ischaemia. For example, two days after ligature of the lower vessel of supply to the tibialis anterior, intravenous injection of bromophenol blue stained the upper half of the muscle to a normal intensity, but the lower half remained almost entirely unstained, and the boundary between the two areas was sharply defined. The normal vascularization of the lower half of the muscle was not restored for about a week. If both of the main vessels supplying the tibialis anterior were ligatured revascularization was delayed for a fortnight. In experiments in which small steel bearings were shot through the adductor muscles of rabbits at velocities of 250 to 1,000 m. per sec., localized and sharply defined areas of ischaemia were produced as the result of interruption of the muscular vessels (probably associated with some local vascular spasm).

Histological study of the unstained areas showed that most of the muscular tissue had undergone necrosis. The necrotic tissue was removed rapidly by the invasion of granulation tissue with abundant macrophages, and its removal was quickly followed by the regeneration of new muscle fibres. In this way a large part of the damaged muscle appeared to become reconstituted. More experimental work was needed to determine whether this regeneration was more than a temporary phenomenon or whether it led to the formation of functional muscular tissue. The experiments did show, however, that in the muscles of the rabbit there was a remarkable potentiality for muscle regeneration in devascularized tissue, and that in spite of anastomotic connexions the interruption of one vessel of supply to a muscle (or one of its branches) might lead to a relatively extensive and well-defined area of ischaemia lasting for several days.

Changes due to Denervation

Miss RUTH BOWDEN in her paper showed the importance of maintaining the muscular function in units denervated as a result of peripheral nerve injury. In such cases, she said, atrophy was most rapid in the early stages of paralysis, with an increase of connective tissue, associated with Wallerian degeneration in nerve fibres and obliteration of the terminal Schwann tubes and motor end-plates. Eventually, as muscle fibres continued to atrophy, they were replaced by fat and connective tissue. Finally the muscle might resemble tendon. Time was an important factor, for a fairly good degree of functional recovery was possible up to one year after denervation. Nevertheless the atrophy and replacement of connective tissue started from three months onwards. The possibility of reversing the changes in muscle depended on such things as sepsis, age, mobility of the limb, and physiotherapy, as well, of course, as the nature of the lesion in the nerve itself.

The electrical changes in denervated muscle were due not so much to degeneration as to atrophy. The more sluggish response to galvanic stimuli was due to the muscular conduction of the impulse instead of through nerve. It might disappear altogether if atrophy was advanced. Miss Bowden stressed the value of galvanism in maintaining muscular activity and limiting the degree of atrophy; it must, however, be regular and be started as soon as possible after injury. Contractures which might occur in denervated muscle because of the connective-tissue formation could be retarded by physiotherapy, and might be prevented by daily movements throughout the whole range of the joints of the limb. Splinting of paralysed muscles should never maintain complete immobilization.

Early Treatment of War Wounds

In a discussion on early treatment of war wounds, especially those occurring during the invasion of the Continent, Lieut.-Col. E. A. MACNAUGHTON, R.C.A.M.C., described closure and treatment in plaster of ten compound fractures of the femur. He said that provided the immediate primary treatment (surgical excision, blood transfusions, penicillin, and sulphonamides, etc.) had been adequate the thigh wounds were completely closed without drainage at the next stage in treatment, which occurred a week or so afterwards. This was accompanied by accurate reduction of the fracture, and, where required, stainless steel wires or vitallium screws were used in its fixation without prejudice to wound healing. This fracture fixation was, where suitable, done through the existing soft-tissue wound. He emphasized the importance of adequate preparation of the patients for operation by rest (as the patients usually were tired from travelling), replacement of blood loss, further penicillin before and after operation, and avoidance of preliminary examination of wounds in the wards.

Lieut.-Col. R. ZOLLINGER (U.S.A.M.C.) questioned the value of sulphonamide drugs inserted into wounds. This, he felt, was unnecessary if the primary treatment of excision had been adequate. Furthermore, sulphonamides thus inserted into wounds did not penetrate into far crevices, where it was often important to maintain a high concentration of the drug. This could be carried out only by adequate general administration.

Amputations

At Queen Mary's Hospital, Roehampton, Mr. F. G. ST. CLAIR STRANGE read a paper on the amputation stump in health and disease. The amputation stump, he said, must be considered a new and normal organ, upon the perfection of which depended the subsequent health and happiness of the patient. It should be an evenly truncated cone, having the smoothness of skin and scar mobility which followed first-intention healing, and no scar and oedema in the subcutaneous tissues. The operative technique should be planned with precise attention to detail at every stage, so as to achieve a comfortable, efficient, and healthy stump. It must be a plastic as well as an orthopaedic operation. The flaps should be rounded, and should contain deep fascia to retain lymphatic, blood, and nerve supply to the skin. There must be minimum trauma of nerves. Bone and periosteum must be cut at the same level. Careful haemostasis must be followed by artistic skin suture. A neat stump, besides being physiologically sound, gave the surgeon a justifiable sense of aesthetic achievement and, more important, gave the patient a good psychological start. "Dog-ears" and other redundancy must be avoided, the flaps just meeting over the end of the stump.

After operation care must be taken to avoid the development of flexion contractures. There must be a minimum of disturbance of dressings; elastic stump bandaging should be started from the 12th day to shrink the stump without forming a "waist." Non-resisted exercises should be encouraged from the 12th day; progressive resisted exercises did not begin until 3½ weeks after amputation. With a thorough regime stumps were ready for measuring in 4 to 6 weeks' time, and were ready for the artificial limb by the time it was made. On the subject of re-amputation Mr. Strange emphasized the need, in spite of the use of penicillin and sulphonamides, to follow surgical first principles; in other words, the operation should be approached in the same spirit as, for example, a bone graft for an old compound fracture. There must be an aseptic field, and adequate time must be left after the healing of the original sepsis before re-amputation was embarked upon.

Prof. Priorov (Russia) said that in his work plaster was applied to the stumps in order to facilitate transit in cases of primary guillotine amputations in field hospitals. First dressing was never done before the 8th day. Secondly, suture of long skin flaps was frequently done using the sutures through plastic buttons, which could be pulled up gradually until closure was effected. Operative technique was essentially the same as in Great Britain, except that the end of the bone canal was usually tamponed with muscles. Temporary bucket peg-leg prostheses were extensively used. Col. Stark (New Zealand A.M.C.) stated that all their amputations were left open till the 4th or 5th day, and sutured then. They were expected to heal by primary intention. Major Mather Cleveland (U.S.A.M.C.) said American Army surgeons were instructed to carry out circular amputations at the lowest possible level. In most cases these were followed by skin traction within a plaster bucket. The patient was then immediately evacuated to the zone of the interior, where definitive treatment was carried out. Prof. T. P. McMurray asked for caution to be exercised; surgeons should not hastily carry out amputations; even a bad limb of his own might be better to a man than one which was artificial.

During the meeting Major John Charnley, R.A.M.C., demonstrated an adjustable weight-bearing calliper splint designed on the principles of H. O. Thomas and yet available for mass-production in a variety of standard sizes. It had a ring for ischial bearing, which was adjustable within certain limits for differences of thigh circumference, and upright irons adjustable for length by a screw-fitting extension. With a suitable supply of basic parts an hour or two was required for fitting and supplying compared with several weeks for a made-to-measure appliance at present.

MEDICAL AND VETERINARY EDUCATION

A discussion on medical and veterinary education and the parallelism in the preparation for the two professions was held in the Section of Comparative Medicine of the Royal Society of Medicine on Dec. 20, Dr. H. J. Parish, president of the Section, in the chair.

Sir Henry Dale, P.R.S., in introducing the subject, said that the problems of preclinical education in the two professions were largely a matter of common interest; it was in clinical education that the needs of the two disciplines began to diverge, though there were still parallel stretches. The human brain on the one hand and the ruminant stomach on the other had their special physiologies, which could not be covered by any common course; but it must not be forgotten that much of the knowledge of the physiology of the human brain depended on such experiments as Sherrington carried out for many years on the dog, while much knowledge of the physiology of respiration, applicable equally to man and to the domestic animal, was demonstrated much better on the human subject than on any non-cooperating animal.

In both professions, with the rapid progress and expansion of knowledge, it became ever more difficult to compress the necessary instruction within the bounds of a course which would enable the practitioner to start his work before he had passed the term of his intellectual and physical vigour. Sir Henry had been glad to see in the Royal College of Physicians' report that emphasis was laid on the need for jettisoning a good deal which had got embedded in the medical curriculum. In the curriculum of both human and veterinary medicine there was a dichotomy that was likely to make itself increasingly felt. There would inevitably be a cleavage between those who were marked from the outset, by reason of ability, opportunity, or choice, for expert laboratory practice or, perhaps, preventive administration, and those who were trained to apply their knowledge in day-to-day clinical practice at the bedside or in the field. Some separation must be made in the training for these two spheres, otherwise both the man whose career was to be in laboratory research and the man who was to take up general practice would find themselves bogged down with an excess of knowledge that they could not possibly use.

This dichotomy would logically involve a closer association, and perhaps later an actual fusion in training, of those who approached an administrative career in human and in veterinary medicine. In Australia a distinguished pathologist of veterinary training and qualification held for years, with conspicuous success, the post of chief pathologist to one of the leading hospitals in the Dominion. If the history of the researches which had strongly affected the advances in the knowledge of human disease were examined, abundant examples would be found of the reciprocal influence of human and of veterinary physiology and pathology. He mentioned the work of John Hunter, Edward Jenner, Louis Pasteur, Robert Koch, also the much more recent work on dog distemper leading to a more general study of virus infections by his late colleagues Laidlaw and Dunkin. Once it was recognized that there was a special kind of career in experimental physiology and pathology and the study of the requirements of health and the departures leading to disease, he believed that on such a basis work on the human side and on the veterinary side would become so closely linked that they would fuse almost inevitably into a common discipline.

Pre- and Post-graduate Phases

Prof. G. W. Pickering (Secretary, Planning Committee on Medical Education, Royal College of Physicians) said that attempts to reform the curriculum in the past had failed, partly because of natural conservatism, and partly because of absence of agreement as to the shape which reform ought to take. The dilemma in medical and perhaps in veterinary education was the choice between sacrificing on the one hand the educational and on the other the vocational needs of the students. It had been suggested that for the average student university education should cease, and that he should be given a much simpler and more practical training in his craft. He was doubtful, however, whether it was practicable in human society to follow the method of the bee and to select "workers" and "queens." They all knew men who were chosen as "queens" and proved to be second-rate "workers," and men who were made "workers" when well qualified to be "queens." The first step was to divide the curriculum into undergraduate and postgraduate phases. In the postgraduate period particular attention should be paid to vocational training—that is to say, to practical training in the craft of medicine and the requirements of specialisms. It should begin wth a year's resident house appointment, which should be compulsory for all intending to practise medicine. At present it was little wonder, with the multitude of subjects in the ordinary course, if the student became a mere memorizer. Something could be done by planning by the teachers among themselves. The second remedy was the elimination of detail. Above the portal of every medical school should be placed Karl Pearson's words: "The true aim of the teacher should be to impart an appreciation of method and not a knowledge of facts"; though, to be sure, method could not be imparted without imparting some facts. If the curriculum were divided into undergraduate and postgraduate—the first being essential for all, and the second for those with special requirements—a good deal of topographical anatomy, of special pathology and histology, and a number of special medical and surgical procedures could be eliminated from the undergraduate's course. Revision of teaching methods was also needed. The popular teacher to-day was the man who could spoon-feed, but the teacher who was really wanted was the man who made his students think for themselves.

Closer Liaison in the Educational Scheme

Prof. J. B. Buxton (Principal of the Royal Veterinary College) urge that the minimum age of admission to veterinary schools should be 18. The curriculum was in places grossly overcrowded, owing to the mass of factual knowledge which had to be transmitted to the student, rendering the examination a test of memory for detail. Any tendency to specialize in the pregraduate curriculum was to be deprecated. The relative importance of the subjects and their co-ordination should be determined by the needs of general practice. He referred to the desirability of as close a co-operation as possible between his college and the University of London, of which it was a unit. A number of useful contacts socially and in other ways had been made between the students of the College and the other students of the University, especially in the medical schools. The chief impediment was the small number of students who had been induced to read for a university degree. No other professions were so closely connected as the medical and veterinary, and no one would question the desirability of a closer liaison within the framework of the educational scheme. It would not be possible, even if desirable, to teach medical and veterinary students in the same classes, but the desired results could be secured through an administrative system which enabled either the medical or the veterinary student each to make free use of the course of instruction given to the other. By such means their curiosity would be awakened and their natural desire for further information stimulated.

The **President** (Dr. Parish) emphasized the point that teachers should be chosen with some regard to their ability to teach, and not merely for their research status. Lectures were not as profitable as they ought to be; and professors, like ordinary school teachers, might with advantage receive some training in passing on their knowledge to others. The time factor was the main trouble in organizing the medical or veterinary curriculum. It was a very big problem to provide "culture as well as clinics," but he felt that far too much time was being wasted on inferior teaching.

Reform of Teaching

Dr. **Douglas McClean** (Lister Institute) said that excellent principles were laid down in the Goodenough report, but there was failure to apply them in specific recommendations. The committee called for ruthless pruning of the curriculum, but proposed two quite formidable additions to it—psychology and statistics. Medical students were of the most diverse character, aptitude, and ambition. They were given a medley of material, partly in the hope that it would furnish a scientific background and partly in the hope that it would meet some of their instructional needs. The mass of facts served to confuse them and left them without leisure to think. There remained this lamentable hard-and-fast division between the preclinical and clinical phases of education, so that the second M.B. came to be regarded as a *pons asinorum* which had to be passed by accumulating facts which they did not recognize as having any relation to practice in later life. If teachers in the faculty of medicine got together much good could be done by agreement. Preclinical subjects should be presented from the common aspect of the science of human biology. Drastic reductions in the detail of anatomical teaching might be made, but the time saved should not be devoted to adding a whole lot of embryology. Much more time should be given to physiology, biochemistry, and pharmacology. Pathology should be taught much more as a macroscopic science, not a microscopical one. Formal lectures should be cut to the minimum. In all schools there were students who had not a natural aptitude for appreciating generalizations as to scientific methods and yet had qualities likely to make them excellent practitioners. On the other hand, there were those who from the first showed a keen interest in the scientific approach. Should they have two courses—one designed for the scientific study of medicine and the other for producing useful general practitioners? Such dichotomy would lead to a sort of discrimination, one course being regarded as an honours and the other as a pass course. The aim should be a greater elasticity of the present curriculum, and examinations should be planned to allow the students to have a wider choice of subjects.

Dr. **Fred Bullock** (registrar, Royal College of Veterinary Surgeons) said that in veterinary education the teachers and the examiners were brought together and the curriculum was their combined work. Prof. **Edholm** (professor of physiology, Royal Veterinary College) said that with a good teacher a bad curriculum did not matter very much. It was important to make the teaching side of academic work more attractive, and attention should be paid to teaching ability in making appointments. Dr. **John Rickman** suggested that there should be a "job analysis" of a general practitioner's life. He thought that one result of such an analysis which might surprise them would be the amount of time and attention demanded by what might be called social medicine. The results of such an analysis would be useful in directing the education of students. Dr. J. T. **Edwards** remarked that it was a great predecessor of Sir Henry Dale—namely, Sir Joseph Banks, President of the Royal Society in 1778—who directed the movement which founded veterinary education in this country. Dr. E. G. **White** suggested that teachers should prune one another's subjects. In veterinary medicine there should be a basic qualification with as wide a training as possible, but no more specialization than was absolutely necessary, and when this had been gained, as many people as possible should be encouraged to continue their training for a degree after qualification. Dr. W. R. **Wooldridge** said that in medical education they had relinquished what veterinary education still had—namely, the one-portal system. In the veterinary profession there was only one standard of examination, though in fact the examination was held under such difficult circumstances in view of shortage of time and of examiners that it was almost impossible to have a set of examiners to maintain the same standard at every centre. In medicine there had been a very large number of stimulating teachers in the university schools, and as a result a very progressive type of graduate had emerged.

There was a large audience of members and guests at a meeting on Dec. 8 of the Whipps Cross Hospital Medical Society, when Dr. Keith Simpson gave a lecture which he called "Common Sense in the Detection of Crime." Possibly he did not succeed in proving the thesis that his work consists largely of the application of plain common sense, but his address (with lantern slides from his own collection) was enthusiastically received. That the mutilated remains of a woman discovered beneath the hearthstone of a bombed house in Dalston were not those of an air-raid victim (as was at first suggested) was something which could, no doubt, have been established by plain common sense. But the demonstration, despite time and mutilation, of her approximate age and height and then, by means of other characteristics, of her identity and finally that of her murderer and even the manner of her death was a process calling at least for uncommon ability.

The September–October issue of *Industrial Welfare and Personnel Management,* the journal of the Industrial Welfare Society, includes an article on personnel selection in the Canadian Army by Major G. H. Turner, of Canadian Military Headquarters. In 1941 an advisory personnel service was organized (*a*) to describe its requirements not simply in terms of the numbers needed for each of the various duties in each of the Army's units, but in terms of the physical and emotional characteristics, personal attributes, standard of education, and mental level required for each type of work; and (*b*) to describe the non-medical characteristics of soldiers, to assess potentialities for training or employment, making use of both medical and non-medical data, and to make the best possible recommendations for placement. Every man joining the Canadian Army is examined by a medical board and by a specially trained personnel officer. Mental testing is confined to a general classification test, and chief emphasis is placed on a systematic interview. Recommendations for placement are followed up by reports of selection officers at each stage of the soldier's training and at base in theatres of operations, and as time goes on recommendation for training and employment becomes more and more specific. The PULHEMS system of grading was adopted in 1943. It takes its name from the initials of the seven characteristics of a man which are of concern to the Army, and which, taken together as a profile, indicate the kind of work he is fit to do. The points considered are: *P*hysique, *U*pper part of body, *L*ower part of body, *H*earing, *E*yesight, *M*ental ability, *S*tability or emotional make-up. This device provides a handy key to the soldier's physical, mental, and emotional limitations which, when integrated with job specifications, makes possible more appropriate placements and the employment in forward areas of men with minor disabilities not affecting their performance of the particular duties to which they are assigned. The principles involved in this approach are equally applicable to civil employment.

Nova et Vetera

VAN HELMONT: THE 300th ANNIVERSARY OF HIS DEATH

When Jean Baptiste Van Helmont (1579–1644) died, 300 years ago, science and medicine lost a great inaugurator who in spite of credulity and superstition shed much light on medical problems by his discoveries in physiology and his insight into pathology and therapy. These derived just as much from his empirical observations as from opposition to the "humoralism" of the Ancients so stubbornly preserved by his contemporaries.

Van Helmont demonstrated the significance of acid in gastric digestion, which up to his time was attributed to heat and trituration. Acid of a certain nature and at its appropriate place thus performs, in Van Helmont's opinion, an important vital function. It becomes a pathological factor when acting elsewhere, such as in pus formation, notably in empyema. This is interesting in view of modern theories which hold acid reaction of the tissue responsible for leucocytic emigration. Van Helmont denied the existence of such things as the "innate heat and radical humour" which, according to theories current at the time, were cooled by the action of respiration and pulse. In Van Helmont's concept respiration enables an element of the blood to combine with a "ferment" from the air and thus to dispose of a certain "residue" in the venous blood. This material is converted into "volatile salts" and escapes as such through the lungs. The conception is not far removed from our own and was a great advance on the current view.

Van Helmont examined the specific gravity of the urine. He appreciated the high digestive qualities of bile, then regarded as a noxious waste product. He was the first to describe the rhythmic movement of the pylorus and the association of kidney disease with ascites and oedema. He visualized the body as an aggregate of metabolic centres, his "archei." If they perform their function properly, nutritive material will be used up completely. If not, residues are deposited which account for the anatomical changes in diseases. These vary according to the pathogenic agent entering the body from outside—for example, harmful chemical substances inhaled in the mines. The full recognition of these places Van Helmont among the classical describers of occupational diseases, notably silicosis. Van Helmont's therapy was opposed to ancient "constitutional" therapy, which aimed at restoration of the humoral balance. It was directed towards the removal of the harmful exogenous agent; it was "aetiological" therapy. This new concept of diseases as entities determined by the nature of the pathogenic agents and the specific anatomical changes developed *diagnosis* based on the *science* of pathology as against *prognosis* as the main *art* of the physician. Localization of diseases in the organs enabled Van Helmont to unmask the "folly of catarrh"—a then time-honoured way to explain most diseases as the product of a flow of mucus from the brain straight through the skull into nose, mouth, lungs, joints, and muscles.

Hardly any of Van Helmont's works were published during his lifetime. Only twelve years after the publication of his collected works (1648; English translation 1662) Schneider published his book *On Catarrh*, in which he proves again the local origin of mucus. In addition he gave the first description of the mucous membranes. It remains Van Helmont's achievement to have unmasked the "folly of catarrh" and to have established the local origin, in organs and tissues, of most diseases. This was more than 100 years before G. B. Morgagni wrote his book on the *Seats and Causes of Diseases*, which gives the anatomical basis of symptoms rather than of diseases. Van Helmont was therefore in some way in advance of the famous "Father of Pathology." Van Helmont discovered "gas"; this in addition to its chemical notion meaning to him the essence of any concrete body responsible for its specific shape, function, and destination. It represents the force immanent and acting *in* matter as against the usual concept of a "soul" acting from outside *on* passive and inert matter; Van Helmont's concept was taken up by Glisson and Leibniz. Not only this, but the early translations of his work and a multitude of quotations down to the nineteenth century bear witness to Van Helmont's deep influence on contemporaries and posterity.

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Correspondence

Nursing and Tuberculosis

SIR,—Can we not come into the open on the question of greater risk to nurses as regards liability to contract tuberculosis? Recent letters in this *Journal* have indicated support for the warnings of the Prophit Survey, tentative and cautious as they were.

I can offer no large figures and percentages, but for years have collected case histories of nurse-patients, and am appalled at the tale they tell and the reiteration of events described. Two facts emerge sharply. So great is the need for nurse labour that diagnostic acuteness is blunted on the part of those who work with them: as regards the girls themselves, there is always the next "exam" looming ahead. So both the employers and employed must struggle on to keep the machine going and to maintain necessary status within it. Further, symptoms when offered are evasive and explainable. When the crash comes the nurse is sent off for treatment, the hospital's rush persists, and it seems to be nobody's business to follow up possible implications.

Replies to inquiries made from two medical superintendents, who receive nurse-patients as part of their normal intake, were revealing. Both were quite clear that the incidence was unduly high. One had expressed his view in a Press letter, which was quoted in the Prophit report as saying that "tiredness does not lead to the *x*-ray room." The other wrote me that "of course" nurses may be expected to go down more frequently than others: they are comparable with front-line soldiers, where heavier casualties must always be expected.

My plea therefore is for a different approach to the whole question of nursing conditions. Admit the thought of front-line service with the corollary of pensions for the disabled and a far higher degree of care for positive health during training. Wards are still being closed for lack of staff because parents have the "horse sense" to realize that, despite better pay, conditions are too arduous.

Until nursing is honestly recognized for what it is—a profession of adventure, of some risk, and of high rewards in service—a lack of recruits may be expected, and is equally deserved.—I am, etc.,

Northwood. ESTHER CARLING.

Mass Radiography

SIR,—Mass radiography is now being used to an ever-increasing extent among the civil population. By this means many cases of pulmonary tuberculosis are being discovered at an earlier stage than would otherwise be possible by waiting for the patient to come to the doctor. For once the doctor is going to the patient first.

Dr. Henderson (Dec. 23, p. 832) says that all that is required to make people come forward for examination is "efficient and attractive propaganda, complete with talking films . . . lecturers to explain to the public what it is all about, and these to go in advance of the unit." If so the propaganda must be much more intense than it is at present. Well-educated people of middle age have spoken to me about mass radiography. They approve of the scheme and understand that other conditions can be detected by this method. Their attitude is, however, that the scheme is all right for young people, but they themselves prefer to remain in ignorance if anything is wrong with them. "Time to worry once they do not feel perfectly well" is the attitude they adopt. Even personal talks often fail to change this point of view.

In connexion with tuberculosis, however, the old well-tried methods of detecting new cases seem to be neglected these days. As a physician in a sanatorium receiving patients from all over the United Kingdom I am frequently being asked by the family of the patient if they are quite safe and have not been infected. Many tuberculosis officers, general practitioners, and consulting physicians fail to tell the patient, once the diagnosis of pulmonary tuberculosis has been made, that his immediate contacts in the same house should be clinically examined and a radiograph taken. In this sanatorium I can call to mind twelve instances in the last year or so where near relatives of in-patients have later developed the disease themselves. Several of these relatives have sought admission, and some have been found to have extensive disease. Had they been examined as contacts when the first case was diagnosed it is almost certain that evidence of the disease in them would have been found also.

Whichever view of adult tuberculosis is taken, either of exogenous or endogenous reinfection, both schools admit that frequent exogenous reinfection can overcome a person's immunity to the disease. Hence as many contacts as possible should be examined both clinically and radiologically. Tuberculosis officers these days are often hard pressed, but the fight against tuberculosis must be an unrelenting one. Even if contact examination be limited to those cases with a positive sputum a good number of cases will be discovered. Thompson, B. C. (*Tubercle*, 1944, **25**, 33), found 4.6% of new cases among 1,817 home contacts. Re-examination should be carried out at least every three months while contact persists, and for two years after this has terminated. Mass radiography must not lead to the neglect of the methods of finding cases which have served us so well in the past.—I am, etc.,

R. GRENVILLE-MATHERS.

Pendyffryn Hall Sanatorium, Penmaenmawr.

Tuberculosis in Kent

SIR,—I am glad that Sir Waldron Smithers (Dec. 23, p. 834) did not write at length on this subject as he threatened, since he has managed to compress into fifty or so lines what must be almost a record in inaccuracies and illogicalities. Why does he pick on the question of provision for the tuberculous if he wishes to carry further the controversy as to the relative merits of voluntary and local authority hospitals? The greater part of the work in this field has long been done by the local authorities. Especially is this true of in-patient facilities. Voluntary effort for the tuberculous is concentrated on provision for out-patients.

One reason for the present shortage of sanatorium beds is that local authorities lack the money to cope adequately with the problem. To provide beds for all the tuberculous patients in Kent who need them would mean raising the rate, if the money were found by present methods. I cannot remember that Sir Waldron at any time advocated higher rates.

The experience of the war has shown once again that national problems must be tackled on a national basis. The E.M.S. scheme may have its defects, but I do not think that even Sir Waldron would suggest that we should have left the care of Service sick to charity. The introduction of allowances for the tuberculous recognizes for the first time the Government's responsibility in the treatment of this disease, which is above all else a social problem. It is only when this recognition is fully implemented and the Treasury accepts financial responsibility for the care of the tuberculous that an adequate and comprehensive service will be developed. The solution must be provided by national finance and planning working harmoniously with the locally elected representatives of the people.

The obstructive bureaucrat, whether he be a legacy from "bumbledom" or merely the conceited dispenser of charity, is as difficult to eradicate as the scabies mite. He is essentially an individualist whose sense of his own importance is stronger than his loyalty to the public. But, like the scabies mite, he will yield to appropriate scientific treatment; in this case a liberal application of live democracy. Meantime we must be on our guard to preserve democratic liberties.—I am, etc.,

St. Mary Cray, Kent. BRIAN H. KIRMAN.

Immediate Repair of the Cervix

SIR,—The correspondence in your columns concerning episiotomy will have served a very useful purpose if only to recall or re-emphasize the importance of an intact perineum after childbirth. Elsewhere (*Clin. J.*, 1944) I have described the perineum as "the flap to the letter-box of life." This may be a little fanciful, but it is certain that a physiologically perfect perineum is essential to a woman's comfort, and, more important, to her happiness.

There is another equally important structure, however, which is much more frequently damaged in labour, and which is as frequently neglected. I refer, of course, to the cervix. It is safe to say that a large proportion of any gynaecological out-patients is composed of the results of a torn cervix—the discharges, the backaches, the trigonitis, the cervical type of dyspareunia, and what not. All of these could be prevented if the cervix was sutured after the third stage of labour. It is easy of access, the damage is obvious, and all the surgical equipment necessary is a masked nasopharynx, a large round-bodied needle, and some fine catgut; even a speculum is often unnecessary. An instant benefit, too, is often apparent, for many of the minor degrees of post-partum haemorrhage are due to bleeding from a torn cervix, and this can be controlled at once by a few simple sutures.

Pointing this out to a general practitioner, he objected: "It's all very well for you consultants to do this in your hospitals and 'posh' nursing homes. In a country cottage it is impossible." Practically, there may be some truth in this. Ideally, there can be no neglect of an important surgical procedure because of expediency. If, however, only those cervices damaged in hospitals and "posh" nursing homes were at once repaired, I assert most confidently that there would be not only an immediate improvement in puerperal morbidity, a greater percentage of healthy parous women, but (who knows?) a lesser incidence of carcinoma of the cervix.—I am, etc.,

MORTIMER REDDINGTON.

High-fat Diet in Diabetes

SIR,—I was much interested in the article on the dietary control of alloxan diabetes by Prof. J. H. Burn and Messrs. Kelsey and Lewis (Dec. 9, p. 752). They rightly point out that the reduction of sugar excretion in alloxan diabetic rats by change over to a high-fat diet could be applied to man with difficulty, since most people are of the opinion that such a procedure would produce ketosis and increase the liability to coma.

I think reference should have been made to the work of Best, C. H., and Hershey, J. M. (*J. Physiol.*, 1932, **75**, 49), with depancreatized dogs. The latter always exhibited a decreased sugar excretion in a phase of generalized weakness and liver failure preceding death. Fat-feeding of their animals precipitated this stage of decreased sugar excretion with, in some cases, a low fasting blood-sugar level, which necessitated a reduction of the previously stabilized dosage of insulin; some depancreatized dogs could, by fat-feeding, tolerate a fairly high calorific diet and no insulin without showing glycosuria or hyperglycaemia for fairly long periods. These latter animals, however, were liable to sudden death and the livers contained large amounts of saturated fatty acids.

In view of this it is possible that a diabetic may appear to be well under control from the point of view of blood-sugar and urine-sugar estimations, but, as in Best and Hershey's dogs, have a fatty degeneration of the liver—an undesirable condition. It may be relevant to mention that I have found that diabetic patients dying in coma almost invariably reveal fatty degeneration of the liver.

It would be interesting if Prof. Burn and his co-workers investigated the fat content of the livers of his rats. If fatty degeneration is found, then I think that a high-fat diet in diabetics should be given with more consideration than merely its effect on blood and urinary sugar.—I am, etc.,

University of Birmingham. RONALD L. BISHTON.

Hypopyon Ulcer

SIR,—It would be highly unfortunate if Dr. F. O. Taylor's report (Dec. 30, p. 868) of the successful treatment of a hypopyon ulcer by sulphathiazole were to give the impression that such a happy result may be expected in all cases. Sulphonamide therapy is a routine part of the treatment of such conditions, but it is only a part, whose effectiveness naturally depends on the sensitivity of the causative organism. To omit, because of sulphonamides, the rest of the medical and, on occasion, surgical treatment would often result in avoidable disaster.

Two points in Dr. Taylor's letter appear to me of especial interest. How was it that no corneal scar remained, and that the eye was "perfectly normal," apart from slight dilatation of the pupil? And, secondly, why was the dilatation "very slight"? Had no mydriatic been employed, or were the posterior synechiae so extensive as to limit its effect?—I am, etc.,

Stratton. R. A. D. CRAWFORD.

Sign for Acute Retrocaecal Appendicitis

SIR,—The meaning of the sign in appendicitis is never complete without reference to the topographical anatomy of the little organ. The situation of an acutely inflamed appendix can nearly always be determined by the pressure method, for it is the inflamed parietal peritoneum in contact with the appendix that serves as a key to its position—a fact that can be proved by doing appendicectomy under local anaesthesia.

As a common experience the tenderness is found over the lower end of the caecum because the mid-inguinal position of the organ is the commonest. Now and again patients are seen with pain in the lower abdomen and tenderness just a little to the right side of the median plane; the appendix is likely to be hanging over the pelvic cavity. Again, in a high retrocaecal type (10 o'clock) the tenderness may be above the anterior superior iliac spine, and this may be even as high as half-way up to the costal margin in the prerenal variety. The accuracy of diagnosis is therefore credited to the teacher of anatomy.—I am, etc.,

Guildford. S. MUNTARBHORN.

Absence of Surgical Shock in Epileptics

SIR,—The case reported by Mr. Grantham-Hill (Dec. 30, p. 867) is an interesting one, but I am sure there are many who would agree that his inferences are unsound. In the first place a crushed limb is often almost painless because of the damage to the nerves interrupting their conduction. It is difficult, therefore, to understand what shock-producing afferent impulses can be present, particularly since experimental stimulation of the proximal end of a divided nerve has been carried out for long periods without producing shock. Secondly, an important element in the case was the damage to the blood supply. The main vessels were divided by the injury, and so the crushed limb was virtually isolated. In consequence there was an absence of the peripheral circulatory factors, such as loss of blood and plasma into the damaged tissues, and, perhaps, absorption of metabolites or products of tissue damage with a toxic action, which have much more evidence to support them as causes of shock than have the nerve impulses. For example, decerebrate animals can be brought to death in profound shock by the infliction of severe injuries to the limbs provided the blood supply to the injured part is not cut off. It is by no means certain, therefore, that the nervous factor is all-important in shock, and the evidence of Mr. Grantham-Hill's case cannot be taken as support for this theory.—I am, etc.,

Oxford. H. HAXTON.

Acute Brachial Radiculitis Improving after Malaria

SIR,—The following case suggests a new method of treatment and may possibly lead to further light being shed on the aetiology of the disease. For permission to report it I am indebted to Dr. R. L. Langley, and to Dr. R. C. Walker, medical superintendent of the hospital.

A well-built previously healthy marine, aged 23, was admitted, seriously ill, on Feb. 21, 1944. He was found to have bronchopneumonia, and responded to treatment with sulphathiazole, recovery being uneventful. On March 12, nineteen days after the onset of illness, he complained of "agonizing" pain across the back of the left shoulder, preventing sleep; there was no constitutional disturbance. The pain lasted a week, then gave way to a dull ache, with "pins and needles" down the outer side of the left arm; and at the same time he found that he was totally unable to lift his arm.

On examination, March 19: Complete paralysis with severe wasting of the left deltoid; reaction of degeneration present. The serratus magnus and spinati (supraspinatus far more than infraspinatus) were affected in lesser degree. There was an area of skin anaesthesia over the area supplied by the circumflex nerve. Other muscles appeared to be unaffected. C.N.S. otherwise normal. Wassermann negative. Diagnosis: "Toxic radiculitis affecting C 5 and 6, a sequela to the pneumonia."

The arm was fixed in an abduction splint and physiotherapy commenced. This resulted after a few weeks in some recovery of the posterior fibres of the deltoid only; only slight recovery of movement (abduction to 45° just possible). Treatment was continued without further improvement until, on Sept. 4, he retired to bed at home with a *relapse of malaria, first contracted in Sicily* in September, 1943. He ran a temperature up to 105° F. on alternate days for ten days before the condition was recognized and controlled with quinine. On getting up he was astonished to find that he could use his left arm to reach up to shelves, comb his hair, etc., without difficulty. On examination, Sept. 25, there was complete voluntary range of movement of the arm, though with persistent weakness of the deltoid and serratus magnus. Wasting of the deltoid still marked; area of anaesthesia unchanged.

The improvement following fortuitous pyretotherapy was dramatic and unquestionable. This finding suggests that pyretotherapy might be worthy of trial in this disease, which in the present state of knowledge may leave severe disablement. If it were found to be effective in further cases, the implication would be that the disease is due to an agent susceptible to raised temperature.

By way of postscript I might add that 18 months ago I saw two infants in a children's ward, in adjacent beds but one, both with empyema. Within a week of each other they developed a sudden flaccid paralysis of the muscles about the shoulder girdle, with wasting, one being on the same side as and the other on the opposite side to the empyema. There was no constitutional disturbance. No other children were affected. The condition was baffling at the time, in the absence of any cases of anterior poliomyelitis in the district. If, as seems likely, they were cases of acute brachial radiculitis they are of interest in raising the question of infectiousness.—I am, etc.,

J. R. EDGE, M.B.,
Menston, near Leeds. Resident Medical Officer,
Highroyds Emergency Hospital

Food Yeast and Artificial Milk

SIR,—The recent statement by Lord Templewood in the House of Lords has one extremely important sentence. He states: "Before we can hope for a revival in Europe the people must be fed." Everybody will agree with this statement, but why does he not include all citizens of the British Empire?

In India the children have been dying in millions for want of food. This want, by lowering their vitality, has made them the prey of serious epidemics. If we hope to see the men and women of India a healthy and happy people it is essential for the children to be given milk. All children need milk, and the giving of milk to school-children (which I first set going in Swansea) has provided ample evidence of its value. If we need a revival in India we must make arrangements to give milk, either fresh or as a good artificial milk. If we want a revolution, then let the children grow up starved and disease-tainted haters of England.

The *Journal* has in the issues for Nov. 18 (p. 668) and Dec. 16 (p. 796) pointed out in two valuable articles a source for the making of an artificial milk. I refer to the growing of "food yeast" in the West Indies. This food yeast contains a protein equal to that of milk, and it can be made up by British chemists into a good artificial milk whereby the Indian children and British can be supplied with good food while the economic condition of the West Indies can be put on a sound footing.—I am, etc.,

Swansea. G. ARBOUR STEPHENS.

Aetiology of Erythema Nodosum

SIR,—In regard to the subject of Prof. Bruce Perry's Bradshaw lecture, published in your issue of Dec. 30, it may be of interest to refer to the fact that erythema nodosum has been recorded in the virus disease lymphopathia venerea, generally in association with "rheumatic" manifestations. References will be found in *A Sixth Venereal Disease* (1933, Baillière, Tindall and Cox, London).—I am, etc.,

London, W.1. HUGH S. STANNUS.

Smallpox Vaccination by the Multiple-pressure Method

SIR,—In my recent paper (*Journal*, Dec. 16, 1944, p. 781) I overlooked an article on "Some Observations on the Immunity and Disability caused by Vaccinia," by S. F. Dudley and P. M. May (*J. Hyg.*, Camb., 1932, **32**, 25), in which the multiple-pressure technique was first reported on in this country. My apologies are due to the writers for this oversight. It is of interest, however, that, although Sir Sheldon Dudley's work was somewhat different in scope from mine, our general conclusions are in agreement.—I am, etc.,

Beckenham, Kent. H. J. PARISH.

Scabies

SIR,—I read Dr. Geffen's article (Dec. 23, p. 825) with much interest, but I must disagree with the statement he makes that "experience shows that home treatment fails in most cases." He has found this the case when he has prescribed benzyl benzoate with full instructions for use in the home.

For the past twelve months I have been giving cases of scabies one treatment of benzyl benzoate. Children have been treated in our cleansing station, but I have given adults pots of benzyl benzoate with written instructions upon how to treat themselves at home. I have been astonished at the very high proportion of cures obtained in this way—something in the nature of 100%. I think the secret of this success lies in the fact that I insist upon the patients' being covered with the preparation a second time immediately after the first application is dry.

I propose during the coming year to adopt the same home treatment for school-children, and I hope that I may obtain the same degree of success.—I am, etc.,

W. F. CORFIELD,
Colchester. Medical Officer of Health.

Medical Demobilization

SIR,—May I be permitted to echo the hope expressed by Dr. J. J. Conybeare (Dec. 2, p. 733) regarding the recommendation of the Central Medical War Committee to the Ministry of Health for the continued recruitment of doctors up to the age of 35. I think Dr. Conybeare "hits the nail on the head" in pointing out the essential differences between the E.M.S. and Service medicine, particularly the exceptional opportunities afforded to holders of appointments under the E.M.S. for obtaining valuable clinical experience in all branches of medicine and surgery and of taking higher qualifications. It is perhaps hardly surprising that so many newly qualified doctors who entered the Services some 4 to 5 years ago are viewing their professional future with some anxiety.

Without wishing to enter the controversy on the merits or otherwise of Service medicine as affecting the individual doctor, I think that after more than five years of war few would disagree with the view that the interchange of doctors between the Services and the E.M.S. would be a good thing for both, and it would seem that length of service in the armed Forces or E.M.S. would be a reasonable basis upon which such interchange might be considered. For those engaged in general practice a similar system of interchange between Service doctors might also be considered on the same basis.

As an aspirant for the Fellowship with five years' Army service I trust I may be forgiven for any prejudices which may be apparent in my letter.—I am, etc.,

"CAPTAIN, R.A.M.C."

Artificial Insemination

SIR,—Whatever may be the ultimate judgment on the moral and ethical issues of artificial insemination, one aspect of the matter would seem to me to have particular relevance to the question, and that is the emotional or psychological effect on the offspring. At what age is he or she to be told? Will he be thrilled to find that he is the product of a planned breeding experiment, or will he feel ashamed? Or will all knowledge of it be kept from him as something about which the less he knows the better?—I am, etc.,

Leicester. T. C. CLARE.

The Death of Burns

SIR,—I observe in the "Nova et Vetera" of the *Journal* of Dec. 30 an interesting note by Dr. S. Watson Smith entitled "The Disease that Killed Robert Burns," in which he states: "The popular belief that he died of drink and rheumatic fever cannot be supported, having no foundation in fact; it is pure fiction." There cannot be many medical men to-day who would support the old and popular opinion that this ill-fated genius died from alcoholism, but I should have thought the whole matter had been fully ventilated some twenty years ago by the late Sir James Crichton-Browne in his book *Burns from a New Point of View*. After an exhaustive survey of the available evidence he states: "It will not, I think, be disputed that Burns died of rheumatic endocarditis, with the origin of which alcohol had nothing to do."—I am, etc.,

Wolverhampton. ARCHD. OGG.

Medico-Legal

A FATAL OVERDOSE OF CARBACHOL

Carbachol, sometimes called "moryl," is a vasodilator and cardiac depressant. In our issue of July 4, 1944 (p. 28), we reported an inquest on Fl. Sergt. J. Simpson, R.A.F., who had died from a massive overdose of moryl given in hospital. The chief reason appeared to be that the manufacturers had without sufficient warning filled the usual ampoules with a quantity of crystals representing 400 times the usual liquid content of an ampoule. The jury found that the overdose had been accidentally given, but added a rider censuring the method of handling the drug at the hospital and the manner of labelling it by the manufacturers. Later the widow sued the Oxford Corporation; Dr. A. Lovas, who had prescribed the drug; Sister Butler, who had administered it; and Messrs. Savory and Moore Ltd., who had supplied it. Mr. Justice Hilbery, in the course of the proceedings, dismissed the corporation, the doctor, and the sister from the case, being satisfied that no evidence of negligence had been given against them. He found that the manufacturers had been packing the drug in crystal form in ampoules and selling it with printed instructions that 1/2 to 1 ampoule was the correct dose, but without a warning that moryl in dry form in an ampoule was not for injection. He held them to have been negligent, and awarded damages against them in the sums of £1,650 under the Fatal Accidents Act and £350 under the Law Reform Act, with costs. He also directed that they should pay the costs of the other defendants. As the doctor and nurse were found not at fault, the court had no opportunity to decide whether the corporation was responsible at law for the results of their actions. Before the decision in Gold *v.* Essex C.C. (1942, 2 K.B. 293), by which a county council was ordered to shoulder the consequences of the negligence of a hospital radiographer, a local authority would probably not, on the facts in the Oxford case, have been held responsible. Since that decision it would almost certainly be held liable if a nurse in its employment gave an injection negligently, and it might even have to pay damages for the negligence of one of its medical staff.

Dr. Lovas's defence was conducted by the London and Counties Medical Protection Society, to whom we are indebted for a report of the action.

A HOSPITAL LOSES A LEGACY

The rules concerning charitable trusts have been a stumbling-block to many charities. Testators without number, having fully intended that some charity shall benefit under their will, have made the gift invalid through some fault of language or disposition. The court will recognize and protect a trust in favour of a person, but not a trust in favour of an institution unless the object of the trust is wholly charitable. The interpretation of the adjective "charitable" is fairly strict: it includes the relief of poverty or sickness, and the furtherance of education or religion, but very little else. Not long ago St. Bartholomew's Hospital lost a large gift through the operation of these rules. Lady Dalziel of Wooler, a great friend and benefactor of Bart's, instituted shortly before her death a "discretionary fund" bearing her name. The capital was some £2,500, and a first charge was the upkeep of the Dalziel of Wooler family mausoleum. The remainder of the income was applicable in the discretion of the governors for the purposes of the hospital. By her will Lady Dalziel increased the discretionary fund by £20,000, subject to the condition that the governors should use the income so far as necessary for the upkeep of the mausoleum and the garden round it and should rebuild it if necessary. If they should fail to carry out this request, the £20,000 was to go to other charities subject to the same condition. The executors, fearing that after duties had been paid they would not have enough left of the estate to pay all the legacies, asked the court to say whether the gift to the hospital was valid.

Mr. Justice Cohen had no doubt that it was not. To begin with—though this was not his reason for rejecting the gift—the original Dalziel of Wooler discretionary fund, with its permanent charge for the upkeep of the mausoleum, looked very much as though it contravened the rule against perpetuities. The law does not like property to be tied up so that it cannot change owners, and so it only allows a moderate restriction on alienation. A testator may tie up money in trust for the benefit of persons living at the time of his death and after their deaths for 21 years, but no longer. Prima facie, there was no means of putting an end to the charge. Counsel for the hospital argued that the charge was purely an internal matter within the hospital, and appeared only in the correspondence between the governors and Lady Dalziel. The judge doubted whether this argument was well founded, but even assuming that it was, the gift would only be good—he pointed out—if the purpose of the discretionary fund of the hospital was wholly charitable. In a general sense he admitted that the purposes of a hospital are necessarily charitable, but the purposes of this fund included the upkeep of the mausoleum. Now the maintenance of a tomb has never been considered a charitable purpose. There have been a good many cases before the court in which a gift with such a condition attached to it has been held valid; but in all of these the condition has imposed only a moral obligation, or the amount involved has been trifling. Here, however, the obligation was meant to be a legal one, for there was a "gift over" to other charities if it was broken. If it had been possible to ascertain how much of the gift would be required for the upkeep of the tomb, the court might have held that the gift of the remaining sum was valid. Here, however, the cost of maintaining the tomb was wholly uncertain. The result was that the hospital lost the £20,000. The judgment gives a very full survey of the tomb cases, and should be studied with close attention by hospital secretaries. They may then be alert to see that the good intentions of their testators are not frustrated by conditions of the kind that wrecked the Dalziel bequest.

A HARD CASE

A woman, intent on her work in a field, was struck dead by an aircraft carelessly flown near the ground. Her husband was partly dependent on her, and sued the pilot. If the same accident had happened before the war he would have had an unquestioned right, as her legal personal representative, to claim on behalf of her estate damages for the results of the pilot's negligence, and for himself damages based on his dependency. Unfortunately for him, he found in his way the Personal Injuries (Emergency Provisions) Act, 1939. This was passed on the first day of the war to compensate persons for war injuries which otherwise might not have given them ground for action. The definition of "war injuries" includes physical injuries caused by the impact of aircraft belonging to His Majesty. The Act expressly rules out the payment of damages for a war injury caused by negligence. Under the Personal Injuries (Civilians) Scheme made under the Act the husband had no right, for he was only partly dependent and not incapable of self-support and in need. Moreover, the scheme makes no provision by which a personal representative may claim compensation on behalf of the estate, nor does it allow funeral expenses. Mr. Justice Charles took the view that as the husband did not benefit under the scheme, it did not deprive him of his ordinary legal remedies, and gave judgment in his favour for £450. The Court of Appeal, however, declared he could not have this.[1] Lord Greene, Master of the Rolls, said that the argument seemed at first sight attractive, that it would be a remarkable thing for Parliament to take away a man's legal rights and give him nothing in exchange, and that to construe the Act in a way which would deprive injured persons of their ordinary rights where the scheme did nothing for them would be a very grave matter. Broadly speaking, he admitted, the court was very reluctant to construe an Act of Parliament as depriving a person of his normal rights. In the present case, however, certain broad considerations indicated the strong probability that the Legislature had meant precisely what it said. It seemed to have taken the view that existing statutes ought not to be regarded as having contemplated injuries arising out of the unusual conditions of war. The scheme of the Act was apparently to lift war injuries right out of the common law and existing legislation and give them special treatment. This seemed to his lordship a very sensible and business-like way of handling a totally unprecedented situation. The widower, however, is not likely to be much consoled by the court's approval of the Act and the Scheme. He might be pardoned for wondering whether his omission from its benefit was due not so much to the wisdom of Parliament as to preoccupation on the part of the draftsman.

Obituary

MICHAEL JAMES NOLAN, L.R.C.P.&S.I.

Dr. M. J. Nolan died on Dec. 27 at Newcastle, Co. Down, his place of retirement, at the age of 85. He had been resident medical superintendent of the Down Mental Hospital, Downpatrick, Northern Ireland, for 42 years, retiring in 1935.

He was educated at Crescent College, Limerick, his native town, and at the Royal College of Surgeons in Ireland. After qualifying he was for some five years in general practice in Limerick, and during part of that time deputized for the superintendent of Limerick Asylum during his absence from duty. This was the beginning of Dr. Nolan's life-long attachment to psychological medicine, and in 1888 he was appointed deputy resident medical superintendent to the Richmond Asylum, Dublin, now Grangegorman Mental Hospital, where he remained until his appointment as resident medical superintendent to Down Mental Hospital in 1893. During his 42 years there his hospital gradually became known as one of the foremost in Ireland, and this position was of Dr. Nolan's making, for he was in the old tradition of medical superintendents in the grand manner, and ran his institution with complete personal supervision of every detail.

When he first became associated with psychological medicine, little scientific work was done in the Irish mental hospitals, and few papers were published by Irish psychiatrists. Dr. Nolan changed all that, as he changed many other things: over all his professional life a series of papers on his specialty flowed from his pen, and he was co-editor of the seventh edition of the *Handbook for Mental Nurses*. He took a great part in what might be called medico-political work, and the application of the Asylums Officers' Superannuation Act to Ireland was largely due to him.

Many honours came his way. He was, for example, president of the Royal Medico-Psychological Association in 1924–5, and president of the Ulster Medical Society 1926–7, a Fellow of the Royal Society of Medicine, and a Fellow of the Royal Academy of Medicine in Ireland. He was a J.P. and a member of the executive council of the Magistrates' Association of Northern Ireland.

His interests were wide and included gardening and archaeology. His commanding, bearded presence made an instant impression, and a slight stutter was turned by him into an asset which told to effect in many of his anecdotes, which he was an adept in using to clinch a point. His wit and humour never deserted him, not even when he was afflicted with blindness over which his great courage enabled him to triumph, and later a paralysis was surmounted in the same fashion.

D. L.

W. ERNEST A. WORLEY, M.R.C.S.

In our issue of the *Supplement* of Dec. 30 we recorded the retirement after 25 years' service of Dr. Ernest Worley from the office of honorary secretary of the City Division of the B.M.A. and the presentation to him by his colleagues of a cheque and an illuminated address. We deeply regret to announce that he died on Dec. 28. He was a Bart's student and took his M.R.C.S., L.R.C.P. in 1899. He was temporary captain, R.A.M.C., in the last war. He joined the Association in 1911 and began his active work for his Division in 1921. He was chairman of the Division in 1931 and represented it at the A.R.M. on five occasions; was a member of Council from 1927 to 1933 and of several of its committees; and was honorary secretary of the Centenary Meeting, London, 1932.

Dr. ALFRED COX writes:

The death of Dr. Ernest Worley removes an ardent and devoted worker for the B.M.A. His loss will be most deeply felt in the City Division, of which he had been the very life and soul, as well as the secretary, for 25 years. He was one of those who never sought the limelight and made a hobby of B.M.A. work. I remember visits to the City Division, when I was in office, which convinced me, if I had needed any convincing, that so long as Worley was in charge the Division would be an active one. How he managed to conduct an active practice and at the same time devote so much energy to the Association is a mystery which I have never been able to solve except by recourse to the old saying that "a man can always find time to do something which he really wants to do." His finest achievement was when he cheerfully accepted the heavy responsibilities of the honorary secretaryship of the London Annual Meeting of 1932, and every day during the long period of preparation he could be seen at B.M.A. House. No detail was too small for his attention. I have been told that at the historic centennial dinner at the Albert Hall, where some 2,100 people sat down to dine, Worley personally inspected every table ticket to see that all the guests were rightly placed. In paying this affectionate tribute to an old friend and fellow worker I must not forget (he never forgot) the devoted labours of his wife—not only socially but in the day-to-day work of the City Division.

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[1] Billings v. Reed, (1944) 2 All E.R. 415.

The death took place on Nov. 28 of Dr. **TIMOTHY HOWELL DAVIES**, Pentrepoth Road, Morriston, Swansea. He was a member of a very well-known and old Morriston family, being the eldest son of the late James Davies, a founder director of the Morriston and Midland Tinplate Co. Ltd. Dr. Davies, popularly known as Tim, was educated at Arnold's College, Swansea, and, on entering the Middlesex Hospital, studied under, among others, the late Sir John Bland-Sutton. He qualified M.R.C.S., L.R.C.P. in 1907, and practised in Morriston up to the date of his death. Dr. Davies had intended retiring in 1939, but in view of the calls made on the medical profession continued in practice until his death. He was an ardent Welshman and an authority on the history of old Morriston.

The death occurred in Darlington on Dec. 15, in sudden and tragic circumstances, of **GEORGE ALEXANDER DAWSON**, medical officer of health for Darlington. A Belfast graduate (M.D., B.Ch., D.P.H.), he was formerly assistant M.O.H. for Oldham, and was appointed to the same post in Darlington in 1925, succeeding shortly thereafter his chief, who was killed motoring. Dr. Dawson was president of the Northern Branch of the Society of Medical Officers of Health in 1930–1, chairman of the Darlington Division of the B.M.A. in 1932, elected a Fellow of the Royal Sanitary Institute in 1935, chairman of the district council of Toc H, a past president of Rotary, and a past master in Freemasonry. He was a forceful personality with an unbounded capacity for work. He died a bachelor, 46 years of age, and public expression of loss has been wide and marked.

The death occurred at Harrogate on Dec. 16 after a brief illness of **HAROLD DOBSON PICKLES**, *M.C.*, M.R.C.S., L.R.C.P., at the early age of 53. He was the son of the late Dr. J. J. Pickles of Leeds and received his medical education at the Leeds Medical School, qualifying in 1915 and immediately joining the R.A.M.C. He served in France, being mentioned in dispatches and gaining the Military Cross, and settled in practice in Leeds in 1919. He subsequently practised at Westerham in Kent, but returned to his own county, to Masham, where he was also M.O.H. Dr. Pickles was one of the best type of general practitioner, at all times placing the interests of his patients before his own comfort and convenience, despite the handicap of increasing deafness and of a heart damaged by rheumatism in youth. He leaves a widow, one daughter, and two sons.

Dr. **JAMES GRIFFITHS MACASKIE**, formerly of Bambrugh, died on Jan. 3 at Seahouses, Northumberland, aged 89. He was born at Berwick-on-Tweed, went to school at Newcastle, and studied medicine at Edinburgh. He qualified L.R.C.P.&S.Ed. in 1878, took the D.P.H. in 1890, and joined the B.M.A. in 1904. He retired from active woik in 1927 after 47 years' practice at Bambrugh, where he won the respect and esteem of all classes. Dr. Macaskie was for 44 years Poor Law medical officer and for 33 years M.O.H. for the Belford Rural District Council. In 1924 he was made a Justice of the Peace. His three sons all became members of the medical profession.

Dr. **JEROME JOHN O'MULLANE** of Plumstead High Street, S.E., died at the age of 52 at the London Clinic on Jan. 2. He graduated from University College, Cork, as M.B., B.Ch., and B.A.O. of the National University of Ireland in 1916, and served as house-surgeon at the West London Hospital. Dr. O'Mullane joined the British Medical Association in 1925. Although in bad health for some time past he was an energetic worker and an enthusiastic reader of current medical literature. His death will be a great loss to Woolwich.

Dr. **GUSTAV SINGER**, formerly emeritus professor of internal medicine at Vienna and an Austrian privy councillor, died in Guy's Hospital after a short illness at the beginning of December. He was especially interested in gastro-enterology, and in January, 1938, delivered a lecture in this country on functional diseases of the intestines. This was afterwards published by the Oxford Press as a monograph which we noticed in the *Journal* of May 25, 1940 (p. 854). Gustav Singer was a friend of the late Sir Arthur Hurst, who had much admiration for his work.

The following well-known medical men have died abroad: Dr. **FREDERIC WILLIAM SCHLUTZ**, chairman of the department of paediatrics of Chicago University, aged 63; and Dr. **JOELLE CORNELIUS HIBBERT**, clinical instructor in obstetrics at Boston University School of Medicine, aged 51.

Medical Notes in Parliament

G.M.C. Elections

On Dec. 14 Sir **HAROLD WEBBE** moved that the General Medical Council (Temporary Provisions) Order, 1944, a copy of which was presented on Dec. 5, should be annulled. He said he was told that the *Medical Register* might well contain as many as 44,000 names. An election was not an impossible business and was certainly not much more difficult than holding an ordinary by-election. It might be argued that in this case the council could not get a proper election because so many of the electors—the medical practitioners—were away serving the country in the Forces. He was sure that the Government would not use that argument, because the House had already decided that the absence of all these doctors in the Forces was no valid reason for postponing legislation which fundamentally affected the whole medical service and drastically and vitally affected the future of every one of them.

Mr. **ATTLEE**, in reply, agreed that, wherever we could and wherever it was feasible, we should restore the right of elections. These postponements were not something which was imposed on various bodies by the Government, but was done at the request of those bodies. It was necessary, however, to see that they did not perpetuate themselves unnecessarily. These Orders were not granted as a matter of course; they were examined very carefully. The G.M.C. had 39 members, of which 32 were nominated with the advice of the Privy Council or chosen by certain colleges and universities, who might be held to be mainly indirect representatives of the medical profession. Seven were elected by medical practitioners. The latest available figures showed that the electorate numbered somewhere about 65,000. The strain on the medical profession at the present time was immense. The strain on the G.M.C. had been pretty heavy. People did not know where a large proportion of the 65,000 doctors were. A large proportion were over-seas. A great many of the others had been moved about the country according to the exigencies of the war. Even in normal times this election was fairly costly. A single election cost about £500 and sometimes there had to be two or three a year. The staff of the council had been very greatly reduced. It would be very difficult and involve an unnecessary amount of time if the election papers were to reach all members of the profession.

Dr. **RUSSELL THOMAS** said he would like to emphasize the fact that Mr. Attlee, on behalf of the Government, had made it perfectly clear that the medical profession could not be expected to come to any decision on any matter at the present time. He was grateful to him for making his decision so clear.

The motion was, by leave, withdrawn.

Medical Research Expenditure

In a written answer on Dec. 21 to Sir Ernest Graham-Little, Mr. **ATTLEE** said it was impossible to give a comprehensive estimate of current annual expenditure on medical research in this country. Investigations were financed not only out of public moneys but also by private funds administered by universities and hospitals and by independent research institutes and organizations. Only a relatively small part of the total expenditure from funds of private origin was controlled by the Medical Research Council. The expenditure of the Medical Research Council amounted to about £290,000 in 1944–5. Of this, £250,000 was provided by the Parliamentary grant-in-aid and the remainder from contributions and repayments from various Government Departments and sundry credits. The expenditure directly allotted to medical research through other Government channels was at present about £100,000 a year, mainly on special investigations by the Services into war problems. This took no account of research undertaken by members of the medical services with the armed Forces and otherwise, in addition to other duties for which they were primarily employed. Nor did it take account of research done by institutions in receipt of Government grants for mainly educational work.

Demobilization

Mr. **BEVIN** stated on Dec. 21 that the scheme outlined in the White Paper on the reallocation of man-power between the armed Forces and civilian employment during any interim period between the defeat of Germany and the defeat of Japan (Cmd. 6548) applied to medical officers in the same way as to other members of the Forces. There was provision in para. 12 of the White Paper for the release in Class B—i.e., out of age and service order—of a limited number of individuals on applications made through Government Departments in accordance with the existing arrangements. In the case of medical officers these arrangements provided for recommendations to be made by the Central Medical War Committee.

Promotion in P.O.W. Camps.—Sir James Grigg informed Sir George Elliston on Dec. 13 that he did not consider special arrangements should be made to permit normal opportunities of promotion for medical and dental officers of the R.A.M.C. detained in enemy prisoner-of-war camps for the care of British prisoners. Time promotion was carried out under the normal rules for all officers who were prisoners of war.

Midwives in the Services.—Mr. Willink told Mr. Storey on Dec. 14 that he had considered the recommendations sent to him last August by the Northern Branch of the B.M.A. that trained midwives should no longer be accepted for the Services or industry and that those already accepted should be released or directed to their proper work. He had consulted the Minister of Labour and National Service and had communicated with the B.M.A. The nursing services of the Crown had, since May, 1943, been precluded from recruiting practising or newly qualified midwives or midwives with recent experience. Similarly as regards industrial nursing, experienced or practising midwives were not admitted to posts unless they were immobile and there was no prospect of using their services in local midwifery work. A review of all qualified midwives already employed in industry had already been made. Those with good or recent experience were withdrawn, though there was sometimes a little delay. In view of operational needs and the fact that any midwives now in the Services must have qualified some time ago and be scattered over the world, he could not press the Service Departments to release them at present.

Notes in Brief

It is expected that the factory at Speke, Liverpool, for production of penicillin will be completed by the late spring of 1945.

It is hoped that in 1945 8,000 acres in India will be under cinchona. Before the war 4,500 acres were planted with cinchona. The supply of quinine is unequal to the demand, but synthetic antimalarial drugs are reaching India in large quantities.

Since the increase in cash allowances to fighting men's children, issues at cheap rates of fruit juices and cod-liver oil to children have declined by 15% and 25% respectively comparing August and September with the previous six-months average. There is no evidence that families not entitled to free supplies cannot meet this expenditure. Issues of milk free or at cheap rates have not declined.

The Services

Major-Gen. N. Cantlie, M.C., late R.A.M.C., has been appointed Honorary Physician to the King in succession to Col. (Local Brig.) S. Smith, late R.A.M.C. (ret.).

Capts. C. T. A. Burgess and A. A. Grierson and Lieut. O. Gray, R.A.M.C., have been appointed M.B.E. (Military Division) in recognition of gallant conduct in carrying out hazardous work in a very brave manner.

Temp. Surg. Lieut. I. R. W. Alexander, R.N.V.R., has been mentioned in dispatches. This name appears in a list of awards for gallantry or good services in the last six months or more of war in certain of H.M. ships.

Majors E. L. Elliott, 4th Btn. Buckinghamshire Home Guard, N. J. Cochran, 8th Btn. Staffordshire Home Guard, P. W. Edwards, 16th Btn. Staffordshire Home Guard, and A. W. Marrison, 3rd Lindsey Btn. Home Guard, have been appointed M.B.E. (Military Division) in recognition of meritorious service in the Home Guard.

Major C. M. Russell, 32nd Btn. County of London Home Guard, has been appointed M.B.E. (Military Division) in recognition of meritorious service in the Home Guard.

CASUALTIES IN THE MEDICAL SERVICES

Died on active service.—Lieut.-Col. Ernest F. Waldemar Grellier, R.A.M.C.

Wounded.—War Subs. Capts. H. I. C. Bowie and J. C. D. Mellor, R.A.M.C.

Wounded or injured.—Temp. Surg. Lieut. K. V. J. Kearney, R.N.V.R.

DEATHS IN THE SERVICES

Surg. Rear-Adml. Thomas Creaser, who died on Dec. 15, graduated in medicine at Dublin University in 1904 and proceeded M.D. three years later. After holding house appointments he entered the Navy in 1907. He took part in the Battle of Jutland when serving in H.M.S. *Boadicea*, and was professor of clinical pathology at the R.N. Medical School, Greenwich, in 1924–7; then for two years he held the post of squadron medical officer of the Battle-cruiser Squadron in H.M.S. *Hood*. He was in charge of the R.N. Hospital at Haslar from 1937 until the end of 1940. For more than a year before his retirement Adml. Creaser was Honorary Physician to the King.

Medical News

The Eugenics Society has arranged a meeting at the rooms of the Royal Society, Burlington House, Piccadilly, W., on Tuesday, Jan. 16, at 5 o'clock, when Mr. Cecil Binney will speak on "Eugenics and Criminal Law." All interested in the subject are invited to attend.

The following meetings of the British Institute of Radiology have been arranged for January and will take place in the Reid-Knox Hall, 32, Welbeck Street, London, W. Thursday, Jan. 18, at 8 p.m., ordinary meeting followed by a "Symposium on Clinical Photography." Speakers: Mr. T. Pomfret Kilner, Mr. Stevenson Clark, Miss Shaw, Mr. F. W. Coppin. Friday, Jan. 19, at 5 p.m., meeting of medical members.

The Diagnosis Section of the Faculty of Radiologists will hold a meeting on Friday, Jan. 19, at 2.15 p.m. at the Royal College of Surgeons, Lincoln's Inn Fields, when Surg. Rear-Adml. Robert Milne is to read a paper on "Avascular Necrosis with Joint Trouble in Caisson Workers."

At a general meeting of the Tuberculosis Association to be held at 26, Portland Place, London, W., on Friday next, Jan. 19, at 3.30 p.m., papers will be read by Dr. E. T. Fletcher on ankylosing spondylitis and tuberculosis; by Dr. R. B. Illing on the prognosis of chronic miliary tuberculosis in children; and by Dr. M. C Wilkinson on the nature of resistance in tuberculosis.

The Food Education Society (29, Gordon Square, W.C.1) announces that Dame Louise McIlroy, M.D., will lecture on "Food and Maternal Morbidity and Mortality," on Jan. 22, at 2.30 p.m., at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C.

A meeting of the Scottish Group of the Association of Industrial Medical Officers will be held on Wednesday, Jan. 24, at 3 p.m prompt in the Institute of Hygiene, University of Glasgow. The business of the meeting, at which Dr. H. M. Roberts will preside, will be general, and all interested in industry are invited.

The British Federation of Social Workers has arranged six lectures on "The Background to Health," to be given in Alliance Hall, Palmer Street, Westminster, S.W., on Wednesdays, Jan. 24 and 31, Feb. 14 and 28, and March 14 and 28. The January lectures will be by Prof. J. M. Mackintosh, on "What is Social Medicine?" and Mr. R. Watson-Jones, on "Rehabilitation." Application for tickets (1s. 6d. each lecture, 7s. 6d. for the course) should be made to the hon. secretary of the Federation (5, Victoria Street, S.W.1).

A meeting of the Association of Industrial Medical Officers will be held in Birmingham on Thursday and Friday, Jan. 25 and 26. Programme: Thursday, 8.30 p.m., business meeting, Queen's Hotel, New Street Station. Friday, 9.30 a.m., organized visits to iron foundries in the area. 2.30 p.m. at gymnasium of the Birmingham Accident Hospital, Bath Row, papers will be read by: (1) a representative of the Council of the Iron Foundries Association, on "Iron Foundries"; (2) Dr. G. F. Keatinge, medical officer, The Butterley Co. Ltd., Derby, "Health in Iron Foundries." After the papers there will be a discussion.

The Association of Clinical Pathologists will hold a meeting in London on Friday and Saturday, Jan. 26 and 27, at 9.30 a.m. at the Westminster Hospital School of Medicine.

The Royal Sanitary Institute announces the following sessional meetings: Jan. 27, at 10.30 a.m. in the Council Chamber, Town Hall, Sheffield; papers on "Some Aspects of Water Supply," by Mr. J. Noel Wood, general manager and engineer, Sheffield Corporation Waterworks; and "A Review of the Treatment of Cerebrospinal Fever," by Dr. J. M. Kennedy, medical superintendent, Lodge Moor Hospital, Sheffield. Feb. 14, at 2.30 p.m. at the Institute (90, Buckingham Palace Road, S.W.1), papers on "Ventilation of Dwellings," by Dr. T. Bedford, of the Industrial Health Research Board, and Dr. J. Greenwood Wilson, M.O.H. Cardiff. March 2, at 3 p.m. at the Public Library, Turners Hill, Cheshunt, papers on "Post-War Housing Requirements."

Mr. Desmond MacCarthy, LL.D., will deliver the Lloyd Roberts Lecture at 3 p.m. on Tuesday, Jan. 30, at the Royal College of Physicians, Pall Mall East, S.W. Subject: "Psychology in Literature."

Doctors will shortly receive a copy of the Ministry of Food's new booklet (M.E.D.2), which supersedes earlier issues, on special rations and allowances to invalids and persons requiring special diets Further copies may be obtained on application to the Ministry of Food, Welfare (Foods) Branch, Mount Stewart Hotel, Colwyn Bay.

The Ministry of Food announces that dried bananas are available, in amounts up to 14 lb. a month, for adult patients with steatorrhoea. Applications should be made to the local Food Office, accompanied by proof that steatorrhoea is present, such proof including an analysis of the patient's stools for fat.

No. 51

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Dec. 23.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1944 (a)	1944 (b)	1944 (c)	1944 (d)	1944 (e)	1943 (Corresponding Week) (a)	1943 (b)	1943 (c)	1943 (d)	1943 (e)
Cerebrospinal fever ..	33	2	12		—	53	6	22	2	3
Deaths		2	1				3	—		
Diphtheria	456	23	117		20	498	25	134	80	24
Deaths	5	—	1	—	—	9	—	4	2	—
Dysentery	173	44	133		—	96	29	69	1	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	1	—	—		—	2	—	—	—	—
Deaths		—					—			
Erysipelas			52		2			55	3	—
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years									9	
Deaths	52	3	6	12	2	43	2	4	1	1
Measles*	8,433	163	339		248	363	36	53	28	—
Deaths	13	—	1	—	—	1	1	1	1	—
Ophthalmia neonatorum	53	4	13		—	66	6	17	—	—
Deaths										
Paratyphoid fever ..	3	—	1 (B)		—	1	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	715	28	10		13	2,079	119	83	16	8
Deaths (from influenza)	28	4	3	—	—	690	80	48	5	8
Pneumonia, primary ..								511	20	
Deaths		41		18	18		124		9	17
Polio-encephalitis, acute	—	—				3	—			
Deaths		—					—			
Poliomyelitis, acute ..	5	1	—		—	5	1	—	2	—
Deaths		—					—			
Puerperal fever		1	15		1		1	10		1
Deaths										
Puerperal pyrexia‡ ..	130	4	11		—	105	4	22	1	2
Deaths		—					—			
Relapsing fever ..	—	—			—	—	—			—
Deaths										
Scarlet fever	1,906	52	216		44	1,786	87	242	25	84
Deaths	3	1	—	—	—	1	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths			—	—				—	—	
Typhoid fever	5	—	2		3	2	1	1	2	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—		—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough* ..	1,317	53	117		10	1,244	99	130	21	16
Deaths	10	—	4	1	—	17	4	5	3	1
Deaths (0–1 year) ..	420	37	75	45	31	452	51	84	19	22
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	5,354	785	717	223	164	7,011	1,122	787	237	175
Annual death rate (per 1,000 persons living)			16·5	14·5	§			17·7	15·6	§
Live births	6,857	605	89	279	257	5,606	676	799	230	222
Annual rate per 1,000 persons living ..			18·1	18·1	§			16·3	15·1	§
Stillbirths	202	20	27			185	19	34		
Rate per 1,000 total births (including stillborn)			29					41		

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* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* infectious diseases were generally less prevalent. Last week's notifications fell by the following figures: measles 552, scarlet fever 84, dysentery 28, whooping-cough 26.

There was little change in the local trends of scarlet fever and whooping-cough. Lancashire had 24 fewer cases of diphtheria than last week, but Yorks West Riding had 12 more. The fall in measles ends a continuous rise of fifteen weeks: in the counties notifications dropped by the following numbers: Lancashire 240, Durham 120, Wiltshire 86, Cumberland 77, Northumberland 53, Middlesex 51; on the other hand, the following increases were reported: Warwickshire 105, Yorks West Riding 86, Nottinghamshire 56, London 49. The incidence of dysentery is now at less than half the total of a month ago. The chief centres of infection were London 44, Lancashire 34, Gloucestershire 10, and Yorks West Riding 10, the remaining cases being recorded from twenty-eight counties.

In *Scotland* all the common infectious diseases of childhood were less prevalent—measles by 189 cases, scarlet fever by 79, diphtheria by 25, and whooping-cough by 17. For the second week a relatively large rise occurred in the notifications of dysentery, due to an outbreak in Lanark County, where the cases mounted from 13 to 61. The incidence of dysentery fell in most areas, and the only other large centre of infection was Glasgow 27.

In *Northern Ireland* notifications of scarlet fever continued to fall, the total now being 44, compared with 117 at the end of November. The incidence of measles is dropping more slowly, 248 cases being recorded, compared with 273 four weeks ago.

Infectious Diseases during 1944

The chief features of the returns of England and Wales during the past year were the high level of dysentery and the low level of diphtheria. The notifications of dysentery have steadily risen throughout the war, and this disease has now become endemic in most of the country. The notifications of diphtheria have steadily fallen since 1941, and the total for 1944 was the lowest ever recorded. The lowest number of cases since the war was also recorded for measles, acute pneumonia, cerebrospinal fever, and enteric fever. A comparison of the war years is given in the following table:

Notifications of Infectious Diseases in England and Wales during the War

	1940	1941	1942	1943	1944
Scarlet fever	65,573	59,111	84,932	116,217	93,801
Whooping-cough ..	53,403	171,406	65,563	95,859	93,107
Diphtheria	46,683	51,091	42,318	35,944	29,446
Measles	407,908	406,507	285,300	374,198	117,437
Acute pneumonia ..	47,712	50,514	42,487	52,225	38,175
Cerebrospinal fever ..	12,791	11,119	6,089	3,380	2,883
Dysentery	2,843	6,597	7,177	7,772	10,150
Enteric (paratyphoid and typhoid)	2,824	4,703	887	707	536

Notifications of cerebrospinal fever, which fell rapidly after the large outbreak at the beginning of the war, have improved only slightly on the 1943 level and are now two or three times the pre-war figure. Figures for deaths from influenza are at present available only for the large towns. The rather light mortality from influenza in the past year was due to the unusually early appearance of the epidemic in the late autumn of 1943, which increased the deaths of 1943 by over 4,000.

Deaths from Influenza and from Diarrhoea and Enteritis, and Infant Mortality Rate, in the 126 Great Towns

	1940	1941	1942	1943	1944
Influenza deaths	5,510	2,993	1,544	6,280	1,744
Infant mortality rate ..	62	71	58	58	52
Diarrhoea and enteritis deaths under 2 years	1,754	1,785	2,268	2,582	2,553

The figure for infant mortality is the lowest for the war years, despite the increasing number of deaths due to diarrhoea and enteritis.

Week Ending December 30

The returns of infectious diseases in England and Wales during the week included: scarlet fever 1,512, whooping-cough 1,179, diphtheria 446, measles 8,870, acute pneumonia 812, cerebrospinal fever 38, dysentery 123, paratyphoid 6, typhoid 4

Letters, Notes, and Answers

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ANY QUESTIONS?

Severe Seborrhoea

Q.—*During the past 6 to 8 weeks I have been treating four patients for severe seborrhoea. No treatment, however, seems to improve the cases. The scalps are reddened and slightly irritable, with a great weeping of sebum. Consequently the scalp is covered with an abundance of scales. Added to this is a great loss of hair with threatened alopecia. I would appreciate advice.*

A.—The writer describes an eczematized seborrhoea, a sensitive condition which is unable to tolerate 10% sulphur. If circumstances permit the hair should be clipped short, a boric-starch poultice applied for 6 hours to clear up the mess, followed by a wet dressing such as lead-glycerin lotion, later disinfecting with H_2O_2 (5 vols.), oily calamine lotion being subsequently applied. When the eczema has been controlled, more active remedies can be tried very cautiously, probably avoiding sulphur, even the customary 2% concentration.

Allergy to Milk

Q.—*My son, aged 11, strong and healthy, has lately developed chronic nasal catarrh, apparently coincident with his drinking a lot of milk: until lately he did not like milk. His mother, during his pregnancy, developed pernicious anaemia of pregnancy, which was controlled by liver injections. During her second pregnancy she became sensitive to the liver. Is there any connexion in the sense that this catarrh may possibly be of an allergic type, and if so, what diet for such a growing boy could be advised?*

A.—Chronic nasal catarrh is an ill-defined entity. Congestion of the nasal mucosa may be due to septal deviation, sinus infection, adenoid vegetation, or constant exposure to a damp or dusty atmosphere. Before ascribing it to drinking milk one would demand more typical allergic symptoms, such as attacks of sneezing, lacrimation, and rhinorrhoea, and an excess of eosinophil leucocytes in films of the blood and nasal secretion. Other symptoms of food allergy, such as abdominal pain and diarrhoea, might also be expected. Furthermore, an allergic rhinitis should disappear when the allergen is removed and reappear when it is returned to the diet. In practice an elimination test is not easy to perform as milk comes into the composition of so many foods—not only milk, cream, butter, and cheese, but also bread, pastries, and margarine. Milk-free diets for the diagnosis of milk allergy may be obtained from A. H. Rowe's book, *Food Allergy*, London, 1931. Quite frankly, then, the diagnosis of milk allergy does not seem to be well established in this case, and even if it were one would conclude that in so far as the symptoms are mild and there is no alimentary upset it would be better to put up with the nasal catarrh than with a milk-free diet. Such diets are difficult to arrange in wartime, and introduce the danger of shortages of biological protein, vitamin D, calcium, etc. A compromise would be to let the boy drink goat's milk or well-boiled cow's milk. It is not easy to see any connexion between the boy's illness and his mother's. The development of sensitivity to liver given by injection does not appear to have any clear relation to spontaneous food allergy.

Effects of Sexual Continence

Q.—*Is it known what happens to the semen when it is retained in the body? Leaving aside the psychological effects, it is evident that different physiological adjustments must take place in the completely continent individual from those that occur in the man who lives a life of regular elimination of semen. Is there any evidence that continued or temporary retention causes any bodily ill effects?*

A.—Not much is known about this subject, but I do not believe that there is any evidence that continued voluntary abstinence causes any bodily ill effects. Not infrequently intermittent, spontaneous, and involuntary emissions occur during sleep in otherwise completely continent individuals. The ejaculation of semen, which is stored in the seminal vesicles, is usually a stimulus to further production of semen by the testes. Assuming that the semen stored in the seminal vesicles were retained indefinitely, and not spontaneously emitted from time to time, it might undergo degenerative changes, but it is doubtful (*a*) whether this occurs; or (*b*) if it does occur, whether it has any harmful effect on the body.

Psychological results of attempted complete continence are a different matter, but more often than not it is the psychological make-up of the individual which determines whether or not he will attempt to be completely continent. In other words, attempted voluntary continence is only one aspect of the whole picture.

Adrenaline Injections

Q.—*(a) Are there any ill effects caused by prolonged injections of adrenaline for asthma? (b) Is an injection of 1/2 c.cm. (1-1,000) every 5 or 6 hours, for some days if necessary, to control attacks, harmful in any way?*

A.—Although albuminuria has been observed in animals no ill effects have been reported in man, even though adrenaline has been injected every few hours for years on end. Of course sepsis may occur from neglect of sterile precautions, but it is surprisingly uncommon. In addition there may be shock-like symptoms if the adrenaline is maladroitly injected into a vein. Extremely rarely a sensitization to adrenaline may develop which expresses itself in localized atrophy and scar formation. No harm need therefore be anticipated from an injection of 1/2 c.cm. of 1-1,000 adrenaline every 5 to 6 hours for some days, though it might be wiser and more effective to use 1/4 c.cm. every 2 to 3 hours, the guiding principle in the adrenaline treatment of asthma being "little and often."

Coarse Tremor in the Elderly

Q.—*An elderly lady has recently developed a very coarse tremor of both hands. This makes eating and the performance of simple tasks very difficult. Only the wrists and hands are affected; there is no evidence of Parkinsonism; and her general health, mentally and physically, is good. Hyoscine hydrobrom. gr. 1/200 t.d.s. is without effect; bromide makes no difference. The movements stop during sleep. Is any other treatment likely to benefit?*

A.—The coarse senile tremor described in this question is very resistant to the drugs used in Parkinsonism. Belladonna, stramonium, and hyoscine have their main effect on the rigidity of the muscles, and do not improve the tremor of Parkinsonism. I cannot suggest any medicinal treatment which will help these patients, but one is usually impressed by the skill with which the patients continue their daily lives in spite of the tremor.

Late Walking

Q.—*What are the causes and elucidation of the case of a child aged 2 years who is stated by the mother never to have walked yet? I can find no abnormal physical signs and the child appears intelligent enough for its age.*

A.—Late walking is sometimes a familial failing and in such cases nothing to worry about. But before this optimistic diagnosis is reached two groups must be carefully excluded—those with mechanical causes, and those with mental defect. Under the former come such causes as congenital dislocation of the hip—often difficult to detect without *x*-ray examination if bilateral—rickets, and other causes of muscular hypotonia, including the serious dystrophies. Mental defect of a mild degree is by no means easy to exclude. In the present case the clue lies in the dates at which the child passed earlier milestones—e.g., holding up of head by three months, sitting up by six months. In out-patient experience mental defect is the commonest cause of late walking.

Infections in Pregnancy

Q.—*Is there any evidence for the belief—which I share—that pregnant women are less liable to incur the common infectious fevers (including whooping-cough and mumps) than non-pregnant women? (It is assumed, of course, that they have not previously suffered from the disease in question.) Furthermore, is there any particular danger to the breasts or ovaries of the pregnant woman aged 35 exposed to mumps infection?*

A.—The belief that a pregnant woman is less liable to incur infectious fevers appears to have arisen from observations made in respect of scarlet fever and as a result of confusion between scarlet fever and scarlatinal rashes occurring in association with streptococcal puerperal infections. It was noted that women sometimes developed such rashes and pyrexia a few days after delivery, and, on the assumption that they suffered from scarlet fever, it was argued that, having been immune to the disease during pregnancy, these women became susceptible again after delivery. Braxton Hicks, amongst others, published observations of this kind and reached conclusions to this effect in the latter part of the nineteenth century. Although many of the older writers commented that scarlet fever is rare during pregnancy—and the cases reported are certainly few in number—yet there is no definite evidence to show that pregnancy confers any sort of immunity to scarlet fever and the other infectious diseases. The majority would agree with the following statement which appears in DeLee's *Principles and Practice of Obstetrics* (seventh edition, 1938): "A pregnant woman is not immune to any disease which may affect her in the non-pregnant state, and, contrary to the old notion, she is more susceptible to some." One of my own patients recently contracted whooping-cough during pregnancy.

Mastitis and oophoritis are among the rare complications of mumps at any time, and there is no reason to believe that the breasts or ovaries are in any special danger if mumps is contracted during pregnancy.

Diagnosis of Coronary Thrombosis

Q.—*What are the main clinical points in the diagnosis of coronary thrombosis? What is the differential diagnosis, and what electrocardiographic changes clinch the diagnosis?*

A.—A concise description cannot be of any real practical value; such a common and important disease deserves at least careful study of a full account in a textbook. Myocardial infarction, resulting as a rule from coronary thrombosis, may cause acute substernal pain, of a crushing, burning character, the onset of which is frequently at rest or during sleep. The pain may radiate to either arm or to the neck or to the back; it is not relieved by cessation of activity, nor by nitrites. Its duration may be from hours to days. It is often associated with vomiting. The damage to the myocardium may cause acute failure, shown by severe dyspnoea. There may be grave shock, marked by ashy pallor, fast pulse, low blood pressure, sweating, and a subnormal temperature. Illness, fever, leucocytosis commonly follow the attack. Syncope may occur at the time of onset. Physical signs may be inconspicuous. The mitral first sound may become weak; gallop rhythm may appear; some new enlargement to the left may be detectable. Sudden signs of failure shown by oedema of the bases of the lungs and venous engorgement may be seen. A pericardial rub is sometimes heard later.

In a fairly high proportion of cases the condition is painless: dyspnoea, or vomiting even to acidosis, may dominate the picture. Although coronary occlusion may occur during exertion, persistence of the pain on rest serves to differentiate from angina of effort. Severe substernal pain at rest may be provoked by a rise in pulse rate and blood pressure. But it is controlled by nitrites. A mild case may masquerade as one of severe indigestion, but careful inquiry and the usual sequelae given above should distinguish it. Sometimes the symptoms are so mild that the patient forgets all about it.

Dissecting aneurysm of the aorta causes similar pain. It is rarely survived, and is almost always associated with hypertension. The aneurysm should show in the skiagram later if one can be taken. Gall-bladder colic and a perforation of a peptic ulcer produce upper abdominal pain which may be partly thoracic and cause great rigidity of the abdominal muscles. Vomiting may occur with either, and shock is conspicuous in perforation. Diaphragmatic pleurisy may cause intense epigastric pain and great restriction in breathing, with rigidity of abdominal muscles. Spontaneous pneumothorax causes thoracic pain—usually to one side—dyspnoea, and its own peculiar signs.

The electrocardiographic changes are recognized as two main types, depending on whether the infarct is at the front or the back of the left ventricle. In the early stages of the former there is positive deviation of the RST phase from the isoelectric line. This is soon followed by T1 negativity, which is often marked by the typical Q1 T1 pattern. In Lead 3 the converse is seen. 4R, and better 4F, show a negative T wave, and may be diagnostic when the limb leads are doubtful. In posterior infarction there is positive RST deviation in Lead 3, often followed by a negative Q3 T3 pattern. Lead 1 shows the converse. Lead 2 tends to follow Lead 3, and the precordial leads are rarely affected, except for enhanced T voltage. In some cases these changes give place to normal appearances; in others they remain as long as the patient lives, or until another infarction alters them.

? Fröhlich's Syndrome

Q.—*A man aged 22 years had an operation ten years ago for non-descended testis. Both testes are down in his scrotum now, but of a small size—cherry-stone. He weighs 10 st. 12 lb., and his fat is of feminine distribution. There is no axillary hair, but a few hairs over the pubis have developed since the administration of 10 mg. testosterone propionate twice-weekly. No libido. What is the prognosis?*

A.—The diagnosis may be Fröhlich's syndrome, in which case the small infantile testes are due to a deficiency of pituitary gonadotrophic hormone; or the condition may be eunuchoidism; there being a primary hypogonadism. In both cases testosterone would produce secondary sexual characteristics—e.g., pubic and facial hair, enlargement of the penis, libido with erections, and potency. The dosage, however, should be greater than that used—e.g., 25 mg. injected three times weekly. Alternatively, 5 mg. of methyl testosterone sublingually three times a day; or the implantation of 600 or 800 mg. of testosterone propionate subcutaneously. These forms of therapy, however, would not induce development of the testes; nor would they render a patient fertile as distinct from potent. In eunuchoidism gonadotrophic hormone is of no avail; but in Fröhlich's syndrome, or in any case where the primary lesion is a pituitary deficiency, gonadotrophic hormone, 500 units twice weekly for six weeks, may cause development of the testes and associated secondary sexual characteristics. The therapy would probably have to be repeated intermittently to maintain this condition, and a combination of this therapy, together with testosterone, is advisable.

Attempts to develop the germinal epithelium and spermatogenesis by gonadotrophic hormone of pregnant mares' serum, or of the pituitary gland, are not likely to be successful in the majority of cases, but could be tried.

About Sulphonamides

Q.—*The M.R.C. War Memorandum No. 10 on the medical use of sulphonamides states that "solutions of the sodium salts of sulphonamides must never be injected intrathecally." A modern textbook, referring to cerebrospinal fever, states: "The intrathecal route is no longer used for therapy; intrathecal serotherapy is ineffective; intrathecal sulphonamide therapy is dangerous, and must never be considered." (a) What damage is likely to occur if sulphonamides or their sodium salts are injected intrathecally? (b) Is it permissible to administer in this way sulphonamides or their sodium salts under exceptional circumstances? (c) Is the dosage recommended in the M.R.C. Memorandum now out of date, and may considerably larger doses be properly given with safety? If so, by how much may they be increased?*

A.—The highly soluble sodium salts of the sulphonamides are strongly alkaline, and will cause necrosis if injected into any tissue: they are therefore suitable only for intravenous administration. In the early days of the sulphonamide treatment of meningitis a 0.8% solution of sulphanilamide was injected intrathecally: contrary to the statement quoted, this proceeding is safe if properly carried out. The other sulphonamides are relatively so insoluble that little is to be gained in this way; but Somers (*Lancet*, 1939, **1**, 921) described the successful treatment of Sudanese natives with cerebrospinal fever under most primitive conditions by injecting a *suspension* of sulphapyridine intrathecally. The method has been given up because it is now well known that an adequate concentration of the drug is rapidly produced in the cerebrospinal fluid by oral or other simple methods of administration.

We know of no reasons for supposing that the dosage recommended in M.R.C. War Memorandum No. 10 is inadequate. The only authoritative statement conflicting in any way with its recommendations is a recent report of the Department of Health for Scotland on the treatment of cerebrospinal fever, and the point of difference is the superiority of sulphanilamide over the other drugs in the extensive Scottish experience quoted. The effect of the scale of dosage seemed to vary at different age periods, and by no means pointed to any necessity for a general and considerable increase. These facts were mentioned in a full review of this report in the *Journal* of Oct. 7, 1944 (p. 475).

It is not clear whether the question refers only to cerebrospinal fever or embraces the treatment of other forms of purulent meningitis. The proper treatment of streptococcal, pneumococcal, and staphylococcal meningitis, especially if resistant to sulphonamides, is by the intrathecal injection of a solution of penicillin, reinforced if necessary by intramuscular administration.

Progesterone for Sterility and Abortion

Q.—*What is the technique of giving corpus luteum hormone, and dosage, in cases of sterility and habitual abortion?*

A.—The problem of sterility is extremely complex, and in many cases no cause can be found. It has been shown that in some cases, even when the menstrual periods are apparently regular and normal, ovulation does not occur and a secretory endometrium is never formed. It is difficult to imagine, however, how the administration of corpus luteum hormone could help such cases, which are due to failure of ovulation. It may be that other cases of sterility are caused by a deficiency of the corpus luteum, and thus the endometrium is improperly prepared for the reception of the fertilized ovum. Such cases may benefit from the administration of corpus luteum hormone in the second half of the menstrual cycle. Three to five units (3 to 5 mg.) should be given twice weekly in the fortnight before menstruation is expected.

Habitual abortion is also a condition which may arise from a variety of causes. Some authorities believe that in many cases abortion takes place because of deficiency in the secretion of corpus luteum hormone. In such cases progesterone may be given. The usual dose is 5 units (5 mg.) twice or thrice weekly until the 16th week of pregnancy. Larger doses—10 or even 20 mg.—are recomnended by some authors, and others state that treatment should be continued until the 34th week of pregnancy.

The doses given refer to progesterone administered by injection. There is a preparation—pregneninolone (ethisterone)—which has the action of progesterone when given by mouth; but when this is used he dose is five to six times the amount required when progesterone s given intramuscularly.

Pityriasis Rubra

Q.—*What is the correct treatment and prognosis of a case of pityriasis rubra in a man of 60 following a course of myocrisin 1.2 g. in all)? The condition has been present for six months and arge areas are clear, but the scaling persists on the face, the legs, and in the flexures. He has had intravenous thiosulphate, autohaemotherapy, and other treatment.*

A.—If, as seems from the question, the eruption is clearing or has cleared from many areas, recovery is possible. Treatment should be of the simplest kind, such as boric-vaseline or other non-irritating applications. The general condition of the patient requires constant attention, including a search for focal infection. In some cases vitamin B_2 complex has appeared to help. Occupational therapy is desirable to counteract the introspective habit.

Cerebral Thrombosis

Q.—*A woman aged 70 had about three weeks ago an attack of what must have been a slight cerebral thrombosis. She did not lose consciousness or muscular power in the limbs. Present symptom is aphemia and some diminution of visual acuity, due, presumably, to central causes, as no improvement in regard to small types can be obtained by increasing presbyopic correction. She has always been active and healthy. B.P. is 170. Urine normal. What is the prognosis in respect of the speech defect at her age? Is she at all likely to recover?*

A.—On the description one would agree with the diagnosis of cerebral thrombosis. At the age of 70 the prognosis in the speech defect is unfavourable and recovery unlikely, although ability to say solated words such as "yes" and "no" may return. On the other hand, further thromboses are likely to occur at a later date. The diminution in visual perception may be associated with a similar vascular lesion or reduced vascularity at or near the occipital pole—he centre for macular vision.

Action of Ethylene Diamine

Q.—*What is the action of the ethylene diamine in cardophylin? Has this preparation really any effect on the respiratory centre, and does it actually possess its reputed action in Cheyne-Stokes espiration?*

A.—Cardophylin, also known as aminophylline or euphyllin, is a ombination of theophylline with ethylene diamine. The action of the ethylene diamine is to enhance the effect of the theophylline. Van Heerswynghels[1] showed that, in anaesthetized dogs, the stimulation of respiration produced by an intravenous injection of the ompound was greater than the summation of the two drugs given simultaneously. A similar finding was described by Young and Gilbert[2] on the rabbit's bronchiole, when theophylline-ethylenediamine had a protective action against histamine, but no comparable effect was shown by either drug given alone. The compound s believed to exert a direct chemical stimulation on the respiratory entre, although some workers attribute its effect to an increase in erebral circulation. Marais and McMichael,[3] however, argue that, f it were a vascular effect, a vasodilatation of the cerebral vessels would cause diminished ventilation in normal subjects; this is not the ase. Theophylline with ethylene diamine restores normal respiratory rhythm in Cheyne-Stokes respiration in animals and in man. Ethylene diamine, in man, produces an intense hyperpnoea, while theophylline has only a temporary effect. Their combination causes more prolonged abolition of periodic breathing, sometimes for a umber of hours.

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1 *Arch. intern. Pharmacodyn. Therap.*, 1937, **56**, 283.
2 *J. Amer. med. Ass.*, 1940, **114**, 522.
3 *Lancet*, 1937, **2**, 437.

"Pyknolepsy"

Q.—*A girl now aged 6 years began to develop at the age of 3½ ears attacks diagnosed as "petit mal." Phemitone and phenoarbitone were of no avail. The child is well developed mentally and physically; there is no family history of epilepsy. What is the rognosis and what treatment is recommended? If the "fits" do ot markedly diminish in number on treatment with bromides or he barbiturates, am I justified in labelling the condition pyknolepsy nd giving a correspondingly favourable prognosis?*

A.—No, there is no justification in making a diagnosis of pyknolepsy if petit mal in a child does not respond to sedatives. There is no sound evidence at all that pyknolepsy and petit mal are different conditions, and I personally never make the diagnosis of pyknolepsy. In any case, the only distinction advanced to support the existence of two separate diseases is that pyknolepsy invariably has a favourable prognosis; consequently if petit-mal attacks cease they are in retrospect called pyknolepsy. The clinical pattern of the attacks and their electro-encephalographic changes are identical whatever the diagnosis. The case should, therefore, be treated as petit mal, and phenobarbitone, bromides, and even soluble phenytoin tried, alone and in increasing doses, in combination, and with other drugs such as belladonna, until an improvement is obtained.

INCOME TAX

Payments for Dispensing, etc.

"Inquirer" pays £75 a year to his wife for assistance in keeping the books and £52 a year to a part-time dispenser. What is his liability (if any) with regard to the "pay-as-you-earn" procedure?

⁂ An employer is not required to deduct tax from payments not exceeding £2 a week unless he has received a tax-deduction card for that employee from the income-tax office. If, however, he pays more than £1 a week to a *new* employee he should notify particulars of the payment to the inspector of taxes. The payment of £75 a year to his wife will not affect "Inquirer's" title to the full £140 "married" personal allowance.

Pension to Caretaker

F. W. inquires whether a pension paid to the former caretaker of his surgery of £1 per week is allowable as an expense of carrying on his practice.

⁂ Yes, such payments are allowable.

Liability as Assistant

H. D. is employed as an outdoor assistant at a salary of £650 plus free board and lodging. His professional expenses, including wear and tear of car, amount to £52, and he pays £16 per annum in life insurance premiums.

⁂ On these facts the amount of tax payable for the year is roughly £190, leaving a net monthly figure of, say, £38 payable by his principal. The reason for the sharp increase in tax over the previous year's figure is that the additional remuneration he is now receiving carries the full 10s. rate liability.

Casual Earnings of Married Woman

H. M. has, during the past two years, done a certain amount of work for local practitioners. Does she come within the "pay-as-you-earn" system?

⁂ In our opinion—no. H. M. should claim to have her earnings assessed under Schedule D, and we think that that claim will be admitted. As, however, she is entitled to the 1/10th deduction for earned income and the special allowance of £80 given in respect of a married woman's earnings, no actual liability to tax seems to have arisen so far. It may be advisable for H. M. to explain her circumstances to the local inspector of taxes, so that if the occasion arises she can refer a future employer to the inspector's office for confirmation that tax need not be deducted under "pay as you earn."

Depreciation of Car

R. S. inquires as to the basis on which depreciation should be calculated.

⁂ The basis is the "written down" cost of the car. For example, suppose that the car cost £300 in 1940 and a claim is to be made for the financial year 1943–4, the amount will be ascertained as follows:

Cost in 1940	£300
Allowance 1941-2	60
	£240
„ 1942-3	48
	£192
„ 1943-4	38

The allowances as shown above are increased by 1/5th; thus the actual allowance for 1943–4 will be £38+£8=£46.

S. C. bought a car in 1938 for £235, second-hand. Allowances have been made for income tax amounting in the aggregate to about £200, leaving the written-down cost at £35. S. C. is advised that the market value of the car is, say, £550. Is any adjustment of the basis of the allowance due in future?

⁂ No. The basic intention of the depreciation allowance is to give a deduction for the *cost* to the user, spread reasonably over the working life of the car or other "machinery"; it is expressly provided that the aggregate amount of the deductions shall not exceed the actual cost to the person who has had the benefit of the deductions.

LETTERS, NOTES, ETC.

Oxalated Blood for Cell Counts

Dr. MARTIN FOLAN (University College, Cork) writes: In "Any Questions?" of Dec. 2 (p. 744) you reply to an inquiry regarding the use of oxalated blood for cell counts. Admittedly, the use of an empirical amount of oxalate or citrate will lead to many inaccuracies, due to shrinkage of the cells. In the clinical laboratory here we serve a wide provincial field, and for blood counts issue tubes containing the balanced potassium and ammonium oxalate mixture of Wintrobe. (See Whitby and Britton's *Disorders of the Blood*, 1942.) These are designed for 5 c.cm. of blood, *accurately* added, and the whole well mixed by gentle inversion, as frothing results in uneven cell dispersions. Films are provided by the physician in charge of the case, as even this oxalate mixture does not give good cellular morphology in films prepared from it. In my experience this method has given results that agree closely with those prepared at the bedside, and provides a convenient solution to the necessary, though undesirable, practice of sending blood through the post for cell counts. If not more than 12 hours old the specimen may be used for fragility tests provided that the blood is well aerated, as no correction is required for shrinkage.

Rocking Movements in Sleep

Dr. SUSANNA M. HALLIDAY (Cornwall) writes: Rhythmic movements are stated to be normal in a child under 3 in the state between waking and sleeping. Does the writer know whether these movements were common thirty years ago, before it became fashionable systematically to neglect babies? Does he know of a single case occurring in a baby whose mother troubles to go to him when he cries or shows other signs of distress? Is the child who does not show these movements abnormal?

Translation, Please

Dr. MAURICE MCELLIGOTT writes: I should be grateful if any of your linguistic readers would solve the following conundrum. Fifty years ago in Ireland what we call "carbuncle" was quite commonly termed "anthrax" by educated laity. "He has an anthrax on the back of his neck" was a usual expression when speaking of a sufferer from carbuncle. To-day in France the equivalent of our word "anthrax" is *charbon*, and of our "carbuncle," *anthrax*. A recent German medical lexicographer translates *Lumpensammlerskrankheit; Milzbrand, Pestbeule* into the Spanish *carbón*, which seems correct enough. However, he gives for the Spanish *carbunco* the alternative of *Milzbrand* and *Karbunkel*. Hence I would ask a medical linguist better instructed than myself to enlighten me as to the correct Spanish, French, and German terms for the diseases due to *Bacillus anthracis* only.

Hyoscine for Sea-sickness

Capt. J. C. GILBERT, R.A.M.C., writes: Having acted as M.O. on small troopships for the past two years, and in the course of such duties having covered 35,000 miles in Northern waters, waters which, even in summer, are none too kind to the squeamish "tummy," I may perhaps be allowed to record my views on the use of hyoscine both prophylactically and for curative purposes. Hyoscine hyd. gr. 1/100 administered half an hour before sailing, followed by a second dose in four hours and thereafter every six hours, will in 80% of cases prevent sickness and enable meals to be taken. For voyages of over three days' duration the dose can gradually be reduced as the land-lubber gains his sea-legs. For an 8-hour night journey where sleep is permitted one nembutal or hyoscine hyd. gr. 1/100 and phenobarbitone gr. 1½ is ideal. I have seen no harmful effects from hyoscine. A few men have complained of slight dryness of the throat and of slight drowsiness (which complaint I have never heard from a man on duty). In cases where the patient is already sick and has had no treatment gr. 1/75 subcutaneously works wonders, and the dosage can be continued orally; but the really genuine severe cases of travel sickness respond best to hyoscine gr. 1/100 and morphine gr. 1/8 subcutaneously.

Rectal Examination during Labour

Dr. H. A. MURRAY (Exeter) writes: I was interested to read Dr. Bradlow's description of a case of locked twins (Oct. 21, p. 582), primarily because I have always thought rectal examination during labour to be an unsurgical procedure. Despite the lead given by the "mighty" I have never practised this method, and never will. Vaginal examination is much less unpleasant and embarrassing for the patient, and more certain diagnostically. Had Dr. Bradlow done a P.V. sooner he would have diagnosed the condition earlier and saved the patient much suffering. Surgeons always do "clean" cases first and septic ones last, but the obstetrician who examines rectally is deliberately making himself and the field of operation septic. It would be more surgical to plug the anus, and hope it would remain so until after delivery.

Regional Ileitis

Mr. JAMES MORONEY, F.R.C.S. (Liverpool) writes: In reply to a question on this subject in your issue of Dec. 9 (p. 778) you state "The ideal treatment is primary resection. . . ." The vast majority require no operative treatment at all. If obstruction is present the safer and simpler procedure of entero-anastomosis performed through healthy bowel wall is very satisfactory. While I agree tha resection may be necessary on occasion, I feel that it is far from "ideal treatment" for the majority.

Headache and "Acute Abdomen"

Dr. T. L. CRAWHALL (Watlington, Oxford) writes: Ever since you published a note on migraine being mistaken for appendicitis, have wanted to send in this aphorism, which I think is original "An 'acute abdomen' with a headache is never an acute abdomen!" I do so now because the headache in early pneumonia should distinguish it from an acute abdomen in spite of abdomina pain and rigidity.

Injuries to the Supra-orbital Nerve

Major H. J. STERN, R.A.M.C., writes: The following notes on injuries to the supra-orbital nerve may be of interest. Although the clinical picture has been observed before, not everybody seems to be aware of its existence, so that diagnosis and treatment are frequently delayed. Here is a short description of a typical case: A man had knocked the right side of his forehead against the door of a tank when leaving it. He did not take much notice of this, but after a few hours he started to complain of headaches which became so violent that he had to report sick. He was evacuated and admitted to hospital two days later, still suffering from very bad headaches. An *x*-ray of his skull failed to show any bony injury. The possibility of a concussion or a subdural haemorrhage was taken into consideration, but neither these nor other attempted diagnoses were satisfactory. As the patient began to complain of watering of his right eye he was referred to the eye specialist on the fourth day after the injury. He was still complaining of violent headaches on the right side, and there was clearly a hypersecretion of tears in his right eye. There was no disturbance of the eye movements or the pupillary reaction, and the fundi were normal A very slight but extremely tender swelling in the right eyebrow region was seen, just over the supra-orbital notch. The patient explained that the headaches were "outside" and that he had a peculiar "raw" feeling all over the right side of his scalp. This description and the tenderness over the supra-orbital nerve made the diagnosis of traumatic neuritis of this nerve clear. The cold compresses on his forehead which had made his discomfort, if anything, worse, were discontinued, and local application of heat and antineuralgic drugs served to clear up the condition rapidly. The supra-orbital nerve is a branch of the first division (ophthalmic nerve) of the 5th cranial nerve. Another branch is the lacrimal nerve, which supplies the lacrimal gland. This explains the frequen association of watering of the eyes with injuries to the supra-orbita nerve; it is caused by a reflex irritation of the fibres of the lacrimal nerve by the sensory fibres of the supra-orbital nerve. It is interesting to note that in one of the observed cases a symptomatic herpes zoster of the area of distribution of the supra-orbital nerve appeared on the sixth day after the injury. This eruption has to be regarded as due to a secondary involvement of the sensory nerve, not as a result of an infection with herpes virus.

Cracked Fingers

Dr. H. VICKERS (Uxbridge) writes: As a past sufferer from cracked fingers I have read with interest the suggestions put forward in the *Journal* during the last few weeks. I have tried, I think, all the remedies suggested, but there is one remedy which I now use and which keeps my hands in good condition. Incidentally I do a lo of gardening and hard work with my hands, and have tried the remedy with complete success during the past five years, even during the severe winter the first year of the war. After washing I rub my hands, nail edges, and the tips of my fingers regularly night and morning, and as often as possible during the day, with a mixture of equal parts of glycerin and lotio rubra; nothing else. A very small quantity is required, but it must be rubbed in carefully. I is much pleasanter than having to wait till a crack appears and then use plasters and other unsightly remedies. The fingers and quicks keep hard and dry and are easily kept under control. I can thoroughly recommend this as effective, and, further, if through any unforeseen cause a crack should appear, the application, if regularly applied to the crack, promotes a very speedy and not unsightl remedy.

Correction

In the annotation, "Arsenic in the Treatment of Malaria, published in the *Journal* of Jan. 6 (p. 19), the dose of mapharse (known in this country as mapharside) was by mistake given a 0.4 to 0.6 g. It should have been 0.04 to 0.06 g.

BRITISH MEDICAL JOURNAL

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AERIAL INFECTION*

BY

MAURICE MITMAN, M.D., M.R.C.P., D.P.H.

Medical Superintendent, L.C.C. River Hospitals, Joyce Green

For many years it was widely held that smallpox could be conveyed for a mile or more by aerial convection, and there are still some who hold this view. It is now believed that alleged instances of long-distance transmission do not bear critical examination: some fault in isolation technique allows the disease to be conveyed by undetected vectors. But aerial convection should not be dismissed too lightly, for phytopathology provides abundant evidence of long-distance dissemination of plant pathogens.

Extramural Aerobiology

The atmosphere contains vast numbers of living and dead particles derived from, and dependent upon the nature of, the soil, its flora and fauna. Many seeds and pollens are specially adapted for aerial transmission; smaller living particles such as fungi, spores, bacteria, and viruses need no such adaptation to remain suspended. The number remaining air-borne depends on such meteorological factors as the vertical and horizontal movements of the air, and upon precipitation, which in turn is governed by size, shape, and density of the particles. Viability depends on the nature of the particle, its ability to survive desiccation, extremes of temperature, and the lethal effect of radiation; in this connexion the protection provided by the non-living particle on which organisms are often carried is of some importance. This state of suspension of particles and their rate of settling are worth closer examination.

Because of the resistance of the air, particles do not fall with increasing velocity, but reach a constant velocity when a balance is struck between accelerating and resisting forces. Stokes's law expresses the constant velocity of descent of a small suspended sphere in terms of its radius and density, and the density and viscosity of the fluid medium through which it is falling. In perfectly still air the rate of fall of, say, a staphylococcus 1 micron in diameter (i.e., 1/1000 mm.) would be about 1 cm. in 5 minutes; and of a small-sized droplet of mucus 50 μ in diameter about 18 in. a minute. In the presence of a steady wind with a velocity of 10 miles an hour the staphylococcus would be carried for a distance of over 900 miles before reaching the earth from a height of 10 metres; the 50 μ droplet would be carried for a third of a mile. If there were a rising current of air with a velocity in excess of the fall the particles would be carried up—the smallest to great heights. The air for a mile up contains vast numbers of bacteria and spores; above two miles the number decreases rapidly, but Armstrong (1936) found them in the stratosphere 70,000 ft. up. Over large masses of water the number of terrigenous organisms decreases rapidly, but specimens have been collected 130 miles out to sea; on the other hand, viable marine organisms have been collected 50 miles inland. Organisms are present in rain and have been found in falling snow in Antarctica—far from their place of origin. There is an aerial cleansing action in precipitation which is worth remembering. Climatic factors, then, govern the transport of aerial organisms; indeed, meteorological investigations are of the utmost importance in the epidemiology of some plant diseases. Wind plays a great part: the spores of wheat-stem rust, a destructive fungous disease, have been carried in large numbers for such enormous distances as 1,000 miles in such a short time as 48 hours, to give rise to outbreaks of rust a week or 10 days later (Stakman, 1942). Jacob (1940) maintained that the horizontal distance over which micro-organisms can be transported is almost limitless, although their effective range is determined by their ability to survive. Terrigenous organisms of the air are remarkably resistant. They survive exposure to direct sunlight, heat, and dryness for days or weeks, although, paradoxically, they die rapidly on exposure to sunlight after isolation in the laboratory. The effect of humidity on survival is disputed: Wells (1936) found ultra-violet radiation to be 10 to 20 times more germicidal in dry air than in humid air, but Renschler (1940) decided that relative humidity does not increase the resistance of air-borne bacteria. There is, then, no reason why human pathogens should not be carried over considerable distances; but as they have never been recovered from the upper air or marine air, the inference is that they do not long survive exposure. Compare the absence of pathogenic bacteria over the sea with pollen grains, which may be found hundreds of miles from land in numbers in inverse ratio to the distance from the source.

Intramural Infections

This brings me to the first important point I want to stress, which is that, in my opinion, most human respiratory infections take place indoors. Such diseases are still the greatest cause of morbidity and mortality, and if we can be sure that they are always intramural events we can direct our energies for their control along narrower channels.

That pestilential air was a vehicle of contagion and infection was believed hundreds of years before the germ theory of disease was propounded. Perhaps the most surprising period was the first 35 or 40 years of this century, during which time the theory of air-borne diseases was practically abandoned. It started with Flügge's (1897, 1899) description of infectious droplets. They explained so many problems of contact infection that they came to be accepted as the mode of transmission of most respiratory infections. Since droplets rapidly fall to the ground within a few feet of their source it was assumed that the infector and the infectee had always to be in close proximity. Certainly for most of my professional life fever practice was based on the hypothesis that practically all cross-infections were attributable to hands or droplets, although the behaviour of chickenpox seemed to contradict this from time to time; smallpox, of course, was in a class by itself. Not until Wells and Wells's (1936) exposition of droplet nuclei did "aerial infection" reappear.

Now that the term is reintroduced we must be clear what we mean by it. Long-distance aerial transmission is of course excluded, but there has been a tendency to exclude droplet infection also, limiting the term "air-borne infections" to those occurring more than 4 ft. from the source (Cruickshank, 1940). Our terminology of the modes of infection is confused and requires clarification. The average examinee states that direct contact is the commonest mode of spread of infectious diseases, but has a very hazy conception of what the term means; when pressed it usually transpires that close proximity to the patient in time and space is meant, not contact in the sense of touching. I should like "contact" restricted to "touching," but I doubt if it could be displaced from its use as a noun to indicate a person exposed to infection. "Aerial infection" should embrace all those modes of transmission in which the path of the infective agent lies through the air—those which pass through a circle in Fig. 1. Droplets, their nuclei, dust, and direct discharges may pollute the air. In the case of droplets the infection is transmitted immediately to the infectee; with the others there is not necessarily this proximity in time and space. "Direct infection" or, if you prefer to retain the term, "direct contact" could then be used for transmissions which occur when infector and infectee touch, as in kissing, copulation, contact with discharges or the infected hands of an attendant. "Indirect infection" by mediate means implies the contamination of inanimate objects such as fomites and food (those in rectangles in the diagram) and their conveyance, sometimes at a much later date, to the infectee, who may be a considerable distance away.

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* Presidential address given to the Fever Group, Society of Medical Officers of Health, on Nov. 24, 1944.

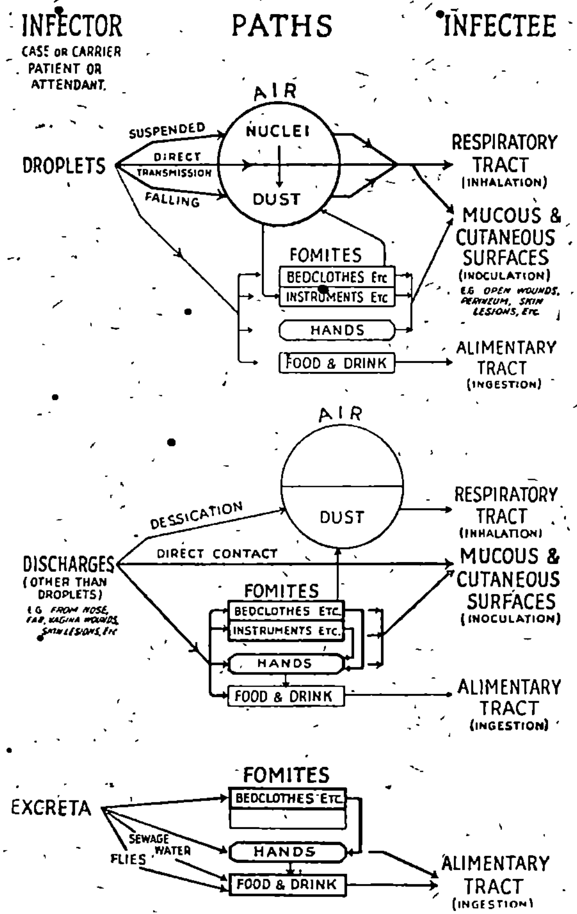
INFECTOR
CASE OR CARRIER
PATIENT OR ATTENDANT
PATHS
INFECTEE
AIR
SUSPENDED
NUCLEI
DIRECT TRANSMISSION
FALLING
DUST
DROPLETS
RESPIRATORY TRACT (INHALATION)
MUCOUS & CUTANEOUS SURFACES (INOCULATION)
E.G. OPEN WOUNDS, PERINEUM, SKIN LESIONS, ETC.
FOMITES
BEDCLOTHES ETC
INSTRUMENTS ETC
HANDS
FOOD & DRINK
ALIMENTARY TRACT (INGESTION)
AIR
DESSICATION
DUST
DIRECT CONTACT
DISCHARGES (OTHER THAN DROPLETS)
E.G. FROM NOSE, EAR, VAGINA, WOUNDS, SKIN LESIONS, ETC
RESPIRATORY TRACT (INHALATION)
MUCOUS & CUTANEOUS SURFACES (INOCULATION)
FOMITES
BEDCLOTHES ETC.
INSTRUMENTS ETC.
HANDS
FOOD & DRINK
ALIMENTARY TRACT (INGESTION)
FOMITES
BEDCLOTHES ETC
EXCRETA
SEWAGE
WATER
FLIES
HANDS
FOOD & DRINK
ALIMENTARY TRACT (INGESTION)

Fig. 1.—Paths of infection. (From Harries and Mitman's *Clinical Practice in Infectious Diseases*, 1944.)

Droplets Expelled by Sneezing

To me, one of the most surprising disclosures was the extent to which sneezing adds to the bacterial load of a room. Compared with the gentle bacterial showers which coughing, talking, and laughing bring, sneezing contributes veritable intramural storms. Another unexpected revelation was the origin of the droplets expelled during sneezing: photography makes it clear that they are almost all derived from the mouth, and few or none from the nose. After a sudden inspiration, often with extension of the head, the forcible expiration begins with a quick flexion of the head, a narrowing of the mouth, and the expiration of air at high speed over the secretions of the mouth and pharynx, which are atomized and forced out through the narrowed orifice at a maximum jet velocity of 46 metres or 152 ft. per sec. The duration of the sneeze is about 1/10 of a second. The atomization is more efficient—i.e., the droplets become smaller—as the velocity of the air-stream increases and the size of the orifice decreases; among other factors influencing size of droplets are surface tension, viscosity, particulate inclusions, and evaporation. Droplets vary from 7 μ to 1,000 μ or more, but commonly two-thirds of them are smaller than 100 μ (i.e., 1/10 mm.). This is an important figure, because Wells (1934) considers 100 μ to 200 μ as the dividing-line between droplets likely to fall and those likely to remain suspended.

Bourdillon and Lidwell (1941) estimated the number expelled by a vigorous sneeze at 100,000, but Jennison (1942) gives an average figure of 20,000, with a low limit of 4,600 for a weak, stifled sneeze. These figures are enormously higher than those for coughing and talking. In coughing, the droplets are produced chiefly in the pharynx, and only a few dozen or a few hundred escape because the mouth is kept open. Flügge (1921) also distinguished bronchial droplets expelled during coughing from oral ones. In talking, the number of droplets expelled depends on the consonant enunciated: explosives such as "p" and "t" cause a few hundred, and vowels practically none. Theoretically, a particle 1,000 μ (or 1 mm.) in diameter, ejected from the mouth with a velocity of 152 ft. per sec., will reach the floor 15 ft. away; the smaller the particle the less its kinetic energy and the shorter the distance it will go. Using the technique of flash photography, Jennison (1941) showed that few of the particles from a sneeze fell more than 2 or 3 ft. away. Many remained air-borne. The smaller the droplet the more easily was it suspended. In this connexion it is of great importance to appreciate that droplets become much smaller after expulsion. Within a quarter of a second a droplet of water 150 μ in diameter is completely evaporated in still air (Jennison, 1942). As most sneezed droplets are smaller than this it follows that within a fraction of a second most of them have evaporated to sizes which permit them to remain suspended as droplet nuclei.

I have not been able to find a definite statement as to the size of a droplet nucleus, but I would infer it to be less than 5 μ, each particle consisting of individual bacteria or minute masses of organisms or viruses on a small quantity of the vehicle. Bacteria in the air act as condensation nuclei, and the vehicle is usually a film of water, the thickness of which depends on the humidity of the air (ZoBell, 1942). Wright (1940) says the whole nucleus is very little larger than the included bacteria or other particles. To support a droplet 10 μ in diameter an air current with an upward velocity of less than 1 ft. per minute is required. As the average movement in a naturally ventilated room is about 25 ft. per minute adequate lifting force is available for most small droplets, which are readily dispersed throughout the room by convection currents. The deposition of suspended particles on to the floor takes place not at a constant rate but at a geometrically decreasing one: about 16% of air-borne bacteria are still suspended 8 hours after their introduction (Phelps, 1942).

Another point of great interest is the site in the respiratory tract on which inhaled particles are deposited. Hatch (1942) maintains that infection cannot gain entrance to the deepest part of the tract unless the particles carrying the organism are below a certain minimum size. The larger ones are caught in the nose and upper respiratory tract and are removed by ciliary action; a number of the smaller ones manage to reach the alveoli of the lungs. While droplets can infect the upper respiratory tract, only droplet nuclei, he maintains, can cause pulmonary infection. Dust clouds raised by sweeping have a rapid settling rate, and probably few such particles reach the alveoli. By contrast, the average diameter of dust particles normally suspended (as distinct from those raised) is smaller than a bacterium, and Hatch (1942) thinks the idea of bacteria being attached to such particles is erroneous. It is also important to maintain a proper perspective of the degree of contamination of droplets and dust. Although the total number of organisms of all types is comparable with the number of droplets, specific pathogens are relatively few. As for dust particles, their number is enormously in excess of the number of bacteria. Yaglou and Wilson (1942) counted 1,000,000 dust particles per cu. ft. of air as compared with two bacteria

Counts in the open have shown one micro-organism per 100 or more dust particles.

Interchange of Respiratory Flora

In contrast to extramural purity there is abundant evidence of pollution of intramural air by the nasopharyngeal organisms of human occupants (*vide* Harries and Mitman, 1944). The greater the number of occupants the higher the bacterial counts. It has long been recognized that overcrowding promotes infection, but it is not so well known that a fourfold increase in ventilation will reduce the count of an overcrowded room by only 21%, whereas if the occupants are few in number the same air exchange will reduce the count by 65% (Yaglou and Wilson, 1942).

I have for long regarded overcrowded public transport vehicles as the most fruitful venue for the interchange of respiratory flora. The Government's slogan should have been "Is your *dangerous* journey really necessary?" for the flying droplet is much more lethal than the flying bomb. In a recent Scottish White Paper on the distribution of new houses it was stated that failure to link housing with industry had been the most serious error in general housing distribution policy in the inter-war years. I agree, and when houses of the future are sited near places of work there will be eliminated those expensive, exhausting, time-consuming, and health-destroying journeys which take place in overcrowded transport vehicles. A cinema I regard as much safer; overcrowding is forbidden, not for hygienic reasons but because of fire risk—a rare contingency, but one for which expensive allowance is made, since a single conflagration is so much more apparent than a thousand inflammations. I propose to say little on the other factors which add to the bacterial load of a room. The general cleanliness of a room, the degree and nature of the occupants' activities, and the amount of respiratory infection interest us particularly, for they are responsible for the heavy bacterial load of hospital air.

I would like to say a few words about controlling the rate of additions of organisms to a room. The public have responded well to the Ministry of Health's propaganda for respiratory hygiene. The use of the pocket-handkerchief during coughing and sneezing is more widespread than it has ever been. It is impossible to measure the effect of this one change when so many others are taking place simultaneously, but I believe it has materially influenced the incidence of respiratory disease. I might add that I am not particularly fond of the washable pocket-handkerchief, but I do not see a satisfactory substitute yet. Nor do I like the hospital blanket, and I look forward to the day when blankets are no longer made. Despite the reports of the success of oiling bedclothes and floors, I am not greatly impressed by those results with which I am personally familiar, and the method is not free from drawbacks, because some oils used are dermatitic. So long as this possibility remains I am sure the method will not be widely used. Covers for blankets are a compromise of which I have no experience. I was glad, however, to read an account by Chapple (1942) of an infants' ward with a special air-conditioned annexe for premature infants. In the incubator the infant was allowed to lie naked and uncovered: not only had the blankets gone, but so had all the other bedclothes and the bed linen too. This is an advance. I have always wanted to try it on sick people, but it requires an elaborate air-conditioning system and makes nursing uncomfortable.

Air-conditioning does not ensure the degree of disinfection of the atmosphere which might be expected. Increase in the number of air changes will not necessarily reduce the bacterial count; if air is re-circulated, as it often is to conserve heat, it may even increase it. Both washing and filtration of incoming air will substantially reduce the bacterial count of an empty room, but *not*, be it noted, of an occupied one; and the more occupants the greater the pollution. If the spray water used for washing the air is re-circulated the bacterial load may actually increase; for this reason disinfectants are occasionally used for washing. Ultra-violet radiation in the mixing chambers or in the ducts of air-conditioning plants has also been used, but it has drawbacks, such as absorption of the radiation by the walls and interference with the efficiency of the lamps by dust.

Masks I cannot dwell upon: the subject is too big and was discussed recently by Bourdillon. I favour the more extensive use of masks, but am satisfied that an efficient and comfortable one has not yet been devised.

Germicidal Radiation

The oldest method of eliminating intramural infection of the air is by ordinary ventilation. Wells (1936) laid down standards of what he calls sanitary ventilation and maintains that good ventilation cannot be obtained by ordinary methods because the number of turnovers required (100–500 per hour, according to him) is impossible by ordinary or mechanical means. He therefore introduced irradiation of the upper air with ultra-violet light with the object of destroying as many bacteria as would be removed by good sanitary ventilation. McKhann *et al.* (1938) first tried U.V.R. across a corridor as a barrier to infection between two contiguous rooms. Since then a considerable literature has appeared. The method has been much more extensively used in America than here, where Andrewes (1940) reported adversely upon it because of its ineffectiveness in the presence of dust. Nevertheless, experimental and clinical reports are impressive. Wells (1943) reported a marked fall in the incidence of measles and chickenpox over periods of 3 to 6 years in three schools with irradiated classrooms. In infants' homes Barenberg *et al.* (1942) and Rosenstern (1942) obtained considerable reductions in respiratory cross-infections, as did del Mundo and McKhann (1941) in an infants' hospital. Hart (1942) investigated the importance of air-borne pathogenic bacteria in the operating theatre. The most rigid, aseptic surgical technique failed to prevent contamination of some of the clean wounds. With ultra-violet irradiation he was able to secure a considerable reduction in the percentage of such infections and no deaths from wound sepsis over a period of 5½ years. He considered it the simplest and most effective method of eliminating such infections and one which could be used without evident danger to the patient or the properly protected personnel.

There is, of course, no essential difference in the management of aerial infection in operating theatres, surgical wards, or fever hospitals. The practice has appeared in this war of applying fever principles to surgical wards. It was long known from experience that it was undesirable to nurse clean and dirty surgery in the same ward. Now it is known that not only hands but air must be considered. In a busy surgical ward it is almost impossible to suspend all other activities while dressings are being changed, and in my own hospital I have been considering using a separation ward solely for dressings with the object of minimizing aerial infection. I have little doubt that a good deal of the success of the coagulation and Bunyan-bag methods of the treatment of burns and the closed-plaster treatment of wounds is due to exclusion of aerial infection.

Let me return to germicidal radiation and remind you of the position of ultra-violet rays in the electromagnetic spectrum.

Starting with the longest wave-lengths there are first wireless waves whose length is expressed in metres or centimetres; then infra-red rays and visible light measured in microns or thousandths of a millimetre; these are followed by ultra-violet, x- and γ-rays whose wave-lengths are expressed in ten-millionths of a millimetre—i.e., in Angström units (A.U.). The U.V. light band includes wave-lengths from 4,800 A.U. to 2,000 A.U., and the longer waves have different properties from the shorter ones—e.g., maximum pigmentation is produced at 3,850 A.U., whereas maximum germicidal action is obtained at 2,650 A.U. To obtain radiation of these different wave-lengths, different U.V. lamps are required. For germicidal effect a low-voltage, low-vapour-pressure, "cold" mercury-vapour-arc lamp is required, not the type used for ultra-violet therapy. Its main emission band is at 2,537 A.U., which is close enough to the required 2,650 A.U. to be 70% efficient (see Fig. 2). These lamps are simple, slender tubes, resembling the corresponding lighting tubes, and are as easy to change. To give an example of the rating: a common germicidal lamp has a power of 15 watts, an effective length of the burner of 15 in., an overall length in the holder of 18 in., and a tube diameter of 1 in.; the approximate lamp amperage is 0.3 and voltage 56. The temperature of the special glass for transmitting the radiation does not exceed 120° F. Such a tube gives a radiant flux of 25 $\mu W/cm^2$ at 1 metre and its average life is about 2,500 hours. Irradiation of the upper half of a 4,000 cu. ft. room by one of these lamps is equivalent to 45 air changes per hour in terms of Wells's sanitary ventilation. These lamps, like all-U.V. lamps, deteriorate, and the end of the life of the tube is regarded as having occurred when the output has fallen to 66%. The limitations of U.V.R. must be accepted. U.V. lamps have practically no penetrating power, so that their efficiency is materially lowered in a dusty room. The Council of Physical Therapy of the American Medical Association has accepted such lamps for disinfecting air only in hospitals, nurseries, and operating rooms as an adjunct to other methods of asepsis; for the safety of occupants they have accepted an intensity of 20 μW/cm^2 at 1 metre from the lamp as standard.

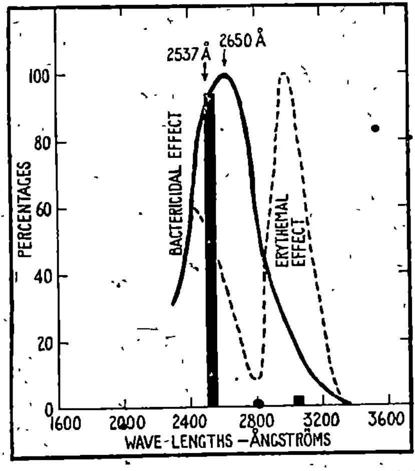

FIG. 2.—Main emission band from a germicidal lamp (2,537 A.U.), shown with the graphs of bactericidal and erythemal effects of ultra-violet radiation. (After Buttolph, 1942.)

U.V.R. for aerial disinfection can be used in three ways. By being directed upwards it produces an irradiated ceiling; natural convection currents carry the organisms upwards, where the air is disinfected by the radiation. The radiation may also be directed downwards to form "curtains" around beds and "barriers" across corridors. Lamps which combine the functions of irradiating the ceiling and producing a barrier are known as direct-indirect types in contrast to the simple indirect type directed upwards. Lamps may also be introduced into air-conditioning plant in the way I have already described.

Dynamics of Crowd Infections

Wells *et al.* (1942) attribute their success in preventing school epidemics to an improvement in the sanitary ventilation, bringing it above a critical level and thereby raising the threshold density of susceptibles. This last term was introduced by McKendrick (1940) into his interesting theory of the dynamics of crowd infections. According to him two factors govern epidemic spread—an actual density of susceptibles and a threshold density (see Fig. 3). When the number of susceptibles is above the threshold an epidemic occurs. As the number of cases rises, the density of susceptibles falls. When it equals the threshold value the epidemic is at its peak. Thereafter, the density of susceptibles having fallen below the threshold, the conditions for epidemic spread no longer obtain and the outbreak exhausts itself when the density is as much below the threshold as it was originally above it. Thus the number of people affected in any outbreak is double the difference between the two densities. It will be clear that an epidemic can exhaust itself long before all the susceptibles are affected, and this agrees with experience. Anything which lowers the density of susceptibles or raises the threshold will either prevent an epidemic or limit its extent. Wells, by improving the sanitary ventilation with U.V.R., diminished the infectivity of the disease and thereby raised its threshold. This conception opens up wide possibilities. If respiratory diseases are indeed intramural events we must, when we rebuild our hospitals after the war, ensure that our architects and engineers incorporate those features which will allow full use to be made of our new knowledge of aerial infection and its control.

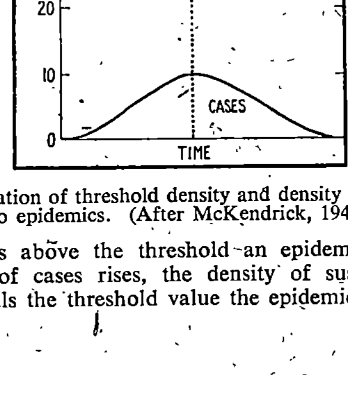

FIG. 3.—Relation of threshold density and density of susceptibles to epidemics. (After McKendrick, 1940.)

Summary

On physical grounds there is no reason why human pathogens should not be carried over great distances and up to considerable heights; but as they have never been recovered from upper air or marine air the inferences are that they do not long survive exposure and that most human respiratory infections take place indoors.

The theory of air-borne infection was practically abandoned for 40 years until Wells described droplet nuclei.

The term "aerial infection" includes all modes of transmission in which the path of the infective agent lies through the air.

Coughing, talking, or laughing contributes gentle bacterial showers to the air, but sneezing causes veritable intramural storms. Of the tens of thousands of droplets expelled from the mouth during a sneeze, about two-thirds remain air-borne. Only droplet nuclei and the finest dust particles are small enough to penetrate to the lungs.

Contamination of air in overcrowded rooms cannot be effectively countered. Overcrowded public transport vehicles are the worst places for the interchange of nasopharyngeal flora; when housing is more closely linked with industry many such journeys will be unnecessary. The Ministry of Health's campaign for respiratory hygiene has already influenced the amount of respiratory disease.

Hospital blankets are an abomination and the results of oiling bedclothes and floors are not impressive.

Air-conditioning does not ensure the degree of disinfection of the atmosphere which might be expected. The use of masks should be extended, but a comfortable and efficient mask has not yet been devised. Trials with germicidal ultra-violet radiation for air purification in children's homes, nurseries, hospital wards, and operating theatres are impressive. The chief limitations of this radiation are its poor penetrating power and its ineffectiveness in the presence of dust.

The new knowledge of the control of aerial infection should be incorporated in post-war rebuilding of hospitals.

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THE NATURE OF INJECTABLE LIVER EXTRACTS

A DISCUSSION ON STANDARDS OF POTENCY AND PURIFICATION

BY
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Since Minot discovered the specific effect of liver in the treatment of pernicious anaemia, and various workers subsequently prepared concentrates suitable for injection, the preparation of such concentrates on a commercial scale has been undertaken in many laboratories. Widely differing methods have been used to make these concentrates or "extracts," with the result that apparently similar products differ from one another to a remarkable degree. The terms used by manufacturers to describe these products also lack uniformity. The fundamental cause of these differences is doubtless the lack of any precise measure of anti-anaemic activity. Although many attempts have been made to devise laboratory tests, these have met with no success, and clinical trials on patients with pernicious anaemia in relapse afford at present the only practicable method of assessing activity.

It is fairly common to refer to a liver extract as being either "crude" or "refined." By the term "crude" we understand an extract that has undergone the smallest amount of processing necessary to render it safe for injection. It will therefore normally contain a comparatively large amount of material other than the active principle, and each millilitre will be derived from a comparatively small weight of original liver (2.5–10 g.).

By the term "refined" we understand an extract that has been derived from a "crude" extract through several additional stages of manufacture, which remove a large proportion of the inert material and very often a part of the active principle also. It will normally contain only a small amount of inert material, and each millilitre will be derived from a much larger weight of original liver (50–200 g.). These descriptions may be useful, but they do not express adequately the differences between extracts, and may even lead to the erroneous belief that all the extracts of any one class are similar to each other.

For several years we have devoted attention to the development of two commercial liver extracts. One would be classed as a "refined" and the other as a "crude" extract. Our investigations have also included laboratory preparation of several highly refined fractions. This work has been carried out in collaboration with a number of pathologists, to whom we are indebted for the necessary clinical tests.

Certain aspects of our work may, we hope, help to clarify some of the obscurity surrounding the nature of liver extracts available to clinicians. To assist the discussion of this work we make use of an arbitrarily defined unit of activity, based on the type of clinical test most frequently used in this country.

Present Methods of Expressing Potencies of Injectable Extracts

There is as yet no standard method of expressing the potency of an extract, and statements made by manufacturers usually fall into one or other of the following three main groups: (*a*) A stated volume of the extract is derived from a stated weight of liver. (*b*) A stated volume of the extract given by injection is therapeutically equivalent to a stated weight of liver taken orally. (*c*) A stated volume of the extract produces adequate haemopoietic response.

Claims for the potencies of liver extracts in terms of the amount of liver used to prepare them (group *a*) may be very misleading, because varying losses of active principle may occur during the purification process. Thus a highly "refined" extract may contain less activity than a relatively "crude" preparation derived from the same weight of original liver. Our experience of process losses given below illustrates this.

Comparison of extracts by relating their potency to stated weights of liver taken orally (group *b*) was a useful device when injectable extracts were first coming into use. Then, most doctors' experience in treating pernicious anaemia was in terms of liver diets, and to express such a relation may have seemed important. Now that injection is the customary form of treatment this type of statement has little value, and is, moreover, misleading—first, because process losses may vary from extract to extract, and, secondly, because the relative efficacies of oral and injectable extracts are not known with any accuracy. Thus, for example, Martindale (1941) quotes a statement that liver given by injection is 20 to 40 times as effective as when given orally, while Minot and Strauss (1943) consider that the probable ratio is nearly 60 to 1.

The statement that a specific volume of an extract is capable of producing an adequate response (group *c*) clearly provides a more direct basis for the comparison of different extracts. The meaning of a statement of this nature, however, depends on what is meant by an adequate response, and the criteria adopted are not always clearly defined. Even when this has been done, comparison of different extracts may be difficult because the manufacturer may have deliberately understated the potency of his extract in order to make allowance for small batch-to-batch variations in potency.

Criteria of Satisfactory Response

All the clinical tests carried out in conjunction with our investigations have been on cases of classical pernicious anaemia not treated recently with other liver extracts or with hogs'-stomach preparations. These cases had initial red cell counts of not more than 2½ millions per c.mm. As criteria of a satisfactory response it has been required, first, that the red cells should increase over the first two weeks of treatment at least as rapidly as required by the formulae of Isaacs *et al.* (1938), Riddle (1940), and Dyke and Della Vida (1942); and, secondly, that a reticulocyte response satisfying the criteria of Minot *et al.* (1928) should be obtained.

Very occasionally we have encountered cases in which the red cells have risen satisfactorily but the reticulocyte response has not quite satisfied the criteria of Minot *et al.* (1928). In these cases the absence of a second reticulocyte response after a further injection has been taken to indicate a satisfactory initial response. Use of the term "satisfactory response" in this paper means that these conditions have been fulfilled. Thus, the criteria of Dyke and Della Vida (1942) require the following increase in red cells over the first two weeks of treatment:

Initial Red Cell Count	Increase in Red Cells
1·0 mill. per c.mm.	1·45 mill.—i.e., to 2·45 mill. per c.mm.
1·5 „ „	1·22 „ „ 2·72 „ „
2·0 „ „	1·00 „ „ 3·00 „ „

Preparation and Comparison of "Crude" and "Refined" Extracts

The material used in the preparation of both "crude" and "refined" commercial extracts discussed here is raw finely minced liver which has not been subjected to proteolytic enzyme digestion before extraction. Only the minimum of fractionation procedures necessary to make the product suitable for injection have been employed in the preparation of the "crude" extract, which has consistently given a satisfactory response on a total dose derived from 60 g. of original liver. Responses which just fail to satisfy the defined criteria have been obtained with a dose derived from 40 g. of original liver.

The original "refined" extract was prepared according to the method of Laland and Klem (1936), involving adsorption of the active principle on charcoal and its removal from the adsorbate by means of phenol; it appeared to be a product in which the concentration of solids was reasonably consistent from batch to batch. It was relatively highly purified, the extract from 100 g. of liver containing only 10 to 15 mg. of solids. The extract normally produced a satisfactory response when 4 ml., derived from 200 g. of original liver, was given in a single injection—that is, a satisfactory response was obtained by a solution containing approximately 25 mg. of solids. However, some batches did not give such a good response on this dosage, while others gave a good response with a smaller dose. The reasons for these variations in activity were traced by an extended investigation of the whole process, and they were virtually eliminated by more precise control at all stages of the fractionation. This led to the production of batches which consistently gave satisfactory responses to a total dose of 4 c.cm., though we also had evidence that a lower dose would suffice in some cases.

The difference between the efficacy of "crude" and "refined" extracts when expressed in terms of original liver will be noted. Whereas "crude" extract derived from 60 g. of liver produced a satisfactory response, "refined" extract from nearly 200 g. of liver was required.

Any or all of three possible causes for the discrepancy might be operative. First, activity might be lost in side-fractions arising during the refining processes; secondly, activity might be destroyed in the later stages of fractionation; thirdly, the haemopoietic activity of liver extracts might be dependent on the simultaneous presence of more than one substance—as postulated, for example, by Jacobson and Subbarow (1941)—and some of these other factors might be removed in the later stages of fractionation. However, investigation showed that appreciable losses of activity were in fact occurring at two stages of the process, and further research indicated a method of avoiding these losses by modifying the conditions of adsorption and elution used in the original Laland and Klem process (1936).

The product of this modified process gave a satisfactory response on a dose derived from 80 g. of liver (all of three cases tested), and the response to lower doses is now being examined. To date, one case has given a satisfactory response on a dose derived from only 60 g. of liver.

It can thus be seen that there is now no discrepancy between the response to "refined" and that to "crude" extract. Moreover, in the modified "refined" extract only 30 to 35 mg. of solids are obtained from each 100 g. of original liver, so that again approximately 25 mg. of solids will give a satisfactory response. Hence the amount of active material extracted from a given weight of liver has been markedly increased without reducing the activity per milligramme of the final extract.

Purification of Liver Extracts

We have recently prepared, by a modification of the Laland and Klem process (1936) involving selective aqueous alcoholic elution of the charcoal adsorbate, a fraction (L.E. 90B) which has produced in two cases of pernicious anaemia satisfactory responses with a total dose of only 5.5 mg. of solids; this dosage was arbitrarily given in 2 ml. of solution. The graphs showing the responses obtained in the two cases are reproduced in Figs. 1 and 2. The tests were carried out by Dr. S. C. Dyke, of the Royal Hospital, Wolverhampton, to whom we are indebted for permission to reproduce the charts. The fraction has since been further purified by means of ammonium sulphate precipitation to give material of which 2.8 mg. produced a response just failing to satisfy the criteria.

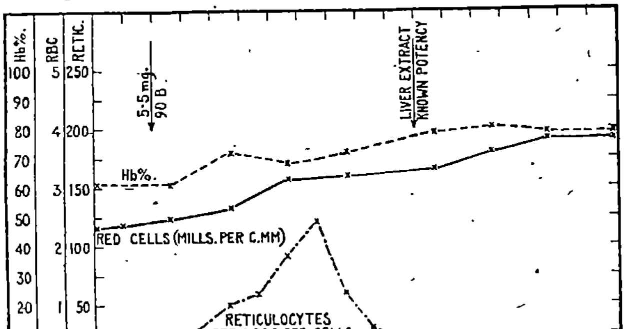

FIG. 1

These fractions compare favourably with the purified fraction described by Karrer (1941), which he reported as possessing "maximal" activity in a single dose containing 15 mg. of solids and "very good" activity in a dose containing 7.5 mg. of solids.

Relation of Volume to Dosage

Some recent medical textbooks (Witts, 1941; Beaumont and Dodds, 1943) indicate, and apparently many clinicians in this country recommend, that any liver extract, no matter of what type, should be given in a certain dose volume (e.g., 2 ml. or 4 ml. twice a week) in order to produce a satisfactory remission of pernicious anaemia and its allied conditions. Dyke and Della Vida (1942) have adopted it as an arbitrary criterion that any liver extract producing a good response with a total dosage of less than 10 ml. over the first fortnight should be regarded as sufficiently potent for therapeutic use. However, it must be quite clear that with a product like the original "refined" extract described above, for example, the solids content (25 mg.) of 4 ml. of solution could quite easily be concentrated into 1 ml., or even 0.5 ml., or, on the other hand, be diluted to 10 ml. It was decided to make the improved "refined" extract recently developed of such a strength that 1 ml. was derived from 100 g. of liver. At this concentration 0.6 to 0.8 ml. can produce a satisfactory response, as indicated above, but the use of 1 ml. provides a margin of safety that adequately covers any small batch-to-batch variations of potency and any losses on storage. This could obviously have been 0.5 ml., 2 ml., or any other volume convenient for injection.

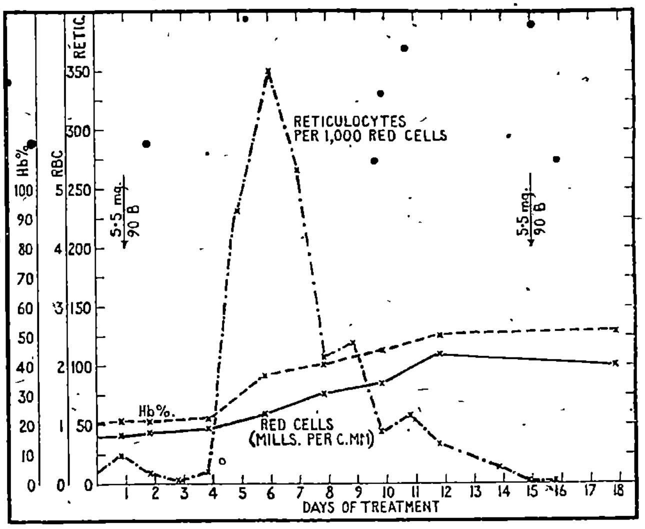

FIG. 2

So far as we have been able to ascertain, no better initial response is likely to be obtained in a normal uncomplicated case of pernicious anaemia by giving larger doses than those necessary to produce a satisfactory response as defined above. In cases complicated by subacute combined degeneration of the spinal cord or nutritional deficiencies larger doses may, however, be required: this can usually be ascertained by careful control of the blood count throughout the period of treatment.

Unit of Activity

We have shown above that different liver extracts should not be compared either in terms of dosage by volume or in terms of the liver from which they are derived, but that the soundest basis of comparison is in terms of their therapeutic activity. Anti-anaemic activity, however, can only be measured by tests on human patients with uncomplicated pernicious anaemia, and the errors involved in such a method of assay are large. Nevertheless, such clinical tests have been adopted as an assay method, albeit a rough one, in America and Canada, and units have been defined in terms of which the activity of all liver extracts must be expressed before they are marketed.

The American (*U.S.P.*) unit depends on the response given by small daily injections of the extract over a period of 15 days. This response is normally assessed on not fewer than three patients by the U.S.P. Advisory Board, who then assign a unitage to the extract. Thus, if a daily injection of 1/15 ml. produces a response considered satisfactory, the extract is given a rating of 15 units per ml. (*J. Amer. pharm. Ass.*, 1940).

The Canadian unit, only recently adopted, depends on the response produced over the first four weeks of treatment by weekly injections. The unit is defined as one-seventh of the weekly dose of extract required to produce a satisfactory response. Thus, if weekly injections of 0.5 ml. will produce a satisfactory response, the extract is given a rating of 14 units per ml.

For the purpose of expressing relative potencies of extracts in this paper we define an arbitrary unit based on the method of testing more generally used in this country. This unit depends on the production of a satisfactory response over 2 weeks following one or more initial injections given within the first 2 days of treatment. Like the Canadian unit, it is expressed as the number of days of treatment (14) divided by the number of millilitres of extract given. Thus, if a single injection of 1 ml. of an extract produces a satisfactory response over the whole of the first two weeks it is said to contain at least 14 units per ml. If another extract has been shown to produce a satisfactory response on injection of (say) 2 ml. on day 1, followed by a further 2 ml. on day 2, it is said to contain at least 14 divided by 4=3½ units per ml. If it can be assumed that a number of small daily injections are utilized as efficiently as the same total dosage given in one or two larger injections at the beginning of treatment, the arbitrary unit defined above is approximately equivalent to the *U.S.P.* unit.

If it can be found possible to give official recognition to some unit similar to that which we have defined we believe it will be of considerable help both to the clinician and to the manufacturer.

Purification Index

Having expressed the potencies of different extracts in terms of a common unit, the relative degrees of purification can be readily examined by determining their content of solids. A convenient "purification index" (P.I.) is obtained by dividing the number of units of activity in each millilitre of the extract by the solids content, expressed as fractions of 1 g. per ml. Such a method of expressing degrees of purification in terms of arbitrarily defined units per unit weight of solids has long been adopted with other biologically active substances before their isolation in pure form—e.g., several of the vitamins, enzymes, pituitary hormones, antibiotics. In these instances, however, potency could be determined by animal assay or microbiological assay, and by increasing the number of replicates used a more or less accurate estimate of the activity could be obtained. Liver extracts, on the other hand, can be assayed only on human cases, of which but a limited number are available; in consequence, the values so obtained will be subject to considerable experimental error, but they will at least indicate the relative orders of purity of the extracts. A few such figures, calculated from known data, are given below as examples:

Extract	Approx. Minimum Dose giving Optimal Response (ml.)	Units/ml.	Total Solids Content (g./ml.)	Purification Index (units/g.)
Original refined extract ..	2–4	3·5–7	0·0075	500–1,000
Modified refined extract	0·6–0·8	17·5–24.	0·035	500–700
Crude extract ..	4–6	2·3–3·5	0·25	9–14
American (15 *U.S.P.*)* ..	1	14·0	0·18	Ca. 80
" "* ..	1	14·0	0·075	Ca. 200
Experimental fraction (L.E. 90B) ..	2	7·0	0·0027	Ca. 2,600

* These figures are based on the assumption that the *U.S.P.* unit is approximately equal to the unit we have defined.

The difference between the "refined" and "crude" extracts is brought out clearly in the above table, "crude" extracts having purification indices of the order of 10, and "refined" extracts (though differing among themselves to a remarkable degree) indices of the order of 100 or more.

The preparation of Dakin and West (1935) has been referred to, though not by the authors themselves, as though it were the actual pure anti-anaemic factor. This, however, gave, at a dose of 80 mg., responses that, judged from the published clinical data, may be regarded as satisfactory in the sense used in this paper. Now, this dose contains approximately 4 units of activity, and is therefore equivalent to a purification index of the order of 200. It seems obvious, from the data obtained with our fraction 90B, that the pure factor must have a purification index of at least 2,500.

General application of this method of expressing the activity of liver fractions would allow papers describing the purification of the active principle to be more critically compared. This presupposes, however, the existence of a common unit of activity.

Maintenance

It is usually found that the blood of patients who respond satisfactorily to an adequate initial dose is brought rapidly to normal by fortnightly injections equal in amount to the initial injection. Presumably, therefore, the average daily requirement during this phase of treatment is 1 unit. The dosage required for the maintenance of normal red-blood-cell levels is very much more difficult to assess. Before any reliable conclusions can be drawn it is necessary to have observations on a large group of cases carefully controlled over a period of several years.

While it may be argued that the ease and cheapness of treatment with modern liver extracts make the measurement of minimal maintenance requirements a matter of somewhat academic importance, such an investigation might well lead to data of considerable practical value. For example, it is not impossible that the incidence of systemic reactions to the injection of liver extracts may be related to prolonged administration of excessive doses. Further, in this country there is a body of opinion that "crude" extracts have advantages over "refined" extracts for maintenance, though recent American publications have claimed that "refined" extracts are as effective as "crude" extracts both for maintenance and for initial treatment (Evans and Jordan, 1941; Murphy and Howard, 1939).

An investigation of minimal maintenance requirements of the "crude" extract, referred to above, has been reported to us by Dr. J. Mills, of the Royal Berkshire Hospital, Reading, and we gratefully acknowledge his permission to summarize his findings here. In a group of 75 patients with pernicious anaemia, a few of whom showed neurological symptoms, about 90% were maintained at levels of 5 million red cells per c.mm. and 100% haemoglobin for periods ranging from 6 months to more than 2 years on a dose derived from 20 g. of original liver (2 ml.), given at intervals of 4 weeks. Those not maintained by this dosage have, without exception, been satisfactorily maintained by a dose derived from 40 g. of original liver (4 ml.) every four weeks, for periods ranging from 8 to 18 months. Hence a dose of the "crude" extract containing approximately 5 units of activity per month appears to satisfy the need of most patients, while one of 9 units per month satisfies the needs of all.

The dose recommended by American authorities for satisfactory maintenance is usually of the order of one unit of activity per day—i.e., 28 units every 4 weeks. We have some evidence, though as yet inadequate, that a dose containing some 17 units of the newly developed "refined" extract, referred to above, is enough to keep patients' blood normal, but tests with a lower dosage have not as yet been carried out.

It is not impossible that the "crude" extract may contain factors of importance in maintenance which are not measured in tests on patients in relapse. Careful comparison of minimum maintenance requirements of "crude" and "refined" extracts in terms of units as discussed here should provide useful information on this point. Similarly, consideration on a unitage basis of dosage requirements in the treatment of the more complex macrocytic anaemias might lead to a resolution of the divergent views (Wills and Evans, 1938; Foy and Kondi, 1939; Hamilton Fairley, 1940; Trowell, 1941; Sundaram, 1944) which are at present held on the relative efficacy of "crude" and "refined" extracts.

Summary

Statements commonly used in this country to describe injectable liver extracts are criticized.

The chief differences between "crude" and "refined" injectable liver extracts and their uses in the initial treatment and maintenance of cases of pernicious anaemia are discussed.

An arbitrary unit of haemopoietic activity, and a "purification index" based on it, are defined.

Attention is drawn to some advantages which would result from the establishment of an official unit of haemopoietic activity in this country.

The relatively low order of purification of commercial "refined" liver extracts is demonstrated by the description of a laboratory

preparation capable of producing a satisfactory response on a total dose containing only 5.5 mg. of solids.

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THE PROPHYLAXIS OF RICKETS BY SINGLE MASSIVE DOSES OF VITAMIN D

BY

DAVID KRESTIN, M.D., M.R.C.P.

In an earlier paper (Krestin, 1944) it was shown that rickets still presented a problem in infant entrants to Preston wartime nurseries, for, although severe and advanced degrees of this disease were extremely rare, an early or mild variety was found in 37% of all admissions under 2 years, while in the poorer parts of the town this figure was even higher. Furthermore, it was noted that the free distribution of cod-liver oil for the infants before their admission to the nurseries did not produce any obvious reduction in the incidence of this disorder. Similarly, in a recent report by the Ministry of Health (1944) describing a widespread survey including Great Britain and Ireland, it was found that 73% of the infants with radiologically active rickets had received cod-liver oil or other vitamin D preparation for some period before the investigation, and Corner (1944) found the incidence of the disease in hospital patients actually higher in those who had previously received vitamin D supplements than in the average series. Since the antirachitic value of cod-liver oil is now beyond doubt, and has been shown to be reliable when given regularly and in large enough doses in these nurseries (Krestin, 1945), it is evident that the disappointing results obtained by these mothers in their own homes were due to irregularity of administration and inadequacy of dosage.

For these reasons it seemed desirable to investigate the possibility of a method of preventing the disorder that could be used independently of the mother and yet not require the daily attendance of the child at a clinic or medical centre.

Previous Work

Although Vollmer in 1928 (quoted by Vollmer, 1939) showed that rats which had been fed on a rachitogenic diet could be protected against rickets by a single massive dose of vitamin D, this observation was not applied clinically until 1938, when Harnapp (1938a, 1938b, 1939), in Germany, found that infants under 18 months could be protected during the winter months by single oral doses of 7.5 or 10 mg. of either vitamin D_2 or D_3 dissolved in oil. These results were soon after confirmed in that country by Schwartzer (1939), Rietschel, *et al.* (1940), Hartenstein (1940), and Heisler (1940), most of whom favoured the view that, whereas 5 mg. was too small, 7.5 to 10 mg. was sufficient for the purpose, and that larger doses were unnecessary. Less constant results were obtained by Windorfer (1938) and Brockmann (1938). More recently Wolf (1943) and Rambar *et al.* (1943), in America, reported the results of using single doses of 15 mg. of "ertron," an electrically activated preparation of ergosterol; although in both cases the numbers of infants followed up for five months or more were small, the results obtained were very satisfactory.

Present Investigation and Results

This investigation concerns full-term infants and children between 2 months and 3 years of age, of average health, and showing no radiological or clinical evidence of rickets on admission to ten day and three residential wartime nurseries in Preston. All lived under similar conditions, received similar diet, and were under constant supervision. The period of observation began during the autumn of 1943, and lasted for 6 months throughout the following winter and early spring. After admission each child was clinically examined and then sent for radiographs of the lower ulnar epiphyses. A single dose of 7.5 mg. of calciferol—i.e., 300,000 i.u. of vitamin D_2 dissolved in 1 c.cm. of arachis oil—was then given by spoon after a milk feed, the amount having been measured in a graduated Record syringe. The oil was readily taken by all ages, and, except for vomiting in one small infant, was not followed by any gastro-intestinal disturbance or other unpleasant effects. Thereafter each child was clinically examined at regular intervals of 4 weeks or less, and at the end of 6 months another radiograph was taken of the wrist. Owing to the distance of the nurseries from the *x*-ray centre it was not possible, except in a few instances, to have radiographs taken at more frequent intervals. Biochemical examinations of the blood were not practicable. Throughout the period of observation no other vitamin D preparation was given, nor was any child in this series exposed to ultra-violet radiation.

About one-third of the infants had received some cod-liver oil before admission. The doses were small, and often irregularly given. As the subsequent results in these infants did not appear to differ from the results in those who had not previously received any vitamin D preparation, they are not tabulated separately.

At the same time and during a similar period of the previous year two other groups of infants and children living under exactly similar conditions and receiving the same diets were studied. One, a "control" group, received no vitamin D preparation; the other received daily doses of the Ministry of Food cod-liver oil. The results obtained in these two groups have been discussed elsewhere (Krestin, 1945), but the figures are included in the accompanying Table for comparison.

The diagnosis of rickets in these nurseries has been discussed in earlier papers. The radiographic changes at the lower ulnar epiphyses have been clearly described by Wimberger (1923), A. F. Hess (1930), and others, and so require no further discussion here. It should, however, be noted that in mild rickets of short duration obvious alterations in the appearance of the *x*-ray films may not occur, or may last for so short a time that they may be overlooked unless radiographs are taken at frequent intervals. Craniotabes—i.e., asymmetrical softening of the cranial bones in the region of the lambdoid suture—was found to be a reliable sign in infants older than 3 months, but was rarely found after the sixth month. After the fourth month the most reliable sign, when scurvy could be eliminated was a definite enlargement of the costo-chondral junctions of the fourth to the tenth ribs. Moreover, this sign was of par-

Table showing Comparison of Results after Antirachitic Prophylaxis with Single Massive Doses of Vitamin D_2 and after Daily Doses of Cod-liver Oil, with a Control Group of Infants

Age Groups:	0 to 6 Months			6 to 12 Months			1 to 2 Years			2 to 3 Years		
	Number Examined	Developed Rickets	Remained Rickets-free	Number Examined	Developed Rickets	Remained Rickets-free	Number Examined	Developed Rickets	Remained Rickets-free	Number Examined	Developed Rickets	Remained Rickets-free
Single oral dose:												
7·5 mg. D_2 = 300,000 i.u. ..	16	2	14	27	1	26	50	0	50	44	0	44
Daily doses of M.O.F. cod-liver oil:												
1 dr. = 700–800 i.u. ..	18	12	6	—	—	—	—	—	—	—	—	—
2 dr. = 1,500 i.u. (approx.)	28	3	25	28	2	26	55	6	49	63	0	63
3 dr. = 2,100 i.u. (approx.)	—	—	—	15	0	15	11	1	10	—	—	—
4 dr. = 3,000 i.u. (approx.)	—	—	—	—	—	—	44	0	44	60	0	60
Controls (no vitamin D) ..	14	12	2	30	18	12	28	3	25	15	0	15

ticular value, since, once having appeared, it would last for weeks or months after all x-ray signs of activity had gone. Thus, the appearance of either of these clinical manifestations was accepted as evidence of rickets even with a normal x-ray picture. Similarly, even in the absence of clinical signs, the appearance of definite radiological changes was regarded as diagnostic.

The results obtained are shown in the Table. The most significant figures are those in the group under 1 year, which, as may be seen from the control series, shows the greatest liability to the disease. The figures in the 2–3-year age group are probably without significance, since the controls show that if a child living under the conditions obtaining in the nurseries can avoid the disease during the first two years of life it will probably remain free after that age even without special prophylactic treatment. Compared with infants receiving regular daily doses of cod-liver oil, the results of administration of a single massive dose of vitamin D_2 are satisfactory, the failures being 3 out of 43 infants under 12 months and 3 of the 93 infants under 2 years. Thus the claim of earlier workers in Germany and America appears to be substantiated.

Discussion

Mode of Action

Windorfer (1938) found that after a single large oral dose of vitamin D dissolved in a small amount of oil 93% was absorbed from the bowel. There is, so far, little evidence in the literature as to the exact fate of the vitamin after its absorption. By feeding large doses of this vitamin to rabbits Warkany (1936) and his colleagues (Warkany, Guest, and Grabill, 1942) were able to produce a rise in the blood level from the average normal of 50 i.u. to 2,700 i.u. in 24 hours, which was maintained for about 4 days before slowly returning to normal in 4 to 6 weeks. In human subjects they found that after stopping the daily administration of larger doses the serum level of vitamin D remained above normal for from 3 to 6 months. Further, Heymann (1936, 1937) showed that after large doses were given to rabbits the vitamin could be demonstrated in the tissues and organs for varying periods, and for as long as 12 weeks in the liver and plasma. Thus it would seem that after a single large dose the organism is able to draw on a store of this vitamin for some 8 to 12 weeks. By this time the growing animal has probably been able to lay down enough calcium at the metaphysis to last throughout the winter, though it may be advisable in the case of infants, particularly those under 1 year, to repeat the dose after 3 months if the first one was given in the autumn or winter—i.e., before the beginning of March.

Possible Disadvantages: Toxicity of Vitamin D

Except for one instance of an infant who vomited the dose and was then quite well, no ill effects of any kind were observed among those who received the single dose of 7.5 mg. This was equally true in a further series of infants with active rickets (not reported here) receiving single doses of 15 mg. (i.e., 600,000 i.u.). Further, subsequent radiographs of the non-rachitic infants did not show any noticeable increase of calcium deposition at the metaphysis. Similarly, complete freedom from unpleasant after-affects was noted by all the earlier workers referred to above.

A considerable amount of recent work has shown that most of the undesirable manifestations previously observed after relatively small doses of vitamin D were due to toxic substances produced by the over-irradiation of ergosterol. With more recent methods of preparation these substances are not produced, and the material supplied is almost pure calciferol. With preparations of this kind, Bills and Wirick (1930) found that amounts over 4,000 times the minimal antirachitic dose were required to produce even mild manifestations of toxicity in the case of rats. Catel and Pallaske (1931) and Pallaske (1932) could find no injurious effects at necropsy after very large amounts given to goats and other animals. In infants, J. H. Hess *et al.* (1930) found that daily amounts up to 50 times the ordinary prophylactic dose could be continued for months, and up to 250 times this dose for short periods, without ill effect. Steck *et al.* (1937), after extensive work with dogs and human subjects, concluded that 20,000 i.u. per kilogramme of body weight could be given daily for indefinite periods with impunity, but with doses greater than this undesirable symptoms might follow. After amounts up to 1,000,000 i.u. given by mouth or by intramuscular injection to premature infants, Zelson (1940) failed to find evidence of damage to tissues at necropsies where death resulted from intercurrent infection. Rambar *et al.* (1943) failed to find any persistent rise in the blood levels of the calcium or phosphorus after single oral doses of 15 mg. (i.e., 600,000 i.u.). After the daily administration of from 20,000 to 40,000 i.u. for 6 months to a premature twin, however, Ross and Williams (1939) reported the appearance of anorexia, loss of weight, and vomiting, ending in death; at necropsy there were bronchopneumonia and extensive calcification of arteries, heart muscle, kidney, stomach, and lungs.

It may therefore be concluded that the amounts of vitamin D used in this study are well within the limits of safety, and that, where necessary, they could be repeated once or twice during a period of 6 months without ill effect. There is, however, some evidence that metastatic calcification may occur with much lower doses in the presence of renal disease. In such circumstances it would probably be advisable, for the present, to use the older routine of small daily doses.

Wolf (1943) states that ertron is less toxic than irradiated ergosterol. This substance is not at present available in this country.

Absence of Vitamin A from Preparation

As the preparation used in the single-dose method contained no vitamin A, these infants differed from those receiving daily cod-liver oil in that they were deprived of this added vitamin as well as of the daily supplements of oil. Although it was the general impression in the nurseries that these infants remained well and thrived satisfactorily, it was thought advisable to compare their progress as regards weight, height, and incidence of infection with the control and cod-liver-oil groups. This is shown in the diagrams. As growth is more rapid during the first year of infancy, separate diagrams are given for those under 1 year, and for those over 1 year but not exceeding 2 years, at the end of the six-months period of observation.

Weight.—It will be seen (Fig. 1) that in those over 1 year there is little difference in the average gain in weight in the three groups. Thus infants receiving no vitamin A or D or oil, and those receiving vitamin D only, seemed to thrive as well as those getting daily oil containing these vitamins. The infants under 1 year who received the daily oil appeared to gain less than the other two groups. This unexpected result may possibly be explained by diminished alimentary absorption following the daily administration of two doses of oil, since there seemed to be no reduction in the amount of feed taken by these infants.

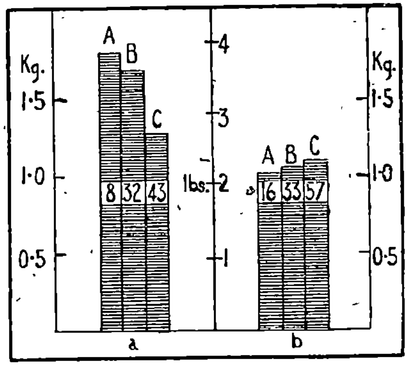

FIG. 1.—Average gain in weight after six months. A, Controls. B, After receiving single dose of vitamin D. C, After receiving daily doses of cod-liver oil. a, Under one year. b, Over one year. Figures within columns show number of infants.

Height.—Fig. 2 shows the average gains in height. It will be noted that neither the control nor the single-dose group show any disadvantage compared with those having the daily supplements.

Infection.—Records of all infections were kept on charts showing the duration of illness in days for each child. As the influence of age, immunity from previous attacks, and the opportunity for contact are doubtless predominating factors in the acute infectious or specific fevers, these are omitted from consideration. For similar but somewhat different reasons, the incidence of gastro-intestinal and skin infections is also not discussed. It was thought that the average number of days of illness due to infection of the upper and lower respiratory tracts—i.e., nasopharyngeal, tracheo-bronchial, and pulmonary infections—would provide some guide as to the susceptibility of each group. Infection was recognized by the appearance of definite clinical manifestations, including a rise of rectal temperature to 99.6° F. or more.

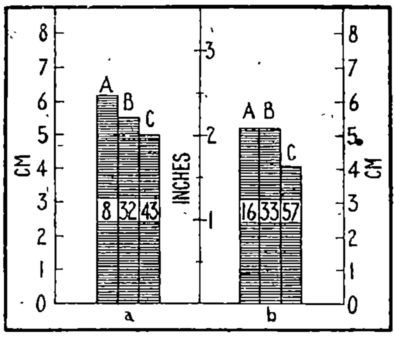

FIG. 2.—Average gain in height after six months

The average number of days of illness for each group is shown in Fig. 3. It will be seen that there is a lack of consistency in the two age groups. In those under 1 year the cod-liver-oil group has a lower average than have the other two groups. In those over 1 year, the lowest average is found in the single-dose group. This difference cannot be explained, and is presumably due to chance.

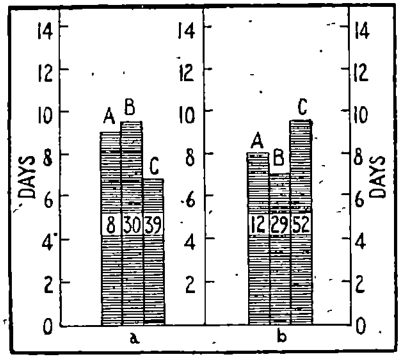

FIG. 3.—Average number of days of illness due to infection of the upper and lower respiratory tracts during period of six months.

Owing to the fact that many of the controls under 1 year developed manifestations of rickets and received treatment for this before the end of the six-months period of observation, the numbers on which the averages are based in this group are small, so that undue significance cannot be attached to them. Nevertheless, the other columns in the diagrams suggest that the infants who received the single oral dose of vitamin D were at no obvious disadvantage compared with those who received the daily cod-liver oil. This is not altogether surprising, for while retarded growth and increased liability to infection may result from gross vitamin-A deficiency produced under experimental conditions, there is no definite evidence that real benefit follows the addition of this vitamin to an already adequate diet in infants showing no signs of such deficiency. Obvious manifestations of vitamin-A deficiency are probably uncommon in infants and children living under moderately healthy conditions; none was noted in any of the entrants to these wartime nurseries, and they would not be expected to appear on the diets there given.

It should be mentioned that all infants, including the controls, received the Ministry of Food orange juice every day.

Advantages of the Method

These for the most part are obvious and require little discussion. The chief of them is that an infant can be given a single small dose of oil by a trained nurse at an out-patient clinic, welfare or other medical centre, and then need not be seen again for two or three months. The method is thus largely independent of the mother. A very considerable quantity of oil is saved, which, besides being more economical, may be a factor of importance in wartime. In the case of residential or day institutions where large numbers of infants have to be cared for, the reduction in work is greatly appreciated by the staff. Further, this method is particularly suitable for feeble infants, for those liable to gastro-intestinal disturbances, or for those who for any reason are unable to take daily doses of oily preparations. Park (1940) has drawn attention to the danger of lipoid pneumonia from aspiration of oil given frequently or in large quantities to weakly babies or those liable to vomiting.

Although this paper is concerned with healthy full-term infants, it is relevant to mention that where, ordinarily, larger amounts of vitamin D are required, as in premature babies, those recovering from marasmus or acute illness, or those who are taking thyroid, the dose with this method would require increasing and probably repeating. Thus a premature baby would probably need an initial dose of 15 mg. followed by one or two further doses of 7.5 mg. during the winter and spring months.

It is claimed by some workers (Hess and Lewis, 1933; Rietschel *et al.*, 1940; Hartenstein, 1940; and others) that for the prevention of rickets in infants vitamin D_3 is superior to D_2. The evidence for this at present, however, is not convincing. The available supply of vitamin D_3 in this country was insufficient for any large-scale investigation.

Summary and Conclusions

The prophylaxis of rickets by means of a single massive dose of vitamin D_2 given by mouth was investigated during a period of six months of the autumn, winter, and early spring in 137 infants under 3 years, and the results compared with controls who received no vitamin D preparation and infants who received daily doses of the Ministry of Food cod-liver oil.

Of 93 infants under 2 years who received one dose of 7.5 mg. (300,000 i.u.) 90 remained free from the disease throughout the period of observation.

A short review of the literature is given, and the possible disadvantages and advantages of this method are briefly discussed. The freedom from all ill effects is noted.

It is suggested that when a child first comes under observation in the late winter or spring—i.e., after the beginning of March—one dose of 7.5 mg. is probably sufficient. If first seen before this time, it would probably be wise to repeat the dose after 3 months.

Premature infants, those taking thyroid, and those growing rapidly after marasmus or an acute illness may require double the above doses, possibly repeated at shorter intervals.

I am greatly indebted to Dr. F. A. Sharpe, medical officer of health, for allowing me to carry out this investigation, and for permission to publish this paper; to Dr. J. Laurie, medical superintendent of Sharoe Green Hospital, for the *x*-ray facilities; and to Miss P. Wright and the matrons of the nurseries for their zealous co-operation. I wish also to thank Glaxo Laboratories Ltd. for the generous supply of the vitamin used.

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PROPHYLAXIS OF RESPIRATORY TRACT INFECTIONS WITH SULPHANILAMIDE LOZENGES

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Percy Garson (1943) claimed that a significant decrease in the incidence of infections of the upper respiratory tract could be effected by the administration of small amounts of sulphanilamide in lozenges. In view of its possible value in the Army, it was decided to investigate this method of prophylaxis on a larger scale than Garson had found possible. Messrs. Boots Pure Drug Co. Ltd. kindly supplied two types of lozenges. One (yellow) consisted of 2 g. of lozenge basis, and the other red) of the same weight of basis in which was incorporated 0.065 g. of sulphanilamide.

Individuals vary greatly in the time for which a lozenge could be made to last, the average being about 20 minutes. An estimate of the concentration of sulphanilamide in the saliva of a subject sucking a red lozenge which lasted for 20 minutes was made by pooling four samples of saliva ejected at 5-minute intervals. The concentration of sulphanilamide was found to be 300 mg. per 100 c.cm. of saliva. This might be expected to have considerable local action, but it is improbable that the dose (0.325 g.) swallowed in 24 hours could have any general action.

The population used in the investigation consisted of 1,200 recruits receiving instruction in a primary training centre (P.T.C.). These men had within a few weeks been transferred from civil to Army life, and experience has shown that infections of the respiratory tract very often occur soon after exposure to the communal existence of the Army. The recruit normally spends six weeks in the P.T.C., and while there belongs to one of three companies—A, B, or C. At the beginning of his training he is allocated to one of the six barrack-rooms which accommodate the personnel of each company. The investigation dealt with five groups of men, each from a separate intake, and, to secure uniformity, each company was included at least once and the investigation covered various stages of the six-weeks training period. The men in each barrack-room were divided into two sections, to one of which red (sulphanilamide) and to the other yellow (control) lozenges were administered for a period of 16 days. Table I gives the essential facts about the composition of the population investigated.

TABLE I

Group	Company	Month	Week of Training in which Investigation Began	Number of Men on Each Type of Lozenge			
				1–9 Days		10–16 Days	
				Sulpha	Control	Sulpha	Control
1	A	March	Fifth	103	103	89	85
2	C	April	Third	136	139	120	126
3	B	May	„	119	124	96	107
4	A	June	„	119	114	114	115
5	C	June	First	105	131	107	121
			Totals ..	582	611	526	554

Total numbers { Sulphanilamide .. 1,108 ; Control .. .. 1,165 } 2,273

Lozenges were distributed by an N.C.O. at 06.30, 11.00, 13.30, 7.00, and 20.30 hours daily for 16 days. The men were instructed to begin to suck the lozenges immediately they were received, to make them last as long as possible, and to swallow their saliva while they remained in the mouth. The medical officer (A. F. H.) who was completely in control of the collection of data did not know, until the investigation had been concluded, which type of lozenge contained sulphanilamide. The men knew nothing of the composition of the lozenges.

On the ninth and again on the sixteenth day after administration of lozenges had started, the company was assembled and divided into two groups—red and yellow. Only men who had regularly taken lozenges during the preceding 9 or 7 days and were present on parade on the appropriate day were included in the investigation. Owing to postings, absences, defaulters, etc., not every man included in the first period was included in the second, but the great majority were. A very few men included in the second period had not been included in the first because they had been absent from the first parade.

The information abstracted in Table II was derived from the answers given by the men to carefully designed questions. It represents, therefore, the opinions of the men concerned on their symptoms.

Table III gives details of the illnesses of the men who reported sick with signs or symptoms of respiratory tract infections during a period of 14 days starting two days after administration of lozenges had begun. Apart from temperatures and the results of auscultation, the data were supplied by the men themselves in response to carefully designed questions.

TABLE II.—*Symptoms Reported at End of 9 and of 16 Days*

	Red (Sulphanilamide Group)	Yellow (Control Group)
Number of men in group ..	1,108	1,165
Slight cough	585	493
Severe „	70	121
Nose blocked	228	249
„ running	303	342
Painful to speak	95	92
„ „ swallow	70	71
Malaise	81	91
Fresh or increasing cold during previous 7 days	237	351
Without cold	398	396

TABLE III.—*Men Reporting Sick during Last 14 Days of Administration of Lozenges*

	Red (Sulphanilamide Group)	Yellow (Control Group)
Average strength	555	584
Number reported sick	60	66
Temperature over 99°	10	6
Rhonchi at one or both bases ..	6	4
Cough	55	55
Headache severe	6	6
„ moderate	7	14
„ slight	3	6
Nose blocked	26	24
„ running	21	31
Malaise	13	12
Painful to speak	23	21
„ „ swallow	21	30
Duration of cold before reporting sick:		
0–7 days	51	52
8–14 days	8	11

Discussion

The only figures showing statistically significant differences in the two groups (Table II) are those for coughs (slight and severe) and for fresh or increasing colds during the previous 7 days. If we are prepared to place complete reliance on statistical theory, we are forced to believe that the administration of sulphanilamide in the form of lozenges reduces the incidence of severe coughs and of fresh or increasing colds, but we are equally forced to believe that it increases the incidence of slight coughs.

We prefer—as we believe most of our readers will—to conclude that the protection against infections of the respiratory tract afforded by sulphanilamide lozenges, if indeed there is any such protection, is so trifling as to make the method of prophylaxis not worth the trouble, expense, and slight risk involved.

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H. F. Fernandes (*Tubercle*, 1944, 25, 82) records six illustrative cases of bilateral tuberculous effusion (five of them fatal) in patients aged from 15 to 37 which occurred among 2,012 admissions to the Derbyshire Sanatorium during the period 1938 to 1944. Five showed radiological evidence of miliary tubercle during the final stage of fluid resolution, and one developed a tuberculous spine some time afterwards.

RECOVERY FROM DIABETIC COMA OF ABRUPT ONSET WITH EXTREME HYPERGLYCAEMIA

BY

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Exceptionally high blood sugars in coma have been recorded both in this country and in America. The highest figures quoted by Joslin (*Treatment of Diabetes Mellitus*, 7th ed., Henry Kimpton) are 1,850 mg. per 100 c.cm. in a case of Dillon and Dyer's which recovered, and 2,060 mg. in a fatal case reported by Lawrence. The following case in which the blood sugar rose to 1,960 mg., occurring in a young woman with no previous history of diabetes, is of interest.

Case History

A married woman aged 31 was admitted to King's College Hospital on June 28 as an air-raid casualty. She was quite conscious, had slight superficial wounds of the scalp and left thumb, and, although not shocked, appeared to be anxious. A radiograph of the skull showed no fracture. The routine ward report states that no reducing substances or ketone bodies were found in her urine, but, as the ward was extremely busy at the time, it is not possible to be absolutely certain of this point. On the 29th she vomited her breakfast, and during the day passed 82 oz. of urine, which was not tested. During the following night the nurse reported that the patient had collapsed suddenly with a low-volume pulse, but had recovered rapidly without treatment.

On the morning of the 30th she vomited again and became restless and increasingly drowsy. The knee- and ankle-jerks were absent, but her disks were normal, and the C.S.F. was normal and under normal pressure. During the afternoon she became increasingly restless, then delirious, and finally comatose. At that time she was extremely dehydrated, a smell of acetone was noticed in her breath, and she had air hunger. Up to midday she had passed 51 oz. of urine, but subsequently had to be catheterized. At 6 p.m. her urine was found to be loaded with sugar and ketone bodies, and to have a trace of albumin; chlorides were absent. She was immediately given 60 units of insulin subcutaneously, and a 4% glucose-saline intravenous drip was started. Blood was taken from her ear by capillary pipette, but owing to the dehydration a small amount clotted and the blood-sugar reading of 998 mg. per 100 c.cm., which was estimated by the Folin-Wu method, was certainly inaccurate. 100 units of insulin were given intravenously at about 6.30 p.m., and the glucose-saline drip was changed to one of normal saline. At 7 p.m. blood from the ear was taken easily and the blood-sugar reading was 1,960 mg. per 100 c.cm.

The following Table shows the response of the patient to treatment in the next 48 hours. The restless mania was very troublesome, and has occurred occasionally in other cases of diabetic coma treated in this clinic.

Date and Time	Urine		Blood Sugar (mg./100 c.cm.)	Insulin (Units)	Remarks
	B.	R.			
June 30					
6 p.m.	+ + + +	+ + +	? 998	60 100 i.v.	Eye tension very low. 4% G.S. drip started. Very slow. Changed to normal saline
7 p.m.			1,960	200 i.v. 200	
9 p.m.			1,960		Becoming maniacal. Less air hunger
12 p.m.	+ + + +	+			Very noisy. Sod. amytal 7½ gr. i.v.
July 1					
3 a.m.			1,360	60	Very noisy. Sod. barb. 3 gr. i.m.
4 a.m.					Very restless. Morphine ¼ gr.
7 a.m.					" " " "
8 a.m.	+ + + +	Trace	250		Quieter. Less dehydration. Normal respirations
11 a.m.				40	
3 p.m.					7th litre normal saline completed. Changed to 4% G.S.
4 p.m.	+	Trace	89		45 g. glucose added to drip fluid. Consciousness returning
8 p.m.					I.V. therapy discontinued. 5% G.S. run. P.R. for a few hours
10 p.m.	+ + +	Trace	222	20	
July 2					
2 a.m.	Trace	+			
6 a.m.	Trace	+ + +			Glucose drinks started
10 a.m.			392	20	
2 p.m.	+ + +	0		20	20 g. carbohydrate 2-hourly by mouth from now onwards. Much better

B.=Benedict's test. R.=Rothera's test. G.S.=Glucose-saline.

The patient improved rapidly and was taking food at ordinar times on the third day after the onset of coma. Three weeks late she was discharged on a diet containing 180 g. of carbohydrate and a mixed dose of 16 units of P.Z.I. and 28 units of solubl insulin. She has had much the same dose ever since, and is quit well.

Past History.—It was only after recovery that the past histor could be obtained. She had never been ill, and gave no famil history of diabetes or any previous frank symptoms of diabetes except perhaps an occasional "dryness" of the mouth at night The relation of her very sudden coma to her slight air-raid traum remains obscure.

I wish to thank Dr. R. D. Lawrence and Dr. W. G. Oakley fo their help and encouragement in publishing this case.

Medical Memoranda

Unusual Cause of Death in Carcinoma of Cervix

As an appendix to Mr. Foster's records of two cases of adenocarcinoma of the small intestine (*Journal*, 1944, **2**, 78), I woul like to describe a case of intestinal obstruction due to a secondary deposit of a squamous-celled cervical carcinoma.

Case History

Female, aged 52, married, 11 children; admitted to Lurgan District Hospital April 11, 1944. Her only previous illness was "gall-stone" operation many years ago (details of this were no available). She complained of irregular and fairly smart vagina bleeding for 6 weeks and attacks of epigastric pain, with vomiting and aggravated by food, for 6 months. Apart from some tenderness in the epigastrium, nothing abnormal was found on clinica examination. Vaginal examination revealed a hard area in th cervix. *Biopsy of this enabled a diagnosis of cervical carcinoma* Stage I or early Stage II, to be made.

The patient was then transferred to the Royal Victoria Hospita Belfast, with a view to radium therapy. There she underwent Wertheim's hysterectomy, and was discharged on June 2 feeling ver well. At operation the bladder was found to be adherent to th front of the uterus at the junction of the body and cervix. Ther were a few nodules on the posterior surface of the cervix; ther was also an enlarged gland in the left parametrium. Histolog revealed that the adhesions to the bladder were infiltrated wit malignant cells. The diagnosis was thus squamous carcinoma o cervix, early Stage IV.

Two days after discharge from Belfast she was readmitted to medical ward in Lurgan Hospital, complaining of colicky epigastr pain and vomiting. The possibility of biliary colic was considere and she was kept under observation. She went out against advic on June 17, her condition being almost unchanged. Five day later she was readmitted to Lurgan Hospital still complaining o abdominal pain, with copious vomiting of brownish-green materia The *diagnosis of small-gut obstruction* was made, and after fiv pints of glucose-saline by intravenous drip had been given laparotom was carried out. The ileum was greatly distended and many vascul adhesions were present in the pelvis. These were divided, but wer considered insufficient to cause an obstruction. About an inch fro the ileocaecal valve was a hard annular stricture which complete occluded the ileum; distal to this the gut was normal. An ile transversostomy was performed and the abdomen closed. Unfortunately the patient died in 6 hours (48 days after hysterectomy).

A very limited post-mortem examination was carried out and th growth removed. The peritoneal coat and mucous membran appeared intact, but the lumen would admit a match-stick only wit *difficulty. The muscle coats were infiltrated with a whitish substance* which apparently did not involve the peritoneum or th mucous membrane. Histology revealed this to be a squamous-celle carcinoma.

Discussion

Apart from the single gland in the left parametrium, n evidence of secondary deposits *in the gut or elsewhere* wa found at hysterectomy: the ileocaecal region was not spec ally examined. *It is possible that the long history of epigastr* pain and vomiting was due to subacute intestinal obstructio which finally became acute, causing the terminal symptomat logy.

The problem to be solved is the determination of the mo of spread. Was it due to implantation during hysterectomy- via the lymphatics of the retroperitoneal tissues or via th blood stream?

I am indebted to Mr. Bassett and Mr. Macafee for permission to publish t details of this case.

J. STANLEY ELWOOD, M.B.,
Formerly R.M.O., Lurgan Hospital.

Reviews

GENETIC AND ENVIRONMENTAL FACTORS IN DISEASE

Psychosomatic Diagnosis. By Flanders Dunbar, M.D., Med.Sc.D., Ph.D. With foreword by Leonard G. Rowntree. (Pp. 741. 37s. 6d.) New York: Paul B. Hoeber, Inc.; London: Hamish Hamilton Medical Books.

Human Constitution in Clinical Medicine. By George Draper, M.D., C. W. Dupertuis, Ph.D., and J. L. Caughey jun., M.D., Med.Sc.D. (Pp. 273; illustrated. 21s.) New York: Paul B. Hoeber, Inc.; London: Hamish Hamilton Medical Books.

hese two books are in a sense complementary. Dr. Flanders unbar lays stress on the environmental factor in disease, while r. Draper emphasizes the genetic one. Both, however, agree their main conclusions. If Paracelsus and van Helmont ere to return to earth they would doubtless be surprised find, in a greatly changed medical world, a revived interest their conception of the Archaeus, the "sensitive soul" housed the solar plexus. Psychosomatic medicine is its modern uivalent: to-day we must discard the idea that any disease wholly physical or wholly mental. This psychosomatic proach is only new in the sense that it attempts to substitute scientific basis for things sensed intuitively by the older ysicians. Dr. Flanders Dunbar in a detailed study of the bject recalls Sherrington's dictum that essentially the mind bserves an inhibitory function in relation to behaviour, and at the greatest relief of instinctual tension is provided by tion, the least by fantasy and thought, whereas speech stands alf-way between. In this connexion the degree and type f the patient's muscular tension, whether in postural attitude, ice, or gestures, particularly in their variations according the matter under discussion, may be revealing if sometimes fficult to evaluate. Such tensions, as we know, can express emselves in visceral as well as in somatic muscles, thus producing organic symptoms. It is significant, in the present state f the world, that the use of the word "tension" has spread r beyond its scientific connotation into all forms of literature. efore psychosomatic medicine could pass from a merely intui-ve to a scientific stage much, as the author points out, had be accomplished in the basal sciences of anatomy, physiology, athology, and clinical medicine; and it is only half a century nce Freud with Breuer put forward their views on the psychic echanism of hysterical phenomena, while the explanation of eneral paralysis as an organic disease distinct from other sychoses is still more recent. Small wonder then that we are ill only on the margin of the subject, which will continue revolutionize our conception of disease as we emerge from e too materialistic attitude of the recent past.

Dr. Dunbar's book is a painstaking, conscientious account f her twelve years of research along these lines. There are any interesting things in it, particularly her full discussion f the psychology of the "accident-prone." The interweaving f psychical traumata with the development of physical signs clearly indicated. But we must confess that the book would ave appealed more if not elaborated in quite so much detail, nd if there was less use of the scientific jargon which defaces much medical "literature."

This objection cannot be lodged against Dr. George Draper nd his associates, Drs. Dupertuis and Caughey. The introduc-on to their book is attractively written; indeed sometimes they rite so persuasively as almost to lull our critical sense into ccepting the anthropometric standards at which Dr. Draper as worked so assiduously for many years. Yet we recall e late W. F. R. Weldon's biometric studies, which have roved less fruitful than their author hoped. An actuary can retell with a considerable degree of accuracy the prospects f survival for two million persons of a certain age, but he annot prophesy the fate of a single individual. In the same ay physical measurements can give an average formula for ose liable to develop peptic ulcer, gall-stones, pernicious naemia, and so on, but individualism will assert itself in sease as in health. Indeed the authors appear to forestall is criticism when they say (p. 154): "Although results btained by averaging the observations made on a large series f people have value, the striking of an average tends to sub-erge the individual quality of the diverse organisms that comprise the group." But, be it noted, they make this comment in the section on constitutional physiology, where they seem prepared to allow for more individual variation than in morphology. Indeed the sections on the physiological aspect and its clinical application to work are full of practical wisdom. Particularly we would commend the stress laid on the training of the student's power of direct observation—a power which is too often allowed to remain dormant. Insistence on attention to the patient as an individual and not a mere vehicle for a disease can never be made too strongly. The philosophic outlook of the chapter on "Growth, Development, Decline, and Death" should arouse the interest of even sluggish minds. Throughout we are given a very high ideal of the role of the physician, leading to the conclusion that "the fine technique of the initial approach to the person must be wrought from special qualities within the personality of the doctor and through his cultivated talents."

Theories, like words, have their vicissitudes. Fifty years ago the word "diathesis," despite its respectable ancestry, had fallen into disrepute under the impact of the laboratory. "Constitutional diseases" figured in the textbooks as a synonym for some diseases of unknown causation. But genetics and the study of inborn diseases soon showed the way to a more exact investigation of the constitutional factor, which was later reinforced by the psychological approach. Of the interest which has been evoked by the resulting impulse to treat the patient as an indivisible unit these two books are abundant evidence.

MASSAGE

Deep Massage and Manipulation Illustrated. By James Cyriax, M.D., B.Ch. (Pp. 242; illustrated. 15s.) London: Hamish Hamilton Medical Books. 1944.

This is essentially a book for the physiotherapist. The technique devised by the author is very fully described; the illustrations are excellent and demonstrate clearly his method and the conditions for which it may be used. A brief introduction is worthy of study by doctors who prescribe massage, for although the author states, "It is no part of the medical practitioner's duty to supervise the massage technique employed," there is no doubt that doctors ought to have some practical acquaintance with the scope and limitations of physiotherapy, and should, when prescribing massage, indicate clearly the object it is desired to attain. It is not unknown for massage to be prescribed for conditions for which it is unsuited or to the wrong parts, as, for instance, in sciatic pain originating in the gluteal muscles when massage is ordered for the sciatic nerve itself, where it can do no possible good. The author does not attempt to describe the technique of all forms of massage and limits himself in this book to deep friction, which if used intelligently in the way he advocates is likely to give gratifying results in cases which are often difficult to treat and may indeed lead to permanent disability. A point of some interest, departing from the common practice, is the author's view that heating should not precede deep massage but may follow it, and for this he gives sound reasons. Teachers of massage as well as students will find this book instructive and stimulating.

TUBERCULOSIS OF EAR, NOSE, AND THROAT

Tuberculosis of the Ear, Nose and Throat; including the Larynx, the Trachea, and Bronchi. By Mervin C. Myerson, M.D. (Pp. 291; illustrated. $5.50 prepaid or 30s.) Springfield and Baltimore: Charles C. Thomas; London: Baillière, Tindall and Cox. 1944.

Dr. Myerson writes on tuberculosis of the ear, nose, and throat from special experience gained at the Sea View Hospital, and his views therefore compel respect. A large part of the book is devoted to the larynx, and although this is satisfying it contains nothing original, and he adheres strictly to orthodox lines of treatment, relying much, as did Sir StClair Thomson, on the use of the cautery. Dr. Myerson's opinion upon the effect of pregnancy is expressed fully in a special chapter, and he takes a much less gloomy view of this combination than was formerly prevalent. No doubt many pregnancies have been terminated unnecessarily on this account, and the author's discussion gives valuable guidance on this difficult question. A notable section of the book deals with tuberculosis of the middle ear and mastoid process—an obscure and frequently overlooked lesion on which there is much illuminating information illustrated by good pathological material.

Lupus, apparently, is much less common in America than in Europe, and Dr. Myerson claims only a very small clinical experience of this form of tuberculosis. The most original part of the book is that in which tracheal and bronchial tuberculosis is described along with an account of bronchoscopy in this particular connexion. This is a recent application of the bronchoscope, and the views expressed upon its use and abuse are a valuable guide. Writing of the tongue it is stated that at the Sea View Hospital sections were made of 200 tongues, and 19.9% were affected with tuberculosis. This statement is repeated later in the book, so that it is apparently not merely a slip of the pen, but it is difficult to understand how the author arrived at this calculation. He has, however, produced a comprehensive and well-documented account of the subject based on a large personal experience, and those interested in tuberculosis will be grateful to him. There are numerous illustrations, most of which convey their meaning clearly enough but have little aesthetic merit, and their artistic level does not rise to the literary standard of the text.

Notes on Books

A third edition of *Aids to Materia Medica*, by Dr. GEORGE H. NEWNS, has been published by Baillière, Tindall and Cox at 5s. The author of this small book can be congratulated on having produced a very useful collection of information, which includes the essential points of the actions of most of the substances considered. For the student wishing to prepare for an oral examination it should be valuable.

The appearance of a fifth edition of Dr. WILLIAM BROWN'S *Psychology and Psychotherapy* 24 years after the first bespeaks its continued popularity. Dr. Brown is dogmatic and persuasive, and in his writing does not employ too many technicalities. He follows no particular school and has theories of his own. He has enjoyed a deserved reputation as a successful psychotherapist and so is well equipped to appeal to the public in his writings. The first part of the book deals with the theories of psycho-analysis in relation to his own and relates some of his experiences in treatment. There is a new chapter on alcoholism which does not present anything specially new. The other new chapter is on the psychology of modern Germany, in which he traces the philosophical background of Nazi doctrine, then traces Hitler's own psychological development, classing him as both a paranoid and a hysteric. He considers that the German people as a result of their reactions to their defeat in the last war have identified themselves with Hitler's mentality and are also paranoid and hysteric. The chapters on the relation of mind to brain and on psychical research are little altered. Dr. Brown favours Bergson's philosophy and retains an open mind on but continued interest in spiritualism. The book is published by Edward Arnold at 14s.

Lieut.-Col. B. W. RYCROFT'S unambitious little book, *A Manual of Ophthalmology for Medical Officers* (Hamish Hamilton Medical Books; 10s. 6d.), should prove of considerable value to medical officers in the Services. The author devotes the introductory third of his text to methods of examination, to a description of standard lesions, and to an excellent general summary of the various methods of treatment employed. This makes the rest of the book easy to understand and apply. A final chapter deals with the special eye problems seen on active service. The many tables and summary classifications should be an extra help.

The Surrey Benevolent Medical Society was founded in May, 1812, by a meeting of doctors held at Epsom. It was at first of a social nature with a scientific side, exemplified by papers and discussions on medical subjects. As money accumulated the charitable side grew, and to-day the benevolent fund stands at over £24,000 in addition to the possession of four perpetual scholarships at Epsom College, bought in 1855. Dr. A. R. Walters of Reigate, one of the vice-presidents, has prepared a pamphlet which begins with a history of the founder, Thomas Martin, and follows with extracts from the minute-book giving a view of development and progress. The society helps doctors who are in need with the education of their children and the support of their families. Though the financial position is now very strong more members are needed. The hon. secretary is Dr. L. J. Barford, Heather Lodge, Redhill.

Dr. J. WILSON REID, honorary medical officer of H.M.S. *Conway*, has compiled a pamphlet, *Emergency Treatment of the Injured and Sick at Sea*, to meet primarily the needs of cadets training for sea service. It includes notes on further treatment when medical aid is unobtainable, for guidance in exceptional circumstances where there is no hope of the casualty receiving medical attention for some co siderable time. These notes are printed in italics and clearly mark so that such guidance may not be misused. The pamphlet published at 2s by Charles Birchall and Sons, Ltd., Liverpool a London.

Preparations and Appliances

USE OF SYNTHETIC MATERIALS FOR SURGICAL DRAINAGE

Mr. STEWART MANN, M.B., F.R.C.S.ED., assistant surgeon t out-patients, Glasgow Royal Infirmary, writes:

Improvement in surgical technique now makes the necessi for drainage less than in former times; and the dange attending the indiscriminate insertion of foreign bodies in wounds for this purpose have been emphasized by Kanave Trueta, Watson-Jones, and other writers; but there are sti many indications for their employment, and great quantiti of natural rubber are consumed. This material, the conserv tion of which has been repeatedly stressed by the Combine Raw Materials Board, has not been surpassed by any oth since it was introduced by Chassaignac in 1859. In virtue its resilience, flexibility, and capacity to transport blood an inflammatory products, it has gradually superseded the catg strands of Cheine, the soft lead tubes of Bell, and the resorbe tubes of Neubauer, which were responsible for MacEwen development of the decalcified chicken-bone drain.

A satisfactory drainage tube must be flexible without kinkin too easily. It requires to be light in weight, non-adhesive, no toxic, easily sterilized and cut, and not too easily compresse by heavy flaps or sutured wound edges. It is a desirable featu that the end in contact with the tissues of the body shou be soft enough to minimize trauma or necrosis. Exceptin rubber, there are few materials capable of fulfilling all the requirements; but we believe that there are possibilities in th field of synthetic plastics, and the two types described belo have been used by us extensively during the past two years.

Resinized Cotton Tubes.—These are constructed of finely wove cotton impregnated with a resin which does not crack or flak When the tube is bent, the interstices of the woven fabric are com pressed on one side and opened out on the other—a design whic confers a limited flexibility. These tubes, well known in the electric industry, are marketed under various names and can be sterilized boiling. Samples that had been autoclaved in the usual way ga no growth of bacteria after five days' incubation in anaerobic flu media. They are prepared for use by immersing one end for fi minutes in a 1 in 20 solution of carbolic acid to dissolve the res from the walls so as to allow the part in contact with the tissues t exert the capillarity conferred by its texture and to stimulate loc reversal of the lymph circulation in the sense described by Horsle and Whitehead. This procedure is essential to soften the end t be inserted. The tubes can then be boiled, cut, shortened, an adapted, and may be stitched in position. Though these tubes ar cheaper than corresponding rubber ones, they are not nearly s flexible and, being easily kinked, are unsuitable for abdomin surgery. In spite of these limitations, they have been used wi advantage in the out-patient department of our unit for nearly tw years.

P.V.C. (Polyvinyl Chloride) tubes are composed of a plastic manu factured by heat extrusion. They have physical properties whic render them almost indistinguishable from tubes of natural rubbe The P.V.C. tube is unaffected by age, water, salt solutions, bile, pu or body fluids, inorganic acids and alkalis, or mineral oils. The can be manufactured in all colours and in various grades of thick ness and flexibility, according to specification. They have been use with success in all cases where rubber drainage tubes were formerl used, including drainage of the pelvis, gall-bladder, and peritone and pleural sacs. It should be noted that immediately after steriliza tion by heat they may become too soft for general use, but wi regain their original texture after immersion for a few minutes i cold saline solution.

Though recommended as a wartime emergency measure, it i believed that more lasting advantages may result from the adoptio of tubes prepared from synthetic materials for purposes of surgica drainage. I wish to express gratitude to Mr. George Swanso visiting surgeon, Glasgow Royal Infirmary, who supervised their u in his unit, for helpful suggestions and advice; and to the Duratub Co., Middlesex, for supplies of material.

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ENERIC AND SPECIFIC TRIVIAL NAMES OF HE MALIGNANT TERTIAN AND QUARTAN MALARIA PARASITES

BY

FRANCIS HEMMING, C.M.G., C.B.E.

Secretary to the International Commission on Zoological Nomenclature

he *Official List of Generic Names in Zoology* was established y the International Congress of Zoology in order to promote ability in zoological nomenclature by placing on record the orrect names of the principal genera in each of the classes nd orders of the animal kingdom, together with their type pecies. Hitherto names have been placed on the *Official List* *Opinions* rendered by the International Commission on oological Nomenclature, but in 1943 the International Comission decided that it was desirable to make the *Official List* iore readily available, and accordingly determined to publish it s soon as possible in convenient book form and with a full idex. The preparation of the *Official List* for publication in iis way, which was begun in the autumn of 1943, involved ie checking of all the relevant bibliographical and other refernces to the generic names concerned and their type species. 1 the course of this work, errors were detected in a number f the *Opinions* containing decisions relating to the *Official List.* hese errors are being brought at once to the attention of the iternational Commission with a view to their rendering an *pinion* as soon as possible containing such rectifications as iay be necessary.

Among the errors detected were errors in the entries in *pinion 104* (published in 1928) relating to the author's name nd date of publication of the generic name for the malignant rtian malaria parasite (*Laverania* Feletti and Grassi, 1889). urther, in the case both of this name and of that for the uartan parasite (*Plasmodium* Marchiafava and Celli, 1885) the ype species was found to have been cited under a name which as not the correct name under the International Code of oological Nomenclature. The names of these parasites, as ecorded in *Opinion 104,* are the names now universally mployed for these species in the enormous medical and chnical literature relating to malaria, and it would clearly e as wrong as it would be impracticable to attempt to introuce changes in such names merely on grounds of zoological omenclature. In the present case such changes would be articularly undesirable, since they would involve the transfer f the specific trivial name "*malariae*" from the quartan arasite (on which it was bestowed by Grassi and Feletti, 1890), y which name this species is universally known, to the ialignant tertian parasite, on which in 1881 it had been idependently bestowed by Laveran (and by which name this pecies is never called). Transfer of trivial names in this way iuses great confusion, and the only solution in such a case for the International Commission to use its plenary powers suspend the rules in order to validate the names currently use. It was accordingly decided early in 1944 to invite the iternational Commission to deal with this question under its enary powers, and for this purpose a thorough investigation to the highly complicated literature of these names was made, ith the assistance of Sir Rickard Christophers and Brig. Sinton, whose paper "The Correct Name of the Malignant ertian Malaria Parasite," published in the *British Medical urnal* (1938, **2**, 1130), must form the starting-point of any ork on this subject. In the course of this investigation names eviously overlooked were brought to light and other unispected nomenclatorial difficulties were disclosed. A paper tting out in detail the present position under the International ode and containing recommendations to the Commission for acing the whole matter on a satisfactory footing has been epared and will appear in the next Part of the *Bulletin of oological Nomenclature,* the official organ of the International ommission on Zoological Nomenclature.

Quite recently the Officer in Charge of Malaria Control in ar Areas, Atlanta, Georgia, U.S.A., communicated to the ternational Commission an application prepared by Drs. urtis W. Sabrosky and Robert L. Usinger, U.S. Public Health Service, drawing attention to the errors in *Opinion 104,* and requesting the International Commission to use its plenary powers to suspend the rules for the purpose of validating existing nomenclatorial practice in regard to these parasites. This application has since been published in the issue of *Science* of Sept. 1, 1944. It is extremely gratifying to the Executive Committee of the International Commission to find that malariologists in the United States, working independently, have reached substantially identical conclusions in regard to this matter, since this should greatly facilitate the early adoption by the International Commission of an *Opinion* setting this matter at rest once and for all.

In order to secure the widest support for the action proposed to be taken, the Executive Committee, on behalf of the International Commission, invites expressions of opinion from specialists concerned in any aspect of the malaria problem. Such communications, which should be addressed to the International Commission on Zoological Nomenclature at its Publications Office, at 41, Queen's Gate, London, S.W.7, will at once be published in the Commission's official organ, the *Bulletin of Zoological Nomenclature,* in order that the whole of the material relating to this case may be before the Commissioners when reaching their decision.

ANGLO-AMERICAN CONSULTANTS CONFERENCE

A conference unique in the annals of medical meetings took place in Brussels on Dec. 10 and 11 under arrangements made by the Director of Medical Services, 21st Army Group, with the assistance on the professional side of Brig. A. E. Porritt, Consulting Surgeon, Brig. E. Bulmer, Consulting Physician, and Col. J. S. K. Boyd, Deputy Director of Pathology. Over 50 consultants—American, British, and Canadian—from the Forces in N.W. Europe attended, with representatives of the War Office and of Canadian Medical Headquarters. This followed a similar meeting in Paris in October, 1944, organized by Major-Gen. P. R. Hawley, Chief Surgeon, European Theatre of Operations, U.S. Army, which proved so valuable that further meetings were thought necessary in order to integrate the professional work of the several Armies.

The proceedings in Brussels comprised a combined meeting of physicians and surgeons, followed by meetings of medical and surgical sections. The subjects discussed were: Chest wounds (Major J. L. Collis, R.A.M.C.), uses of penicillin (Lieut.-Col. G. A. G. Mitchell, R.A.M.C.), personal re-allocation (Lieut.-Col. W. R. Lewin, R.T.R.), dermatology (Lieut.-Col. F. F. Hellier, R.A.M.C.), Weil's disease (Brig. E. Bulmer, R.A.M.C.), diphtheria (Major-Gen. A. G. Biggam), prevalent diseases (Col. W. S. Middleton, U.S.A.M.C.), paraplegics (Brig. G. Riddoch, R.A.M.C.), abdominal wounds (Col. Elliott Cutler, U.S.A.M.C.), anaesthetics (Lieut.-Col. R. M. Tovell, U.S.A.M.C.), vascular injuries (Lieut.-Col. C. B. Odom, U.S.A.M.C.), head injuries (Brig. H. W. B. Cairns, R.A.M.C.), burns (Lieut.-Col. E. M. Bricker, U.S.A.M.C.), joint injuries (Lieut.-Col. A. L. Eyre-Brook, R.A.M.C.)

Throughout the conference there was a remarkable absence of diversity of opinion, though there was a very free interchange of views and experiences. Many of the problems of war medicine and surgery have such important implications that they cannot be ventilated publicly, while their successful solution is, at times, more valuable to the Allies than the enemy's "secret weapons" are harmful. Such an opportunity for pooling knowledge as this conference afforded is of inestimable value to the war effort, and achieves not only this immediate purpose but helps to pave the way to the establishment of that international understanding and unity of purpose which must in due course be the keystones of a successful peace.

A small committee has been set up in Edinburgh to organize a memorial to Dr. Andrew Graham Ritchie, F.R.C.P.Ed., who died on Oct. 12, 1944. It is proposed to provide a bursary to be awarded annually to a medical graduate of Edinburgh University. The award will be based on character rather than on educational attainments, and preference will be given to the son or daughter of a member of the medical profession.

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THE WATCH ON LONDON'S WATER

One of the outstanding public health achievements of the war has been the protection of London's water supply. Seven years ago, owing to the accidental contamination of one of its wells, Croydon had an outbreak of typhoid, with 323 cases and 43 deaths, and public alarm and indignation were widespread. But if, through the hazards of war, only one of the twelve filtration works of the Metropolitan Water Board had become a source of infection, the result, calculated on the basis of previous epidemics, would have been an outbreak fifty times greater than that of Croydon, not to speak of hundreds of permanent carriers to form a reservoir of fresh infection. The calamity not only to public health but to public morale can be imagined. In fact not a single case of typhoid attributable to the water supply has occurred in London since September, 1939. The water supply of the immense metropolitan area must have seemed as obvious and desirable a target for the enemy as the wells of Moab to the predatory children of Israel. To stop or to pollute the water supply of one-sixth of the people of this country would have been a paralysing blow in total war, worth many military victories. The metropolitan water system covers an area four times the size of the Isle of Wight and serves seven million people, to whom it brings a daily average of 300 million gallons. To distribute this water through 8,000 miles of pipes is far more than a gigantic piece of plumbing. Five-sixths of the supply is river water, which becomes more and more heavily polluted and has to undergo most elaborate purification; while the remaining one-sixth, from the wells of the great chalk basin beneath London, is progressively deteriorating with increased urbanization, and must be chlorinated. Continual examination and analysis is necessary.

To use a phrase which has quickly become hackneyed, "it can now be revealed" what precautions the Metropolitan Water Board took during the years of war. A part of the revelation was made in a recent lecture at the Royal Institution by Lieut.-Col. E. F. W. Mackenzie, director of water examination, who now fills the office which Sir Alexander Houston occupied with far more than local renown for thirty years. Every conceivable form of damage was done by aerial attack, though apparently most of it was incidental. Sewers were damaged during every raid, with the result that untreated sewage was discharged into the river from which the raw water supplies came. Reservoirs were cut off from purification works by the destruction of aqueducts. Bombs fell into filter beds and caused short circuits between filtered and unfiltered water channels. The demand for water against fire necessitated the occasional by-passing of the slow sand filters in order that supplies might be maintained. Fracture of water mains was an almost inevitable accompaniment of heavy aerial bombardment; o one night alone five hundred mains were broken. Ye though the opportunities for dangerous pollution wer manifold, London escaped any epidemic. During fou years of war bacteriological analyses were carried out o more than 50,000 samples drawn at the works, particularly in localities where bomb damage had been heavy, an 99.3% showed absence of *B. coli* in 100 ml.—in othe words, the water conformed to the highest standard o bacterial purity.

How this achievement was brought about is in many way technical and to be appreciated only by the water enginee In the first place it was determined that there should b no interruption in the routine of laboratory examinatio and quality control. Suitable buildings in comparativel safe areas were converted into accessory or alternativ laboratories. Pre-chlorination, in high dosage when necessary, was extended to all the filter works, thereby makin it certain that the water was in a state of considerabl bacterial purity before it even reached the filters. Th residual chlorine in the water passed into supply wa increased to the highest level consistent with avoidance o serious complaint on the ground of taste. By this mean the danger of bacterial pollution through seepage o ground water into broken filtered water channels was, i not neutralized, at least greatly reduced. But the presenc of this residual chlorine in the water was not made a excuse for relaxing the more positive methods of protection. Chlorination is ordinarily regarded as only th third in importance of the purification processes, the firs two being storage in large reservoirs and filtration throug slow sand filters, though it was foreseen that at any momen the circumstances of war might make chlorination th most important, or even the only, barrier against th spread of water-borne disease. Chlorine installations wer duplicated at convenient points; provision was made fo applying chlorination where no apparatus had existed, an mobile chlorinators were also brought into use and assigne to different areas in London.

The possibility of chemical poisons being introduced int the water, either deliberately or accidentally by the use o poison-gas bombs, was countered by a system of guard at the works and reservoirs and by arrangements fo immediate testing on suspicion of contamination. A sta of sample collectors and analysts was employed at th central laboratories day and night to carry out confirmator tests. The ever-present danger of the admission of th contents of sewage channels into water channels owin to the fracture of both was provided against by the us of valves which permitted of rapid closure in emergenc and by a thorough flushing and disinfection of any mai after repair and before it was brought back into suppl To add to all this it must be remembered that it was no only for purity but for plenty that the Metropolitan Wate Board had to strive. In heavy raids local destructio caused occasional interruption of water supplies, and on of the most heartrending things was to see fire spreadin from house to house, as we saw it in one cherished district of old London, with the firemen standing helplessly b because the water supply was exhausted. It must hav een a heavy responsibility to decide how far orthodox nethods of purification might be discarded with a view o increased production. It was constantly a choice etween two very different but heavy risks—and there is o hard-and-fast line between a safe and an unsafe water, ny more than between a state of health and of disease.

Those in charge of London water have written a great ew chapter in public health history during the last five ears, but like so many chapters of the kind, because the eaten adversary was largely unseen, because the possible alamity never took shape, it goes largely unread. The itizen will still go to his tap and turn on the water of the hames or the Lea, and expect to find it pure and tasteess for drinking and plentiful and clear for cleanliness, nd will have something to say about it if it is not. The chievement will be written off as just another piece of onstabulary duty—the sort of thing one has a right to xpect of a British public service; and that, indeed, is the ighest compliment that can be paid to it.

THE MEDICAL FILM

he Scientific Film Association is to be congratulated on aving made a start with the organization and co-rdination of medical cinematography. The purpose of he medical film is quite different from that of the enterainment film, and it is important that they should not e confused. Otherwise comparisons are inevitably drawn vhich are inappropriate, because the two types of film hould be used in an entirely different way; nothing is nore tedious than an unbroken succession of medical or cientific films. We therefore strongly recommend the cientific Film Association at once to give up any idea f medical film shows and not to repeat the type of rogramme presented at the meeting held at the Royal ociety of Medicine on Dec. 7. This programme conained four films. The first dealt with the removal of a hell fragment from the heart; it was of no scientific alue, and its proper place was in a news reel or magaine programme at a public cinema. The second dealt vith the genesis of function in the embryo; it was highly echnical, dealing with actual research, and was incomrehensible without a detailed verbal introduction. The hird was a straightforward teaching film on spinal anaeshetics. The fourth dealt with the survival and revival of rgans and organisms; it had far-reaching implications or surgery and philosophy and would have served as the ntroduction to an enthralling debate. All this was packed nto 90 minutes. It would not be unfair to say that the rogramme had attracted the wrong kind of audience—an udience interested in means rather than ends. It left an ffect of acute fatigue and confusion. Such a programme nay have been thought necessary as providing an initial llip to the study of the scientific film. In itself, however, contributed nothing to the understanding of the place f the film in medical teaching, and it may, in fact, have onfirmed some people in the opinion that the scientific lm is an extra-curricular activity, to be classed with party olitics and amateur theatricals, all of which merely lure he student from the straight and narrow way.

The film may be used in medicine for public propaganda, for undergraduate and postgraduate teaching, or for the presentation of the results of research. We shall forgo discussion of medical propaganda films except to say that we believe that, like medical broadcasting, they are of tremendous importance in the education of democracy, and the best brains in medicine should be prepared to collaborate in their production. In the narrower field concerned with the showing of films within the profession, what is needed is actual demonstration of how to use the film in teaching and how to use the film to present the results of research. How helpful are the scabies films in the teaching of dermatology or the malaria film in the teaching of malariology? Should the two scabies films be given in immediate succession to drive the lessons home? How does Prof. X actually use his series of films of tics and tremors in student teaching? To what extent can we use the film as the gramophone is used for teaching musical appreciation, stopping and repeating until the lesson has been learned? Why was Florey's penicillin film such a brilliant illustration to his address, and was its effect produced by intellectual or emotional means? Can we formulate any general rules for the use of colour and the animated cartoon? The best way to begin attacking these problems may be to create a Section of Medical Cinematography in the Royal Society of Medicine. Such a section would hold two kinds of meetings. There would be combined meetings where methods of teaching would be demonstrated or original work would be illustrated by films. Thus the anaesthetic films would be shown at the Section of Anaesthetics, and discussions would be held to estimate their precise value in the teaching of anaesthetics. The Section of Medical Cinematography would also have its own meetings, at which films were shown and criticized from the aspect of production and technique. Whichever kind of meeting was held, it would rarely be desirable to show more than one film on any single occasion.

As a profession, then, it is high time we got past the penny-gaff state of mind, gave up going to meetings merely to see medical films, and began to wrestle seriously with the problem of the value and methods of illustrating the medical lecture by the new techniques of the cinema film and the sound track. As is pointed out in a recent broadsheet on British documentary films,[1] there is more experience and skill available in this country for the production of scientific and factual films than in any country in the world. Hitherto it has hardly been employed at all in the service of education, and we have the vicious circle that there are no films because the schools do not have the projection apparatus to show them, and vice versa. In an instructive article on medical films[2] Longland, MacKeith, and Stanford have pointed out that the Goodenough Committee gave no consideration to the use of the film in medical schools or to the cost of such a development. It is to be hoped that the medical schools will repair this omission in their discussion of the Report. If the clinical period is to be kept at 2½ years they will have to copy the Services and devise some form of synthetic training in which clinical experience is supplemented by cinematic instruction. What is needed now is not so much technical advances in the production of films as hard thinking and experiment to determine how best to integrate the film with the rest of the apparatus of medical education. Unfortunately the older teachers seem more concerned with the politics of the Goodenough report—the fate of the colleges, the role of the municipal hospitals, and the placement of women students—than with improving the technique of education; and we may have to wait for the younger generation to return from the wars before we can get radical changes in medical teaching.

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[1] *Planning*, 1944, No. 228, Dec. 8.

[2] *Lancet*, 1944, 2, 585.

TERMINOLOGY IN MALARIA

For some time terminology in malaria, especially that relating to the epidemiology of this disease, has been in need of revision and standardization to bring it into line with modern conceptions and usage, and, so far as possible, to attain uniformity and precision in the meaning of terms employed by workers of different countries. The Health Section of the League of Nations shortly before the war appointed a committee to consider the standardization of terminology in malaria, and its report has been published. Further, in this number of the *Journal.* Mr. Francis Hemming, Secretary to the International Commission on Zoological Nomenclature, contributes an article on the generic and specific names of the malignant tertian and quartan malaria parasites. These documents provide a clear and useful review of the subject. The report of the Health Section of the League of Nations consists of two parts—a commentary and a glossary of precise definitions. The commentary outlines the chief facts of malaria and its epidemiology, indicates the terms in use, and explains why some of them should be retained or improved upon. A suggestion welcome to the practical worker is that the expressions *vivax* malaria or infection, *falciparum* malaria or infection, etc., should be employed in place of such clumsy and archaic names as "simple tertian," "benign tertian," and the like. The full explanation of what is meant and implied by various indices in use, the treatment of the problems connected with endemicity, and the guidance to the nomenclature of species and varieties of anopheles, should all help to achieve precision and uniformity.

The correct names of the malaria parasites have long been a matter of controversy, and it is here that the communication from the Secretary to the Commission on Zoological Nomenclature promises a satisfactory solution. The names *praecox*, *immaculatum*, *tropica*, and *falciparum* claimed by their respective upholders as carrying priority are none of them seemingly the correct name of the malignant tertian parasite judged by strictly zoological standards. Yet by a sort of irony of error it is impossible now to apply the correct name either to the malignant tertian or to the quartan parasite, because the correct specific name for the malignant tertian parasite cannot be anything else but *malariae*—the name given to it by Laveran, who first described this parasite; the very name that for nearly half a century by reason of an early error has, through a vast literature, been incorrectly used to designate the quartan parasite. It is unthinkable that a change could now be made, and fortunately in such cases the International Commission on Zoological Nomenclature has power to rectify matters by suspending the rules, if necessary, to validate names currently in use. That it is proposed, as will be seen from the Secretary's communication, to exercise these powers will be generally welcomed.

HOUSING THE ROYAL COLLEGES

An article on another page briefly tells the story, so fa as it has gone up to now, of the project to bring togethe on a common site in the middle of London the Royal College of Physicians, the Royal College of Surgeons, and th Royal College of Obstetricians and Gynaecologists. Letter printed in the *Times* last week have put the idea into th foreground. This is a matter of great interest and importance to medicine, and it should have free discussion. Th attitude of the R.C.S. is clear and has been openly state in the annual report. At the annual meeting of Fellow and Members on Nov. 16 the President said, with regar to the rebuilding of the College and the proposal to buil the other Royal Colleges on adjacent sites, that the possibilities of building elsewhere had been explored, but th manifest advantages of the site in Lincoln's Inn Field seemed to outweigh them. Nevertheless the Council o the R.C.S. has said it is prepared to make big sacrifice if convinced that a move is necessary for the promotio of better relations or facilities between the three corporations. It may be supposed that the R.C.O.G. would welcome removal from its house in Queen Anne Street to th large site on the south side of Lincoln's Inn Fields. Mor than fifteen years ago the R.C.P. decided that its buildin in Pall Mall East and Trafalgar Square, which opened i 1825 when the College moved from Warwick Lane in th City of London, was unsuited for its purpose and that new home should be sought. By 1934 negotiations fo the sale of the Trafalgar Square site to the Canadia Government for the enlargement of Canada House wer nearly complete, but had to be broken off. In recent year the Standing Joint Committee of the three Colleges cam to the unanimous conclusion that the securing of a singl site was more important than the qualities of any particula site. Meanwhile the R.C.S. has acquired new ground i Lincoln's Inn Fields large enough to accommodate th needs of all three Colleges as well as a number of th major specialties. A factor which must carry weight wit the Fellows of the R.C.P., on whom rests the responsibilit of decision, is that, in Lord Dawson's words, "the presen Canadian Government is still wishful, subject to negotiation, to purchase the R.C.P. building." The scheme fo adjacent College buildings in Lincoln's Inn Fields may b both practicable and desirable from the point of view o the R.C.P.: it certainly deserves early and careful consideration. There would seem to be much to gain an little to lose if consultants and specialists were topographically conjoined in Lincoln's Inn Fields.

PREVENTION OF BLINDNESS

An intensive sight-saving campaign promoted by th National Institute for the Blind is opening in 1945. Alread the rehabilitation work of the Institute has brought th light of a fuller life to those who labour in physical darkness. Recently the County Councils Association and th Association of Municipal Associations requested the Institute to prepare a minimum scheme of ophthalmologica research, which has been adopted, and presently it i expected that the major local authorities will be invite to support it. Meanwhile, Oxford University Medica School resolved upon establishing a research centre wit Miss Ida Mann at its head. That department has alread done promising work. A fund was opened a year ag and £100,000 has been received from voluntary source mainly industrial. Sir James Marchant, who has bee promoting the Oxford Fund, has now been invited b the Prevention of Blindness Committee of the N.I.B to undertake the founding of a central fund fro which the centres in London, Leeds, and Manchester will largely profit. The results of these research centres will be co-ordinated, and it is confidently expected that in a generation blindness will be much reduced. Writing on this campaign for 1945 Sir James reminds us that ophthalmology as a university subject involves the co-ordinated study of the dominant sense in man in all its aspects—evolutionary, developmental, physiological, psychological, and pathological. The demand for research in industry and medicine is not merely a matter for technical experts: it is a new venture in human thought. He asks that his appeal should not be regarded as a mere matter of charity; it is a business proposition which will pay a handsome dividend. The present aim is to raise £1,000,000. He is to be found at 224, Great Portland Street, London, W.1, or Lenthay Lodge, Sherborne, Dorset.

SCIENTIFIC CO-OPERATION WITH CHINA

Anyone who thinks about China must reflect that famine and disease, both before and during the Sino-Japanese War, have taken a far greater toll of the lives of Chinese babies than have Japanese bombs. It is remarkable that China, after a war of such duration and under such conditions, has continued to manifest even a show of resistance. If sympathy for China is to have value it must be based on a correct interpretation of China's needs. The material aid that can be given to China will continue to be limited by the general war situation, and such is the state of communications that Chinese scientific workers have been cut off from scientific and technical journals and have therefore been unable to follow the progress of science in the West. Some of the barriers to a flow of information on scientific matters between this country and China have recently been discussed in *Nature* and in an article by Dr. Joseph Needham, F.R.S., in the same journal.[1] [2]

Dr. Needham is director of the British Council Cultural Scientific Office in Chungking. The story of the development of this office is told in the Report of the British Council for 1943–4.[3] Dr. Needham arrived in February, 1943, and immediately embarked upon an exacting programme of visits, discussion, and lectures which involved extensive travel under difficult conditions and no little physical hardship. By February, 1944, he had visited over 100 Chinese scientific institutions. Within a few weeks of his arrival he had submitted to the British Ambassador a detailed memorandum which led to the formation of the British Council scientific office which he now directs. Dr. Needham was later joined by Dr. Dorothy Needham, also a distinguished biochemist, and the services of Prof. William Band, a physicist, were loaned by Yenching University, Peiping. More recently Dr. L. E. R. Picken, a Cambridge zoologist, joined the staff in Chungking. Both Dr. J. Needham and Dr. Picken have, in addition to their scientific attainments, been students of the Chinese language and culture for some years.

A few weeks ago Dr. A. G. Sanders, of the Sir William Dunn School of Pathology, Oxford, one of Sir Howard Florey's team of workers on penicillin, arrived in Chungking as medical adviser to the British Council office for a period of not less than one year. Dr. Sanders has had experience both as a clinician and as a laboratory worker, and although he will be concerned with the supply of information on a wide range of medical subjects, his ability to speak as an expert on penicillin—and, particularly, on its non-industrial production with improvised equipment—may have practical significance.

It is satisfactory to note that the *British Medical Journal* is one of many scientific periodicals which the British Council is now sending regularly by air-mail on microfilm. Copies of the journals themselves are necessarily sent by a slower and more uncertain route. Since the establishment of the scientific office in Chungking it has been possible also to meet many requests for books and reprints. It is to be hoped that these efforts will be accepted in China as an expression of the desire of British medical and other scientific workers to offer the fullest collaboration to their Chinese colleagues and to help them to endure for yet a little while that unhappy isolation which circumstances have thrust upon them.

PHARMACOPOEIAL POLICY

The Seventh Addendum to the *British Pharmacopoeia, 1932,* shows a continuation of the progressive policy of the Pharmacopoeia Commission. Among the additions are benzedrine under the pharmacopoeial name of amphetamine, cyclopropane, zinc-protamine-insulin, nembutal under the name of soluble pentobarbitone, and all the sulphonamides with the exception of sulphasuxidine and sulphamezathine. It is interesting that gratus strophanthin (or ouabain) has been included. This is a crystalline strophanthin of constant activity, and it remains to be seen whether doctors will use it more than they have the *kombé* strophanthin, which is already included. The potency of the *kombé* strophanthin was ensured by a biological standardization. Since the introduction of digoxin the profession appears to have neglected the use of strophanthin for injection, though it has considerable value as a heart tonic.

The Addendum contains a large number of monographs for various tablets. Codeine phosphate appears in the *B.P.* not merely as codeine phosphate but also as tabellae codeinae phosphatis, so that each tablet contains not less than 87.5% or more than 110.5% of the prescribed or stated amount: the manufacturer, in making a large batch of tablets by mixture with an excipient, will have to take care that the distribution of the codeine is reasonably uniform in the mixture. Tablets are now official for several barbiturates, sulphonamides, antipyretics, vitamin preparations, and other substances. Provision is made for those doctors who do not state what dose the tablet is to contain, by a statement of what is to be dispensed. "Soluble thiopentone" is another addition of interest, though few will recognize pentothal under this description: the Addendum does not indicate that soluble thiopentone and pentothal are one and the same thing. The *Pharmacopoeia* would help its readers if it published proprietary names as synonyms or else as the names of substances having a very similar action. A large New York hospital recently instructed its dispensary to supply, for all proprietary articles ordered for patients, the equivalent products described in the *United States Pharmacopoeia*; this saved the hospital no less than £12,500 in one year—which shows there is something in a name after all. Dispensers in British hospitals might take a hint, and teachers of clinical medicine might set their housemen an example by eschewing the use of proprietary names when official terms exist: it should be quite simple to call sulphanilamide by its name instead of by one of the numerous fancy terms politely called synonyms.

Prof. G. Grey Turner will deliver the Hunterian Oration before the Royal College of Surgeons of England on Wednesday, Feb. 14. His subject is "The Hunterian Museum: Yesterday and To-morrow."

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[1] *Nature*, 1944, **154**, 649.
[2] Ibid., p. 657.
[3] *Report of the British Council 1943–1944*, 1944, 3, Hanover Street, London.

SUPERVISION OF MENTAL DEFECTIVES IN THE COMMUNITY

BY

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The object of this communication is to place on record the changes which wartime has brought to those mental defectives who live in the community. This study is limited to those persons ascertained as mental defectives under the Mental Deficiency Acts (1913 and 1927) and therefore under the supervision of the local authority. This supervision was undertaken primarily to provide an immediate remedy where the defective was being cruelly treated or had been left without adequate protection, and also afforded an opportunity to give warning and assistance to the relatives where such were found necessary. The name of the ascertained mental defective is recorded in the National Register as a person not subject to the National Services (Armed Forces) Act, 1939; he is thus able to seek employment on his own without reference to the employment exchange. As a result of shortage of man-power some of those who before the war would have been looked upon as unemployable are now in full work.

To my knowledge no similar investigation has been recorded in the English literature, but Kannar (1942) has drawn attention to the comparable position in the United States of America.

Statutory Supervision

At the beginning of 1944 there were 323 ascertained mental defectives in Gloucestershire subject to supervision by health visitors. This total may be divided for the sake of convenience into three main groups, and it is the third group with which these notes are mainly concerned.

(*a*) *Unsuitable for School (96 Cases).*—These are the youngest cases under statutory supervision, and include children below school age and children of school age who are uneducable either at an ordinary elementary school or at a special school for mental defectives. By reason of mental defect their names were removed from the school registers.

TABLE I.—*Male Mental Defectives under Statutory Supervision*

No.	Age	Mental Age	Source of Ascertainment	Employment
1	29	—	School	Forestry
2	19	8 years	,,	Factory worker
3	18	9 years 7 months	,,	Collier
4	25	8 years	,,	Agricultural worker
5	22	6 years	,,	Coal haulier
6	24	7 years 6 months	,,	Agricultural worker
7	29	7 years	,,	Builder's labourer
8	19	6 years	,,	Factory worker
9	16	7 years 10 months	,,	Agricultural worker
10	32	—	,,	Works at saw mills
11	15	5 years 6 months	,,	Thatcher
12	18	11 years 6 months	,,	Agricultural worker
13	34	5 years 9 months	,,	,, ,,
14	33	8 years	,,	General help at hotel
15	24	9 years 4 months	,,	Lorry driver's mate
16	28	—	M.O.H.	,, ,, ,,
17	22	5 years 2 months	School	Errand boy
18	18	9 years	,,	Agricultural worker
19	17	9 years	,,	Collier
20	19	7 years 3 months	,,	Checker, rlwy. goods dept.
21	22	7 years 6 months	,,	Boot factory
22	30	—	,,	Agricultural worker
23	17	9 years 9 months	,,	,, ,,
24	25	8 years 7 months	,,	Machinist at factory
25	21	—	,,	Agricultural worker
26	22	7 years 6 months	,,	,, ,,
27	39	—	,,	Office cleaner
28	25	7 years 3 months	,,	Haulier
29	31	8 years	,,	Builder's labourer
30	19	8 years 4 months	,,	Agricultural worker
31	38	—	,,	,, ,,
32	20	9 years 9 months	,,	,, ,,
33	26	6 years 9 months	Probation officer	Errand boy
34	24	—	School	Agricultural worker
35	17	7 years 10 months	,,	Hotel kitchen worker
36	16	9 years 2 months	,,	Agricultural worker
37	46	—	—	,, ,,
38	19	5 years	School	Errand boy
39	26	8 years	,,	Agricultural worker
40	39	—	,,	,, ,,
41	23	7 years 6 months	,,	,, ,,

(*b*) *Unsuitable for Work (179 Cases).*—These are usually cared for in their own homes. The parents or relatives with whom they are living find that they can deal with their physical needs, but require a varying amount of guidance and assistance from time to time in dealing with the special problems associated with the mental defect. In addition the occasional contact as provided by the health visitor at quarterly intervals is found to have a stabilizing effect.

(*c*) *Suitable for Work (48 Cases).*—Some 41 males and 7 females were employed in full-time work bringing in a reasonable wage, and 44 of the 48 cases were ascertained from the school records, whereas cases ascertained from other sources did not fit into this group. As will be shown later, this fact is by no means without significance in view of the changes introduced by the new Education Act.

Of 114 males 41 were in gainful employment, and 20 of these were engaged in agricultural work. Many of these men have low mental ages, but inquiry has shown that in spite of this they are able to drive tractors and to perform other tasks of farming which are by no means monotonous. No useful purpose would be attained by drawing attention to occasional cases where the defective was found to be drawing a high wage in a factory, a sum in excess of the wages of the health visitor carrying out the supervision. A defective with a mental age of 8–9 years is able to do certain repetitive work in a factory, but this does not seem to be a state of affairs to be encouraged, by reason of the ever-present danger of powerful and rapidly moving machinery. It is difficult to see how a boy with a mental age of 7–8 years can make a checker in a railway goods department. Even those working as errand boys provide something of a problem, but it has been explained to me that they memorize the whereabouts of the customers without reading the addresses. Those described as colliers were found to be only surface workers employed in sorting and grading the coal.

TABLE II.—*Female Mental Defectives under Statutory Supervision*

No.	Age	Mental Age	Source of Ascertainment	Employment
1	28	—	Public Assistance Committee	Factory worker
2	20	6 years 6 months	School	,, ,,
3	48	—	Public Assistance Committee	Domestic ,,
4	18	8 years 3 months	School	,, ,,
5	31	—	,,	Laundry ,,
6	27	7 years 4 months	,,	Factory ,,
7	20	10 years 6 months	,,	Domestic ,,

Out of a total of 113 adult females only 7 were found to be engaged in work away from home bringing in a reasonable wage. These were all doing domestic work of one sort or another, either in private houses or in factories. Needless to say, many others of the remaining 106 worked in their own homes, taking on quite substantial domestic responsibilities; but, since there is no means of accurately assessing the value of this work, these have been disregarded.

Discussion

Since the great majority of ascertained mental defectives who subsequently have been shown to be employable are ascertained in school, it is clearly of the utmost importance to safeguard against any stigma such as was present under the classification required by the Education Act, 1921. Under the new Education Act it will be the duty of every local education authority to ascertain the children within their area requiring special educational treatment. The parent of the child may be required to present him for examination by a medical officer of the local education authority to determine whether he is suffering from any disability. It would appear that the child will hold a status of educational disability rather than acquire the label of a mental defective.

As regards the legal status of the adult, it would appear that he is either a certified mental defective or not, and, where he is an ascertained mental defective, presumably he has full legal capacity.

From study it has been found that those ascertained mental defectives in employment are conscientious and industrious, and in many cases use the money they earn to help maintain the household. The jobs at which they are employed are real and necessary contributions to our mode of life. They are not really misfits in the community; it is rather that in the normal peacetime labour market they are unable to get the jobs for which they are best suited. Kannar (1942) suggests that these persons should be described as of "intelctual inadequacy" rather than of mental deficiency. He points out that the mental defective in the true sense of the word has no place in the war effort of the United States of America, but that the majority of the "intellectually inadequate" can very well be integrated into the defence industries.

The Central Association for Mental Welfare, in its 21st annual report (1934), considers that ascertained mental defectives can only be supervised in the community so long as this is done by trained workers, and where facilities are available for occupation and training. From the findings of this study, however, it would appear that with favourable conditions some ascertained mental defectives can find and keep employment, when this is made available to them, without the intervention of trained social workers.

Possibly the position is overstated by Dayton and Nugent (1941) in claiming that institutionalization should be the last resort when all other efforts have been exhausted. Rather what is wanted is some system of assisting these persons to find suitable employment near their own homes, as was done years ago in New York City, where a bureau was established to place such persons in suitable gainful employment—see Davies and Williams (1930). In addition to this some financial aid should be provided by the State, as in the case of blind persons; this would indeed be cheaper than institutionalization, and might well be included in any comprehensive system of social security. Further, it has been said that institutional training tends to adapt the defective to the institution rather than to the outside community. Supervised life in the community and assistance to find suitable employment with financial aid in peacetime would train a greater number of ascertained mental defectives who are intellectually inadequate to adapt themselves to the environment of the community and to become responsible and useful citizens.

Summary and Conclusions

Out of a total of 227 ascertained adult mental defectives under supervision in Gloucestershire some 48 are now in full-time gainful employment.

Out of this total of 48 cases in employment 44 were ascertained in school. This emphasizes the importance of the status given to such children by the new Education Act, in which they are regarded as children with an educational disability.

For male defectives farm work is the most popular, and by reason of labour shortage they are now able to secure such employment.

In peacetime conditions, however, they will once more fall out of employment, and it is therefore suggested that they should receive assistance to find suitable jobs and, if necessary, financial aid in order that they may have the opportunity of fitting in with any comprehensive system of social security.

I am indebted to Dr. H. K. Cowan, county medical officer, for his help and for permission to publish the results of these investigations.

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HOME AMBULANCE SERVICE

The Home Service Ambulance Committee of the Order of St. John and the British Red Cross Society in its twenty-fifth annual report recalls that the committee was set up in April, 1919, as an experimental measure, to provide a chain of ambulance stations throughout the country, primarily to serve the needs of rural areas. By October of that year 296 ambulances had been allotted and 171 delivered. To-day the total number of ambulance stations is 530—131 equipped by the committee and 399 affiliated stations. The report, though unavoidably delayed (it covers the year 1943), provides ample evidence of the value of the service to the scattered population of country areas. During the year 297,864 patients were carried, bringing the total number using the service since it started to 3,173,658. In an accompanying letter the committee's joint secretaries refer to comments that have been made on shortcomings in existing ambulance services. They point out that the Home Ambulance Service is administered throughout England and Wales on a county basis with headquarters in London, and the organization lends itself readily to any regional or national scheme.

"The service, free from red tape, is always ready to meet emergencies as they arise. No ill-judged rules or regulations as to areas or boundaries are permitted to delay the prompt aid that may mean the difference of life or death to the patient. In such a service the welfare of the sick and injured must be the first consideration. These ambulances work in a field where they are self-dependent, to a very large extent, for the preparations of the patients for safe transport. They must not only be equipped with first-aid materials and sick-room requisites, but must include staffs trained and qualified to deal with casualties and invalids under the most difficult conditions. It is for just such work that the training demanded by the Order of St. John and the British Red Cross Society equips their members. Duties are more or less evenly divided between the men and women of the divisions and detachments. The nurse escort is an aspect of the work which has been developed considerably in recent years, and with the return to normal the ambulance staffs of the Order and the Society will be available as a trained and sympathetic body of men and women ready to take their place in the National Health Service."

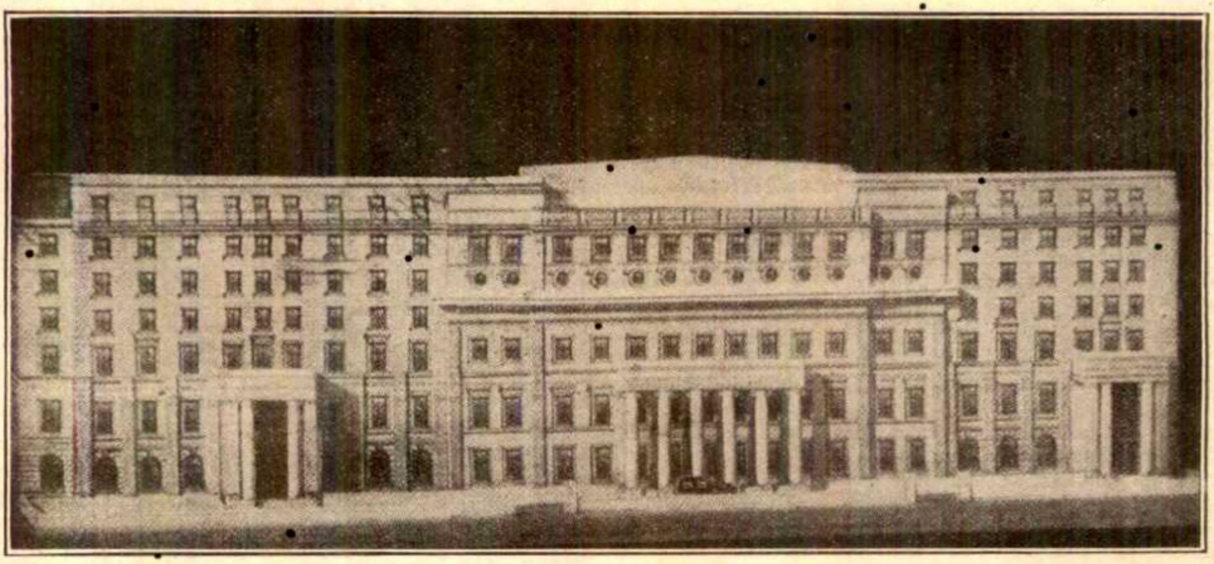
AWARDS TO CIVIL DEFENCE M.O.s

The *London Gazette* has announced the appointment as M.B.E. (Civil Division) of Dr. Una Mary Mulvany (Mrs. Swanston), medical officer in charge of first-aid post, Civil Defence Casualty Service, Southsea, and Dr. Tertius Thomas Bryce Wood, officer-in-charge of mobile unit, Civil Defence Casualty Service, Watford. The citations read as follows:

> Dr. Mulvany has been on duty during every heavy raid and has always been on her way to duty within seconds of the first bomb falling, never waiting to be called. By her unfailing courage and complete disregard of danger she has set a wonderful example, and her kindness and cheerfulness have given great comfort to many. On one occasion when a building received a direct hit Dr. Mulvany immediately went to the scene. She worked her way through the debris to reach three people who were trapped in the cellar and administered morphine to them. Although she must have known there was imminent danger of the place collapsing, she remained with them for nearly two hours.
>
> A flying bomb damaged houses and people were trapped. During the early stages of the rescue work walls were still collapsing and fires were burning. Dr. Wood took risks on many occasions in order to administer morphine to the injured trapped in the debris. His cheerful leadership and devoted service were an inspiration to the other rescue workers, and his efforts not only contributed materially to the saving of life but were a real source of encouragement to the trapped persons.

ORTHOPTIC TEACHING AND TRAINING

Orthoptic treatment has been on a scientific basis for ten to fifteen years. Formerly attempts to improve binocular vision were rather half-hearted and limited to the practice of a few progressive ophthalmic surgeons. Maddox devoted a great deal of time and energy to the subject, and, by his recognition of the difficulties and his systematization of treatment, may be regarded as the founder of the orthoptic treatment of to-day. The main object is to awaken a dormant or to stimulate a weakened desire for binocular vision. Undoubtedly there are cases where the mechanical difficulties presented by the alignment of the eyes, non-cooperation on the part of the patient, or the absence of any central area capable of response make all attempts to train binocular vision hopeless. Setting aside such cases, a large proportion of the remainder can be given full or nearly full binocular vision. The benefits to be derived from it, apart from the cosmetic effect, are such that the long and arduous training sometimes required is fully justified. The value of accurate depth perception, which accompanies full stereoscopic vision, is likely to be enhanced in the future when, it may be assumed, we shall take more and more to the air as a means of transit. Without depth perception judgment of distance is impaired and accurate landing of aircraft a hazardous proceeding. The work of the orthoptists attached to the R.A.F. may be cited as an indication of the importance of this field; by the use of orthoptics not only are men eliminated who are unlikely to be able to fly, but confidence is restored in those who, through stress and strain, find that flying is becoming difficult. Orthoptics is practised by medical auxiliaries who are certificated and registered. They are usually women, and before being trained they must give evidence of a certain educational standard. A course of about two years' training is followed by an examination consisting of written papers and practical work, the questions being set by ophthalmic surgeons and orthoptists, and the practical tests being carried out by orthoptists under the supervision of ophthalmic surgeons. On the results of this examination a certificate is granted by the Council of British Ophthalmologists. Orthoptists have to conform to a code of ethics agreed upon by the C.B.O., and everything is done to maintain the dignity of the profession. That the British Orthoptist Society is a live body is shown by its publication, the *British Orthoptic Journal*; the current number for 1944 contains many outstanding papers of interest to ophthalmic surgeons and orthoptists.



A COMMON COLLEGE SITE IN LONDON

Recent correspondence in the *Times* gives a fillip to a project which has been occupying many minds during the past two or three years. In essence the idea is to house the Royal College of Physicians of London, the Royal College of Surgeons of England, and the Royal College of Obstetricians and Gynaecologists on adjacent sites. It has been considered by the Standing Joint Committee of the Royal Colleges, which believes that common action of the three Colleges and closer relations could thereby be promoted. There can be very few to-day who would deny this as a general proposition.

The Lincoln's Inn Fields Site

The Royal College of Surgeons now owns the freehold of Nos. 35 to 45, Lincoln's Inn Fields—a site approximately twice as large as that occupied by the College buildings before the war. It also owns two other houses on the south side of the square, though these do not quite adjoin the main site. The Council of the R.C.S. favours the development of this site as the home of the College, while adhering to its view that to achieve joint buildings is more important than any considerations of geographical position. In its last annual report (1944) it reaffirms its willingness to consider any proposal for moving elsewhere, but feels that the Lincoln's Inn Fields site has great advantages, and that these should be most seriously considered and not lightly rejected. It must be satisfied that removal from the present site would have overwhelming advantages, for it regards Lincoln's Inn Fields as being a satisfactory situation for the numerous activities of the College and as being known throughout the world as the home of the Hunterian Museum. It is, however, prepared to make big sacrifices if convinced that a move is necessary or advisable for the promotion of better relations and facilities between the three Royal Colleges.

In short, the Council of the R.C.S. would like Lincoln's Inn Fields to be the site of a common Collegiate Centre because of its favourable circumstances and amenities and its accessible position, and earnestly hopes that this view will prevail. But it is a matter of great urgency for the R.C.S. that a decision should be made. The part of the College still intact is being put into working order to provide for the impending return of the research laboratories and to give accommodation for the new professor of human and comparative pathology. There is also a pressing demand for facilities for the restoration of museum specimens, the repair of material from dispersed centres, and the care of such new material as is reaching the College. The damaged museum halls will soon have to be put into commission to house new specimens promised from all parts of the world and to accommodate the 27,000 specimens now stored in this country. In addition to parts of the College only needing restoration there remain the parts of the original site which were occupied by buildings completely destroyed by enemy action in May, 1941. This space is now available for reorganization, and can be planned to give accommodation both for common use by all the Colleg and for the specific use of each. The R.C.S. is also prepare to arrange its rehabilitation so as to put to joint use existin or restored facilities, such as museums, laboratories, an libraries.

To give some idea of how combined buildings might b laid out on the site a ground-plan has been prepared for th R.C.S., and also a design of a suggested façade (reproduced o this page). The architectural plans were drawn with the ide of showing one of the possible ways by which the require accommodation could be provided. It is the hope of th Council of the R.C.S. that the other Royal Colleges in Londo may agree to move to Lincoln's Inn Fields and combine i forming a medical centre.

The greater the age of an academic body the harder become its decision in a matter of this kind. The Royal College o Physicians of London—by far the oldest medical college i this country, for it was founded by Henry VIII in 1518—ha moved house three times during its long history, and th Fellows are naturally and properly concerned lest in an further move it may lose something of its autonomy and it prestige. But there is much to be said for a collegiate medica centre in London and for physical juxtaposition. Those wh take the long and the wide view will welcome the genera conception of a joint site and be glad that it is now unde discussion in the public press; they will be encouraged b knowing that Lord Dawson, who was for seven years Presiden of the R.C.P., has announced himself in favour of the pla subject to all necessary precautions.

The Present R.C.P. Building

Sir Stewart Duke-Elder reopened the whole matter in th *Times* on Jan. 10 with a letter which linked the question o a central site with his earlier advocacy of a comprehensiv Academy of Medicine in London. Lord Dawson, writing i the next day's issue, gave his blessing to the general idea an added some important facts about the Royal College of Phys cians and its present site which will be news to most reade and even to many Fellows of that College. Before 1930 th R.C.P. unanimously decided, after expert advice, that its building in Pall Mall East at the corner of Trafalgar Square wa unsuited for its purpose and that a new home should be sough At that time the Canadian Government was seeking to enlarg its Dominion offices, and for this purpose desired to buy th adjacent R.C.P. building. By 1934 negotiations for the sale o the College site were nearly complete, when a change o Government in Canada stopped the negotiations, though th new Canadian Prime Minister and High Commissioner retaine their active wish to secure the R.C.P. site for an addition t Canada House. Lord Dawson recalls that the Joint Committee of the three Royal Colleges, which was formed i January, 1942, decided unanimously that the securing of single site for the Colleges was of more importance than th qualities of any particular site. "But the war seemed t obstruct any such scheme until by a fortunate turn the Royal College of Surgeons saw the opportunity for a bold initiative and seized it. . . . It is a rare opportunity for the realization of a great idea and does credit to the man who conceived it. The present Canadian Government is still wishful, subject to negotiation, to purchase the R.C.P. building, and it has made this fact known to the President of the Royal College of Physicians, with the wish for its general knowledge. Surely the unrivalled opportunity offered by this Lincoln's Inn Fields site should be studied carefully."

Reports of Societies

B. COLI PYELITIS: DIAGNOSIS AND TREATMENT

At a meeting of the Section of Surgery of the Royal Society of Medicine on Jan. 3 the subject of discussion was "The Diagnosis and Treatment of *B. coli* Pyelitis." Sir JAMES WALTON presided.

Pyelitis in Infancy

Dr. WILFRED SHELDON said that pyelitis might be met with in children's hospitals even in the first week of life. It was most common in childhood in the first year. Not infrequently it arose as a secondary disease, and the most common predisposing influence was gastro-enteritis. In young children also it might arise as a complication of acute otitis media or pneumonia. He did not think he had ever seen a very severe case of infantile scurvy that had not also got pyelitis. In primary cases the temperature rose 4 or 5°, and there was a day's swing of perhaps 3 or 4°. In young children there might be convulsions and rigors; vomiting almost invariably occurred. In young children restlessness and irritability were very marked; in older children irritability was likely to be replaced by headache and pain in the loins. Pain was not a prominent symptom, but in some cases there might be severe attacks. Errors of diagnosis would continue to be made so long as the routine examination of the urine was omitted from the clinical examination.

Before the appearance of the sulphonamides, acute *B. coli* pyelitis was treated with alkalis, usually with conspicuous success. The sulphonamides were such efficient sterilizers of the urine that they would often exert their effect in the presence of urinary stasis. In acute pyelitis, when there was no opportunity of indicating whether urinary stasis was present or not, if these drugs were used as a first line of attack they should be followed by routine pyelography lest some underlying cause was being overlooked. It was his practice to continue to treat these children by means of alkalis, and, if these failed, then to go on to sulphonamides, and later to investigate this particular group by pyelography. Among the sulphonamides his personal preference was for sulphathiazole, and the amount aimed at was 0.2 g. per kilo per day. He gave a small dose of alkali with each dose of sulphonamide to assist toleration. *B. coli* was in the group of organisms insensitive to penicillin, and therefore its use was not likely to be beneficial.

Pyelitis in Adults

Mr. E. W. RICHES said that two main clinical varieties must be recognized—namely, acute or subacute, and recurrent. So-called chronic pyelitis was always a pyelonephritis with tubular involvement, and often the name "recurrent pyelitis" concealed some other lesion which was responsible for stasis continuing. Two principal aetiological factors were concerned in acute pyelitis: (1) lowered resistance, and (2) bacterial invasion. Lowered resistance was often exemplified by a chill before the attack started. Bacterial invasion was generally from the bowel; constipation or diarrhoea gave the clue to its origin, and the infection was usually lymph-borne from the colon. The distinction between pyelitis and cystitis was somewhat arbitrary. If pyrexia or renal pain occurred with cystitis the label "pyelitis" was attached. The symptoms in the acute phase were pyrexia, renal ache, polyuria, frequency, and diarrhoea, and sometimes painful haematuria. The urine was characteristically acid, pale, of low specific gravity, with an unpleasant odour, and a surface sheen which developed on standing. Response to medical treatment was evidence of the correctness of the diagnosis.

Treatment of the acute case was rest in bed, warmth, copious fluid intake, attention to the bowels, and alkalis in large enough doses to make the urine alkaline. When the temperature had been normal for some days the continued presence of *B. coli* or pus demanded a course of either one of the sulphonamides or mandelic acid. The sulphonamides were more rapid in their sterilizing effect. They acted in about half the time taken by the mandelates. The drugs were not always well tolerated, and might give rise to nausea and vomiting. Efficiency and toleration seemed to be best combined in the use of sulphadiazine. For a pure *B. coli* infection he found mandelic acid more generally useful than the sulphonamides, though it also was unpleasant to take. It could safely be ordered for an ambulant patient. For the speediest cure sulphonamides should be given with alkalis from the outset.

In the diagnosis of the recurrent or persistent case, the trauma or other cause keeping up the infection might lie in the urinary tract itself, or in the genital or intestinal tract. As the lesion was most commonly found in the urinary tract investigation should, as a rule, start there, and the most useful starting-point was an intravenous pyelogram. He preferred to do this before cystoscopy. Any lower urinary tract obstruction would be discovered on cystoscopy, if not before, and any lesion in the bladder, such as new growth, diverticulum, or stone, would be found. Retrograde pyelography was carried out at the same time if the previous excretion pyelogram indicated the need for so doing.

Uncomplicated acute pyelitis due to *B. coli* would respond to medical measures. Instrumentation played little part in its treatment. The effective urinary antiseptics were mandelic acid and sulphonamides. A patient who did not respond to a properly given and supervised course of treatment should be regarded as having some other lesion. The persistence of pus cells after the urine had been sterilized was a warning that recurrence of infection was likely.

Pyelitis associated with Child-bearing

Mr. DOUGLAS MACLEOD said that some degree of pyelitis occurred in about 1% of all pregnant women. This was undoubtedly due to certain physiological conditions in pregnancy, especially the marked atony of the ureteral muscle, which had been shown to occur as early as the eighth or tenth week. The effect of compression, especially on the right ureter, had to be reckoned with; in a pyelogram taken at the twenty-fourth week the right ureter would in most normal pregnancies be seen to be much dilated, and this dilatation affected the calices and ceased abruptly at the pelvic brim. The ureter was also kinked in the middle and upper thirds. Dilatation due to atony occurring early in pregnancy affected the left ureter equally with the right; dilatation due to compression affected, as a rule, the right ureter. The cause of the muscular atony was thought to be the presence of a hormone with an inhibitory influence on all plain muscle. In diagnosing pyelitis in pregnancy the difficulty was its occasional confusion with appendicitis. An outstanding symptom might be extremely severe vomiting. With regard to treatment, many obstetricians preferred sulphanilamide; he himself used sulphathiazole and sulphadiazine, though there was a danger of the drug crystallizing out in the tubules. Infections in the puerperium were common and were treated with sulphanilamide. This was excreted in the milk, but did not seem to cause any harm. Finally, he pointed out that although mild cases of pyelitis were common in pregnancy, and often overlooked, the acute severe form was rare. At Queen Charlotte's, out of 1,500 deliveries in a recent year, there were only six cases.

A Pathologist's View

Dr. HOWARD HUGHES said that there was a minute but rapidly growing group of cases in which all forms of therapy seemed to fail. The general practitioner had given courses of a sulphonamide, alkaline mixtures, and so forth, and had finally sent the case to a surgeon or physician, by which time either the micro-organism or the patient was unsuitable for any further chemotherapy. Here the laboratory could help by adding something to a case in which it was known that the patient had already had treatment for some time. The pathologist could say whether a particular strain found was sensitive or not to the favoured drug of the physician with whom he was co-operating. There was no difficulty in adding the *in vitro* information. He added that in *B. coli* pyelitis a mixed group of related organisms were concerned which were not antigenically all the same.

Mr. WINSBURY WHITE said that it was the recurrent cases into which they wanted to probe.

A man of 35 was sent to him some months ago with the history that he had had an attack of cystitis and pyelitis, with *B. coli* found, but that this had cleared up, leaving him with chronic frequency and pain at the end of passing water. The pain was very worrying, and the practitioner wanted to know whether the man had stone in his bladder. The patient said that for years preceding his attack he had bouts of frequency of micturition. On examination a number of tags of inflammatory tissue were found in the posterior urethra. He saw the patient three weeks afterwards, and then his frequency was much reduced and his dysuria had disappeared completely. The bouts of frequency suggested a focus of infection somewhere near the neck of the bladder; fluctuating in intensity from time to time until eventually one of the bouts went further and caused cystitis and an attack of pyelitis.

It seemed to him that some of these cases settled into chronic pyelitis. In the female often everything appeared normal except for a patch of inflammation in front of the trigone. The urethroscope showed invariably chronic inflammation there as well, and it was quite common for early cases to clear up merely as a result of the instrumentation, though this must not be expected in severe cases.

Route of Infection

Mr. JENNINGS MARSHALL asked where was the source of infection and how did the infection reach the urinary apparatus. It could arrive either by the lymphatics or by the blood stream. The *B. coli* group of organisms could be excreted by the kidneys alone, and therefore a blood-stream route need not surprise them. The source of the coliform group must be the bowel at some point. For years people had talked about the passage of these organisms through the intact bowel wall, but was there any part of the bowel which was constantly being lacerated? There was such a part in the anal canal, which was very subject to laceration, as, for example, when affected by piles or by cryptitis. On the top of these frequent lacerations was the important factor of muscular spasm. Here, then, was a means of the infection getting into the system, whether by the blood stream or by the lymphatics.

Mr. KENNETH HERITAGE considered that the value of alkalization of the urine ought not to be forgotten with the advent of the sulphonamides. Alkalis had given patients great symptomatic relief when sulphonamides had failed. He also referred to the pyelitis which occasionally followed the use of instruments in urology. Do what they would they could not always avoid this complication. Instrumentation might render patients more prone to fall a prey to their bacteriaemia. He emphasized the value of the prophylactic use of sulphonamides as a means of preventing post-instrumentation rigor.

Mr. HAROLD DODD declared himself a rebel in that he believed in intensive acidification, giving acid in the same way as alkalis were given. In his experience this worked well; he put it forward not as a routine treatment but as something worth trying. The daily intake of fluid played a big part in this condition, and the measurement of the fluid was as important as the measurement of the quantity of drug the patient was given. All milk should be boiled: there was no reason why the patient, having to grapple with his own bacteria, should have to grapple also with those of the cow.

Analysis of Cases

Dr. H. G. HANLEY presented an analysis of 200 cases of *B. coli* pyelitis in women of child-bearing age—100 consecutive cases in pregnant women and 100 consecutive cases in non-pregnant:

	100 Non-pregnant	100 Pregnant
Congenital lesions	5	5
Calculi	5	6
Hydronephrosis	6	4
Tuberculosis	2	1
Gross genito-urinary pathology	18	16
Previous genito-urinary infection	32	37
Known previous pathology before this attack	46	50
Defloration ("honeymoon pyelitis")	7	—
Urethrotrigonitis	44	(in 16 out of 47 examined) 37
Cases with a possible primary causal factor	69	54

The difference between pregnant and non-pregnant women was insufficient to allow pyelitis of pregnancy to be classed as a disease on its own. Pyelitis was rarely an infection of the kidney; it was usually an infection of the genito-urinary tract. He commented on the decrease in the number of cases of pyelitis in the war years.

The PRESIDENT (Sir James Walton) said that it seemed to him that evidence was accumulating that throughout the body an ascending infection rarely if ever occurred. The infection under discussion seemed to be much more of a septicaemia—a blood-borne infection. He asked what was the ultimate prognosis. What happened in the case of young girls who early in life had been treated for "pyelitis"? Mr. RICHES replied that many young girls who had had pyelitis in their early years had grown up and passed successfully through pregnancy. He did not think it could be held now that "once a *B. coli* pyelitis always a *B. coli* pyelitis."

SOVIET SURGERY

Meeting of Anglo-Soviet Medical Council

The Anglo-Soviet Medical Council continues with unabated zeal its work of bringing the medical professions of this country and the U.S.S.R. into closer contact, chiefly by facilitating the interchange of information on professional matters. Among its activities is the publication of a monthly news sheet entitled *Soviet Medical Chronicle*. With the medical professions of both countries so heavily engaged in caring for the sick and the wounded on the many fronts of war, free communication between them must obviously be limited. The success of the work of the Anglo-Soviet Medical Council is in large part due to the untiring patience of its honorary secretary, Dr. Elizabeth Bunbury, who gave an account of her stewardship at the third annual general meeting of the Council recently held at the Royal Society of Medicine, when the President of the Council, Sir Alfred Webb-Johnson, was in the chair. After the ordinary business of the meeting had been completed, Sir Alfred welcomed Prof. N. N. Priorov, Director of the Central Institute of Orthopaedics and Traumatology of the U.S.S.R., and Dr. A. Kotov, Assistant Director of the Ukrainian Institute of Orthopaedics and Traumatology. A translation of Prof. Priorov's address on Soviet surgery was then read by Dr. Charles Wilcocks.

Soviet surgery, Prof. Priorov said, had been able to return to the fighting Services as many as 70% of the casualties. At the front their aim was to provide surgical treatment as close to the front line as possible, and to arrange a high degree of specialization of treatment during the first few hours in the field hospital, with a thorough surgical classification of the wounded according to the nature and type of injury. After classification, the wounded were evacuated to specialized hospitals. The hospital organization comprised a network of specialist hospitals, large surgical departments in all general hospitals, and the 50 medical institutes in the different republics and regions of the Union. Each institute had three chairs of surgery, occupied by a professor specializing in one or more subjects. There were also special central institutes such as the Central Neurological Institute, the Central Institute of Blood Transfusion, the Central Institute of Orthopaedics and Traumatology, and the Central Tuberculosis Institute. These institutes carried out research and served as centres of information for peripheral institutes. The Commissariat of Health had formed a Scientific Council to act as a clearing-house to co-ordinate research work and to make the advances known to the medical profession. Each year this Scientific Council had submitted to it scientific work done by the large hospitals, clinics, and institutes, and the research problems indicated by them and by the People's Commissariat of Health. There were also a Hospital Council at the Commissariat of Health, and a Scientific Council of the Medical Administration of the Red Army. An Academy of Medical Sciences had just been established.

Much work had been done on the bacteriology and chemistry of wounds. Tens of thousands of wounded had had secondary suture performed 8, 10, 12, or even 20 days after injury, with satisfactory results. Sulphonamides, and recently penicillin, had been used extensively. In the treatment of fractures the apposition of the bone fragments was considered as urgent as operation on a strangulated hernia. The problem of osteomyelitis after gunshot wounds was far from being solved; mere sequestrotomy or curettage was insufficient; transverse or lateral resection of the affected part should be carried out. In the treatment of injury of the peripheral nerves they did not favour transplantation when there were defects of nerves and the ends could not be approximated: they advocated plastic operations on the muscles, and suitable orthopaedic devices. A number of orthopaedic operations were performed in the network of hospitals established for surgical rehabilitation. The percentage of amputations had been diminished by half, as compared with the war of 1914–18. Prof. Priorov mentioned the case of a doctor who had lost both arms, one above and the other below the elbow: after being supplied with artificial limbs capable of movement, he was able to look after himself, use a typewriter, and perform the duties of a public health inspector. He concluded by expressing a hope for still closer contact and a fuller exchange of views and experience between the medical professions of the U.S.S.R. and Great Britain.

Correspondence

In Aid of Russian Wounded

SIR,—The Joint Committee for Soviet Aid has been granted official permission to hold a flag day in the Greater London area on Red Army Day, Feb. 23, which will mark the 27th anniversary of the foundation of the army of our Russian allies who during this winter have faced more than 220 German divisions on the Soviet-German front.

To rehabilitate hundreds of thousands of wounded is one of the new tasks facing Soviet surgeons. If all the equipment, apparatus, and special hospitals needed for this can be established:

35% of the war invalids can be completely rehabilitated and ultimately return to the ranks of the Red Army.

30% of these invalids can return to their previous civilian occupations.

Others can, after special training and re-education, be employed in various suitable occupations instead of feeling themselves unable to play their full part in the life of the community.

The proceeds of this flag day will go to help provide rehabilitation equipment for the Red Army wounded. As flag days are also being held very widely throughout the Provinces may I appeal to all members of the medical and nursing professions to give every support possible during Red Army Week and on the flag day itself.—I am, etc.,

P. CHALMERS MITCHELL,
Hon. Treasurer.

Joint Committee for Soviet Aid,
171, St. Stephen's House, Westminster, S.W.1.

Relation of Neurology to Psychiatry

SIR,—Dr. Shepley (Dec. 23, p. 833) writes of the "total absence of demonstrable organic lesions such as are constantly sought but rarely found concomitant with gross examples of mentally disordered states." This statement is incorrect, for in my experience organic lesions of the cerebral vessels are generally demonstrable in brains from mentally disordered patients. Neuron lesions may also be found, especially where neurological signs have been present, although they do not affect the problem, as I have pointed out that clinical recoveries, remissions, and lucid intervals obtaining after many years' mental illness establish the integrity of that part of the nervous system subserving the recoverable mental function. The mechanism at fault is that which governs neuron stimulation thresholds, thus determining the paths of sensory impulses through reflex arcs to give desired responses—namely, the pattern of blood flow in the cerebral capillaries—and the "recent notable advances (as well as the older methods) in psychiatry in treatment by physiotherapeutic methods" all depend upon changing local cerebral blood flow.—I am, etc.,

Birmingham. F. A. PICKWORTH.

Nursing of Tuberculosis

SIR,—The letters of Dr. Snell (Dec. 9, p. 768) and Dr. Wingfield (Dec. 30, p. 867) following your annotation on the nursing of tuberculosis call for comment. As a result, we suppose, of two misprints little can be said about the figures in Dr. Snell's letter; but when those he quotes from the Prophit Survey report by Daniels are corrected they remain misleading. He says that in the Mantoux-negative group of that survey (452 not 42) 33 developed tuberculosis. In fact there were 12 cases of clinically active pulmonary tuberculosis and 1 of non-pulmonary tuberculosis. The remaining 20 were primary manifestations, including 6 pleural effusions. The recommendation made by Daniels is that tuberculin-negative nurses should not nurse in the tuberculosis wards of *general hospitals.*

Dr. Wingfield appeals for wide publicity of the dangers of nursing tuberculosis. We feel that narrow publicity among those responsible for the health of hospital staffs would be more useful and less likely to diminish even further the number of entrants to tuberculosis nursing. The burden of the American paper he quotes is a plea for a better scheme of health control for hospital workers.

Now that the habit of repeated tuberculin testing and radiological examination is spreading, primary tuberculous infection is increasingly often recognized. And as primary tuberculosis is normally a benign condition, even in the young adult, it is high time that the difference between primary tuberculosis and progressive pulmonary tuberculosis—phthisis, if you like—was generally and officially recognized. This differentiation has been advocated in a recent editorial in *Tubercle*, and in a scheme of classification devised by Houghton.

In the present state of tuberculous infection in this country virtually all the girls who are Mantoux-negative when they start nursing would become Mantoux-positive within the next ten years, whether or not they nursed tuberculosis. We believe that a sanatorium is as good a place as any other in which to acquire tuberculin sensitivity. A paper on the subject is in preparation by us, but our reasons for this belief may be stated briefly.

1. There may be something in the theory that a massive infecting dose is dangerous. This is less likely to be received from well-trained patients in open-air conditions with a known risk and consequent precautions than from the unsuspected case in the ill-ventilated ward of a general hospital.
2. A well-planned scheme of staff health control should ensure the early recognition of primary infection, and the necessary steps can be taken to prevent the development of progressive pulmonary tuberculosis.
3. The general health and physical condition of the sanatorium nurse are commonly better than those of her opposite number in a general hospital.

Finally, may we deal with a purely practical point. Approximately 25% of our student nurses are Mantoux-negative on entry, so if we excluded these we would only have to close down about a fifth of our beds. When the age of infection is postponed as late as it is in some parts of America, we might have to turn down 84% of applicants. What happens then?—We are, etc.,

PETER W. EDWARDS.
Cheshire Joint Sanatorium, Market Drayton. A. CLARK PENMAN.

Prisoner-of-War Mentality

SIR,—I have been interested in the correspondence on the prisoner-of-war mentality. At the beginning I was tempted to write and suggest that the psychological treatment necessary would be more valuable if directed to the wives and families of returned prisoners-of-war in teaching us the necessary attitude which must be adopted by those of us who have been waiting with varying degrees of impatience for their ultimate return.

Major Charters's letter (Jan. 6, p. 24) is of great comfort to me, as I have had anxiety about a neurosis engendered by enforced idleness, and it may be of interest to others to know that I have just received a letter, the first for three years —one hundred words in capital letters—from my husband, who is in Japanese hands. He says: "I am in good health but very weary of this kind of existence. *Fortunately* there is plenty of work to do and mind is kept fully occupied." I make the emphasis as I think it reveals my husband's desire to dispel what he knew would worry me most about his own case.

He is a psychiatrist in the R.A.F., and I feel that the problems of incarceration will be adequately dealt with so far as he is able to organize activity in his own camp (Osaka). There must be other doctors who are aware of the dangers and doing yeoman service in the camps.—I am, etc.,

I. MAGRATH.

Aggressive Impulses in Progressive Society

SIR,—In recent work carried out among the neurotic, and to a lesser extent among the psychotic, the delinquent, and the criminal, there is some evidence to think that the primary stimulus in all individual breakdowns is to be found in the environment in early life, and that such stimulus is invariably associated with exploitation in some shape or form which had generated a store of infantile hate so primitive as to be quite unpermissible to the developing adult; it has had to be locked away in the psyche and has constituted a danger to the individual, for he has become more vulnerable to such a type of stimulus later in life. The factor of exploitation is also to be reckoned with where a breakdown occurs in social or international relationships.

A confirmation of this is to be found in a book published in 1934 by an American psychiatrist, Dr. F. E. Williams, entitled *Soviet Russia Fights Neurosis*. The author gave his views on what was wrong with the world, and what preventive measures might be adopted which would lessen unhappiness in general and the incidence of neuroses and psychoses in particular. He had much praise for the Russian realistic approach to this subject, and contrasted their methods favourably with those of America. He said that the Russians recognized the importance of environmental factors for the happiness of every citizen or group of citizens. He pointed out with what success they had organized a society where the normal aggressive impulses bound up with growth and expansion were allowed to flourish so far as possible without interference, so freeing the constructive impulses without the inhibiting infiltration of hate—an effort towards a preventive form of therapy.

He regarded exploitation, however subtly applied, and the guilt and hate generated thereby, as largely responsible for individual and social unrest, and warned his readers of what would happen if world affairs were allowed to continue to drift. His prophetic words of 1934 passed unheeded at that time, but may well be re-read in the light of subsequent world happenings, especially now that some of our own psychiatrists have to a large extent confirmed his findings, and as there is now a need to plan for a future peace. The book asserts that for a realistic basis of life man must accept and trust his own tendency towards aggression: "We must be free to be aggressive; the question is how to manage this aggression and how to turn it to social account. Man must learn to use his aggression in a constructive, positive way." Energy bound up with the free liberation of aggressive impulse lies behind all progressive growth, whether of child, adult, or State.

In the light of such evidence, were we to search for a satisfactory world ideology it might be found to be worth while to remember to imitate Russia in this respect: to make an effort to purge our social life of old worn-out pre-war conceptions based so largely on exploitation of the less well-informed by the better-informed; to do away with a secular system that encourages one section of the community or one nation to batten upon and exploit another, and a religious system that hoodwinks the unintelligent and postulates that the dead can exploit the living; and instead to attempt to build an ideology based upon mutual service rather than on mutual exploitation, and found a society less influenced by "fear of the dark." Society would be all the better if it could become completely adult, freed from fears, bogies, and superstitions associated with infancy, which have hitherto through the ages dogged its footsteps. Only then shall we be able to live an adult life along reality lines, guided by a religion that preaches happiness in this world, and not unhappiness here as a necessary preliminary to a problematical happiness in a problematical next world.—I am, etc.,

London. A. CYRIL WILSON.

Artificial Insemination

SIR,—The child born as a result of extramarital artificial insemination is an illegitimate child, and has no right of succession; moreover, if the child is registered as the offspring of a married couple, when in fact it is only the child of one of them, the law of the land is broken, and the doctor who performs the operation of artificial insemination is surely an accessory to the misdemeanour.

If it is desirable for the wife in a childless marriage to have a child as the result of artificial insemination is it not theoretically just as desirable that the husband in a similar marriage should have a child by another woman, and by a false declaration declare that the baby is the child of himself and his wife? The view of the courts on this aspect of the problem was demonstrated not so long ago, when a doctor was charged with having registered two children as the offspring of his wife and himself, although in reality they were his children by another woman; for this offence he was committed to prison and his name removed from the *Medical Register* by the General Medical Council.

It has been maintained in this correspondence that adoption of children is not the answer to all childless marriages, but in the course of what is now a fairly long experience in paediatrics I have found that such a procedure has almost always been a pronounced success. The few failures have been in those instances in which some time after adoption the child was found to be suffering from some congenital disease or was a weakly child—failures which can usually be guarded against and which do not justify recourse to artificial insemination. The success has not even been diminished in those not rare instances in which, after having adopted a child, the mother and father produce one of their own.

Many of your correspondents appear to think that the Church, and particularly the Roman Catholic branch of it, should not have any say on this subject, but matters concerning personal conduct, the sanctity of the home, and the married state are vital concerns of the Church. Nevertheless, whatever the Church as a whole may or may not say on this subject, it seems quite clear that those "who profess and call themselves Christians" can have no part in the practice of extramarital artificial insemination.

Apart, however, from the Christian standpoint on this subject, those who argue in its favour indicate thereby that in their view the father has no responsibility for training and care of the child which he has helped to create, and that his sole role in the business is that of a more or less wholesale provider of semen. Surely such an attitude is indefensible, since both mother and father should bear an equal responsibility for the life which together they have launched upon the world, and it is clearly the duty of doctors to impress this fact upon potential parents.—I am, etc.,

Birmingham. LEONARD G. PARSONS.

SIR,—In this discussion the relation between artificial insemination and masturbation has been dealt with, and obviously other sexual aberrations, such as sodomy, are not ungermane to the subject. Since you published a letter from me in your issue of Dec. 9 I have had an opportunity to read Dr. Julian Huxley's volume, *The Uniqueness of Man* (Chatto and Windus, 1941). This eminent zoologist emphasizes from the beginning of his work that the individual exists not for himself but for society. "If civilization," he says, "is to re-create itself after the war, it can only do so on the basis of what, for want of a better word, we must call a social outlook. . . . To the biologist, who is not afraid of being a humanist as well, *the essence of human life* is seen in *social* relationships" (my italics). In his first chapter, "Eugenics and Society," Dr. Huxley stresses the value for eugenic experiment of separating "the individual side of sex and reproduction from the social side"; otherwise of separating "sex from reproduction," nay, of separating "love" from reproduction. "The perfection of birth-control technique," he says, "has made the separation more effective; and the still more recent technique of artificial insemination has opened up new horizons, by making it possible to provide different objects for the two functions. It is now open to man and woman to consummate the sexual function with those they love, but to fulfil the reproductive function with those whom on perhaps quite other grounds they admire." Dr. Huxley proceeds even further, and maintains that "unless we alter the social framework of law and idea so as to make possible the divorce between sex and reproduction, or, if you prefer it, between the individual and the social sides of our sexual function, our efforts at evolutionary improvement will remain mere tinkering, no more deserving the proud title of eugenics than does the mending of saucepans deserve to be called engineering." From these quotations it would appear that this writer, in removing what he calls "love" from the social field does not consider it as belonging to "the essence of human life."

It has always, I think, and everywhere, until these latter days, been held that man's two essential functions were self-maintenance and race-maintenance, and that the sex functions existed for the latter purpose. Even the aesthetic paederasts of Ancient Greece and Rome would hardly have claimed that their sensual indulgences subserved "eugenic" ends. It would be valuable if readers having a better acquaintance than I with Dr. Huxley's writings would explain what he means by "love" in this connexion, since on that would seem to hang most of his argument.

To not a few of us the process of analysis *à outrance* which characterizes modern science, particularly biological and sociological science, seems to have played, and to be playing, a major part in that break-up of Western civilization which we now see at its climax all around—I mean, in the present war.—I am, etc.,

North Queensferry, Fife. A. J. BROCK.

Breathing and Coronary Circulation

SIR,—Dr. R. H. Dixon (Jan. 6, p. 27) will find breathing and the coronary circulation fully discussed in *Chronic Maladies*, a book by Dr. Todd of Bristol. Ten years ago, at 57, I found myself unable to walk even on the level without retrosternal pain and discomfort—an obvious candidate for coronary thrombosis. By following Dr. Todd's suggestions on breathing I can now climb almost any hill provided I do not go too fast. My chest expansion has increased from one inch to over three.

The coronary circulation depends on the efficiency of the pulmonary pump, and that on thoracic movement. Not for nothing is coronary thrombosis termed the "surgeon's disease." Half his working day the surgeon spends standing in a vitiated atmosphere, and "holding his breath" at that, and the rest in his car inhaling cigarettes; chest expansion, half an inch!—I am, etc.,

"F.R.C.S."

"Clausen's Harness": A Disclaimer

SIR,—Occasional references in your columns and elsewhere to "Clausen's harness" prompt me to point out that, though some years ago I did describe a mask-retaining apparatus, I can hardly claim authorship of the article as now sold. The flat "lifeless" rubber, the fabric inserts which destroy elasticity in the straps, the widely spaced holes which make adjustment difficult, the sharply recurved hooks which hinder application and removal—these are "improvements" for which I claim no credit.

In view of the inventive proclivities of anaesthetists it is perhaps surprising, as well as gratifying, that the article has survived so little changed—a proof of its usefulness if not of its perfection. But a protest against its too routine use may not be out of place, for it has its dangers. I would, in fact, like to emphasize the point made to me not long ago by a teacher of anaesthetics, that the student and the beginner should not be permitted to use any harness until they have mastered the art of holding the mask and the jaw by hand.

"Débridement" is hardly my affair, but words and their usage interest me. My *Larousse* tells me that the word means the act of removing the bridle from a horse, but if surgeons choose to use it with quite another meaning that is their affair, and does no harm so long as the implied meaning is agreed by all. "Tourniquet" may be such another adopted word, for *Larousse* gives many meanings for it in French, none of which has any surgical implications.—I am, etc.,

London, N.W.8. R. J. CLAUSEN.

The Future of the G.P. Surgeon

SIR,—May I be spared a little space to ventilate a point which is exercising many G.P. surgeons at present. In the spate of correspondence in the *Journal* since the Questionary I have not seen any discussion of the future of the G.P. who at present does surgery in cottage hospitals. It would appear that a doctor must in future be either a physician only or a surgeon of consultant standard. There must be many men who, by reason of long experience, have been acknowledged as surgeons, and many who, having a surgical degree, enter general practice with the justified intention of doing their own surgery. In a future extension of the hospitals it would surely be reasonable that these men could be used to great advantage, if only as juniors to consultants. No reasonable man would give them *carte blanche* in every field of surgery, but there is a definite place in which they would be quite at home. By reason of the close contact of G.P., patient, and local hospital the results of G.P. surgery compare very well with those of major hospitals in both "cold" and emergency operations. The latter in particular benefit by the time factor alone.

In this, as in many of the discussions of late, we feel very much in the dark, and any views or light on the subject would be appreciated. It is inconceivable that the large number of men who have spent time and money to cultivate an interest and degree of surgical skill should have to abandon their "specialty" and revert to the non-operating doctor role.—I am, etc.,

Crewe. J. K. B. WADDINGTON.

The Younger Men

SIR,—It is instructive to read two letters in the *Journal* of Jan. 6 (p. 28). "B.1," who is able to continue his studies during the most receptive period of life and enter for the higher examinations, asks for further economic and marital amenities. "Serving Officer," who may have been allowed six or at most twelve months' resident hospital appointments, has had no such opportunities, nor has he an equal chance to state his case. Under these circumstances the E.M.S. man has an enormous pull over his colleague on active service, and a far greater opportunity of entering the consultant or specialist ranks.

Observation of more than thirty hospital residents who have worked under me during the last six years has not made it apparent that those who enlisted were less promising material than those who obtained further deferment. This is unlikely to be an isolated experience. In common fairness a doctor who has suffered the hardships of active war service is entitled to at least as good a chance as his contemporary who has enjoyed less rigorous work. The assurance that young serving officers would be replaced by E.M.S. men at the earliest opportunity would relieve the discontent so many of the former feel. Both the future of medicine and eugenic considerations suggest the need for such a step.—I am, etc.,

New Milton, Hants. A. BASIL ROOKE.

Demobilization and the E.M.S.

SIR,—While sympathizing with many of the points raised in the letter by Majors Armstrong and Maddocks (Dec. 30, p. 869) I feel that they were unduly biased in their inability to "see one single reason why civil service should count."

The majority of us in the E.M.S. have been directed and kept there by the same controlling body which is also responsible for supplying the medical personnel of the armed Forces —the Central Medical War Committee. In my own case, on volunteering for the Navy at the outbreak of war I was turned down, being "too old at 35." Hoping to become more useful and to ensure some clinical work when the inevitable call-up came, I acquired a diploma in anaesthetics, and again volunteered. This time I was told that no more anaesthetists were needed because of the comparatively few casualties at that time, and was strongly advised to join the E.M.S. For three and a half years I have worked whole-time in the same hospital. Undoubtedly I should have been replaced if the Central Medical War Committee had thought that my services could have been more useful elsewhere, or if the work could have been undertaken by someone not physically fit. Meanwhile my home has been blitzed, and my practice—representing ten years' hard work—has all but vanished. Wartime sacrifices have not been limited to the armed Forces.

It seems unlikely that the majority of Service M.O.s have spent more than a small proportion of their time in "sitting beside a slit trench" (H. Holden, Nov. 4, p. 610). I remember being visited by an R.N.V.R. friend in the summer of 1941, who, after two years in an armed merchant cruiser, had seen neither enemy submarine nor aeroplane, nor had heard gunfire. On only two nights of that period had he failed to sleep in pyjamas. In those dimly remembered days London was considered "front-line."

The points mentioned by Majors Armstrong and Maddocks are very real disadvantages of Service medicine, but they seem insufficient to justify a conclusion that the work of the rest of us counts for nothing at all. Moreover, Service medicine has some small compensations—rank, variety of experience, travel, popular prestige, and the promised gratuity. Much of the bitterness of these letters might have been avoided if at the outbreak of war we had become a single national medical service, to attend to all, irrespective of uniform or the lack of it.—I am, etc.,

London. "E.M.S."

Death of Robert Burns

SIR,—It was high time that some member of the medical profession made a determined effort to explode the legend that Robert Burns died of drink and dissipation. It is doubtful, however, if Dr. S. Watson Smith has given us the true picture yet. If Mrs. Carswell's facts, as given in her well-documented life of Burns, are correct, it was neither drink nor infective endocarditis which killed the unfortunate poet, but his doctors.

It appears that after many months of joint pains, increasing weakness, and emaciation, Burns was ordered by his physician, Dr. Maxwell, to go to country quarters "and there indulge in sea-bathing, horse exercise, glasses of port wine, and iron water. He was already being heavily dosed with mercury" (p. 443). On June 16, though scarcely able to stand, he went by himself to lodge in a wretched village on the Solway. "Each day he waded shakily—he had to wade a long way to get the required depth—into the chill Atlantic water that he might stand obediently up to his armpits till it was time to drag his aching joints out again and slowly dry himself and sip his allowance of port. Riding was beyond him even if he could have hired a horse, and he had no money." The wonder is that he survived this treatment until July 18, when financial worries drove him home. He arrived in such a feeble, fever-stricken state that he could not climb the stairs to his bedroom, and he collapsed on the kitchen "box-bed," where he breathed his last two days later. But for alcohol he might have died sooner.

Even the lack of the stethoscope and the clinical thermometer hardly explains why Burns fared so ill at the hands of our profession. I am glad to see Dr. Watson Smith making the *amende honorable*.—I am, etc.,

London, S.W.3. LETITIA FAIRFIELD.

Medical Reciprocity

SIR,—Dr. James Burnet's letter on medical reciprocity with France (Jan. 6, p. 27) raises a much wider question on this subject. While expressing no opinion on Dr. Burnet's proposal, I consider that the whole question of reciprocity might be reconsidered in the light of present-day conditions. The English qualification, for example, is not generally accepted in at least one of our Dominions—Canada. Some Provinces accept it, others do not. Surely there should be reciprocity between this country and her Colonies and Dominions before permitting such a state between this country and foreigners.—I am, etc.,

London, N.22. S. CHAPLIN.

"Healthy Industry"

SIR,—It is difficult to understand how the reviewer of my book *Healthy Industry* (Dec. 30, p. 855) could have overlooked or misunderstood that it was written for managements interested in industrial health services. Obviously it was never intended as a discourse for medical men on industrial medical conditions in a factory, hence the omission of medical data redundant to a management of laymen. The annual report so adversely criticized is at least a factual record of work done and results achieved. If, however, the reviewer or any other industrial medical officers with practical experience of this type of work could enhance this report their contribution would be warmly welcomed, not only by myself but by all those engaged in similar work, and incidentally the purpose of this letter will have been achieved.—I am, etc.,

Liverpool. JACK TARSH, M.B., Ch.B.

The Services

Acting Squad. Ldrs. S. Davidson and E. A. G. Goldie, R.A.F.V.R., have been awarded the Air Force Cross.

The following Air Force medical officers have been mentioned in dispatches: Air Vice-Marshal F. C. Cowtan, C.B., K.H.S.; Acting Air Cdre. F. J. Murphy; Gp. Capts. J. D. Leahy, M.C., R. H. Stanbridge; Acting Gp. Capts. R. G. James, A. F. Cook, R. L. C. Fisher, F. E. Lipscomb; Wing Cmdrs. F. G. Mundell and R. Thorpe; Acting Wing Cmdrs. J. G. L. Brown, H. A. Graham, J. G. Stewart, J. L. Brown, J. F. MacCarthy, A. Muir, J. St. C. Polson, J. B. Ross, C. Wollaston, J. R. Cellars, D. J. Dawson; Squad. Ldrs. K. G. Bergin, P. M. Davies, J. H. P. Gauvain (deceased), L. D. A. Hussey, J. M. Kerr, M. L. Maley, A. T. M. Roberts, D. Skinner, W. H. C. Spooner, D. M. Wallace, O.B.E.; Acting Squad Ldrs. C. Bucknall, J. G. Burgess, R. H. Carpenter, G. Clayton, C. V. Gledhill, J. Guthrie, T. A. Hale-Monro, D. W. Higson, W. L. James, A. D. Messent, E. J. G. Murray, T. H. Redfern, C. O. Ribeiro, D. C. Russell, O. Scarborough, W. B. Waterfall; Fl. Lieuts. D. Laing, W. J. Lynd, W. R. K. McParry, F. S. Rickards, J. E. Sharpley, A. Standeven, P. W. G. Sutton, L. A. Sylvester, J. Taylor, R. G. M. Wedderburn, J. H. Wilkins, J. A. J. Wiseman, A. C. Smerdon; Flying Officer H. T. Foot.

CASUALTIES IN THE MEDICAL SERVICES

Killed by enemy action.—Major William Napier, R.A.M.C.

Died in hospital in India.—Capt. Frank Alec Stuart Austen, R.A.M.C.

Wounded.—War Subs. Capts. K. M. Bell, A. Lyell, D. J. Tibbs, J. P. Weiss, R.A.M.C.

Prisoner of war.—Brig. C. H. Stringer, D.S.O., O.B.E.

Universities and Colleges

UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

ACADEMIC POSTGRADUATE DIPLOMA IN MEDICAL RADIOLOGY.—P. C. Bhandari, A. S. Craner, F. Duval, N. Hajdu, A. L. Henderson, H. B. McDowell, J. Noriega, A. P. S. Sanders, A. A. Vickers, J. G. Winternitz.

UNIVERSITY OF DURHAM

At a congregation held on Dec. 22, 1944, the following medical degrees were conferred:

M.D.—[1] Helen Ramsay.

M.S.—E. J. Field; R. A. Fleming, [1] J. Swinney, [1] H. K. Vernon.

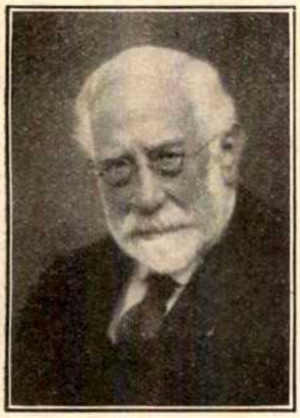
M.B., B.S.—W. R. Argument, Marjorie Bell, A. Bender, R. E. Blakey, A. McK. Brass, Doreen C. Brown, Elspeth M. C. Brown, N. Cardoe, R. G. Chaytor, Joan C. Dickinson, W. H. B. Ellis, A. J. A. Ferguson, A. C. Fleming, F. W. Fordyce, Mary M. Harrison, J. D. Irving, W. Jack, Kathleen D. Knox, Muriel M. Lingwood, J. L. McConchie, Norah Martin, P. Millyard, R. W. J. Naismith, E. M. Norman, G. E. Paget, R. M. S. Parker, A. Pearson, K. Pickworth, W. G. A. Riddle, R. K. Rowntree, Winifred H. Russell, Jane C. Salkeld, R. G. H. Salkeld, Viola E. Shafto, N. A. Sharples, S. G. Siddle, E. Silver, J. E. Stobbs, W. E. Stuart, Elizabeth Troupe, Doreen M. Watson, J. P. Wedderburn, G. E. Welch, J. T. Wheldon, Jean G. Wight, Mary C. Winters, N. E. Wood, N. A. Wynne, J. H. Batchellor.

[1] In absentia.

Obituary

SIR THOMAS BARLOW, Bt., K.C.V.O.
M.D., F.R.S., F.R.C.P.

The doyen of the medical profession died in London on Jan. 12, full of years and honours. Thomas Barlow, the son of James Barlow of Edgworth, Lancashire, a manufacturer in the cotton trade, was born on Sept. 4, 1845. He entered Owens College, Manchester, and remained until 1867, when he took the degree B.Sc.Lond. His career as an undergraduate was very successful: he gained prizes in zoology, geology, and botany, chemistry, physics, and mechanics; he also won the second prize for the Dalton Chemical Essay (1866), and the Dalton Natural History prize. In 1868 he joined the medical school of University College, London, where he continued his successful career, becoming in due time physician assistant to Sir William Jenner and also house-surgeon and obstetric assistant. He took the M.R.C.S. in 1871 and graduated M.B. Lond. in 1873, gaining first-class honours in medicine and honours in other subjects. The M.D. was passed in 1874, when he also began his long and varied experience as a member of the staff of important London hospitals. He was appointed registrar to the Hospital for Sick Children, Great Ormond Street, and in the following year became assistant physician to it, and was elected physician ten years later; he retired to the consulting staff in 1899. In 1876 he was appointed assistant physician to Charing Cross Hospital, but in 1879 he gave up this post for a similar one at the London Hospital. In 1880 his old teachers showed their opinion of his abilities by inviting him to return to University College Hospital as assistant physician. In 1884 he joined the staff of the London Fever Hospital, but retired after four years' service. He was professor of clinical medicine at University College from 1895 to 1907 and was elected professor emeritus in 1911. He retired from the active staff of U.C.H. in 1910.



Barlow's house-physicians and the senior students who attached themselves to him learnt much and realized the immense fund of clinical knowledge stored in his retentive memory. He was in truth a remarkable example of the results that may be obtained in clinical medicine by the method of observation applied in a critical scientific spirit. He would spend an immense amount of time and care on any case which presented a novel combination of symptoms, suggested a new line of inquiry, or the solution of an old problem. Often he would sit lost in thought at the bedside until students grew impatient; but the features of the case were being indelibly fixed in his mind, and the reveries would be ended by a question which sent the clinical clerk home to reflect on the advantages of not being in a hurry. There is little exaggeration in the use of the word "indelibly," for he had the power of recalling for illustration or comparison details of cases he had seen many years earlier. He loved an argumentative conversation on any one of the many clinical subjects in which he was interested; ready to weigh the opinion of others he was tenacious of his own, though prepared to reserve judgment when he felt that more facts were needed. While stress is justly laid on his deep personal interest in clinical medicine, it would be wholly incorrect to give the impression that he was indifferent to experimental medicine or in the least disposed to belittle its results.

Barlow's Contributions to Medicine

His own contributions to medical literature, all founded on clinical observation, were numerous and important. Early in his career he published some valuable work on meningitis. In a paper written with Samuel Gee on cervical opisthotonos in infants (*St. Bartholomew's Hospital Reports*, 1878) simple or basic meningitis (now known as meningococcal meningitis) was differentiated from tuberculous meningitis. Through this work non-tuberculous meningitis was afterwards recognized clinically, but it was not until 1897 that Carr (*Med.-Chir. Trans. Lond.*, **80**), in a paper on "Non-tuberculous Posterior Basic Meningitis in Infants," showed that it should be regarded as a distinct form of meningitis and separate from other forms of the disease secondary to ear diseases and other local infection. Next year Stile isolated the micro-organism and showed that it was practically the same as that isolated by Weichselbaum in the epidemic form of the disease. With D. B. Lees, Barlow wrote the article on simple (posterior basic) meningitis in the first edition of Allbutt's *System of Medicine* (1899); it was founded on clinical and pathological observation of 110 cases. In this article, full of valuable statistics and observations and illustrations, Barlow and Lees differentiated posterior basic meningitis from the vertical type—a distinction not adopted by Batten in the article on meningitis (all forms except the tuberculous) in the second edition of the *System*. Rickets was another disease closely studied by Barlow with his observing mind. He was the first to point out that the sharp drawing of the forefinger over the skin in front of the ear, where the facial nerve emerges, in a child suffering from tetany causes contraction of the muscles of the face. With Lees he inquired into the relationship of congenital syphilis and rickets, and found that in 47% of cases in which craniotabes (thinning of the flat bones of the skull, with bosses on the frontal and occipital bones) occurred in rickets there was a certain history of syphilis. A very important paper was contributed jointly with Warner to the *Transactions* of the International Congress of Medicine, 1881, on the subcutaneous tendinous nodules met with in the acute rheumatism of childhood. The condition had been seen by previous observers, but Barlow and Warner were the first to point out its comparative frequency and clinical significance. Later experience has confirmed the view expressed by these observers, that the nodules indicate concurrent and usually progressive cardiac disease; that a similar process of inflammatory change and proliferation is going on in the fibrous tissues of the cardiac valves or pericardium, or in both; that they indicate grave danger, and a carditis which is uncontrollable and advances almost invariably to a fatal ending. Barlow wrote a paper for this *Journal* (1883, **2**, 511) recording the post-mortem appearances in five cases in which the nodules were present. He came to the opinion that the nodules correspond with the inflammatory exudation which forms the base of the endocardial vegetations in the top of which later on a cap of fibrin may or may not be deposited. In this same paper he stated that he had never been able to assure himself of the production of cardiac murmurs in erythema nodosum, nor of any intercurrent arthritis, however slight. He thought the pains of the disease could be accounted for by effusion into the skin. He held that more evidence was wanted before saying that erythema nodosum was clearly related to rheumatism, much less identical with it, though in some respects it was parallel with it.

In 1883 and 1885 Barlow reported to the Clinical Society of London some observations on Raynaud's disease in which he noted a point that acute observers had overlooked. It was the parallelism between cases of intermittent haemoglobinuria and characteristic cases of Raynaud's disease—those, that is to say, in which the local asphyxia is paroxysmal with a return to the normal state between the attacks. Barlow suggested that possibly other visceral paroxysmal affections might be found, in these cases, comparable with the temporary enlargement of the spleen sometimes found in haemoglobinuria. This suggestion he verified later in a case under his care. He made several other clinical observations on the disease which are to be found in his illuminating article on the subject in Allbutt's *System of Medicine*.

The original work by which Thomas Barlow will probably be best remembered is that connected with infantile scurvy or scurvy rickets. Isolated cases have been recorded as far back as 1651, when in his treatise on rickets Glisson described a complication. German clinicians of last century also recorded cases which they, however, looked upon as examples of acute rickets. The first suggestion of the real nature of the disease was made in 1873 by a Swedish physician, Ingerslev. The first case in England was reported by Sir Thomas Smith in the *Pathological Transactions* (1876), but he called it a case of haemorrhagic periostitis and did not connect it with scurvy. It remained for W. B. Cheadle to describe the disease as true scurvy and trace it to the want of antiscorbutic element in the food. This he did in 1878 in a clinical lecture based on three cases. In later years Cheadle recorded more cases and other clinicians added to the list. Barlow then became interested in the subject and in 1883 published the result of his observations in the *Transactions of the Medico-Chirurgical Society*, recording 31 cases, several of which he had seen in his own practice, and giving an exhaustive account of the pathological changes in three cases. This paper is looked upon as completing the investigation of the disease and adding the final proof that the lesions found in it are identical with those met with in the so-called sea or true scurvy of adults. He returned to the subject in his Bradshaw Lecture before the Royal College of Physicians in 1894, when he brought evidence gleaned from later experience to support his original description. This work greatly impressed German scientists, who declared their appreciation of it by calling the disease after him—"die Barlow'sche Krankheit." The important effect which the discovery of the real cause had on infant feeding at a time when artificial foods and sterilized milk were becoming very popular cannot easily be exaggerated; but Barlow spoke with great caution because he was fully alive to the urgent and great risks that might attend the use of unsterilized milk. Half a century later, in 1935, when he reached the age of 90, the *Archives of Disease in Childhood* made its August issue a special tribute to the importance of his work on infantile scurvy. It reprinted his original paper from the *Medical Chirurgical Transactions* (1883, **66**, 159), "On Cases described as 'Acute Rickets' which are probably a Combination of Scurvy and Rickets, the Scurvy being an Essential and the Rickets a Variable Element." In a contribution to the birthday number Sir Frederic Still showed that thanks to it the disease became recognized much earlier and feeding corrected so that children were spared months of suffering and many lives saved. Thus of 35 cases recorded by Barlow, 20 were over 1 year old and approximately 1 in 4.5 had died; whereas of the 155 seen by Still the majority were between the ages of 6 and 12 months and the mortality almost exactly 1 in 18. As further homage to Barlow were other writings by American and Continental physicians on the very early recognition of infantile scurvy by radiological examination; latent scurvy; scorbutic dystrophy; and the identification of vitamin C of the citrus fruits so much used in prevention of the disease.

In a foreword to the birthday tribute in 1935 Lord Horder described it as a collection of essays written in honour of a man who was so easily and so notably the doyen of British medicine. ". . . Though it is many years since his colleagues have been deprived of that wealth of experience, sound judgment, and cheery helpfulness they invariably got from him, he has retained an active interest in many affairs that have as their object human betterment in general and the welfare of the medical profession in particular. He has continued until now to infuse vitality into every institution and movement in which he has taken a part." "But of Barlow it might be said more truly than of any of his contemporaries that he is of no one school, but of all . . . he has been too great to be parochialized." A visit that afforded him and his Lancashire friends much pleasure was paid in his ninetieth year to take part in the celebration of the centenary of the Manchester Medical Society, of which he had been an honorary member for many years.

Sir Thomas Barlow became a Fellow of the Royal College of Physicians of London in 1880, and has long headed the list. He was Censor in 1905 and 1906, and was elected President in 1910; he was re-elected four times. The medical events during his tenure of the office were two. One was the introduction of the National Insurance Act and the controversy to which it gave rise. Barlow never declared his own opinion very clearly, but probably he was in favour of the principle the Act embodied. The second was the International Medical Congress held in London in 1913, over which he presided. In 1916 he gave the Harveian Oration on "Harvey: the Man and the Physician." He was Physician Extraordinary to Queen Victoria and was in attendance during her last illness; he was continued in the same office by King Edward VII and King George V. He was created a baronet in 1900 and K.C.V.O. in the following year. He was elected F.R.S. in 1909, and at various times received honorary degrees from the Universities of Aberdeen, St. Andrews, Edinburgh, Durham, Harvard, Montreal, Toronto, Christiania, Dublin, and the Victoria University of Manchester.

Barlow joined the B.M.A. as long ago as 1873. He served as secretary of the Section of Medicine in 1884, was vice-president of the same Section in 1891 and its president in 1906. He was also president of the Section of Diseases of Children in 1893, and in 1902 he gave the Address in Medicine before the Annual Meeting of the B.M.A. at Manchester. In 1918 he was elected an honorary member of the Société Médicale des Hôpitaux de Paris. He was awarded the gold medal of the Royal Society of Medicine in 1932, receiving it in person, at the age of 87, at the annual dinner of the Society.

Personal Traits

He was a fine specimen of a Lancashire man. Short and sturdy in build, his features bore the stamp of robust common sense with which he was richly endowed. Combining shrewdness in thought, directness in action, and openness in speech with a wide and thorough knowledge of clinical medicine he attained the highest position in London as a consultant, and no London physician was more highly thought of by his fellow practitioners in the county of his birth; many a time and oft were cases sent to him by them for his opinion: they knew that they would get practical and valuable advice from him. Home visits to the village where his brother's mills were afforded him great pleasure, for he had a deep affection for his own people, among whom he liked to be. His success as a physician was due in great part to his personality; his kindliness of heart, his sympathetic nature won the confidence and trust of patients, young and old, and of the anxious relatives. His attitude to patients has been well described by the poet-physician Robert Bridges in his *Recollections*; there is also an excellent and rather moving account of him as clinical teacher at Great Ormond Street in *Behind the Night Bell* (1938) by the late Dr. F. G. Layton: "He had a sort of intuitive flair for diagnosis. He had more than that. He had the knack of saying always the kind thing. The old Queen did well when she chose him as one of her advisers. He was very blunt; he was very rugged—he came from the North Country; he was fundamentally honest. It is forty years since I last spoke to him, but I love him to-day as I loved him forty years ago. I still feel that I owe him more than I can ever repay. He more than anybody else taught me the merits of humanism as applied to medicine; and he did it not by any deliberately spoken word but by just being himself."

After his retirement, and up to the last, Sir Thomas Barlow remained a still active figure in the eyes of the profession through his whole-hearted work as president of the Royal Medical Benevolent Fund since 1920. Himself a generous supporter of the charity, he wrote letters to the medical journals every year asking for contributions to its Christmas Gift Fund. He married in 1880 the daughter of Patrick Dalmahoy of Edinburgh, and leaves two sons and a daughter. His eldest son, Sir Alan Barlow, entered the Civil Service and is Second Secretary to the Treasury. His second son, Sir T. D. Barlow, carried on the family business in Manchester and Bolton, and is now Director-General of Civilian Clothing at the Board of Trade. A third son died on active service in the last war. During the long evening of his days Sir Thomas was tended with unwearying care by his daughter Helen.

WALTER ESSEX WYNTER, M.D., F.R.C.P.

On Jan. 4 the death took place at Newbury of Walter Essex Wynter, aged 84, consulting physician to the Middlesex Hospital, where he was over a long period of years both beloved and respected by many generations of students and house-physicians. He was the son of Andrew Wynter, M.D., editor of the *British Medical Journal* 1855–61, was born in 1860, and was educated at Epsom College, on the council of which he afterwards served for many years, and at Middlesex and St. Bartholomew's Hospitals. He qualified as M.R.C.S. in 1883 and became

F.R.C.S. in 1885, but he gave up surgery in favour of medicine, took the M.B.Lond. (with honours) in 1887, the M.D. in 1888, and became F.R.C.P. in 1897. Elected to the staff at Middlesex he soon established a high reputation not merely as a physician but as a very fine teacher; and this at a time when Middlesex had several other remarkable personalities on the teaching staff (e.g., Bland-Sutton). He published two books in his early days—*A Manual of Clinical and Practical Pathology* in 1890, and *Minor Medicine* in 1891.

Wynter had a strongly built sturdy frame, with a rubicund and cheerful countenance, and was a man of boundless energy. As the *Times* has indicated, he was independent of private practice, but worked hard in his wards and in his teaching rounds from pure enthusiasm. When he retired from London, a good many years ago, he discovered on the edge of Newbury (and almost next door to the district hospital there) a semi-derelict manor house, whose ground floor was being used as a store for builders' ladders, wheelbarrows, and other stock-in-trade. This he bought and very lovingly restored: upstairs is some of the oak timber of the original building (of 1330), downstairs a charming room with herring-bone red brick work and oak panelling dating from 1550—he used to speak of this as the "modern improvements" then undertaken. This treasure —Bartholomew Manor—with a beautiful old-world garden, he was never tired of displaying to any visitors. Within the same curtilage stands another very ancient building, which Wynter converted into a hostel for retired nurses; of this a full account was given in the *Journal* of Feb. 19, 1938. It is understood that he has provided an endowment fund, to be administered by the Middlesex Hospital, to keep in being this splendid work of practical (and much-needed) philanthropy. Another of his interests, as has been mentioned, was his old school, Epsom College. After the last war his brother, the late Dr. Andrew Wynter, handed his war gratuity to the college to accumulate at compound interest until it should be sufficient to found a scholarship; to this gift Walter added very considerably, and the fund now stands at just about the goal the two brothers had in view—namely, £1,000. At Newbury Walter Wynter was of great value as physician to the district hospital; he also served for several years on the town council and rendered immense service as chairman of the public health committee. When about 70 years of age he was advised to submit to amputation of one leg above the knee; naturally his friends began to entertain forebodings for him, but he "never turned a hair" after the operation, and soon became as active and energetic as ever. He was of a most amiable and cheerful disposition; a correspondent says rightly that he can hardly have had a single enemy. He married Ada Margaret, daughter of Samuel Wills of Bristol; they had no children, and Mrs. Wynter died in 1937.

Surg. Rear-Adml. GORDON GORDON-TAYLOR writes:

May I offer a tribute to the extraordinary charm of Walter Essex Wynter and to his surgical "angle." Wynter's interest in surgery remained throughout his professional career; he taught for some years along with Bland-Sutton in the anatomical department of Middlesex Hospital. Destined himself to the practice of medicine, he rarely missed an occasion to attend the operating theatre when any case from his medical wards was being operated on, and fortune happily seemed to ordain that during most of the years of his service at Middlesex his "corresponding" surgeon was his friend Sir John Bland-Sutton, whom he ardently admired. Although a physician, he performed for the first time the operation of lumbar puncture, and he often ventured to suggest ingenious methods for dealing with commonplace maladies: in the period which preceded the era of liver therapy for pernicious anaemia many a spleen was removed at Wynter's suggestion by Bland-Sutton and the writer, with results which contrasted favourably with those of medical therapy in the treatment of the disease at that time. He had bizarre notions for getting rid of abdominal ascites without the systemic loss of fluid which attends recurrent tapping, and for a period of time "crural drainage" was a fashionable method of treatment for this condition in his wards. He had a passion for exploring new therapeutic preparations; many were soon discarded, but the writer recalls a more prolonged trial of a preparation—tinctura apocyani, which he termed the "vegetable trocar"—in cases of ascites. Wynter will long be remembered by his contemporaries and pupils for his unvarying kindness and charm; he had a most lovable nature and could not have had an enemy in the world. He is said to have grown his own tobacco in his garden at Newbury and to have smoked it green; some have alleged that this practice may have had some share in the malady from which he suffered for the last 15 years of his life. He endured much pain and surgical mutilation; but his affliction he bore with his customary fortitude, equanimity, and cheerfulness, even during the final period of his life, when the advance of crippling disease precluded him from wielding the rod and reel of the craft of which he was so devoted and skilful an exponent.

JOSEPH GRIFFITHS, C.M.G., M.D.Ed., M.Ch.Camb., F.R.C.S.

The death of Dr. Joseph Griffiths on Jan. 3 at Cambridge removes the surgical doyen of that town, where he had practised with conspicuous success during almost the whole of his long professional career. He was 81 at the time of his death, and qualified as M.B.Ed. in 1885, almost 60 years ago; he took the D.P.H. (of Cambridge) in 1887, M.D. in 1890, F.R.C.S. in 1892, and M.A., M.Ch. in 1907. After the death of Sir George Humphry in the middle 'nineties the professorship of surgery at Cambridge remained vacant for several years until the appointment of Howard Marsh; during part of this time the teaching of the subject was in the hands of Joseph Griffiths, who was reader in surgery from 1897 to 1902. He was then quite a young surgeon, though with an already established reputation as a careful and reliable exponent of his specialty. Widely known and liked as "Joe," he was of great value to Addenbrooke's at a time when that hospital was rather short of capable surgeons—a deficiency supplied later when Roderick, Cooke, and others started practice in the town. Griffiths was a tiny little man physically, but of abounding energy and enthusiasm. During the 1914–18 war he was O.C. the 1st Eastern General Hospital, with the rank of colonel, and was awarded the C.M.G. for his services. He had also been surgeon to the St. Leonard's Hospital, Sudbury; and was Hunterian Professor at the Royal College of Surgeons in 1894 and 1895.

A Cambridge colleague writes:

Griffiths added a large number of pathological specimens to the Museum, especially bone preparations, having evolved, with the help of his laboratory assistant, Frederick Izzard, a method of maceration which produced beautifully white specimens of bone diseases which were the constant admiration of generations of surgical examiners. He also had a large private collection which he presented to the Royal College of Surgeons. At the time of his death Griffiths was senior consulting surgeon to Addenbrooke's Hospital, having served on the honorary staff since 1892; he was also consulting surgeon to the Huntingdon County Hospital. In the last war he was in command of the 1st Eastern General Hospital, which was located in Cambridge. It was mobilized on Aug. 5, 1914, at the Leys School; it subsequently moved to Neville's Court, Trinity College, and finally to an open-air hutted hospital built on the King's and Clare cricket ground. The open-air ward was Col. Griffiths's own idea, and was thought by many to be too spartan, but it proved of undoubted benefit to the patients, and the advantage was brought home to those in attendance when a convoy of wounded Belgians arrived from France with very foul wounds. A farmer's son born in Carmarthenshire, he took up farming as a hobby, and in earlier years followed the hounds. He was a keen horseman, and also took a warm interest in animal pathology. He was honorary secretary of the Cambridge Medical Society, 1889–96, vice-president 1897–1900, and president 1901.

T. N. KELYNACK, M.D.

Mr. HUGH REID, F.R.C.S., of Liverpool, sends the following appreciation:

Nearly twenty years ago I met Dr. Kelynack for the first time. I had come back from a holiday in Switzerland and the talk naturally turned on mountains and snow and sunshine. I soon learned that his wide knowledge of people and places and particularly of sick children had taken him out to Montana and other centres to see for himself the conditions of sanatorium life. This ubiquitousness was characteristic of the man. If we talked of Derby or Liverpool or Edinburgh, Dr. Kelynack had been there; he knew the clinics, or the M.O.H., or a friend, or he had given a lecture or attended a hospital. His friendliness, his sympathetic interest, his warm and cheerful welcome at this first interview made me instantly and comfortably at home in his house. Young people of all ages took to him at once. His knowledge touched their interests and drew them out however shy they might have been—drew them out to discuss not only medicine but the philosophy of life and living.

My respect and admiration soon ripened into an affectionate friendship as I learned to know him better. His whole home radiated an air of joyous and purposeful living complemented by the influence of his brilliant doctor wife and his medical-student daughter, afterwards destined to become Assistant Secretary to the B.M.A. One interesting incident stands out in my memory of Mrs. Kelynack's practical efficiency. I had come down from Liverpool to stay at Harpenden, and one evening went off to London to one of the hotels for a dance, intending to go back to Liverpool the following morning. Towards midnight a telephone message came to Harpenden from a doctor in Southport asking me to perform an urgent operation. I had not thought of informing my host and hostess as to my whereabouts, but, nothing daunted, Mrs. Kelynack rang up a number of hotels in London, giving my description. Before 12.30 a waiter walked up to the table where I was sitting, asked me if I were the person described, gave me the message, which enabled me to spring into a taxi to catch the 12.40 from Euston. Mrs. Kelynack knew the value of time should an emergency arise. Her own activities fitted in with her husband's more leisurely outlook on life. It is easy to see how he came to lean on her guidance and care. One sometimes hears that an ideally happy marriage is somewhat of a rarity, but to stay with them was to see the working out of such a state in real life. His knowledge of the minds of little children with whom he was so intimately associated seemed to contribute to his directness and simplicity of outlook.

His latter years were clouded by the loss of his wife. He lost his resilience and his mainspring for existence. Now he lies buried in the grounds of the Children's Home in Harpenden side by side with the one whom he loved so well. The obituary notice in the *Times* gives an account of his academic distinctions, his wide activities, and the mark he made in his professional life. We who are left remember also his urbane and joyous personality, ready to encourage, ready to help, and ready to inspire.

Dr. **ROBERT MUSCHAMP**, one-time M.O.H. for Guiseley and Yeadon, a former chairman and member for about 20 years of Guiseley Urban Council, and for 12 years a member of the West Riding County Council, died in retirement on Jan. 4, aged 79. He studied medicine at Leeds, qualified in 1892, and was a Fellow of the Society of Medical Officers of Health. He is survived by his widow, a son, Dr. A. Muschamp, and two daughters, Dr. May Muschamp and Dr. Evelyn Muschamp, all three of whom are in practice in Guiseley and Yeadon.

Dr. **JAMES RICHARD WHITWELL**, formerly medical superintendent of St. Audry's Hospital, Melton, Suffolk, died suddenly on Jan. 9 in London, aged 81. The son of a medical man he was educated at Shrewsbury School and Edinburgh University, where he graduated M.B., C.M. with honours in 1887, and later studied in Berlin and Vienna. Before his appointment to St. Audry's he had been pathologist to the West Riding Mental Hospital, Sheffield, and assistant medical officer at Menston, Leeds. For many years he was honorary librarian of the Royal Medico-Psychological Association and a member of council of the Mental After-care Association and the Lebanon Hospital, Syria. Dr. Whitwell joined the B.M.A. in 1890, was secretary of the Section of Psychology at the Annual Meeting of 1900, and president of the Suffolk Branch in 1923–4. He gave the first description of the microscopical changes in the central nervous system in myxoedema in these columns on Feb. 27, 1892 (p. 430), and was the author of *Gleanings from Plato* (1935), *Historical Notes on Psychiatry* (1936), and *Syphilis in Earlier Days* (1940).

Although it is 25 years since Dr. **JAMES DUNLOP** retired from active practice, he is still well remembered in Essex, especially Aveley and Upminster, where he practised for many years. James Dunlop was born at Biggar, Lanarkshire, in 1862. He took the degree of M.A. in 1882 and the M.B., C.M. Glasgow in 1885, and then practised in Aveley and Upminster until 1920. During the 1914–18 war he had sole charge of 49th Wing, R.A.F., at Upminster, near Hornchurch Aerodrome. In 1921 he sustained a fracture of the odontoid process from a railway accident and retired to live in London. A colleague writes: He was a great man, a wonderful father and companion; very witty and of a happy disposition and so modest. He was very fond of sport and spent most of his spare time in the summer at Lord's Cricket Ground, becoming a member of Middlesex Club. He married Margaret Crawford Vallance and leaves three daughters. He died on Dec. 10, 1944, at the age of 82.

The following well-known medical men have died abroad: Dr. **VICENTE BATISTA**, paediatrician of Sao Paulo, Brazil, aged 48; Dr. **HENRY KENNON DUNHAM**, ex-president of the United States Association against Tuberculosis; Dr. **JOAO DE CAMARGO**, the Brazilian gynaecologist, aged 52; and Dr. **LUIZ ANTONIO DA SILVA SANTOS**, ex-dean of the faculty of medicine of Rio de Janeiro, aged 90.

Medical News

A meeting of the Medico-Legal Society will be held at 26, Portland Place, W., on Thursday, Jan. 25, at 4.45 p.m., when Mr. Hugh N. Linstead, M.P., will read a paper on "The Pharmacy and Medicines Act, 1941, and the Sale of Proprietary Medicines."

A conference to discuss the use of science in the post-war world, which is being organized by the Association of Scientific Workers, will be held at Caxton Hall, London, S.W., on Feb. 17 and 18. The object is to draw attention to the need for using science as fully in peacetime as in war. Further particulars may be obtained from the association at Hanover House, 73, High Holborn, W.C.1.

The gold medal for distinguished services in medicine of the New York Academy of Medicine has been presented to Dr. Oswald Avery, emeritus member of the Rockefeller Institute for Medical Research, in recognition of his investigations that "have led to discoveries and great advances in the science of bacteriology."

The seventy-fifth birthday of Vladimir Komarov, president of the Academy of Sciences of the U.S.S.R., and the fiftieth anniversary of his activities as a scientific worker were celebrated on Oct. 15, 1944.

A new Department of Physical Medicine and Rehabilitation to replace the one destroyed by bombing in 1940 was opened by Miss Florence Horsbrugh, Parliamentary Secretary to the Ministry of Health, at the Prince of Wales's General Hospital, Tottenham, on Dec. 20.

A meeting of the directors of the Society for Relief of Widows and Orphans of Medical Men was held on Jan. 3, with Dr. R. A. Young, president, in the chair. A legacy of £5,000 from Dr. C. Reid of Stafford was reported. At Christmas £1,100 was distributed as a present, each widow receiving £20. The half-yearly grants paid this month amounted to £1,948. Membership is open to any registered medical man who at the time of his election is residing within a twenty-mile radius of Charing Cross; full particulars may be obtained from the secretary. Election is by ballot and at the discretion of the Court of Directors. Members are reminded that their annual subscriptions are now due. The secretary attends at 11, Chandos Street, Cavendish Square, W., on Wednesdays from 4 to 5 p.m.

The medical committee of the Scientific Film Association has just published its first *Handlist of Films of Medical Interest*. This lists twelve recent films with a brief synopsis of their content and gives details of where to get them. Such lists, which it will publish at intervals, can be obtained from the honorary secretary. The committee also announces that it is now preparing a series of film programmes to be presented on the fourth Thursdays in February, March, April, and May at 5.30 and again at 8 p.m. A season ticket admitting to all four shows will be issued at a nominal charge of 3s. Application should be made immediately to the honorary secretary of the Medical Committee, Dr. S. J. Reynolds, 14, Hopton Road, S.W.16.

Dr. Dellepiane Rawson, an eminent plastic surgeon in the Argentine, has arrived in this country for a six-months visit arranged by the British Council. He is head of the special ward for plastic and restorative surgery at the Hospital Rawson, Buenos Aires, and associate teacher at the Faculty of Medicine, and will be working in the E.M.S. plastic surgery unit at Park Prewett Hospital, Basingstoke, with Sir Harold Gillies.

The 21st annual report of the Ella Sachs Plotz Foundation for the Advancement of Scientific Investigation records eighteen grants made during 1944 and gives a list of the investigators and the purposes of the research aided. Three workers in Great Britain received grants—Dr. N. Ambache, Guy's Hospital, for investigation of the action of tetanus toxin on synaptic junctions; Dr. P. Ellinger, of the Lister Institute, for investigation into nicotinamide metabolism in various deficiency diseases; and Dr. A. H. T. Robb-Smith, of the Radcliffe Infirmary, Oxford, for an attempt to standardize haemoglobinometry. In making the awards the trustees favour researches that are directed towards solutions of problems of medicine and surgery or in branches of science bearing on medicine and surgery. As a general rule preference is given to researches on a single problem or on closely allied problems. Applications for the year 1945–6 must reach the secretary of the Executive Committee, Dr. Joseph C. Aub, Massachusetts General Hospital, Fruit Street, Boston 14, Massachusetts, before April next. Letters asking for aid must give the qualifications of the investigator, an accurate description of the research, the size of the grant requested, and the specific use of the money to be expended. It is highly desirable to include letters of recommendation from the directors of the departments in which the work is to be done.

On Wednesday, Jan. 24, at 1.45 p.m. at the Royal Society of Arts, John Adam Street, London, W.C.2, a paper on forensic science will be read by J. B. Firth, D.Sc., F.R.I.C., M.I.Chem.E., director of the North-Western Forensic Science Laboratory. A sandwich lunch, which should be ordered in advance, will be served from 1 to 1.30 p.m. at 1s. 6d. per head. Invitation cards to the lecture may be obtained on request from the R.S.A.

Mr. W. S. Morrison, Minister of Town and Country Planning, will open on Feb. 1 in the Victoria Art Gallery, Bath, an exhibition of maps, drawings, and models of the proposed scheme for the reconstruction and replanning of Bath and the surrounding area. The scheme has been prepared for the Bath and District Joint Planning Committee by Sir Patrick Abercrombie in conjunction with the city engineer and the planning officer.

Prof. Pasteur Valery-Radot has been elected member of the Académie des Sciences and Dr. Georges Duhamel has been appointed permanent-secretary.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* there were 437 more cases of measles than last week, and 97 more of acute pneumonia. Notifications of scarlet fever fell by 394, those for whooping-cough by 138, those for dysentery by 50, and those for diphtheria by 10.

Lancashire reported 88 fewer cases of scarlet fever than last week, and Staffordshire 40; in Lancashire the total for whooping-cough fell by 38. Diphtheria notifications showed a drop of 11 in Northumberland. Notifications for this disease stand at about half the usual winter level. The local trends of measles fluctuated considerably: Middlesex reported a rise of 147, Derbyshire of 77, Yorks North Riding of 76, Durham of 74, Surrey of 68, and Kent of 60; in Lancashire and Cheshire the incidence dropped by 190 and 111 respectively.

The 123 notifications of dysentery are the smallest weekly total recorded during the year, although in Essex the cases rose from 7 to 23. The only other large returns were those of Lancashire and London with respectively 24 and 16 cases.

In *Scotland* measles notifications rose by 132, and diphtheria by 19, but those for whooping-cough dropped by 64, and for dysentery by 32. Of the 101 cases of dysentery, 33 were reported in Lanark County and 29 in Glasgow.

In *Eire* there was a serious rise in diphtheria notifications —81 more cases than in the preceding week; 47 cases were notified in Dublin C.B., and the remaining 144 were spread over fifty-nine registration areas.

In *Northern Ireland* measles notifications fell from 248 to 188; all but 10 cases were reported from Belfast C.B.

The Health of Edinburgh

The provisional returns for 1944 show that the births, 7,907, were the highest for eighteen years, and the deaths, 5,995, were the lowest since 1938. The infant mortality was 51 per 1,000 births—the lowest on record; 12 deaths were attributed to diphtheria, the lowest total since immunization was first introduced twenty-two years ago. During this period only 7 deaths have occurred among immunized children, compared with 868 among non-immunized, and in the last seventeen years no deaths had occurred among the immunized children. Deaths from pulmonary tuberculosis numbered 254, and 49 from non-pulmonary, compared with an average for the preceding five years of 301 and 73.

Quarterly Returns for Northern Ireland

The birth rate during the September quarter was 22.8 per 1,000, being 1.0 below the rate for the third quarter of 1943 but 1.0 above the average of the third quarters of the five years 1939-43. Infant mortality was 56 per 1,000 registered births, the lowest rate recorded during the present war, and 12 below the average of the five preceding September quarters. Maternal mortality was 2.8 per 1,000 births—0.6 below the five-years average. The general death rate was 10.6 per 1,000—0.8 below the average. Deaths from the principal epidemic diseases were equivalent to a rate of 0.42, which is the lowest for over twelve years. Of the 139 deaths included under this heading, 90 were attributed to diarrhoea and enteritis, 23 to whooping-cough, and 11 to diphtheria. Deaths from pulmonary and non-pulmonary tuberculosis were 194 and 64, compared with 207 and 69 for the average of the five preceding third quarters.

Week Ending January 6

The returns of infectious diseases during the week in England and Wales included: scarlet fever 1,462, whooping-cough 1,538, diphtheria 439, measles 11,947, acute pneumonia 1,242, cerebrospinal fever 49, dysentery 204, paratyphoid 1, typhoid 8. Influenza deaths in the 126 great towns numbered 55.

No. 52

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Dec. 30.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1944					1943 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	38	6	24	1	1	73	7	30	7	4
Deaths		1	—				—	2		
Diphtheria	446	16	136	191	15	578	32	171	90	35
Deaths	11	1	—	1	1	10	2	2	3	—
Dysentery	123	16	101	1	—	89	18	71	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	—	—	—	—	—	3	—	1	—	—
Deaths		—					—			
Erysipelas			65	23	2			71	7	2
Deaths		—					1			
Infective enteritis or diarrhoea under 2 years				26					3	
Deaths	44	1	12	8	3	53	7	6	17	2
Measles*	8,870	155	471	25	188	546	67	18	58	—
Deaths	14	—	1	—	—	1	—	—	—	—
Ophthalmia neonatorum	52	2	15	—	—	60	2	11	—	—
Deaths										
Paratyphoid fever	6	—	—	—	—	5	—	1	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	812	29	19	5	16	1,997	127	94	19	7
Deaths (from influenza)	35	1	2	—	—	464	56	23	10	5
Pneumonia, primary ..			359	46				535	22	
Deaths		41		13	9		99		22	21
Polio-encephalitis, acute	—	—				—	—			
Deaths		—					—			
Poliomyelitis, acute ..	6	—	1	2	—	6	—	—	1	—
Deaths		—					—			
Puerperal fever		3	8		—		3	17		1
Deaths										
Puerperal pyrexia‡ ..	99	8	14	—	—	150	7	19	—	3
Deaths		—					—			
Relapsing fever ..	—	—			—	—	—			—
Deaths										
Scarlet fever	1,512	37	218	38	49	2,029	148	256	26	76
Deaths	1	—	—	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	4	—	1	10	—	7	—	—	8	3
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	1	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough* ..	1,179	43	53	61	11	1,509	171	73	43	23
Deaths	7	1	3	—	—	14	4	9	2	—
Deaths (0-1 year) ..	389	35	81	32	30	459	58	80	46	22
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	5,363	745	685	190	140	6,904	1,134	781	295	176
Annual death rate (per 1,000 persons living)			15·7	12·3	§			17·6	19·4	§
Live births	5,251	437	865	308	229	5,886	788	869	346	288
Annual rate per 1,000 persons living ..			17·6	20·0	§			17·7	22·7	§
Stillbirths	181	15	28			181	16	35		
Rate per 1,000 total births (including stillborn)			31					39		

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* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Bismuth for Osteo-arthritis

Q.—*Is there any evidence that bismuth is of value in the treatment of osteo-arthritis, and has it any advantages over gold? In the case I am interested in, both knees and the right hip are affected.*

A.—Bismuthi et sodii tartras has been extensively used for the treatment of yaws, and in view of the fact that in this disease rheumatic pains are often a feature and arthritic changes in the joints occur in the later stages, it was thought to be worthy of trial in other forms of arthritis. It was included in the *British Pharmacopoeia* in 1936. The published results of its use in this country in various forms of arthritis are as yet too scanty to establish its value, but it is said to be less effective in osteo-arthritis than in other forms. In the case which is the subject of this question the arthritis of the hip is probably the primary trouble, and the knee changes are secondary to it and due to abnormal strain setting up a chronic synovitis and later osteo-arthritic changes—a very unpromising type of case for any form of treatment; gold would almost certainly be useless. In other forms of arthritis the experience of the writer has been that the bismuth salt is definitely inferior to gold in the treatment of rheumatoid arthritis, but that where gold has been found ineffective or has produced toxic reactions the bismuth salt should be tried; the results, however, have not thus far been very encouraging. No harmful reactions have been met with in the comparatively few cases in which it has been used, and this would justify its further trial in these intractable conditions.

"The Four Humours"

Q.—*Patients frequently talk about their blood being "out of order" or "overheated," and thus explain, for example, children's spots. In the same strain they accuse themselves of "making too much acid," or say that everything they eat "turns to acid," with apparently no reference to hyperchlorhydria. What is the pathology, if any, to which they refer? What is the treatment, apart from the "cooling magnesia" which the patients usually prescribe?*

A.—The calorific value of a food depends on its content of protein, fat, and carbohydrate. After combustion in the body it leaves a residue which may be alkaline or acid. These data are tabulated in textbooks of dietetics, from which it will be seen that fats are heating and meat and cereals form acid. It is clear, however, that patients do not have these matters in mind when making the statements quoted. More probably we are dealing with garbled recollections of the humoral pathology which was first developed by the school of Cos (400 B.C.) but persisted well into the nineteenth century. Just as there were four elements in Greek philosophy (air, water, fire, and earth), so there were four qualities (moisture, cold, warmth, and dryness) and four humours (the blood, the phlegm, the yellow bile, and the black bile). Certain symptoms of disease represented the effort of the body to preserve life through coction or cooking of the altered fluids. The blood was warm and moist, like air, and sanguineous disorders were common in the spring. Sylvius (1614–72) added the notion that acid and alkaline elements were normally balanced in the circulating blood, and that illness was due to a disturbance of this equilibrium. He therefore distinguished diseases due to excess of alkali on the one hand and diseases due to excess of acid on the other, and advised treatment in accordance. Ideas of coction were much affected by Stahl's theory of phlogiston, which was conceived as the principle of inflammability, and subsequent developments led to treatment by powerful antiphlogistic regimens, particularly blood-letting and purgation. Many of us have childhood memories of brimstone and treacle every spring as a result of these hypotheses.

From a broader standpoint, it might be argued that an inherent weakness in the mental make-up of *Homo sapiens* is a tendency to form myths or irrational ideas about food. This constitutes an important chapter of Freudian psychology. Patients imply that it is their food which is overheating or turning to acid, thus revealing unconscious fears of poisoning, oral impregnation, etc. The modern fashion is to ascribe heat spots in children to food allergy or digestive disorder. Acid fruits, pork, breakfast cereals, chocolates, and sweets are forbidden and a mild aperient and alkalis are prescribed. Thus fashions may change, but in treatment we have not advanced far along the road beyond Sylvius and Stahl. Acidity, as distinct from heartburn or acid regurgitation, is a mythical malady. Acidosis was a common diagnosis in the first flush of biochemical medicine after the last war, and it is still the subject of propaganda by the manufacturers of proprietary salines. However, in the adult at any rate, acidosis occurs only in the presence of profound and obvious disturbances of bodily function. A more precise description of the sensation should be demanded from the patient. In some cases the symptoms of the syndrome of reversed peristalsis may be present—belching, nausea, biliousness, coated tongue, bad breath, etc. The cause may be a reflex dyspepsia or a mental disturbance. Here again an aperient may restore the normal gradient. If there is no physical counterpart of the complaint of acidity, a purely psychic disorder should be suspected.

Industrial Dermatitis in Coal-miners

Q.—*What are the causes of industrial dermatitis in coal-miners? How can one differentiate this condition from non-industrial dermatitis?*

A.—Among the causes of industrial dermatitis in coal-miners are: acids and alkalis; grease and oil; cement (among "sinkers"). "Heat rashes" may occur where working conditions are hot and humidity high. Trauma is sometimes instrumental in determining the site of a dermatitis the primary cause of which may be one or more of the above. The differential diagnosis of industrial from non-industrial dermatitis calls for the same discrimination among coal-miners as with other "workmen." Of assistance in the differential diagnosis are a careful history with a knowledge of working conditions, and due appreciation of the significance of such points as occurrence and distribution of the dermatitis. Ringworm infections of the skin, which are favoured by heat and moisture, should be borne in mind.

Medicinal Treatment of Urinary Calculi

Q.—*How should one set about the removal of renal calculi by medicinal means? Is lavage of the kidney pelvis now used for removal of calculi in that situation?*

A.—There are two methods of treating renal calculi by "medicinal" means—the local application of solutions introduced into the renal pelvis through either a ureteric catheter or a nephrostomy tube; and the regulation of the reaction of the urine by diet and drugs. Apart from prophylaxis, these methods are used almost entirely for phosphatic stones, or even accumulations of phosphatic deposit which are only loosely bound into stones; for dense stones very prolonged treatment is required, and the technical difficulties are very great. A full description of the solutions used and the details of the method of keeping up the concentration of the solution in the renal pelvis are given in a paper by Suby and Albright (*New Engl. J. Med.*, 1943, **228**, 81). From this it will be realized that constant skilled nursing is essential for success, but the results obtained should encourage others to try. There are many articles and books on the dietetic treatment of urinary lithiasis, but the basis of the method may be briefly stated thus: to produce an alkaline urine the diet should be mainly vegetarian, while an acid urine is obtained by giving a diet rich in proteins and fats but poor in sugar.

Intravenous Anaesthesia for Torn Perineum

Q.—*Is intravenous anaesthesia suitable for use in performing a repair of a torn perineum (presuming the patient's general condition is good)?*

A.—For primary repair of the torn perineum immediately after delivery local analgesia is unsurpassed and has the advantage of complete safety. It is also an extremely simple procedure and ideal for the practitioner working single-handed, since the anxiety of caring for an unconscious patient while occupied in inserting sutures into the perineum is eliminated. In cases where a general anaesthetic is given for the delivery—e.g., in forceps cases—there is no objection, if the patient's condition is good, to continuing light general anaesthesia while the perineum is repaired.

General anaesthesia should not, in our opinion, be used in order simply to repair the perineum except in the case of a very severe tear involving the rectum. Here the repair is a major operative procedure and should be carried out under the best possible conditions. For such a case general anaesthesia is probably the best, and there seems to be no objection to the use of intravenous anaesthetics, provided the usual precautions are observed—e.g., a good airway is maintained and resuscitatory measures such as nikethamide are available.

"Apple Diet" for Infantile Diarrhoea

Q.—*What is the "apple diet" for diarrhoea in infants or children? How is it prescribed? What substances in the apple exert a therapeutic effect; and what is the action of each?*

A.—Apple diet has been used effectively for acute colitis and dysentery in children, and in infants for the later stages of diarrhoea when dehydration has been overcome but the stools remain offensive. Raw sweet apples are used, peeled, cored, and then grated, and the pulp mashed, each feed being freshly prepared. For a child of about a year some 10 apples a day will be necessary. The equivalent of 2 or 3 apples is given every 3 or 4 hours for 2 or 3 days. During this time all other food is withheld, but water must be given—2½ oz. per lb. body weight per day—sweetened if necessary with saccharine or flavoured slightly as weak tea (without milk). A slow return to normal diet is then begun. It is thought that "pectin" in the apple is the important agent, possibly acting by absorbing toxins or causing some alteration in bacterial flora. It can hardly be said that the scientific basis for what is essentially an old-fashioned Bavarian peasant remedy has been fairly established.

Anencephaly

Q.—*After bearing a normal female child, now 6 years old, a woman produced in two successive pregnancies an anencephalic monster, the first of which apparently died 3 weeks before delivery. In the second case the pregnancy was terminated 1 month early, as the mother was suffering from high blood pressure and albuminuria. So far as can be ascertained there are no abnormalities in the woman's family, and no intermarriages have occurred as far back as can be traced. Her husband's paternal grandparents were first cousins. A sister of his suffers from epilepsy, but apart from some deafness and another sister who had rheumatic fever, the medical histories of his close relatives are good. After the second anencephalic monster was born a blood examination was done, with negative result. What are the chances of a normal child resulting from any future pregnancy? The husband has asked my opinion on the advisability of sterilization of himself or his wife.*

A.—As many as three successive anencephalic monsters have been born to normal parents, and it is quite possible that the next child may be anencephalic. The chances of its being normal cannot be stated with certainty. Sterilization of either the father or the mother is inadvisable. One objection to it is that, if either parent died, the other might marry again and wish to have children.

Fungus on Tongue

Q.—*A man 38 years old has had for 10 years at least, possibly more, a thick yellowish-green fur on the dorsum of the tongue. He was told by an eminent Italian physician that the condition was due to an over-abundance of fungus which is normally present on the tongue. Is this a correct explanation? Is there any treatment? I have not been able to find any description of such a condition in the literature.*

A.—Apart from pathogenic fungi, such as *Candida albicans* (the common thrush fungus), which may cause a specific mycotic glossitis, moulds and yeasts are sometimes found, especially when the toilet of the mouth has been neglected, vegetating saprophytically on small collections of food material and epithelial detritus wherever this matter remains undisturbed. Certain conditions of the surface of the tongue, of which "hairy" tongue is an extreme example, favour the accumulation of such detritus, which is almost invariably associated with the presence of saprophytic yeasts or moulds. In course of time, but probably rarely, the saprophyte may become adapted to a semi-parasitic life and attach itself to the superficial strata of epithelium, from which its removal by mechanical means alone is no longer possible.

Local treatment by frequent swabbing or gentle brushing with fungicidal substances is necessarily experimental, but solutions of permanganate of potash, hypochlorite of soda, peroxide of hydrogen, diluted Lugol's iodine solution, or weak solutions of methyl violet or fuchsin may be tried. It would, however, be desirable before beginning treatment to determine, by microscopical examination of scrapings, that, in fact, the condition is caused by a fungus and, by isolation in culture, to identify the fungus.

Vaccination of an Allergic Subject

Q.—*A boy aged 12 years, subject to attacks of asthma and dermatitis from infancy, has not yet been vaccinated. Is there any danger in doing so?*

A.—This boy is allergic, and allergic reactions, usually in the form of rashes (erythema multiforme or morbilliforme, urticaria), may occur after vaccination. The incidence of these non-specific rashes after vaccinia is small (1: 5,000 to 1: 9,000), and they have not apparently been correlated specifically with allergic subjects; but the nature of the rash and its usual occurrence 8 to 12 days after vaccination suggest an allergic aetiology, ascribed by some workers to the small amounts of ox serum in the vaccine lymph. Another disadvantage of primary vaccination in a boy of 12 is that the reaction is likely to be severe, and post-vaccinal encephalitis, although a small risk (1:20,000 to 1:700,000), occurs most often after primary vaccination in children of school age. It would therefore seem inadvisable to vaccinate the boy unless or until he is exposed to the risk of smallpox. In such a case the multiple-pressure method would be preferable to the scratch method (see Parish, H. J., *British Medical Journal,* 1944, **2,** 781).

Adult Stammering

Q.—*Is there any possibility of complete cure of stammering in a male aged 33 with a history of frequent illnesses in childhood? Two years' service in the R.A.F. (ground staff) has greatly increased the stammer. Is treatment best undertaken by a speech therapist or by a psychiatrist, and what are the methods employed?*

A.—If the stammer has existed since childhood a complete cure is very unlikely in an adult of 33. Considerable improvement is possible; at least he should attain his pre-service level and might improve even beyond this. The fact that R.A.F. service has intensified the stammer suggests some degree of "psychoneurotic superstructure"; consequently the best line of treatment would be psychotherapy (by an appropriate psychotherapist) and also speech therapy (by a speech therapist). Speech therapists are now recognized as "medical auxiliaries," a diploma being granted to properly trained speech therapists by the recently constituted College of Speech Therapists. Psychotherapy does not necessarily mean psycho-analysis, but a modified form designed to bring about psychological readjustment as practised by many psychologists.

Pyruvic Acid

Q.—*(a) What is pyruvic acid? (b) Why is it so named? (c) Under what conditions or where in Nature is it found? (d) In what way does it neutralize the effects of vitamins B and D? (e) Is it known to have any other action? (f) Does calcium neutralize its ill effect, or is any substance known that does so?*

A.—Pyruvic acid or acetylformic acid has the formula $CH_3.CO.COOH$, and is so named because it is obtained by the action of heat (πῦρ=fire) on tartaric acid, which is found in grapes (*uva* = a bunch of grapes). It is an intermediate product of carbohydrate metabolism and is probably formed in the tissues by the anaerobic oxidation of glucose according to the following scheme: Glucose ⟶ hexose mono- and di-phosphate ⟶ phosphoglyceric acid ⟶ phosphopyruvic acid ⟶ pyruvic acid. It is found in the tissues, blood, and urine. There is no evidence that it neutralizes the effects of vitamins B and D. Vitamin B_1, however, in the form of its phosphate (cocarboxylase) catalyses the decarboxylation of pyruvic acid to methyl glyoxal, $CH_3.CHO$. A complex of protein, vitamin B_1 pyrophosphate, and magnesium also carboxylates pyruvic acid to oxalacetic acid, $HOOC.CH_2.CO.COOH$. Pyruvic acid is a product of metabolism and is not known to have any specific action. In patients with vitamin B_1 deficiency it is stated that the blood pyruvic acid is elevated, although this has been disputed. Some of the symptoms of vitamin B_1 deficiency have been ascribed to the accumulation of pyruvic acid in the body. Calcium has not been shown to have any effect on the pyruvic acid level in the body. If the latter is raised and is associated with vitamin B_1 deficiency, administration of vitamin B_1 brings the blood pyruvic acid down to normal levels. The blood pyruvic acid is also raised in insulin hypoglycaemia, hyperthyroidism, and mild diabetes.

Hydatidiform Mole

Q.—*What is the present state of knowledge of the hydatidiform mole? Textbooks seem to repeat an age-old formula. Is anything known of the aetiology? How soon after evacuation may a further pregnancy be permitted?*

A.—Hydatidiform mole is believed to be due to a developmental anomaly of the trophoblast of the young ovum. Just as such defects as anencephaly and spina bifida involve the tissues derived from the embryoblast, so does hydatidiform degeneration attack the trophoblastic tissues. The parallel may not be exact, but the principle of a developmental anomaly of the chorionic tissues holds. The cause is, of course, unknown, nor can any predisposing factors be distinguished. The morbid histology is also unsatisfactory, for there is no explanation of the method of formation of the vesicles. The proliferation of the cytotrophoblast leads to profound alterations in the endocrine balance, so that the ovaries become cystic and the excretion of chorionic gonadotrophin in the urine is greatly increased. As the fault lies in the ovum there is no objection to a subsequent pregnancy at an early date. An interval of four to six months might be suggested. There is much to be said for determining the Aschheim-Zondek reaction of the urine during the interval to exclude the development of chorion epithelioma.

Allergy to Citrus Fruit

Q.—*Last autumn and this I have frequently noticed crops of vesicles in infants and young children, on arms, legs, and sometimes the body. Attacks tend to recur over a period of weeks or months; the vesicles are usually irritable, start as red spots, then become blisters, and gradually disappear; they may reappear in a week or so; size 1/8 in. to 1/4 in.; they may become pustular. Mother and clinic usually blame oranges. What are the aetiology and treatment, and does diet or vitamin deficiency play a part in causation?*

A.—The description does not give enough detail to allow of a definite diagnosis, but the occurrence among a number of young children suggests a common factor, and if an unusual form of urticaria can be excluded, and such parasitic conditions as scabies, then it is not unreasonable to suspect oranges, because the citrus fruits are well known to cause allergic reactions of different sorts.

Occupational Cause of Leukaemia and Raynaud's Disease

Q.—*Is there a recognized occupational cause of (a) leukaemia, (b) Raynaud's disease?*

A.—Leukaemia is not generally recognized as a direct occupational disease, but it has been noted as the final phase in some cases of aplastic anaemia following exposure to benzol, and occasionally to *x* rays. A recent case of chloroleukaemia reported in a German benzol worker, for example, was considered to be related to his exposure in so far as the benzol might have had an initial aleukaemic effect followed by over-compensation of the bone marrow leading to leukaemia. (For leukaemia associated with benzol see Weil, P. E., *Bull. Mém. Soc. méd. Hôp. Paris,* 1932, **48,** 193.)

True, Raynaud's disease is not recognized as an occupational condition, but "dead hand" is known as a relatively frequent occurrence in workers using the compressed-air hammer. This is believed to be a local condition due to the concomitant action of cold (partly arising from the compressed air escaping from the tool) and of long-continued muscular contraction and transmitted vibration. (See Leys, D., *Lancet,* 1939, **2,** 692; and Desoille, H., 1937, *Ency. Méd. Chir.,* vol. 8.)

Romberg's Sign

Q.—*What is the mechanism of a positive Romberg's sign? In what conditions is it found? Where can one read Romberg's own description of this sign?*

A.—Romberg's sign is used to demonstrate a defect in the ability to maintain posture. The ability to stand upright with the eyes closed depends upon the afferent impulses from joints, tendons and muscles, and skin. Some of these impulses make the subject conscious of where his limbs are and where his body is in regard to his limbs. Some do not reach consciousness but nevertheless help in the maintenance of posture. All these impulses are co-ordinated and the resulting pattern of nervous activity maintains the postural muscles in the appropriate tonic state, through the efferent nerves. A lesion anywhere in the pathway will give rise to a defect in maintaining posture—for instance, a man with weak muscles cannot stand upright efficiently. Usually, however, the defect is in the sensory, afferent fibres, when inability to maintain posture, giving a positive Romberg's sign, is associated with loss of joint sense. The sign is therefore found in diseases where this defect occurs—for example, tabes dorsalis, disseminated sclerosis, or peripheral neuritis. Romberg's original description appeared in the *Lehrbuch der Nervenkrankheiten des Menschen* (Berlin, 1853), and a translation by E. H. Sieveking appeared in the *Transactions of the Sydenham Society,* London, 1853.

INCOME TAX

Expenses of Employment

A. S. has been employed by the Ministry of Health, it being a condition of his employment that he should attend a course of study and sit for a specified examination. Can he claim a deduction for the study and examination fees?

*** The governing rule is that an expense can be deducted if it is "incurred wholly, exclusively, and necessarily in the performance of the duties of the office or employment. The benefit to be derived from the study and the examination in question—e.g., the increase in knowledge and skill, and evidence thereof—will extend into the future, and though A. S. can presumably show that the expense was necessary in that only by complying with the condition could he continue to hold the appointment, it is, we consider, unlikely that he could establish the contention that it was incurred wholly and exclusively in the performance of the duties of his present employment. We cannot therefore advise him to appeal against the view taken by the inspector of taxes.

LETTERS, NOTES, ETC.

Oxalated Blood for Cell Counts

Dr. C. J. C. BRITTON (London, W.1) writes: The answer given under this heading in the issue of Dec. 2 (p. 744) appears incomplete. It omits to mention the very important point of the amount and type of oxalate used. The ordinary oxalate tube, as usually employed in the collection of blood for biochemical tests, contains so much oxalate that a very hypertonic fluid is inevitable, and the results found on delayed counting of such blood are grossly inaccurate, as your correspondent states. If, however, the tubes for collecting the blood are prepared in such a way as to avoid this—e.g., if they contain a mixture of exactly 4 mg. dry potassium oxalate and 6 mg. dry ammonium oxalate for each 5 c.cm. of blood taken—it will be found that the estimation of haemoglobin, the red cell count, and packed cell volume are reliable if performed within 24 hours in temperate climates, or within 2 to 3 days in cool weather. The leucocytes are much more easily damaged and destroyed, and there is commonly about 10% destruction of these cells in 24 to 36 hours. Blood films must always be made when the blood is first collected.

Growth on Ear

Dr. F. S. AIREY (Leicester) writes: I believe your inquirer would find a more precise reply of greater assistance than the one quoted by you (Nov. 25, p. 714). Chondrodermatitis nodularis chronica helicis, as first described by Winkler (painful nodule of the ear), is a clinical entity commonly encountered. The aetiology is obscure, but the lesion occurs mostly in middle-aged men (although I have seen it in a young boy) and always chooses the rim of the pinna. It is essentially a corn, being dependent upon the development of a cartilaginous outgrowth in response to intermittent pressure (perhaps from the hat brim, but more likely the pillow in bed). The visible, palpable "wart" is a nodule of fibrous connective tissue, which recurs after simple excision. Usually it is radio-insensitive. Permanent relief cannot be achieved without removal of the underlying cartilaginous spur. It is important not to limit excision to the actual nodule or a prominence will be left at each end of the arc and favour the development of secondary lesions. It is wise to strip the cartilage (not, of course, deeply) over an inch or so of the rim of the helix so as to avoid further trouble. The slight disfigurement resulting is accepted by most patients as of trivial consequence.

Insect Sprays in Sleeping Quarters

Dr. A. H. DOUTHWAITE (London, W.1) writes: With reference to your recent correspondence on the subject (Dec. 30, p. 874), it may interest your inquirer to learn of one instance in which "flit" appeared to produce toxic effects. An over-zealous housemaid had sprayed the bedroom profusely shortly before bedtime. No precaution had been taken to prevent the droplets falling on the pillows. The windows were opened just before the occupants got into bed. Both of them suffered from dreams of violent action, terrifying apparitions, and other features similar to those produced by deliriants. They awoke within an hour with headache. On changing the pillows and leaving the door open the smell of the fluid soon vanished and the rest of the night was peaceful. A year later the same train of events occurred. Other members of the household in unsprayed rooms did not suffer. On both occasions they had all eaten the same dinner. Presumably the volatile solvent was responsible.

Colt or Filly?

Dr. J. HOBART NIXON writes: Dr. L. Kilroe is correct in his doubts about Rocksand's female impersonation: the race mentioned should have been the St. Leger, not the Oaks.

Corrigenda

There was an inadvertent omission from the report of a case of locked twins received by airgraph from Dr. B. A. Bradlow of Johannesburg and printed in the *Journal* of Oct. 21, 1944 (p. 532). After the words ". . . delivered this twin as a breech presentation," the report should read: "The infant was a female weighing 5 lb. 3 oz. and only had slight blue asphyxia. He then did an internal version, turning the second foetus into a breech, and delivered it in this position. This infant was also a female, weighing 4 lb. 4 oz., and like its sister exhibited only slight blue asphyxia."

On page 57 of the *Journal* of Jan. 13, in the account of a meeting of the British Orthopaedic Association, Col. Stark (New Zealand A.M.C.) was given as one of the speakers. This should have been Col. Stout.

Disclaimer

Mr. HAROLD DODD wishes to disclaim any part in the publication in a weekly periodical of an extract from his article on varicose veins which appeared in the *Journal* of Dec. 23.

3RITISH MEDICAL JOURNAL

LONDON, SATURDAY, JANUARY 27 1945

THE ACTION OF PENICILLIN ON BACTERIA

BY

LAWRENCE P. GARROD, M.D., F.R.C.P.

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lphonamides had been in general use for five years before nature of their action on bacteria was discovered. The tory of penicillin is developing on similar lines: so remark- le were its properties as demonstrated by *in vitro* and animal periment, and so encouraging to clinical trial, that the treat- nt of human disease was embarked on at an early stage, d has engrossed almost all attention. The far-reaching success these efforts does not diminish the need for a clearer under- nding of how penicillin acts on bacteria: such knowledge y indeed enable clinical treatment to be directed even more ectively.

In the first full description by Florey and his colleagues braham *et al.* 1941) observations on the persistent respira- n and survival of staphylococci exposed to penicillin are ntioned in support of the view that its action is bacterio- tic rather than bactericidal. By performing viable counts bacteria exposed to the action of penicillin Hobby, Meyer, d Chaffee (1942) and Rammelkamp and Keefer (1943) showed t a great diminution in the number of living cells occurs, en ending in extinction, although a small proportion of sur- ors may persist. Similar experiments by Rantz and Kirby 44) led them to state unequivocally that penicillin is bac- icidal. Bigger (1944b) has reached the same conclusion, but alifies it by advancing the hypothesis that this lethal action exerted only against bacteria which are about to divide. The ne idea has been put forward with similar supporting evi- nce by Hobby and Dawson (1944) and by Miller and Foster 44).

Up to now no author appears to have examined penicillin the methods usually applied to ordinary disinfectants. It true that penicillin is far from being ordinary, but, on the er hand, if it is a disinfectant, as some of these findings gest, an accurate knowledge of the influence on its action the various factors which are known to control chemical infection generally might well be helpful. This was the aim some of the following experiments.

Method.—The only organism used was *Staphylococcus aureus* ford H strain), of which such an amount of a 24-hour broth ure was added to the test mixture as to give a concentration of m 25,000 to about 5,000,000 viable cocci per ml. The medium ally broth), the concentration of penicillin (added as a distilled- er solution in a small volume), and the temperature were varied stated later. Survivors were counted at intervals in pour agar es from 1 in 10 to 1 in 10,000 dilutions, penicillinase made by gar's (1944) method being added if necessary.

Bactericidal Action

t has been shown by others, and is evident from the follow- experiments, that penicillin causes the death of bacteria ler favourable conditions fairly rapidly. I was not at first ined forthwith to accept this as evidence of true killing, ause bacteria kept at 37° C.—a necessary condition for the id penicillin effect—and merely prevented from multiplying, ther by a mechanism involving deprivation of nutriment or erwise, will certainly not survive long. It might appear ple to settle this point by employing a non-nutrient medium, in my hands the death rate at 37° C. of washed staphylo- ci in different batches of Ringer's solution made with s-distilled water varied inexplicably, and although usually elerated by penicillin, was once (by a different sample) clearly retarded. To distinguish between bactericidal and bacteriostatic action also demands a definition of these terms; which is to be used of a substance that inhibits an essential metabolic process and thus causes ultimate death by starvation? The distinction, in terms of effect, can only be a matter of time, and later observations have convinced me that the penicillin effect is far too rapid in some circumstances to be regarded as anything but bactericidal.

The Effect of Concentration

An increase in concentration accelerates the action of all common disinfectants. The reverse is often true of penicillin: in the experiment illustrated in Fig. 1 death was much more rapid in the presence of only 1 unit per ml. than with 1,000 units. This result is an example of those obtained in many experiments, three of which are expressed, for the sake of brevity, in a different form in the following Table. The LT50 (Withell, 1942) is the time required to kill 50% of the inoculum, and, since the survivor curve in the presence of penicillin in any given medium is of constant shape, this value fairly reflects the rate of disinfection.

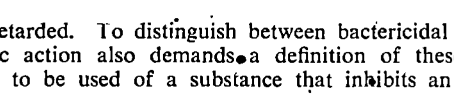

FIG. 1.—Numbers of surviving *Staph. aureus* in broth at 37° C. containing penicillin (TRC10) in concentrations of 1 unit and 1,000 units per ml.

LT50 in Minutes for 3 Different Penicillins in 4 Concentrations in Broth at 37° C.

Penicillin	Potency (Units per mg.)	Concentration of Penicillin (Units per ml.)			
		1	10	100	1,000
TRC8	30	105	111	258	195
TRC10	100	106	118	152	318
"Pure"	1,360	100	91	89	95

The first two samples were of early manufacture and contained a high proportion of impurities: both are most active in the lowest concentration—1 unit per ml.—and least active in one case in that of 1,000 units and in the other of 100. "Pure" penicillin, on the other hand (actually of about 85% purity), disinfects at an almost constant rate regardless of concentration within this range: the differences observed are within the limits of error of the method. It seems probable that above a certain necessary minimum the rate of disinfection by pure penicillin is unaffected by increase of concentration. On the other hand, something—presumably impurities—actually retards disinfection when the concentration of impure material is increased. That this does not apply only to samples of very low potency was shown by a similar experiment with a recent commercial product (Pfizer) of high potency (about 1,050 units per mg.). In concentrations of 0.1, 1, 10, 100, and 1,000 units per ml. there were less than 4% of survivors after 2 hours, but in 10,000 units per ml. there were 34%.

The effect of smaller variations in a lower range was also tested. In the following experiment each concentration is one-quarter of the preceding:

LT50 in Minutes for 2 Penicillins in 5 Concentrations in Broth at 37° C.

Penicillin	Concentration of Penicillin in Units per ml.				
	10	2·5	0·62	0·15	0·039
TRC10	92	118	118	148	>480
"Pure"	110	102	114	130	>480

There is in either case no significant difference between the rates of disinfection in the three higher concentrations: retardation is slight in 0.15 unit per ml. and marked in 0.039. A similar experiment in human blood (inactivated at 50° C. for 15 minutes), using TRC25 (360 units per mg.) in concentrations of 10, 5, 2, 1, 0.5, 0.2, and 0.1 unit per ml., gave values for LT50 of 58, 70, 75, 88, 108, 140, and 174 minutes respectively. Although these figures suggest that raising the concentration accelerates disinfection, there is less difference at a later stage: at 4 hours the percentage of survivors in all concentrations was under 3, showing that in this medium disinfection is accelerated only in its early stages by increase in concentration.

The Effect of Temperature

The action of all chemical disinfectants is accelerated by increase in temperature, and penicillin is no exception (Fig. 2).

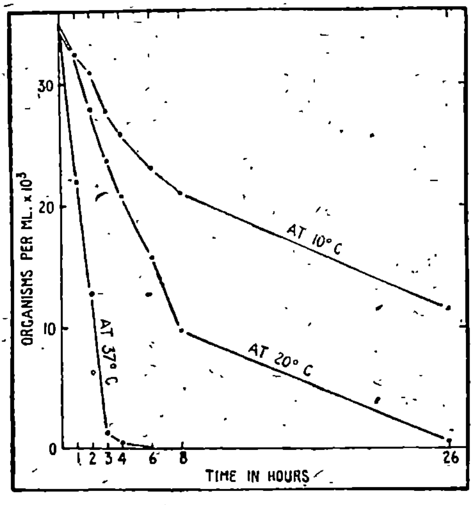

FIG. 2.—Numbers of surviving *Staph. aureus* in broth containing 10 units per ml. of penicillin at 10°, 20°, and 37° C.

The degree of this acceleration (i.e., the temperature coefficient) varies among different classes of disinfectant, and appears to be by no means so extreme for penicillin that it can be used to support the argument that this drug has a peculiar type of action. Bigger (1944b) believes that penicillin kills only dividing cells, and cites its inactivity at low temperatures in support of this; it is, in fact, slowly bactericidal not only at 10° C., as shown in Fig. 2, but at 4° C. This was demonstrated in another experiment, in which a 50% reduction in the viable count was observed in 2 days and 100% in 14. Disinfection by penicillin was also further accelerated as compared with that at 37° C. by raising the temperature to 42°. This is characteristic of an ordinary disinfectant, and not what would be expected according to Bigger's hypothesis, since at this temperature growth ceases. Further observations of the action of penici at this or even higher temperatures might be instructive.

The Effect of *p*H

Penicillin, although rapidly destroyed by strong acids, is s to be stable between *p*H 7.0 and 5.0. That it is not equ active throughout this range of acidity is shown in Fig.

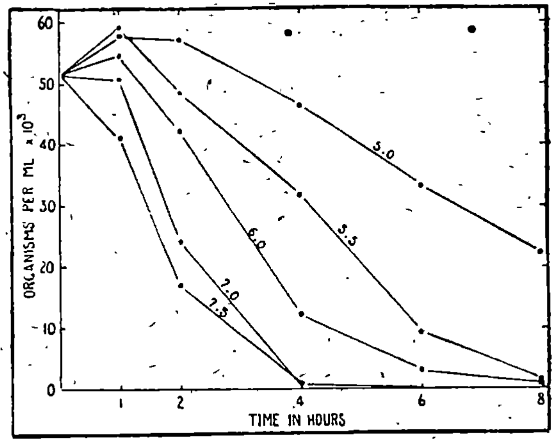

FIG. 3.—Numbers of surviving *Staph. aureus* in broth adjuste to *p*H 7.5, 7.0, 6.5, 6.0, 5.5, and 5.0, and containing 10 uni of penicillin per ml. at 37° C. (The curve at *p*H 6.5 is almo identical with that at 7.0, and is omitted. Slow multiplicatio occurred in control broth at *p*H 5.0 with no penicillin.)

which illustrates the rate of disinfection by 10 units per of penicillin in broth adjusted to six different reactions the addition of HCl (all were diluted to the same extent making up to constant volume with distilled water). T experiment was suggested by an anomalous result in an atte to confirm the observation of Abraham *et al.* (1941) that p cillin acts as well in pus as in blood, serum, or broth. pus used contained only an anaerobic streptococcus; standard staphylococcus was added to it. Disinfection pro to be much retarded relative to that in control media (br serum, and blood), and a possible cause for this was fo when the *p*H of the pus was discovered to be 5.2. A p tion was brought to 7.6 and the experiment repeated broth: at 5.2 the LT50 was still over 4 hours; at 7.6 it under 2. A low *p*H in an inflammatory exudate may th fore impair the action of penicillin: this factor is worthy study as a possible cause of failure in treatment.

The Effect of Reproductive Activity

The suggestion recently made by various authors that p cillin kills only dividing cells prompted several experime some of which support this conclusion in part, while ot do not. Their results are here stated briefly:

1. *Action in Diluted Broth.*—According to Bigger, the via count of staphylococci in 1 in 800 broth remains stationary, medium supporting life but not growth, and penicillin in medium is inactive. When the LT50 for 10 units of penici per ml. in undiluted broth at 37° C. was 103 minutes, it 208 minutes in 1 in 800 broth: the population remai stationary in a 1 in 800 broth control during this period, increased subsequently. In another experiment with a differ broth, in which very little late growth occurred, the LT50 1 in 800 medium was 335 minutes. This medium theref does reduce the rate of disinfection; it by no means prevent

2. *Presence of Another Bacteriostatic Agent.*—Bigger fo that boric acid, which is bacteriostatic, prevented the bacterici action of penicillin. I have tried two other such agents. P flavine in low concentrations is bacteriostatic for staphyloc and only slowly bactericidal. The LT50 of 1 in 90,000 p flavine in broth at 37° C. was 215 minutes, that of 10 u of penicillin per ml. 92 minutes, and that of both combi 165 minutes. Proflavine therefore does reduce the activity penicillin, but this may possibly be due to chemical inc patibility. The ideal purely bacteriostatic agent appears to a sulphonamide: the results of an identical experiment us

sulphathiazole are given in Fig. 4. Sulphathiazole in a concentration which almost completely prevents growth somewhat reduces the rate of disinfection by penicillin.

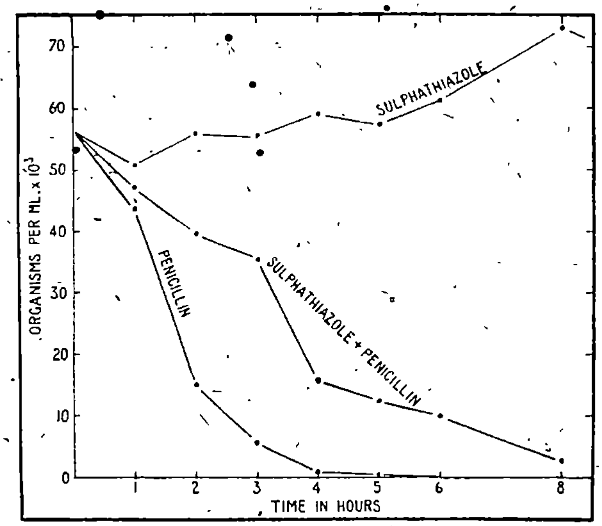

FIG. 4.—Numbers of surviving *Staph. aureus* in broth at 37° C. containing (1) 0.2% sulphathiazole; (2) 10 units penicillin per ml.; (3) both of the drugs.

3. *Age of Culture*.—If reproductive activity is an important factor there should be a marked difference in the action of penicillin on old and that on young cultures. In this there would be nothing unique: young cultures are more susceptible to disinfectants generally than old, and this is recognized in the stipulation that a culture of prescribed age shall be used for any standard test. Nevertheless it seemed worth while to study this factor, and the behaviour of a culture 10 days old (for 9 of which it had been on the bench) was compared with that of one 5 hours old (i.e., in the logarithmic phase of growth). Previous viable counts on such cultures made it possible to add approximately equal numbers of living cells from each to flasks of broth containing 5 units of penicillin per ml. at 37° C. As shown in Fig. 5, the viable count in the young culture after a slight initial rise fell rapidly; that of the old fell continuously and rather less rapidly; but the rate of disinfection is much the same in both, and lends little support to the idea that a cell is vulnerable only when dividing. Curves similar but for the absence of an initial rise in the young culture were obtained with 1 in 300 phenol controls; the greater resistance of a small proportion of old cells is clearly evident in both. Reproductive activity therefore affects susceptibility to penicillin only in the same way as it affects susceptibility to phenol.

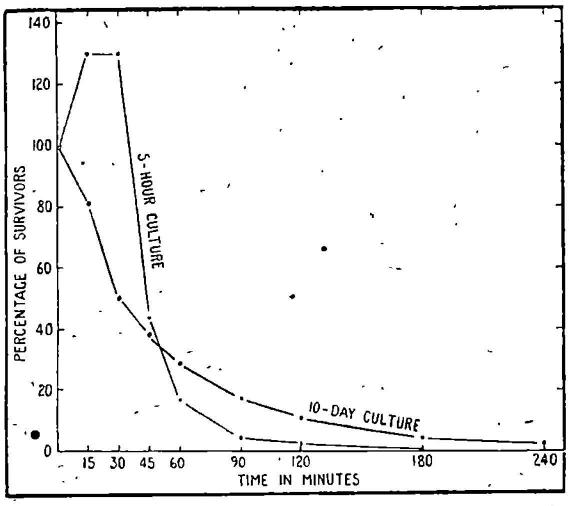

FIG. 5.—Numbers of surviving *Staph. aureus* in broth at 37° C. containing 5 units of penicillin per ml., the organism being derived from a 5-hour-old broth culture and a 10-day-old broth culture respectively.

(In this experiment the penicillin broth and the broth for diluting the cultures were brought to 37° C. before the experiment began: this doubtless accounts for the rapid death rate. In other experiments—perhaps unfortunately—the test mixtures were made at room temperature and placed in the incubator or water bath at zero time. They should have reached the required temperature within a few minutes, but Bigger's observations on the effect of cooling suggest that this brief period at a lower temperature may have unexpected effects.)

Discussion

These experiments show that penicillin is fairly rapidly lethal to susceptible bacteria. Beyond that they throw no direct light on the nature of its action. The only other lesson to be learned from them is that further studies of the intimate nature of this action must clearly be pursued with pure reagents. All commercial penicillins tested were less active in high than in low concentrations, and impurities which presumably cause this and other anomalies offer a serious obstacle to such a study. It will indeed be necessary to consider whether pure penicillin itself is a single substance of unvarying composition and uniform action.

On the other hand, some conclusions can rightly be drawn which have a bearing on the clinical use of penicillin as now available. The foremost of these is that nothing is likely to be gained by using high concentrations, particularly for local treatment. Failure of clinical response is usually considered to call for an increased dose, and there is a pardonable belief that the greater the dose the more sure the effect. True as this may be of other therapeutic agents, it is even the reverse of the truth when penicillin is concerned: a concentration of 1 unit per ml. is not only just as effective as one of 1,000 units, but often more so. The only good reason for using strong solutions in local treatment is to ensure that loss by escape, dilution, or absorption shall not permit the concentration to fall below the minimum level for full effect, which may be taken as about 0.1 unit per ml. The factors controlling this loss vary almost infinitely, from good retention in a closed space such as the theca or pleura to the impossibility of retention and the dilution by copious exudate which characterize some open wounds. The optimum strength of solution must therefore vary, but the standard probably need not exceed 250 units per ml.: this was the strength originally employed with satisfactory results for instillation into gunshot wounds after secondary suture by Florey and others in North Africa. That this policy has an additional advantage in economy needs no emphasis.

These experiments also have some practical bearing in relation to Bigger's proposal that systemic penicillin treatment should be intermittent. His argument is that penicillin kills only dividing cells, and that a very small proportion of dormant non-dividing cells which he terms "persisters" are liable to survive: these must be permitted to grow by interrupting treatment if sterilization is to be complete. Of the experiments described here, those using diluted broth and combinations of penicillin with bacteriostatic agents give some support to the idea of a special action on dividing cells. It should be observed in this connexion that Bigger (1944a) has previously recommended combined treatment with sulphathiazole and penicillin: if, as it appears, the action of sulphathiazole as a bacteriostatic agent interferes with that of penicillin, it must detract from rather than add to therapeutic effect. His two ideas of synergic action and bacteriostatic interference are in fact plainly incompatible.

On the other hand, studies of the effect of temperature and particularly of reproductive activity on susceptibility to penicillin demonstrate behaviour which seems to differ in no qualitative sense from that of other disinfectants. While much remains unknown or doubtful, I submit that the evidence for Bigger's hypothesis is inadequate to support so drastic a change in therapeutic policy as he advocates. Clinical experience supports this attitude; the reason for therapeutic failure is to be found not in any property of the micro-organism but in the morbid anatomy of the lesion. Treatment fails in patients with inaccessible foci of infection, such as an area of necrosis in bone, an endocardial vegetation, or an undetected abscess: even those with the severest infections but without such foci regularly recover.

Summary

Penicillin has a bactericidal action.

This action proceeds at a constant rate regardless of concentration within wide limits if pure penicillin is used: impure samples are more effective in low than in high concentrations.

This action is accelerated by increase in temperature throughout the range 4° to 42° C.

The action of penicillin is progressively impaired by an increase in the acidity of the medium between *p*H 7.0 and 5.0.

The behaviour of penicillin in diluted broth and in the presence of bacteriostatic agents supports the hypothesis that it acts only on dividing cells; the effect of temperature and the almost uniform susceptibility of cells from both old and very young cultures are against it.

I am indebted to the Penicillin Clinical Trials Committee of the Medical Research Council for most of the penicillin used, and to I.C.I. (Pharmaceuticals) Ltd. for the gift of 183 mg. of nearly pure penicillin. This work could not have been done without the assiduous technical assistance which was given by Miss P. M. Waterworth. For her services and for the equipment of the laboratory in which the work was done I am indebted to a fund, under the control of Mr. Rainsford Mowlem, which was generously provided by the United States organization "Bundles for Britain."

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PENICILLIN IN GONORRHOEA AND SYPHILIS

WITH NOTES ON TWO CASES OF DUAL INFECTION

BY

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In recent years the widespread use of the sulphonamide group of drugs in the treatment of venereal diseases has had fairly satisfactory results. These drugs have been employed successfully in the treatment of gonorrhoea, soft sore, and other types of non-specific genital ulceration, and lymphogranuloma inguinale. However, from the clinical point of view certain difficulties were early encountered. These were due to the simple fact that a patient presenting the appearances of one venereal disease may well be incubating one or more of the others. Sulphanilamide itself, while almost uniformly successful in clearing an uncomplicated Ducrey infection, is not nearly so effective in the treatment of gonorrhoea. In fact, many cases of the latter infection treated with sulphanilamide developed afterwards a persistent mucoid or muco-purulent discharge due to such complications as anterior folliculitis or a posterior spread. Later a similar effect was seen in certain cases treated with inadequate or "self-administered" doses of sulphapyridine. These cases were extremely difficult to clear up and required prolonged hospital treatment.

The incubation periods of chancroid and gonorrhoea are roughly the same, and in addition a patient may have had more than one recent exposure to infection. Thus a man admitted to hospital a few days after his last exposure to infection and presenting a clinical chancroid might at the same time be incubating gonorrhoea. It became obvious, then, that in such a case the administration of sulphanilamide, while clearing the Ducrey infection, would in all probability mask the signs of the incubating gonorrhoea. In the early days this not infrequently happened. The patient was discharged from hospital with a healed sore and returned in a week or ten days with a persistent urethral discharge showing many pus cells, some secondary organisms, but no gonococci. There was no history of further exposure to infection. This type of case was peculiarly resistant to treatment, and generally one or other of the commoner complications of gonorrhoea was found. This difficulty was obviated by a routine which forbade the use of sulphanilamide in "sore cases" until at least 14 days after the last admitted exposure to infection.

These facts, when realized, are in the main a matter of clinical interest and do not present any serious problem or administrative difficulty. They serve, however, as an introduction to the theme of this short article, which is intended to point out the similar but much more serious difficulties at present attendant on the treatment of sulphapyridine-resistant gonorrhoea with penicillin.

Penicillin is now coming into general use in the treatment of resistant gonorrhoea cases, in which it has been found almost uniformly successful. In the first place, then, it will not be remiss to discuss what we know of its effect on the spirochaete of syphilis, more particularly as many—one might even say most—of the gonorrhoea cases so far treated have been within the incubation period of syphilis—that is, less than three months after the last exposure to infection.

The first observation to be made is on the report from the U.S.A. on 50 cases of early syphilis treated with penicillin, the dose used being 2,500,000 units. The details are not available here. So far as can be gathered, however, *Treponema pallidum* disappeared early from primary lesions, which healed rapidly, and the blood has remained Wassermann-negative for the present period of observation; while in early sero-positive cases there was a gradual reversal of the blood Wassermann to negative. This is as far as the story goes. It is a hopeful report, but we have no means of assessing what will be the ultimate outcome of these cases—i.e., whether this dosage is curative. In this connexion it would be well to remember that penicillin administered intramuscularly or intravenously does not pass into the spinal fluid unless perhaps in minute quantity. Therefore, since invasion of the central nervous system by *T. pallidum* is common in early syphilis, one consideration of vital importance is the possibility that C.N.S. involvement may show an increased incidence.

The second observation is on two cases of sulpha-resistant gonorrhoea recently under our care.

Case I

Pte. X. entered hospital on Sept. 11, 1944. Definite dates of exposure to infection were difficult to obtain accurately (language difficulty). Though he said that the last exposure was approximately seven weeks before admission, the clinical findings suggested a more recent one.

On examination the patient was found to have a purulent urethral discharge and a clinical syphilitic chancre in the coronal sulcus. He stated that the sore had been present for four weeks and the urethral discharge for a shorter period. A urethral smear showed many intracellular gonococci, and the urine was hazy in both glasses. Dark-ground examination showed the sore to be positive to *T. pallidum*. Routine sulphapyridine—27 g. over 5 days—was given, and anti-syphilitic treatment was withheld until the course was completed. A blood Kahn test on Sept. 12 was negative. On Sept. 19 a urethral smear still showed intracellular gonococci, and there was a muco-purulent urethral discharge with hazy urine in both glasses. On dark-ground examination the sore was again positive to *T. pallidum*. It was therefore decided to start penicillin treatment for the gonorrhoea and use the opportunity offered to observe the action of this drug on the primary syphilitic lesion.

On Sept. 19, 100,000 units of penicillin were administered intramuscularly in doses of 20,000 units three-hourly. Dark-ground examination of the sore was carried out before each injection of penicillin. The following observations were made: (1) The sore was positive to *T. pallidum* before the first, second, and third injections of penicillin but was negative thereafter—that is, after 60,000 units (2) A mild general reaction was noted and the temperature rose to 100° F. six hours after the first injection. This reaction corresponded in time to the usual Herxheimer reaction found after initial arsenic in a primary case. Twenty other patients treated with the same batch of penicillin had no reaction. (3) The next day—Sept. 20—the sore was still negative to *T. pallidum* and considerably cleaner Urethral discharge had ceased, and urine was clear in both glasses (4) Daily examination showed the sore to be negative to *T. pallidum* on each succeeding day until Oct. 3—i.e., 14 days after starting penicillin treatment, and at this time had almost completely healed. (Only saline dressings had been applied.) (5) The following Wassermann and Kahn results were obtained at two different laboratories:—Lab. A: Kahn test negative on Sept. 21, 24, 29, and

Oct. 5. Lab. B: W.R. double positive, Kahn positive on Sept. 26 (W.R. + + ; K.T. +); W.R. and Kahn both negative on Oct. 5.

At this stage it was considered unjustifiable to withhold routine eatment with arsenic and bismuth. This was started on Oct. 5, nd it was interesting to note that after the first 0.3 g. of N.A.B. there was mild general malaise and the temperature rose to 99° F. urther treatment has been uneventful. Kahn tests on Oct. 9 and 18 were both negative.

Comment.—Although the date of exposure to infection is not bsolutely definite the expectation in this case would be that blood W.R. and Kahn tests would have been positive before routine treatment was instituted. A weak positive was obtained in one laboratory, but repeated controls at this and the other laboratory were all negative. Depending on the sensitivity of the antigen, this probably indicates that the penicillin had prevented an impending positive erum reaction.

Case II

Gnr. Y. was admitted to hospital on Aug. 28, 1944, with the ollowing history: exposure to infection two weeks and three months previously; treated for fresh gonorrhoea with 27 g. of sulphapyridine n M.I. room from Aug. 21 to 28: urethral discharge persisted.

On admission he had a purulent urethral discharge with some edema and induration in the region of the fraenum. Clinically his latter condition was suggestive of an intra-urethral chancre. A blood Kahn test on Aug. 28 was negative. A further course of ulphapyridine was given from Sept. 2 to 6. A urethral smear on ept. 11 and succeeding days still showed intracellular gonococci, and the urine was hazy in both glasses. Perifraenal oedema and nduration persisted, but over the period Sept. 2 to 14 nine dark-ground examinations of the urethral discharge were negative to . *pallidum* despite the clinical appearances.

In view of the sulphapyridine-resistant gonorrhoea 100,000 units of penicillin were given on Sept. 18. A urethral smear on Sept. 20 howed no gonococci, but a slight watery discharge persisted until Oct. 2. Daily dark-ground examination of this was negative to . *pallidum*.

He was discharged from hospital on Oct. 5. There was no urethral discharge, and the urine was clear in both glasses. The oedema and induration around the fraenal region had slowly subsided after penicillin therapy and had disappeared by the time the patient left he hospital.

Comment.—Although oedema as described above is occasionally present in acute gonorrhoea it usually does not persist so long even n sulpha-resistant cases. It is felt, then, that in all probability this was a case of intra-urethral chancre despite negative dark-ground ndings. In view of this and the findings in Case I it is intended o prolong the period of post-hospital surveillance in this case, egular blood tests being carried out over a period of two years.

Discussion

The present dosage of penicillin used in the treatment of esistant gonorrhoea is 100,000 units, and a group of cases was ecently reported in which 60,000 units were found adequate. hese dosages, then, according to the presumptive evidence of eports on the treatment of syphilis, are quite inadequate to ure this disease, but on our own observations are perfectly dequate to effect the clinical cure of a primary lesion in itself. Obviously they will also very successfully mask any primary esion which a patient with gonorrhoea may be incubating.

The following problems now arise: (1) What interval must lapse before such an inadequately treated case will develop positive blood W.R. or systemic manifestations of syphilis? 2) On the analogy that an early syphilis inadequately treated with the arsenicals frequently develops precocious tertiary esions, will this also hold true of penicillin? (3) On the ame analogy, is not such a patient likely to remain infective during the assumed latent period? At present we have no vidence on these points.

What, then, is to be the routine in cases of sulpha-resistant gonorrhoea treated with penicillin? We know that a certain mall but definite percentage of gonorrhoea cases are incubating yphilis, which may not show until the final blood test after hree months' surveillance. The reasonable assumption now is that with the advent of penicillin these cases will be completely masked, according to the observations on the two cases quoted. Two alternatives appear to be open. Either the initial dosage must be sufficient to deal with a possible coexisting yphilis (2,500,000 units) or surveillance must be extended to over a period of (say) two years after treatment to exclude he latent systemic spread of any possible coexisting syphilis o which the patient is exposed on the present routine. In our present state of knowledge the first is obviously wasteful. The second appears to be the only fair method, not only to the patient himself but also to the community in general.

Having reviewed briefly the probable effect of penicillin in masking an early syphilis it would be well at this stage to think of the numerous patients who have had penicillin treatment for general infections. Large numbers of these have been battle casualties with heavily infected wounds. With our knowledge of conditions in the various theatres of war it is reasonable to assume that any one of these cases may have been incubating syphilis at the time penicillin treatment was instituted, and the dose, though large, may not have been the postulated curative dose. Will the patient's signs and symptoms too be masked until in a few years' time the poor unfortunate begins at an early age to suffer from anginal pain or his wife gives birth to a snuffling child?

This article is not intended to be destructive or pessimistic, however much it may appear so. Penicillin has more than proved its value as a life-saving measure and in many acute and chronic infections which previously would have led to marked general debility and prolonged hospitalization. To the venereologist it is the drug of choice in the treatment of gonorrhoea. There is no doubt that as further supplies become available it will, and must, be even more extensively used.

However, it is hoped that enough has been said here to emphasize the need for the most careful and prolonged surveillance of penicillin-treated gonorrhoea cases (and even in cases where venereal disease might be suspected in a patient treated for some other condition) until our present knowledge of the effect of the drug in syphilis is much further advanced.

Regarding the second group of cases mentioned, it cannot be too strongly advocated that, in future, routine blood tests of the whole population should be enforced by law, particularly before marriage.

Conclusion

By force of circumstances this article has been largely theoretical and referable to a very small percentage of cases. However, until we know in detail the response of early syphilis to small doses of penicillin both from the clinical point of view and from that of change in the serum reaction, the necessity for very careful assessment and prolonged surveillance of every case would appear obvious, particularly in view of the two cases described.

THE TEMPORARY CHARACTER OF "FASTNESS" OF STAPHYLOCOCCI TO PENICILLIN

BY

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It is generally assumed that micro-organisms which have been made resistant to bacteriostatic drugs or to antibiotic agents by continued subcultivation in increasing quantities of the antibacterial substance will remain "fast" after many subcultures in ordinary laboratory media. Fleming and Allison (1927) showed that *Micrococcus lysodeikticus* could be made resistant to lysozyme, and that after repeated subcultures extending over nine months in ordinary culture media this resistance was fully maintained. Similarly, bacterial resistance to sulphonamide drugs appears to be a permanent characteristic. McLeod and Daddi (1939) found that a "sulphapyridine-fast" strain of pneumococcus Type I remained resistant after 30 subcultures in broth.

Rake *et al.* (1944) subcultured pneumococcus Type III in penicillin 55 times, thereby raising the bacteriostatic dose of penicillin from 0.03 unit to 0.95 unit. After 32 subcultures of their resistant strain in ordinary blood broth the bacteriostatic dose of penicillin remained unchanged. Schmidt and Sesler (1943) made pneumococci resistant by passages through penicillin-treated mice; they then passed their resistant strain through 30 normal mice without any loss of resistance.

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* Seconded for the duration of the war from the London County Council.

Spink *et al.* (1944) found that staphylococci which they had made resistant by 109 transfers in penicillin *in vitro* showed no loss of resistance after storage on veal-agar for three months in the refrigerator.

Methods

In the following experiments 100 c.cm. of broth was infected with 0.25 c.cm. of a broth culture of staphylococcus. A suitable dilution of penicillin was added to a portion of this infected broth, and a series of tubes was then set up containing the infected broth with falling dilutions of penicillin on a 20% range in a total volume of 1 c.cm. After 24 hours' incubation the last tube showing no growth was noted, and 0.25 c.cm. from the next tube, in which the staphylococci had grown out, was subcultured into 100 c.cm. of broth for the next test. This process was continued daily until the culture was highly resistant to penicillin; it was then subcultured daily in ordinary broth without any penicillin, and titrations were done at frequent intervals to determine the resistance of the strain to penicillin.

Staphylococcus Strain "Oxford H"

This is the standard strain of staphylococcus used for the assay of penicillin. Fig. 1 shows the results of subculture in penicillin and of subsequent subculture in ordinary broth. At the beginning of the experiment 0.06 unit of penicillin was sufficient to cause bacteriostasis. After 11 subcultures in penicillin 2 units were required to cause bacteriostasis. During the next two subcultures the maximum quantities of penicillin used—namely, 4 units and 10 units—failed to cause bacteriostasis, and at the fourteenth subculture 40 units of penicillin were required for bacteriostasis. After 27 subcultures the resistant staphylococci grew in 160 units but not in 200 units, and had therefore become 3,000 times more resistant to penicillin than the original culture. As noted by previous workers, the character of growth in broth and on agar had changed with increasing resistance. Growth in broth was comparatively scanty, and various colony forms were seen on solid media. Rake *et al.* found that three colony forms of their resistant strain varied in their degree of resistance to penicillin, those with the greatest morphological variation from the parent strain showing the greatest increase in resistance.

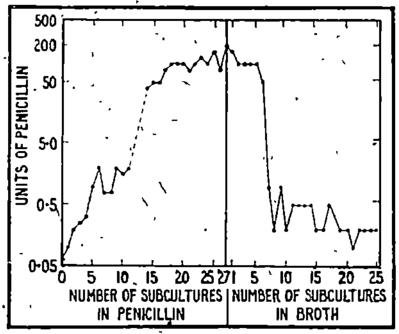

FIG. 1.—Showing increasing resistance on subculture in penicillin followed by diminishing resistance on subculture in broth. Staphylococcus "Oxford H."

The highly resistant strain was now subcultured daily in tryptic digest broth without any penicillin, and the opacity of each subculture was noted by comparison with barium sulphate standards. During the first three subcultures the opacity was less than 1. After six subcultures, when the cocci grew in 50 units of penicillin but not in 100 units, the opacity had returned to normal, giving readings between 2 and 3, and it remained at this level until the end of the experiment. There was then a rapid fall in resistance to penicillin, and after 19 subcultures the cocci grew in 0.1 unit but not in 0.2 unit. The resistance to penicillin had therefore fallen in 19 subcultures from 3,000 times to little more than twice the original level. After 36 subcultures the bacteriostatic dose was 0.12 unit, and for the original untreated culture it was still 0.06 unit.

Slight variations in resistance to penicillin can be obtained without any exposure to penicillin. The "Oxford H" strain was found to grow in 0.05 unit of penicillin but not in 0.06 unit. It was then subcultured daily for about a month in horseflesh-infusion broth containing 2% of proteose peptone and in tryptic digest broth. The two cultures were then retested, and it was found that the infusion-broth culture still had a bacteriostatic dose of 0.06 unit, while the digest-broth culture had a bacteriostatic dose of 0.03 unit.

A resistant strain of "Oxford H" which had been subcultured 40 times in penicillin grew in 250 units but not in 300 units. After 21 subcultures in infusion broth it grew in 0.16 unit but not in 0.2 unit. When a highly resistant strain of staphylococcus "Oxford H" was subcultured on agar the fall in resistance was slower and less complete. A strain which grew in 320 units of penicillin per c.cm. but not in 400 units was subcultured daily on agar slopes. After 28 subcultures the cocci grew in 0.5 unit of penicillin per c.cm but not in 0.6 unit.

Staphylococcus Strain "A"

Fig. 2 shows the results of a similar experiment with a different strain of staphylococcus. The original bacteriostatic dose of penicillin for this strain was 0.08 unit. After 21 subcultures in penicillin the bacteriostatic dose was 20 units, and after 10 subcultures in broth the organisms grew in 0.2 unit but not in 0.5 unit. After 36 subcultures the bacteriostatic dose was 0.2 unit, while the untreated culture grew in 0.06 unit but not in 0.08 unit. With this strain the bacteriostatic dose was increased 250 times by subcultivation in penicillin, and on transfer to broth it rapidly fell again to less than three times the dose required to inhibit the untreated culture. The first four subcultures in broth had an opacity of less than 1, the next four had opacities between 1 and 2, and subsequent subcultures were between 2 and 3. As in the previous experiment the cultures remained coagulase-positive throughout.

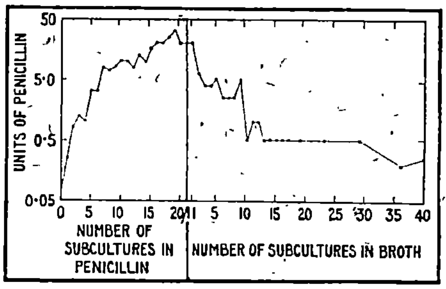

FIG. 2.—Showing increasing resistance on subculture in penicillin followed by diminishing resistance on subculture in broth. Staphylococcus strain "A."

Discussion

It appears from these experiments that staphylococci which have become highly resistant to penicillin after subcultivation in increasing concentrations of the drug *in vitro* lose their resistance to such an extent on subcultivation in broth that they become sensitive to penicillin in concentrations which are easily attained in the human body. It does not seem unreasonable to suppose that staphylococci which have become resistant to penicillin *in vivo* might similarly revert to the penicillin-sensitive state on withdrawal of the drug. Indeed, it seems possible that the reversion might be more rapid *in vivo* than *in vitro*, since Spink *et al.* have shown that penicillin-resistant staphylococci are much more susceptible to the bactericidal action of human blood than normal staphylococci which are sensitive to penicillin.

It seems to be a general rule that organisms which have become "fast" remain in that condition for an unlimited number of generations, and it is well known that organisms such as *Streptococcus pyogenes* and *Gonococcus* which have become resistant to the sulphonamides retain their resistance to the drug through many generations, and that cross-infections with these resistant strains breed true. Organisms other than staphylococci have not been tested in the present work, but Rake *et al.* have shown that pneumococci retain their resistance penicillin on subcultivation in laboratory media. It may be at penicillin-resistant staphylococci are an exception to the neral rule, and that, consequently, resistant strains of this ganism will not appear in clinical practice after more olonged use of the drug.

Summary

Two strains of coagulase-positive staphylococci were made peni- llin-“fast” by cultivation in increasing quantities of penicillin. ey were then subcultured daily in broth without penicillin and, ntrary to expectations, a rapid fall in resistance to penicillin was ted. It therefore appears that “fastness” of staphylococci to nicillin is not a permanent characteristic.

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WEIL'S DISEASE IN NORMANDY: ITS TREATMENT WITH PENICILLIN

BY

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view of the experiences of the last war Weil's disease was ot unforeseen in the present campaign in North-West Europe. oradic cases have occurred, and the opportunity has been ized of treating cases with penicillin. Such results as have een obtained are presented now, as no further cases have been en for over two months.

History of Outbreak

Weil's disease is spread by infected rats who pass the spiro- aetes in their urine; the organisms can live for some time stagnant streams, in wells, and in the zoogloea-like substance n the walls of wells and sewers. It has been impossible to ake detailed studies of the epidemiology of the disease, nor re these necessary. The source of the infection was almost rtainly water which men used for washing. Drinking-water as supplied from water-carts or was sterilized in some way, ut the supply was not sufficient for other uses; the men were orced to draw water from wells or streams for washing, aving, and brushing their teeth. They bathed when they ould in any available stream. On some sectors they lived damp rat-infested ditches. As cases were few it was decided at the risk was worth taking, as the alternative—even if it ould have been enforced—would have been that the men emained dirty or unrefreshed by bathing during the dreary nd often very hot period on the Normandy beach-head.

Up to date (December, 1944) cases have been met with only Normandy, and only from the middle of July to the end of eptember. It is surprising that conditions in the Low Countries ave not produced further infections: there is plenty of water, oth in canals and in the fields, but the weather has been nattractive for the bather, and organized bathing and ablution cilities are much better. I saw the first recognized case on ly 18 with Major C. L. Davidson in a C.C.S. near Caen. The atient had had a febrile illness with severe muscle pains and a ucocytosis; on the tenth day he had a very faint icteric tint his conjunctivae, but was convalescent. We discussed the ossibility of Weil's disease, and a few days later we learnt at the agglutination test was positive. The beach-head was small then that it was easy to tell all the physicians at .C.S.s and hospitals to watch for it: its presence made com- on or garden jaundice an attractive clinical problem. Cases ropped up in many units, and when the outbreak ceased at e end of September I had been informed of 39. It is difficult compute the extent of the outbreak; my figures must be complete, and cases must have been missed, especially those ithout jaundice. Of the 39 cases only two did not have undice, whereas the number should have equalled those with undice. I would make an informed guess that about 100 ases occurred altogether.

Some cases were very severe, and supplies of antileptospiral serum at first were scanty; it seemed possible that the leptospira might be penicillin-sensitive, and Col. J. S. K. Boyd, Deputy Director of Pathology, ascertained in a telephone conversation with the War Office that it was moderately sensitive. It was at once decided to investigate the matter. In only one case—the only fatality in the penicillin series—was antileptospiral serum given.

Clinical Features

These will not be recited at length—they are well dealt with in the standard textbooks. Those of us who were little familiar with the disease were struck by its unusual features: a brisk febrile illness with severe muscle pains as the leading symptoms, associated with a leucocytosis and complicated by signs of gross renal damage. In the presence of an outbreak this picture is highly suggestive even if jaundice does not follow. In all but two of our cases jaundice developed on or after the fifth day; in sharp contrast to “infective hepatitis,” the temperature did not subside when jaundice appeared; it usually increased, and the urine still showed the signs of renal damage. In most cases there was some haemorrhagic incident—conjunctival ecchymosis, epistaxis, haemoptysis, haematemesis, purpura.

The disease if at all severe ran a longish course, the temperature was maintained for perhaps two weeks, and there were often febrile relapses later. The patients were very debilitated, but as they could not remain in the theatre of war we did not find out how long convalescence was going to take, or whether some would develop a type of cirrhosis within a few months.

Of the special types described the anginal form was rare; there were three examples of the meningeal form, but only one had an abnormal cerebrospinal fluid; lung involvement with haemoptysis, watery sputum, and abnormal signs, both physical and radiological, was not uncommon.

Laboratory Findings.—Spirochaetes were found in the blood in several cases, and in the urine in quite a number—both by dark-ground illumination. Animal inoculation was possible only when a resourceful pathologist was able to procure a guinea-pig by local purchase. In most of the cases positive agglutination tests were obtained by sending blood to the U.K. I am satisfied that the errors in diagnosis of Weil's disease have been negligible.

Penicillin Treatment

The dosage recommended was 40,000 units 3-hourly, with a total of about a million units. The average amount given was 1,125,000 units—some by continuous intramuscular drip, some by intramuscular injection—and there was a certain variation in dosage.

Our difficulties in assessing the results have been great. The disease rapidly inflicts severe damage on liver and kidneys, and to be successful any treatment must be given early enough to anticipate this; in practice this means that treatment must be started before the diagnosis has been firmly established—perhaps at a time when a diagnosis is impossible to make. We were dealing with a disease with which few of us were familiar, and no case was treated in the pre-icteric stage when there was the best chance of rapid resolution. Even if penicillin should prove to be a specific remedy it seems doubtful how often really early treatment will be practicable, unless there is so big an epidemic that everyone becomes very skilled in early diagnosis.

We have been unable to find any satisfactory measurement of progress. The numbers we had were too small to warrant any statistical approach—I have avoided any deduction from the deaths occurring in the treated and the untreated. With an elaborate laboratory service it might be possible to estimate the rate of disappearance of spirochaetes from blood or urine—this would need experimental animals, which we lacked. The most promising indication of progress was the effect of the drug on the temperature and on the number of febrile relapses. As is only too common in medicine, we were left with a clinical impression; this demands a nicety of judgment and an intellectual honesty which the observer may indeed possess but which a critic could be forgiven for doubting.

Most of the severe cases received penicillin and recovered; all observers claimed a dramatic improvement in 36 hours, which was usually reflected in the temperature chart, but with slow improvement in jaundice and urine. Of the fatal cases, I doubt whether any treatment would have saved the two who died of suppression of urine (one treated, one not treated); the third case was not thought severe enough to need penicillin, and this patient died of auricular flutter on the 21st day: this should have been averted if there had been a specific treatment.

Lieut.-Col. L. H. Howells and Major R. R. Hughes made an intensive study of seven cases, six of which they treated with penicillin. Their conclusions were as follows:

1. Penicillin in adequate doses appeared to shorten the general effects of the disease as assessed by the duration of the fever; it had an effect on the number of febrile relapses, and these results bore a direct relation to the dosage.
2. Penicillin did not seem to influence the degree and duration of the cholaemia as estimated by the icteric index and the van den Bergh test, or to affect the rate of disappearance of icterus from the skin or of bile from the urine.
3. Penicillin did not influence the degree of nitrogen retention as estimated by the blood urea, or the degree or rate of disappearance of albuminuria.
4. Apart from the objective evidence mentioned in paragraph 1 there remains only the very definite clinical impression that cases treated with penicillin, especially with high doses, improved dramatically within 36 hours.
5. It is considered that penicillin should be given in cases of Weil's disease as soon as possible and in high doses. Once liver and kidney damage has occurred penicillin does not appear to minimize the results of this; hence it would be interesting to observe the effects of the drug during the pre-icteric phase.

Results

The results in the present series of cases of Weil's disease are as follows:

Total cases	39
Penicillin-treated	16
8 severe, 7 moderate, 1 mild. (14 confirmed by agglutination tests.) 1 died of uraemia	
Untreated	23
2 died—1 of myocarditis on 21st day, 1 of uraemia soon after admission	

Discussion

I have presented the results of the treatment with penicillin of 16 cases of Weil's disease. It would appear that there has been an effect on the speed with which the temperature falls and on the number of febrile relapses, while all the observers claimed an improvement in the patients' general condition within 36 hours. These are scanty pieces of evidence on which to base definite conclusions.

In another theatre of war penicillin treatment, in my opinion, has been considered as ineffectual, but the dosage used was inadequate—15,000 units 3-hourly. It is known that certain strains of leptospira are penicillin-sensitive *in vitro*.

In view of these facts it is felt that further work on this subject should be pursued; it is essential to give treatment early, and the dosage should be high.

I have followed this work throughout, and have seen most of the patients; nevertheless my part in this paper is that of compiler on behalf of the following physicians of 21 Army Group: Lieut.-Cols. C. L. Cope, G. G. Gillam, L. H. Howells, R. L. Mackay, I. McGolrick, I. Murray, R. E. Tunbridge—all R.A.M.C.; Lieut.-Col. J. H. Geddes, R.C.A.M.C.; and Majors H. A. Dewar, R. R. Hughes, S. B. Karani, and Capt. J. A. Lorimer—all R.A.M.C.

More than 250 hospitals in England and Wales are now using rehabilitation methods—including physiotherapy, remedial exercises, outdoor games, and handicrafts. This is nearly twice as many as a year ago, when the Ministry of Health made a special appeal to civilian hospitals to establish a rehabilitation department as soon as possible. Some hospitals are using local halls; others have been supplied by the Ministry of Health with prefabricated huts for remedial exercises and other activities. The Ministry also lends equipment for gymnastics, sports, and occupational therapy. The majority of some 400 hospitals covered by a Ministry of Health survey have appointed a member of the staff as a rehabilitation medical officer. Many of these doctors have attended special courses at selected rehabilitation centres. Other courses have been provided for physiotherapists, handicraft teachers, and others. To help with the resettlement of disabled persons in industry, large firms in the neighbourhood of certain hospitals have established special workshops in which disabled employees may be restored to working capacity by exercising the affected limbs in suitably adapted work under proper supervision.

LOCAL PENICILLIN THERAPY IN OPHTHALMIA NEONATORUM*

BY

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AND

ELIZABETH HOFFA, L.R.C.P.&S.Ed., D.C.H.

Unlike the sulphonamides, penicillin remains effective in t presence of pus. It therefore has possibilities for the loc therapy of ophthalmia neonatorum as an alternative to gene sulphonamide treatment of this affection. To investigate t possibility 47 infants at the Ophthalmia Neonatorum Unit White Oak (L.C.C.) Hospital were treated with penicilli Table I brings out the salient features in summary form.

TABLE I.—*Showing results in 47 Cases of Ophthalmia Neonatoru Treated by Various Concentrations of Penicillin. (+ = Successful Treatment; − = Failure)*

Organisms	Concentration of Penicillin: Oxford Units per c.cm.							
	500		1,000		1,500		2,500	
	+	−	+	−	+	−	+	−
Gonococci	2	2*	2	0	2	3*	5	0
Staphylococci	1	1	1	—	1	—	9	—
Diphtheroids	—	—	1	—	1	1	—	1
Staphylococci and bacilli ..	—	1†	—	1	1	—	3	—
Unidentified diplococci ..	—	—	—	—	1	—	—	—
No organisms or inclusion bodies found	—	—	—	—	—	—	2	—
Virus: assumed from the presence of inclusion bodies	—	1	—	2‡	—	—	2	—
Total	3	5	4	3	6	4	21	1

* Including one case which relapsed.
† Relapsed after clinical cure in 6 days.
‡ Both initially clear after 8 days and 4 days respectively when relapse occurr

The Series as a Whole.

(*a*) Initially, penicillin was used in a concentration of 5 Oxford units per c.cm. Eight cases received this treatme one drop of the solution being instilled hourly during the fi 24 hours, and continued two-hourly subsequently. Only thr of these eight cases were cured. Two more showed an init recovery, which, however, was not maintained. The thr cured cases required treatment for 2 days, 3 days, and 6 da respectively.

(*b*) A second series of 7 cases were treated with penicill in a concentration of 1,000 units per c.cm., the method application in three cases being as in the first series, and the remaining four cases the penicillin was instilled at ha hourly intervals for 24 hours and hourly subsequently. Fo of this series of 7 cases showed clinical cure in 2, 4, 2, a 5 days respectively; one case did not respond to treatmen while the remaining two cases both relapsed after an initi recovery.

(*c*) A further 10 cases constituted a third series treated wi penicillin, this time in a concentration of 1,500 units per c.c (the drops being instilled half-hourly during the first 24 hou and hourly subsequently). Six of these 10 cases showed excellent response, clinical cure being obtained in 18 hou in one case, in 2 days in four cases, and in 3 days in t remaining case successfully treated. Two cases showed a po response in spite of treatment for 4½ and 5 days respectivel in one case penicillin treatment was discontinued after 3 da as progress appeared inadequate; in the remaining case this series an initially satisfactory response which gave a cli cal cure within 2 days was followed by a relapse which d not respond to further penicillin therapy.

(*d*) Twenty-two infants were treated with penicillin in concentration of 2,500 units per c.cm., the drops being instill half-hourly for the first 3 hours, then hourly for 24 hours a two-hourly subsequently. In all but one case there was excellent clinical response, recovery in some instances being a matter of a few hours, as can be seen from the following summary:

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* A report to the Penicillin Trials Committee of the Medic Research Council.

Time taken for a Clinical Cure		Number of Cases	
3 hours	3–24 hours	1	6
7 "		1	
12 "		2	
18 "		1	
24 "		1	
27 "	27–43 hours	1	7
36 "		1	
37 "		1	
40 "		3	
43 "		1	
50 "	50–100 hours	1	7
60 "		1	
70 "		1	
78 "		1	
100 "		3	

One case is omitted from this table, as the complication of corneal ulcer—present on admission—delayed a return to normal.

One point deserves stressing. Rapidity of clinical cure does not seem to depend altogether on initial mildness of the condition. Of these 20 cases, 4 were severe; they cleared up in 36, 40, 40, and 37 hours respectively, while all the 7 cases that required 50 to 100 hours were either mild or moderate.

Differential Susceptibility of the Causal Organisms to Penicillin

Of the 25 cases in the first three series only 13 showed clinical cure, 5 more relapsed after apparent clinical cure, and 7 gave a poor response or none at all. The distribution of organisms in these different cases is summarized in Table II.

TABLE II

Organisms	Number showing		
	Clinical Cure	No Result	Relapse after Apparent Cure
Gonococci	6	3	2
Staphylococci	3	1	—
Diphtheroids	2	1	—
taphylococci and bacilli	1	1	1
Unidentified diplococcus	1	—	—
nclusion bodies	—	1	2

No fine conclusions can be drawn from these results. So far as this series goes it would appear that none of the organisms met in ophthalmia neonatorum are completely resistant to penicillin. A rather surprising feature emerges with he three cases of inclusion blennorrhoea present: theoretically no result would be expected, but in two cases there was an initial recovery, only to be followed by a relapse.

The 22 cases treated with penicillin in a concentration of 1,500 units per c.cm. bear out the efficacy of the drug for the variety of causal organisms of ophthalmia. As can be seen rom Table I, treatment was successful in the 5 cases due to he gonococcus, the 9 caused by staphylococci, the 3 in which taphylococci and bacilli were present, and in the 2 in which nclusion bodies were found; 2 further cases in which no organisms or inclusion bodies were present also responded to penicillin treatment. No relapses were observed in this series, nd the only failure was a case in which no organisms were ound in the smear and the culture showed diphtheroids.

It would therefore appear that penicillin is effective over he whole range of causal organisms with the possible excep- ion of diphtheroids—though even here two cases responded to enicillin in a concentration of 1;000 and 1,500 units respec- ively, and a third case showed a partial response to peni- illin (1,500 units per c.cm.).

With the limited material so far investigated it is not possible o assess whether the different causal organisms respond to varying degree to penicillin treatment. The problem is, moreover, complicated by the fact that it is not always possible to ssess the significance of bacteriological findings in ophthalmia neonatorum. *Staph. albus*, diphtheroids, and some other bacilli re generally regarded as non-pathogenic. Yet it is worth noting that three of the seven cases treated with penicillin in concentration of 2,500 units and requiring treatment for more than 50 hours showed diphtheroids—one of them in associa- on with *Staph. albus*. In no case in which diphtheroids were found was there a rapid clinical cure. The bacteriological findings in the 7 cases requiring over 50 hours of treatment are of interest (Table III).

TABLE III

Smear	Culture	Inclusion Bodies	Duration of Treatment
Diphtheroids	Staph. aureus	Absent	100 hours
"	" "	"	" "
"	Staph. albus	"	50 "
Staphylococcus	Staph. aureus	"	60 "
Negative	Negative	"	70 "
"	"	Present	78 "
"	Staph. aureus	"	100 "

Cases showing diphtheroids or inclusion bodies would therefore appear to be most resistant to penicillin therapy. (*Staph. aureus*, though it appears three times in these 7 cases, is not in itself resistant to penicillin, as was evident from the excellent response in 6 other cases.)

Sulphonamide-resistant Cases

Five cases among the first 25 were treated with penicillin after a poor or protracted response to sulphonamides. Three of these were cases of gonococcal ophthalmia and responded well to penicillin, used in concentrations of 500, 1,000, and 1,500 units respectively. In the fourth case *Staph. aureus*, and in a fifth diphtheroids, were present; in both these cases there was a satisfactory response to penicillin in a concentration of 1,500 units per c.cm. Initially the first case had been treated by sulphathiazole for 12 days, and the four others by sulphamezathine for 5½, 12, 5½, and 23 days, respectively. Clinical cure by penicillin took place in 3, 4, 2, and 3 days respectively in the first four cases and in 18 hours in the fifth case.

Mode of Use

On admission the infant's eyes are irrigated with half-normal saline at room temperature and one drop of penicillin is instilled. Irrigation is also carried out before each further instillation of penicillin so long as there is any discharge. With penicillin in a concentration of 2,500 units per c.cm. irrigation is generally not necessary after 6 hours. Penicillin is continued for 48 hours after apparent clinical cure, at two-hourly intervals during the day and three-hourly at night. The drug is well tolerated by the infant's eye. Occasionally a mild transitory flushing of the conjunctiva is observed.

Comparison with General Sulphonamide Therapy

Until a standardized technique for local penicillin therapy is established no useful comparison with general sulphonamide therapy can be made. Local therapy has obvious advantages, and, moreover, avoids the danger of sensitization that the oral administration of sulphonamides carries. Frequent irrigations are, however, a trial to the infant and a considerable burden on the nurse. The present results promise to reduce these to a tolerable minimum. The dramatic results obtained by the sulphonamides are paralleled by those given by penicillin.

Summary

A total of 47 cases of ophthalmia neonatorum treated by the local application of penicillin in the form of drops is reported. Concentrations of 500, 1,000, 1,500, and 2,500 Oxford units per c.cm. were used.

An increasing proportion of satisfactory results was obtained with increase in the concentration of the drops used, the proportions in the four series being 3 out of 8, 4 out of 7, 6 out of 10, and 21 out of 22 respectively.

In adequate concentration penicillin appears to be effective against all the common causal organisms of ophthalmia neonatorum, including the virus of inclusion blennorrhoea.

It is likely that some forms of ophthalmia neonatorum respond more readily to penicillin than others. On the whole the results are of the same order as those obtained with the sulphonamides.

We are indebted to Dr. E. N. Young of the Southern Group (L.C.C.) Laboratories for her painstaking bacteriological examinations, and to the Matron and Sister Condon of White Oak Hospital for their collaboration. We are grateful to Prof. Sir Alexander Fleming for his interest and help.

PREPARATION OF PURIFIED PENICILLIN

BY

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This communication describes a simple and inexpensive method of preparing purified penicillin suitable for systemic use. The method can be carried out with the equipment available in most bacteriological laboratories. Production of penicillin in bacteriological laboratories would augment the supplies and make penicillin available to patients who otherwise could not be treated by this valuable drug.

Cultivation of the Mould

The mould *Penicillium notatum* was obtained from Sir Alexander Fleming. It was grown on a modified Czapek-Dox medium, using lactose instead of glucose (Taylor, 1943), corn-steep liquor instead of yeast extract (Clifton, 1943), and adding traces of zinc (Foster *et al.*, 1943). Yields of penicillin of 30 to 40 units per ml. were regularly obtained on this medium. The mould was grown at room temperature. The antibacterial activity was assayed by the cylinder-plate method (Heatley, 1944) and the tube-dilution method (Fleming, 1942).

Penicillin for Systemic Administration

Methods for extraction and purification of penicillin are all based on the observation that this substance can be extracted from strongly acidified aqueous solutions into ether, amyl acetate, or chloroform, and re-extracted from the organic solvent into water at *p*H 7 (Clutterbuck *et al.*, 1932 ; Abraham *et al.*, 1941 ; Meyer *et al.*, 1942). Further purification is achieved by chromatographic methods (Abraham and Chain, 1942 ; Catch *et al.*, 1942).

These methods proved very laborious and uneconomical, and therefore quite unsuitable for routine laboratory use. Meyer *et al.* (1942) claimed for their method a yield of over 50% of the original potency. Abraham *et al.* (1941) obtained in a form suitable for intravenous injection only about a third of the penicillin which had been present in the crude culture filtrate. The considerable losses of penicillin during purification by these methods were chiefly due to the rapid destruction of penicillin in strongly acid solutions, particularly when extraction was done at room temperature. To minimize losses, extraction had to be carried out in the ice-chest. Other features of these methods which have been found inconvenient were the large bulk of the solvents required and the long period of time (4 to 12 hours) which had to be allowed for complete separation of the amyl acetate–culture fluid mixture. Chromatographic methods for further purification of penicillin were too laborious and wasteful for routine purposes.

A search was made for a solvent which would extract penicillin from aqueous solutions at a *p*H not harmful to penicillin. It was found that most of the antibacterial substance could be extracted by n-butyl alcohol from culture filtrates adjusted to *p*H 6.4 (Berger, 1944), at which penicillin is most stable. Before extraction with butyl alcohol most of the inactive pigments and other impurities could be removed from the culture fluid by precipitation with ammonium sulphate. The salting out of impurities with ammonium sulphate did not result in any loss of antibacterial potency of the filtrate, and incidentally caused still more complete extraction of penicillin by butyl alcohol. Further experiments have shown that the solubility of penicillin in butyl alcohol is considerably greater than in the culture fluid at *p*H 6.4, thus allowing extraction with relatively small amounts of solvent. Penicillin dissolved in butyl alcohol was quite stable. Two samples of sodium penicillin obtained from the same butyl alcohol extract—one immediately after extraction and the other after having been kept in butyl alcohol for 48 hours in the ice-chest—contained the same amount of penicillin. The butyl alcohol–culture fluid mixture separated well, separation being complete after 10 to 15 minutes.

Penicillin was precipitated from butyl alcohol by light petroleum ether and obtained as an aqueous solution of the sodium salt by addition of a suitable quantity of sodium bicarbonate solution. During this procedure further purification of penicillin was achieved as certain impurities were left behind in the organic solvents. At this stage a fifteenfold to fortyfold concentration of penicillin could be obtained, and although extraction was carried out at room temperature the losses of penicillin were never greater than 15%, and were as a rule as small as 5%, of the amount present in the culture fluid.

Penicillin solutions were further purified by extraction into chloroform at *p*H 3.6 in the presence of ammonium sulphate (Meyer *et al.*, 1942). The addition of sodium bicarbonate solution to the chloroform extract again yielded an aqueous solution of sodium penicillin. The losses during this stage of purification were small, and usually less than 5% when the penicillin solution was well chilled before acidification. A further tenfold concentration was achieved by the chloroform extraction, and solutions of sodium penicillin containing 3,000 to 4,500 units per ml. were finally obtained.

Technical Details

The technical details of the method were as follows: The culture fluid was adjusted with 20% phosphoric acid to *p*H 6.4 The Lovibond comparator, with bromothymol blue as indicator, was used for this purpose. The culture fluid was then cooled in the ice-chest and 40% of ammonium sulphate was dissolved in it. The precipitate which formed was filtered off in the ice-chest through a Chardin filter paper. Five volumes of the filtrate were then extracted by shaking in a separating-funnel with one volume of butyl alcohol, and after separation the extracted culture fluid was discarded. To the butyl alcohol extract were then added an equal volume of light petroleum ether and one-eighth of the total volume of the mixture of 2% sodium bicarbonate solution. The butyl alcohol–petroleum ether mixture was extracted for a second time with a fresh portion of the 2% sodium bicarbonate solution.

The first extract of sodium penicillin, after having been chilled to approximately 4° C., was adjusted to *p*H 3.6 with 20% phosphoric acid, using the capillator method with bromophenol blue as indicator. Again 40% of ammonium sulphate was dissolved in the acidified penicillin solution, which was then extracted with an equal volume of chloroform. After separation penicillin was extracted into sodium bicarbonate solution by shaking ten volumes of the chloroform extract with one volume of 2% sodium bicarbonate solution. The chloroform was then extracted for a second and third time with fresh portions of sodium bicarbonate solution. The accompanying table gives the results obtained in a typical experiment.

Table showing Results obtained with the Butyl Alcohol Extraction Method followed by Further Purification and Concentration of the First Extract by the Chloroform Method

No.	Sample	Units per ml.	Volume of Fluid in ml.	Total Units	Percentage of Units Recovered
1	Culture fluid	31·6	14,000	442,400	—
2	1st extract from butyl alcohol	384·5	980	376,810	85·1
3	2nd extract from butyl alcohol	55·0	850	46,750	10·5
4	Extracted culture fluid ..	0·5	14,000	7,000	—
5	1st extract from chloroform made from No. 2	3,156·6	100	315,660	83·7
6	2nd extract from chloroform made from No. 2	489·7	100	48,970	12·9
7	3rd extract from chloroform made from No. 2	40·7	100	4,070	1·0
8	No. 2, after chloroform extraction	3·5	980	3,430	—

The aqueous solutions of penicillin were then adjusted to approximately *p*H 6.6 with dilute phosphoric acid. When kept in the ice-chest they retained their full potency for at least two months. The penicillin solutions were sterilized by passing through a Seitz filter; they were then stored in sealed ampoules and used for systemic treatment of patients. These chloroform-free penicillin solutions retained their full antibacterial potency at 4° C. for at least a further six weeks. The penicillin solutions could be freeze-dried without difficulty.

Second extracts from the butyl alcohol and the second and third extracts from chloroform were further purified and concentrated by the chloroform method to give a product assaying 250 to 500 units per ml. These solutions were incorporated into creams or used as drops for treatment of infections of the eye.

Before dispensing, the penicillin solutions were tested for sterility. Suitable amounts of penicillase, prepared according to Harper's (1943) method, were added to 1-ml. quantities of the penicillin solution and incubated aerobically and anaerobically in heart broth for three days. The penicillin solutions appeared to be non-toxic.

Rabbits injected intravenously with 20 ml. of a solution containing 0,000 units of sodium penicillin did not show any immediate or delayed reactions. Intracutaneous injections into the abdominal wall of rabbits and guinea-pigs did not cause any local inflammatory reactions, and the cutaneous swelling arising from the injection rapidly disappeared.

Morgan *et al.* (1944) when administering penicillin intravenously by the continuous-drip method noticed the development of thrombosis or thrombophlebitis in a large proportion of their cases. In view of these experiences intravenous application was not tried; the intramuscular route was employed exclusively. Usually 4 to 6 ml. of the penicillin solution (about 12,000 to 18,000 units) was injected every three hours. The continuous-intramuscular-drip method was also used in suitable cases, giving 80,000 to 100,000 units in 24 hours. Up to the present more than 40 patients suffering from various diseases due to penicillin-sensitive organisms were successfully treated in this way. Details of the clinical results will be published later. The injections of penicillin did not cause any immediate or delayed painful sensations, and no irritative or inflammatory reactions were observed.

Penicillin was also repeatedly injected intrathecally in two cases of pneumococcal meningitis and one case of streptococcal meningitis. The injections were therapeutically effective, were well tolerated, and did not cause any untoward symptoms.

Penicillin for Local Treatment

Crude culture filtrates containing as little as 2 to 10 units of penicillin per ml. have been used successfully by Pulvertaft (1943), Alston (1944), and Hobson (1944) for treatment of many localized infections. The clinical use of crude culture filtrates appears inadvisable and potentially dangerous for two reasons. First, such filtrates always contain large amounts of protein, which is also produced by the mould and secreted into the culture fluid. The repeated application of such fluids to large raw surfaces is likely to lead to sensitization—a point also made by Raper and Coghill (1943) in connexion with "home-made" penicillin. Secondly, culture filtrates from media which do not contain yeast extract or corn-steep liquor may contain notatin (Kocholaty, 1942; Coulthard *et al.*, 1942; Roberts *et al.*, 1943), a potent antibacterial substance of extreme toxicity.

Clutterbuck *et al.* (1932) found that by adjusting the fluid to *p*H 3.6 most of the protein and a considerable proportion of pigment could be flocculated and filtered off from the culture fluid without loss of penicillin. This method has been successfully employed for this purpose, and incidentally the gummy substances formed from the corn-steep liquor during autoclaving were precipitated out at the same time. Kocholaty (1943) found that notatin is not formed in cultures of *P. notatum* which contain corn-steep liquor.

The protein-free penicillin solutions were not toxic. Two rabbits, weighing about 1,600 g. each, were injected with 50 ml. intravenously in 10-ml. portions in the course of two days. The animals did not show any immediate or delayed reactions of any kind. The protein-free penicillin solutions have been used successfully in the treatment of extensive infected burns, wounds, abscesses, ulcers, discharging sinuses, throat and ear infections, empyemata, and gonococcal vulvovaginitis, and in selected cases of osteomyelitis and compound fractures. The penicillin solutions proved non-irritating and did not cause untoward symptoms in any case. Manifestations of allergy were not observed even when application of penicillin was continued for a month or longer.

Summary

A simple and efficient method of preparing purified penicillin for systemic treatment is described.

Intramuscular injections of penicillin solutions obtained with this method were therapeutically effective, were painless, and did not cause untoward effects of any kind.

This work has been done under the direction of Prof. P. L. Sutherland, to whom I am indebted for many valuable suggestions and for help and advice throughout the course of the investigation. Thanks are due to Sir Alexander Fleming for a subculture of the mould; to Dr. J. W. Trevan, of the Wellcome Research Laboratories, for a sample of standardized penicillin; and to Dr. D. Engel, medical superintendent of Staincliffe County Hospital, Dewsbury, for clinical application of the penicillin. Acknowledgments are also due to Mrs. B. Berger, Mr. G. Denton, and Mr. H. Schofield for technical assistance.

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THYROID HYPERPLASIA AFTER PROLONGED EXCESSIVE DOSAGE WITH THIOURACIL

BY

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AND

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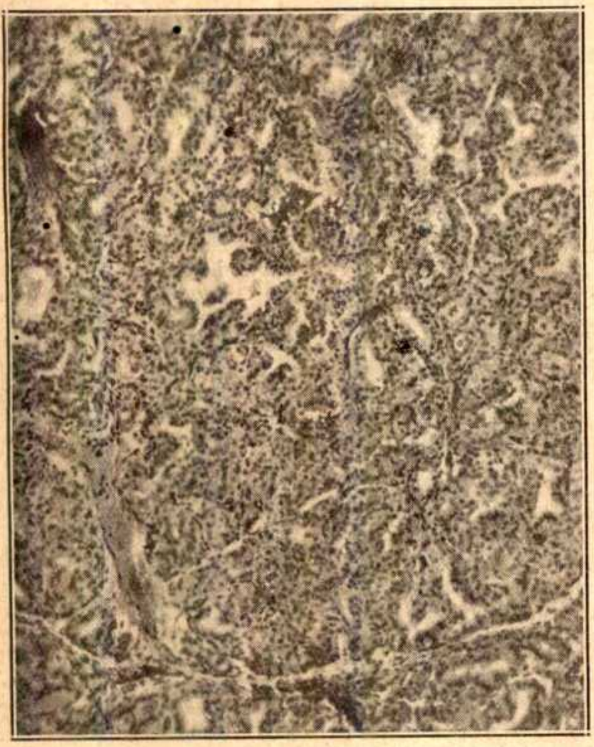
During the past year we have treated with thiouracil a total of 31 patients suffering from thyrotoxicosis. The results obtained are very similar to those noted by other workers. They are on the whole most encouraging, and comparable to those produced by successful thyroidectomy. Only one of the patients developed serious toxic reactions to the drug, consisting of leucopenia and signs of acute sensitivity. Another appeared relatively drug-resistant, and, in spite of prolonged treatment, thyrotoxic symptoms and signs persisted. With the exception of the case noted below no significant changes in the size of the goitres occurred as the result of treatment, though they usually became softer, and a transient slight increase in size was often noted at the menstrual period. It seems to be the general experience of other workers that thiouracil in therapeutic doses does not as a rule affect the size of the goitre significantly, but Himsworth (1944) has reported three cases in which the goitre increased considerably in size as the result of treatment with thiouracil—an effect which he attributes to overdosage.

There seems to be general agreement that the optimum dosage during the initial period of treatment should be 0.6 g. daily. This dosage should be kept up for from three to four weeks, at which time a fall in the basal metabolic rate has usually become significant. No increased effect is obtained by doubling the dose, as any additional quantity appears to be immediately excreted in the urine. There is as yet no definite consensus of opinion as to the dose required for maintenance treatment. There can be little doubt that 0.2 g. daily is adequate. We have never noticed any evidence of "escape" from the control of the drug when a reduction in the dosage has been made from 0.6 to 0.2 g. daily. There is no definite evidence, however, that 0.2 g. is the minimum dose required. We have latterly treated a number of patients with a maintenance dose of 0.1 g. daily, and it is our impression that this dose is quite sufficient. One case, through a misunderstanding, received an excessively large maintenance dose for a period of five and a half months.

Case Record

A female patient, aged 33, suffering from classical thyrotoxicosis, had experienced her first symptoms one year before admission to hospital. A small primary goitre was present. She was treated with 0.6 g. of thiouracil daily for 20 days, and was then given a maintenance dose of 0.2 g. daily for a week. She was discharged from hospital feeling very well. Her weight had increased by half a stone in a month, and her B.M.R. had fallen from + 55 to + 8. A mild tachycardia was the only residual sign of her thyrotoxicosis. She was told to continue to take 0.2 g. of thiouracil daily, but owing to a misunderstanding she actually took 0.4 g. As her home was in the far North of Scotland it was impossible for her to report to us regularly, and she was seen once a month by her own doctor. The first three reports from him were most satisfactory, but the fourth stated that she was not quite so well, though no specific symptom was noted beyond some lack of energy. By the fifth month this symptom had become pronounced, and a swelling of the neck was reported. The patient was immediately sent for, and on readmission, five and a half months after her discharge, was found to have a very large soft goitre. This was associated with a mild degree of myxoedema. Her weight had increased by one stone since discharge from hospital, her B.M.R. had fallen to −20, and her blood cholesterol had risen from 220 to 266 mg. per 100 c.cm. Her white blood count of 5,600 showed no significant alteration. Thiouracil was immediately stopped, and in two weeks' time she felt considerably better, her B.M.R. having risen from −20 to −3. No change had occurred, however, in the size or consistency of the goitre, and thyroidectomy was undertaken, principally for cosmetic reasons. At operation the thyroid was obviously enlarged, and was firm though not hard. The cut surface was typical of the hypertrophy associated with a primary toxic goitre which had not been treated by iodine. A section of the gland is shown in the accompanying photomicrograph. It can be seen that there is extreme parenchymatous hyperplasia and an almost complete absence of colloid, the picture being similar to that produced by Mackenzie in animals treated with goitrogenic substances. After the operation the patient made an uninterrupted recovery, and was discharged home feeling well.



Comment

It is thought worth while to record this case as providing another instance to those noted by Himsworth of thiouracil causing a great enlargement of the goitre in a previously thyrotoxic patient. It gives practical proof of the theoretical assumption that if the pituitary is stimulated to produce excess thyrotrophic hormone by overdosage with thiouracil an increase in the size of the goitre will occur similar to the hyperplasia of the thyroid produced in experimental animals by thiourea and its derivatives, and by sulphaguanidine. A rapid and significant enlargement of the goitre in a patient under treatment with thiouracil may thus be evidence of overdosage.

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Medical Memoranda

A Method of Administering Systemic Penicillin

Owing to the shortage of rubber tubing systemic penicillin is being administered by 3-hourly intramuscular injections, and it has been found that a good many patients complain of the pain and discomfort, and "come to dread the needle." The following method has been adopted and found satisfactory.

Pressure-tubing, outside diameter 1/4 in., length 3/4 in., is worked over the intramuscular needle and a glass cap applied to seal off (Fig. 1). The intramuscular needle is fixed in a suitable site with elastoplast strapping. Another strip of elastoplast is applied over the first, the projecting rubber tubing with glass cap is wrapped in sterile gauze, and the elastoplast is fixed in place. 15,000 units of penicillin in 1.5 c.cm. are drawn up into an all-glass syringe, and the needle removed. The nozzle of the syringe is inserted into the rubber tubing, which is steadied by forceps, injection given, and a sterile glass cap applied. Sterile gauze is wrapped round and elastoplast is reapplied (Fig. 2). The intramuscular needle can remain in place for four days without changing to a new site.

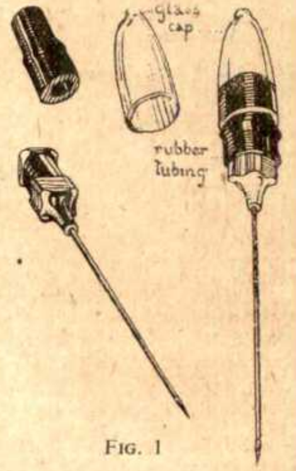

FIG. 1

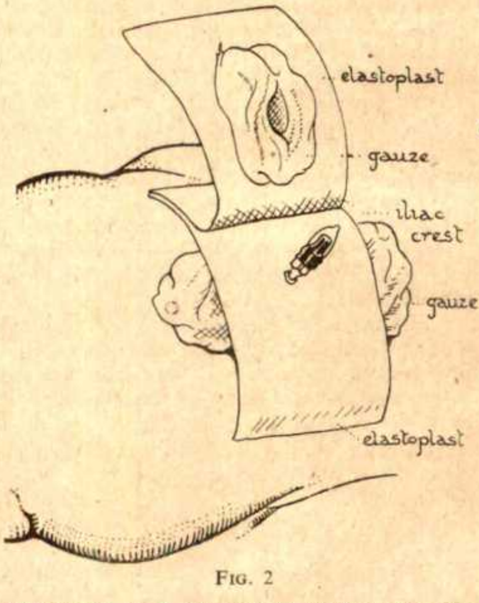

FIG. 2

I wish to thank Mrs. W. K. Somerton for the illustrations, Mr. Garner of the pathological department for the suggestion of the glass cap, and Dr Shepherd, the medical superintendent, for permission to publish.

Barnsley Hall Emergency Hospital.

H. L. MILLES, M.R.C.P.

A Case of Meningococcal Meningitis Treated with Penicillin

Since little is at present known about the effect of penicillin in meningococcal infections this case is considered worth recording.

CASE RECORD

A male child aged 18 months was admitted with a four-days history of repeated vomiting after all feeds. Previously he had been quite well. On the day before admission his mother had noticed that he felt hot and had a rash on his chest. There was no urinary retention and the bowels were normal. He had had gastro-enteritis at 2 months and at 6 months of age. The gain in weight had been good. On examination the child looked ill, being pale and lethargic. The anterior fontanelle was closed. There was slight diminution of skin elasticity. Some fading petechiae could just be seen on the thorax. The posterior cervical muscles were rigid, opisthotonos was present, and a positive Kernig's sign and Brudzinski's neck sign were found. The C.N.S. showed normal cranial nerves and reflexes apart rom absent abdominals. No abnormality was detected clinically in he chest, cardiovascular system, abdomen, throat, or eardrums, and the urine was normal.

Lumbar puncture on admission revealed a turbid C.S.F. under pressure: cells, 600 per c.mm., of which 66% were polymorphs; rotein, 100 mg. per 100 c.cm.—globulin test positive; sugar, present but reduced; chlorides, 680 mg. per 100 c.cm. Microscopy showed numerous extra- and intra-cellular diplococci. Culture yielded a pure growth of *N. meningitidis* which proved sensitive to penicillin nd sulphonamides. A blood count done at the same time showed R.B.C. 4,650,000 per c.mm., Hb 12.5 g.%, W.B.C. 16,200 per c.mm., of which polymorphonuclear cells comprised 59%, lymphocytes 29%, nd monocytes 12%.

Shortly after being admitted the child had a convulsion and was omatose. As an alternative to intramuscular sulphonamide a request was made for penicillin. This was supplied and an intramuscular drip set up containing 67,500 units in 16 fl. oz. of 0.9% aline. The temperature was then 101.5°, pulse 122. Overnight the temperature rose to 103°. Owing to poor absorption only 23,000 units were given in the first 24 hours after the drip was started. During the second period of 24 hours 112,000 units were given, made up in 0.45% saline, about 8 fl. oz. being used. The patient was now taking fluids by mouth. At this time the urine contained acetone and reduced Benedict's reagent fully.

Seventy-two hours after the start of penicillin administration 202,500 units absorbed) the rectal temperature was 99.5° and the child had so much improved that he recognized his parents and took hold of toys offered to him. Neck rigidity, though still present, was less marked. A second lumbar puncture showed a clear specimen, with cells 120 per c.mm. and chlorides 735 mg. per 100 c.cm. Culture yielded no organism, and the C.S.F. inhibited growth of the standard Oxford strain of staphylococcus.

Sulphamezathine was now given orally (0.5 g., 6-hourly), but ten hours later the temperature rose to 104°. A further course of penicillin was then started, 202,500 units being given during the next three days. By this time the temperature had fallen to 99° (rectal) and the child was able to walk about his cot, appearing normal in every way. He has since made an uneventful recovery. Total penicillin, 405,000 units in 6 days.

COMMENT

While under normal circumstances penicillin given intramuscularly does not enter the C.S.F., the observations in this case suggest that in the abnormal conditions of meningitis it may do so. It is evident that the dose given in the first 24 hours was inadequate. Penicillin should have been continued after 72 hours without a pause.

The continuous intramuscular drip was employed for the following reasons: (1) steady maintenance of blood level; (2) little disturbance of patient—0.1% novocain was included in the drip; (3) more numerous sites available. The daily dose was made up every 24 hours. A fresh drip apparatus was used each day, the whole being assembled complete with needle and then sterilized immediately before use. The outer sides of the left and right thighs were used alternately, the skin being cleansed with 2% C.T.A.B. and flavine in spirit.

*I am indebted to Dr. Stanley Wyard, senior physician, and to Dr. Richard Hollick, R.M.O., for permission to publish this case.

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A Case of Weil's Disease Treated with Penicillin

The following record of a case of Weil's disease has two points of interest. The first is the clearing of the leptospira from the urine after only 6 injections of penicillin, coincident with rapid clinical improvement; the second, the demonstration of leptospira in the blood and urine on the day that the agglutination titre was as high as 1 in 1600.

CASE HISTORY

A private soldier aged 38 was invalided from France with pyrexia of six days' duration and reached this hospital on the evening of Sept. 12, 1944.

The patient reported sick on Sept. 7, complaining of a severe frontal headache and a sensation of chilliness and shivering. His temperature was 102.8° F. Next day he complained of generalized aching and soreness of the eyes. His conjunctivae were injected and his temperature was now 103° F. His liver was palpable and tender, and he vomited continuously. His blood was negative for malaria parasites and *Leptospira icterohaemorrhagiae*. There was a mild leucocytosis of 12,800. He was evacuated by air on Sept. 11, and the last entry on his medical card stated that his general condition was poor.

Clinical examination on arrival at the hospital showed that he was now lightly jaundiced and his conjunctivae were heavily injected. He stated that during August he had bathed frequently in a rat-infested river. On the 13th, examination of his urine revealed the presence of large numbers of spirochaetes morphologically identical with *L. icterohaemorrhagiae*. Blood was taken for the agglutination test and a few drops were examined by dark-ground illumination. Surprisingly, leptospira similar to those in the urine were easily found. Later the report from Prof. Gardiner, of Oxford, stated that the serum was positive for agglutination of *L. icterohaemorrhagiae* to a titre of 1 in 1600.

Penicillin therapy was started at 6 p.m. The dosage was 20,000 units intramuscularly three-hourly until Sept. 17 and then four-hourly until it was stopped on the 20th. The total dosage was 900,000 units. Before the penicillin was begun the patient complained of a marked degree of general malaise. The following morning he said he felt all right and thought himself fit enough to get up. However, his temperature did not become normal until the 16th. Leptospira could not be demonstrated in his urine or blood from 9 a.m. on the 14th onwards. Specimens of his urine were examined daily until the 30th, and in none of them was the organism discovered. The patient did not develop any after-fever, and was discharged perfectly well on Sept. 30.

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Internal Hydrocephalus complicating Pneumococcal Meningitis Treated with Penicillin after Sulphonamides

Internal hydrocephalus is a well-known complication of post-basic meningococcal meningitis, but the following case shows that when the clinical course of the disease has been considerably prolonged by therapeutic measures it can arise also in infections due to the pneumococcus.

CASE REPORT

A male infant aged 2 months was admitted to hospital, having been unwell for a few hours, during which he had one convulsion. On examination he was found to be extremely ill, vomiting brown material, and grossly dehydrated. His temperature was 100.6° F., pulse uncountable, and respiration rate 40 a minute. No clinical signs were found in his chest or the central nervous system, but the C.S.F. was turbid and contained Gram-positive diplococci. On culture a pneumococcus was isolated which proved lethal to mice.

Subcutaneous saline was administered and 0.5 g. of sulphapyridine by mouth every four hours, but after 5.5 g had been given this was stopped on account of persistent vomiting. This treatment was accompanied by a fall in the temperature to 97° F., but next day, the fourth after admission, it rose to 101.4°. Sulphathiazole was then administered in the same dosage, but starting with 1 g. The temperature did not settle and the infant remained very ill. On the seventh day 10,000 units of penicillin were injected into the right lateral ventricle, after which 2,000 units were given intramuscularly every four hours. By the ninth day the C.S.F. contained only a few cocci; these were avirulent to mice. On the next day the temperature became steady at a normal level. The child's general improvement was pronounced, and no more organisms were recovered from the C.S.F. On the seventeenth day he became unwell again, and developed attacks of twitching with cyanosis and some vomiting. No C.S.F. could be obtained from the spinal canal in the lumbar region, but that in the basal cisterns was under raised pressure. It contained 600 mg. of protein per 100 c.cm. and 60 lymphocytes per c.mm.; no organisms were seen in it, and cultures were sterile. The child died two days later, on the twentieth day after admission, the illness having lasted for 21 days altogether.

Findings at Necropsy.—Nothing abnormal was found outside the central nervous system. The brain was fixed by withdrawing fluid from the cisterns and ventricles and replacing it with formalin 24 hours before opening the skull. Films of this fluid showed effete polymorphs, some of which contained degenerate-looking Gram-positive cocci. Cultures of the C.S.F. were again sterile. Many adhesions were present between the pachy- and lepto-meninges, and a dense fibrinous exudate surrounded the brain stem and filled the cisterns. All the cerebral ventricles were markedly dilated down to and including the fourth. They all contained turbid fluid and fibrin coagula. In histological sections of the meninges the exudate was seen to contain many polymorphs. The choroid plexus was covered with a similar exudate, but this contained many Gram-positive cocci as well.

DISCUSSION

Death was caused by internal hydrocephalus due to the fibrinous exudate. In their series of 16 cases of pneumococcal meningitis treated with penicillin Cairns, Duthie, Lewin, and Smith (1944) had one case of obstruction of the aqueduct of Sylvius, but this was apparently due to pressure of an abscess. Evans (1944) saw no such condition in his small series of cases of purulent meningitis. The likelihood of the development of such a fibrinous exudate in the early stages of the infection would seem to be another reason for treating all cases of pneumococcal meningitis with penicillin as early as possible—a procedure already recommended by Cairns *et al.* in their paper.

I have to thank my colleague Dr. P. Forgacs, under whose care the child was, for his co-operation.

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Treatment of Ulcers by Plaster Casts

The Meru district of Kenya is inhabited by about 120,000 Africans and is heavily infected with yaws. The standard of living is very poor, and food shortages periodically lead to outbreaks of ulcers, some of which approximate to a nutritional type; others are simply yaws, and no doubt many are of mixed type. In the comments that follow no endeavour is made to distinguish the types, as all are equally intractable in certain cases and all react equally well to plaster-of-Paris treatment.

Late in 1943 several bad ulcer cases were admitted about the same time. One was so severe that amputation seemed the likely solution. All meant dressings, which were a misery to the nurses, the patients, and the wash-boys who had to deal with piles of filthy dressings. They were also a heavy expense, as doubtless many of the worst dressings were thrown away surreptitiously by the wash-boys. All these patients were getting N.A.B. and bismuth, a diet sufficient to increase the weight in the other patients, tonics, and treatment for worms if required. Locally, we rang the changes on eusol, hot foments, dry dressings, hydrarg. perchlor., cod-liver-oil ointment, elastoplast, copper sulphate, and carbolic (which usually required morphine preparation). There was no specific, and some patients treated earlier in the year had long spells in hospital.

Then we tried plaster-of-Paris casts (P.P.) and the whole situation changed. Six of the worst cases were scraped, or encased without scraping, and their reactions were watched carefully. The pain eased within two days, and the temperature dropped within about five days; but the most noticeable thing was the mental change—from despair to cheerfulness and joking. This treatment has not failed, in any of some 40 cases, to lead to the casting off of sloughs, formation of healthy granulations, and proliferation of skin. The following are brief notes of 5 typical cases.

CASE HISTORIES

Case 1.—Chuka female aged 35, admitted Nov. 4, 1943. Large ulcer 7 in. in length, extending almost right round the leg, leaving a strip of healthy skin 2 in. wide over peronei. Greenish base, with sloughing muscles. Offensive smell and very painful. Warned probably need amputation unless case reacted unexpectedly well. On Nov. 10, under ethyl chloride general anaesthesia, the sore was scraped, powdered with sulphanilamide, covered with lint on which zipp had been smeared, and encased in P.P. Two days later she had no pain; her temperature was lower, though the pulse continued at 120. Her general condition showed rapid improvement; her face filled out, and on Nov. 19, impelled by curiosity, we removed the cast. Almost the whole area was covered with healthy granulations. There was no smell, and no sloughs were present except one small tag, which was cut off. New P.P. was applied: 17 days later, when this was removed, the whole area was healthy and new skin had proliferated for half an inch all round. She could walk with a slight limp. Next day she was skin-grafted with Thiersch grafts, and mosquito netting was superimposed. Hot foments were applied. After a little delay owing to blebs forming under the new skin, she walked off home, healed, 6 weeks from application of the first P.P.

Case 2.—Meru male aged 1. Big toe amputated by ulcerative process. Head of metatarsal exposed. Smelly, with oedematous undermined edges. One month's duration. Dressings applied for 14 days. Some improvement, but still very unhealthy. P.P. applied, and patient discharged. Returned in 14 days. The mother said the child was happy and had had no pain. On removal the sore was reduced from 1½ in. diameter to half that size. Healthy granulation over metatarsal. Sent out with dressings.

Case 3.—Meru male aged 20. Shallow ulcers round toes. Feet very sweaty. Treated with salicylic spirit, as considered possibly fungous. No improvement after 15 days. P.P. applied. Patient sent out. On return in a fortnight was soundly healed. No return in 3 months.

Case 4.—Meru male aged 23. Admitted Nov. 19, 1943. Ulcer 8-shaped, the centre being over the head of the second metatarsal; 5 in. in length—half on dorsum and half on sole; second toe gone. Foul and very painful. Edges raised and indurated. Swelling had caused big and third toes to be separated by 2 in., which area was occupied by the ulcer. On Nov. 20, without scraping, zipp and P.P. applied up to above the ankle. Much oozing necessitated more P.P. being added. A good patient, he waited for a month. On removal of plaster only a small linear sore remained—1½ in. by 1/2 in. He left rejoicing.

Case 5.—Embu female aged 10. Ulcers of toes and nail-beds extending on to dorsa and soles; raised oedematous edges and purulent bases; 9 months. Pain severe; much weeping over dressings. On Nov. 2, 1943, nails avulsed and ulcers scraped: no improvement. On Nov. 10 zipp and P.P. At once the whole picture changed. The patient had no further pain, and when the P.P. was removed on Nov. 29 most of the ulcer was healed and there were healthy granulations over the rest. The nail-beds were healthy. (This is an important point, as nail-bed infections usually prove most intractable.)

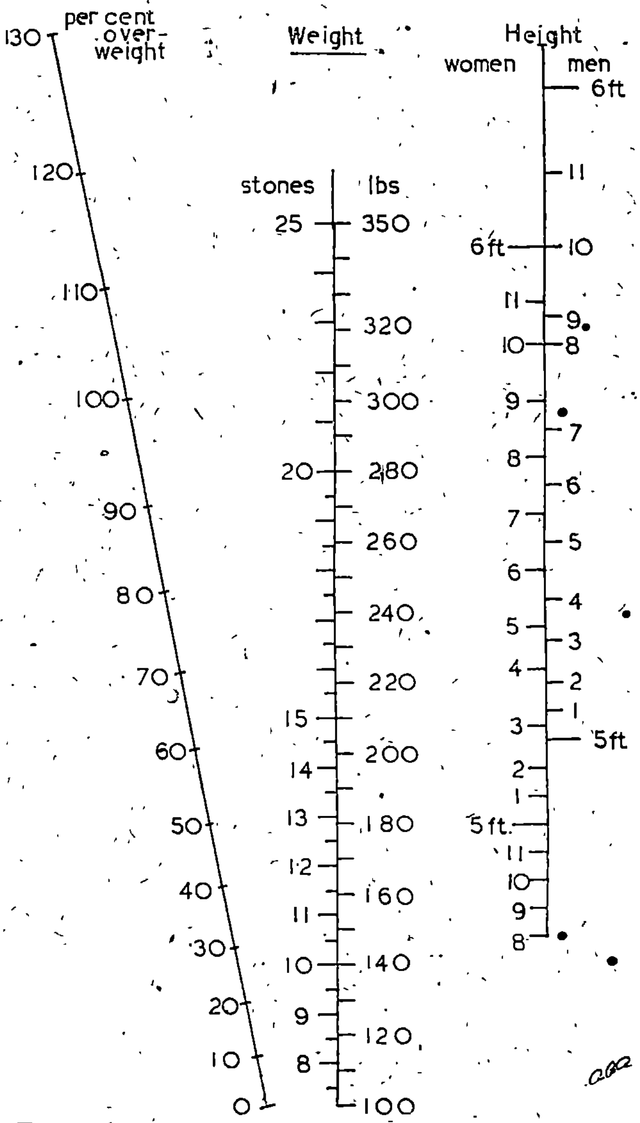
Other cases successfully treated include a leper with a linear crack across the sole, at the base of which the os calcis was exposed. Nothing had availed to heal till P.P. was tried. Case 10 in my series, which it would take up too much space to give in full, was similar to Case 1, except that she continued to have pain and a temperature—forcing us to take down the P.P. at weekly intervals. The result, however, was the same, and after 14 days' P.P. she was ready for grafting. At the moment of writing, on the 20th day, grafts have taken well and she is having treatment for foot-drop due to the position of the foot at rest while in her village. A high degree of anaemia did not prejudice the cleaning up or the taking of the grafts.

To summarize: by means of plaster-of-Paris casts, with or without scraping and application of sulphonamides and zipp, ulcers can be treated with comfort to patient and staff and much saving of expense. Some that would otherwise have to be admitted can be treated as out-patients. Granulation tissue forming under the casts takes grafts very well, and the growth of the skin edges is rapid and healthy.

Chogoria Hospital. CLIVE IRVINE, M.D.

A Nomogram for Percentage Increase of Body Weight over Ideal Weight

The nomogram illustrated has been designed to enable a rapid estimation of the degree of overweight in adults to be made. The scales have been prepared from the ideal weights given in a table by Newburgh (1942), which are adapted from those given by Fisk for average weights at age 30. The weights include clothes and the heights include shoes.



To use the nomogram, the height and weight are measured and a straight line joining the points on the height and weight scales is produced to cut the percentage scale. The point of intersection gives the percentage over ideal weight. If the zero point on the percentage scale is joined to the appropriate point on the height scale, the intersection on the weight scale gives the ideal weight.

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Reviews

FACIAL RECONSTRUCTION

Traumatic Injuries of Facial Bones. By John B. Erich, M.S., D.D.S., M.D., Consultant in Laryngology, Oral and Plastic Surgery, Mayo Clinic, and Louie T. Austin, D.D.S., F.A.C.D., Head of Section on Dental Surgery, Mayo Clinic, in collaboration with Bureau of Medicine and Surgery, U.S. Navy. (Pp. 600; illustrated. 36s.) Philadelphia and London: W. B. Saunders Company.

Reconstructive Surgery of the Eyelids. By Wendell L. Hughes, M.D., F.A.C.S. (Pp. 160; illustrated. 21s.) London: Henry Kimpton.

aumatic Injuries of Facial Bones is businesslike and useful. he book is set out in the form of an atlas, with photographs patients, radiographs, or models on one side of the page, d full and detailed instructions for treatment on the other. us every possible variety of mandibular fracture is represented ostly in the form of plaster reconstructions), and the reader n quickly learn the appropriate treatment for each. The thors seem to prefer arch wires to cap splints for most of eir cases. Direct skeletal fixation is used when the fragments nnot be controlled without it. The different varieties of axillary fractures are next described. Here again arch wires e prominent, with fixation to a head-cap, either directly or directly. Malar and nasal fractures are treated on lines nilar to those employed in this country, except that internal lints are used inside the nose without anxiety. Multiple facial actures receive careful consideration, and their repair is gone to in great detail.

A considerable section of the book is devoted to bone-grafting the mandible, for which solid pieces of iliac bone are used, d a further section to restoration of facial contour, both by ay grafting and by cartilage transplants. The final section scribes the application of a plaster head-cap, the insertion of eletal pins, the details of wiring in all forms, and the construction of metal splints.

The book is well printed on good-quality paper (rare in home oductions), and the 333 illustrations could not be bettered. ere can hardly be a problem in injury of the facial bones r which an answer cannot be found quickly and easily in this anual. It is a first-class presentation of the subject.

The monograph *Reconstructive Surgery of the Eyelids* was epared as a thesis and is largely concerned with the repair eyelids after partial or complete removal for neoplasm, and such is a useful addition to a library.

The major part of the book is taken up with the historical velopment of plastic procedures, illustrated in the main from original papers. Unfortunately the illustrations have ffered by reduction and overcrowding, and it is not only ficult to make them out but also difficult to correlate the text, illustration, and the legend thereof. Nor is the text improved overburdening with names and reference numbers. Innumerle procedures are sketchily described, without any attempt at tical appraisal, which is of little value to the student. Thus, r example: "Judging by reports in the literature . . . in empting to reconstruct a fornix, if some living tissue is apped around the form it suffices whether it be a mucous mbrane or skin from the same individual, mucous membrane m another individual of the same species, fetal membrane, even conjunctiva from a foreign source, such as a rabbit." ould that it were so simple!

In the latter part of the book Dr. Hughes describes some of successful cases of replacement of complete lid losses, chiefly m the opposing lid and adjoining cheek tissues. This section well worthy of study, though to-day one would have preferred ditional information on wartime injuries. One cannot help miring the energy of the author in regimenting 451 erences.

MENTAL ABNORMALITY AND CRIME

ental Abnormality and Crime. Introductory Essays. By R. N. raig, W. N. East, R. D. Gillespie, E. Glover, D. K. Henderson, E. O. ewis, D. R. MacCalman, A. MacNiven, E. Miller, J. D. W. Pearce, R. Rees, G. de M. Rudolf, G. M. Scott. (Pp. 316. 18s.) London: acmillan and Co. 1944.

idies in crime must always be of interest to the medical ofession, since more and more is crime being recognized an individual disability, and more and more are social problems becoming linked with those of health. Of the papers so far published in the series *English Studies in Criminal Science* this is the most interesting to doctors in general, apart from those engaged in psychiatry. The thirteen essays which this book contains cover nearly all of the psychiatric aspects of criminology. One of particular interest is that by Dr. MacNiven, in which the question of responsibility is discussed, especially in relation to the M'Naghten rules. It is clear that partial responsibility will have to be more generally recognized, and indeterminate sentences for purposes of treatment be more often inflicted. Dr. Gillespie deals informatively with the connexions between the psychoneuroses and crime, and postulates that if crime is to rank as psychoneurotic there must be no real gain to the criminal, or the apparent gain must be shown not to be the real meaning of the act for the individual. The crime must be shown to be the outcome of conflict, and the criminal behaviour to be a substitute for or a compromise between the opposing tendencies. The criminal should be demonstrated to present other signs of psychoneuroses.

Dr. MacCalman's essay on traumatic neurosis in relation to compensation also merits study. As he points out, a single shock is seldom the sole cause of a breakdown, though it may precipitate this from a psychoneurotic background. Similarly neither work nor settlement in a lump sum is a panacea, for anxiety about capacity to work and financial security prolongs the illness. Early and complete psychological treatment is required, and without it results are likely to be poor. The section on juvenile delinquency is unimpressive, and gives a poor idea of all that is being done and all that has been found out in this branch of criminology. This is somewhat mitigated by an excellent report by Dr. Glover on the origins, methods of work, and results of the Institute for the Scientific Treatment of Delinquency. Altogether this interesting collection will well repay careful study.

TWO BOOKS ON NURSING

The Practice of Nursing. By Hilda M. Gration, S.R.N., S.C.M., D.N. (Pp. 420; illustrated. 12s. 6d.) London: Faber and Faber.

Clinical Procedures and their Background for Senior Nursing Students. By Agnes E. Pavey, S.R.N., D.N. (Pp. 331; illustrated. 8s. 6d.) London: Faber and Faber.

There are so many good textbooks on nursing that new additions not only must reach a high degree of perfection in detail but must preferably make some new method of approach. On the latter count Miss Hilda Gration's book on *The Practice of Nursing* certainly presents a more humane attitude than some books on this subject—when tested on such matters as the hour of waking, bed-making, and cups of tea! But there are errors in detail that impair its value. As early as page 15 a picture of a clinical thermometer upside down gives an uneasy feeling, aggravated by the spelling "albumen" on page 56 (for albumin in the urine), and "pulmonary tuberculosis" would have been better than "phthisis" on page 63. (The word "tuberculosis" does not even appear in the index.) The same old-fashioned terminology is perpetuated on page 156 with the use of "scruple," excluded from the *British Pharmacopoeia* many years ago. More serious faults are to be found. For example, the details of taking blood for a Wassermann test do not make it clear that the needle must be sterile, nor do they indicate the importance of rinsing with normal saline so as to avoid possible haemolysis. Another omission is that it is not made clear that all liquid milk is potentially dangerous; pasteurization is not mentioned, although as a concession milk is directed to be boiled for ill babies and for the newborn. It is a pity that a close study has revealed such faults, for the author has an attractive style and the illustrations are of good quality and well chosen.

Miss Agnes Pavey's book is open to similar fault-finding on grounds of accuracy and terminology. An appendix on "diseases, syndromes, and symptoms known by proper names" contains many "howlers." But a more serious criticism can be made: there is far too much here on details of diagnosis. Tests for liver efficiency and kidney function seem matters which should be outside even the senior nurse's curriculum, and surely the nurse does not need to know details of staining for the tubercle bacillus.

Notes on Books

A fourth edition has reached this country of *Public Health in South Africa*, by Prof. E. H. CLUVER, director of the South African Institute for Medical Research. Like its predecessors, this edition is addressed mainly to students of medicine, and the author has succeeded in his aim of presenting information in simple terms and in a concise form. It will also prove useful to the large body of workers all over the Union of South Africa who, in addition to medical officers, are concerned with the protection and promotion of public health. The descriptions of various public health services assume that the pre-war arrangements will continue; but, as the author says in his preface, no one can predict with any degree of accuracy what the medical organization will be after the war. The publishers are the Central News Agency, Ltd., Johannesburg.

The second of the two reports containing selected documents from the proceedings of the council of U.N.R.R.A. at its meeting at Montreal last September has now been published (H.M. Stationery Office; 1s.). Readers who are interested to know how supplies for immediate relief in liberated countries were estimated will find some account of it and of the creation of "stockpiles" of food in the statements of Lieut.-Gen. G. N. McCready and of the representative of the Combined Food Board. Difficulties and problems encountered in Italy, especially Naples, are described, and the publication also contains the text of the council's resolutions.

Preparations and Appliances

INSTRUMENT FOR CONTINUOUS AND ACCURATE ADMINISTRATION OF PENICILLIN INTRAMUSCULARLY

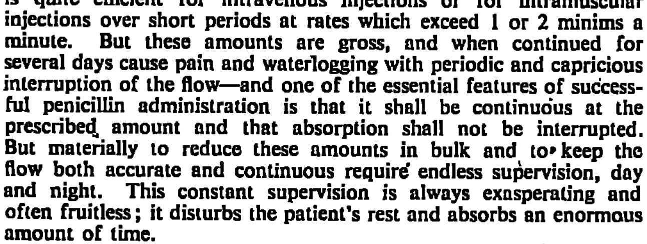
Dr. C. E. LAST, medical officer, Queen Mary's Hospital for Children (L.C.C.), Carshalton (evacuated to Dryburn Emergency Hospital, Durham), writes:

The difficulty of giving penicillin by continuous intramuscular drip is recognized by many; the difficulty being one of controlling and accurately regulating the amount of fluid given to such proportions as will be continuous and, at the same time, not cause too much pain and discomfort, nor waterlogging of the tissues.

The usual drip apparatus which is controlled by clamping a rubber tube, either with or without the assistance of capillary glass tubing, is quite efficient for intravenous injections or for intramuscular injections over short periods at rates which exceed 1 or 2 minims a minute. But these amounts are gross, and when continued for several days cause pain and waterlogging with periodic and capricious interruption of the flow—and one of the essential features of successful penicillin administration is that it shall be continuous at the prescribed amount and that absorption shall not be interrupted. But materially to reduce these amounts in bulk and to keep the flow both accurate and continuous require endless supervision, day and night. This constant supervision is always exasperating and often fruitless; it disturbs the patient's rest and absorbs an enormous amount of time.

Description of Apparatus

A very simple instrument has been designed and made to meet all these difficulties. A is a Record syringe which rests in a trough and is held by a suitable clip. B is a 3/8-in. screw with 16 threads to the inch passing through a metal housing supported on a pillar. CC are two parallel arms fixed at each of their ends in a brass disk or plate; the disk nearest the syringe is carried on a central bearing on the screw housing; the other disk has a central boss which is coupled to the spindle of the hour hand of a clock or small electric motor. D is a small clutch, controlled by a finger screw, which intervenes between the boss and the spindle. F is a detachable pin which transfixes the main screw and is held in position by a small finger screw. E is a clock or motor electrically driven. All the parts are aligned and mounted on a board.



The clock spindle or electric motor makes one complete revolution every hour and turns the parallel arms with it. The arms engage the pin which turns the screw, and, as the screw proceeds, the pin slides along the arms. The screw has 16 threads to the inch and therefore takes 16 hours to travel one inch; in 24 hours it travel 1½ in., pushing the piston of the syringe as it goes. The trav of 1½ in. of the piston of a 10-c.cm. syringe represents a trifle le than 8 c.cm. Therefore there is a continuous and positive delive at the nozzle of the syringe of fluid at the rate of, say, 8 c.cm. i 24 hours, or 1 c.cm. during every 3 hours. In minims this work out at 1 minim every 10 minutes 17 seconds, delivered punctual and without fail, no more and no less. A 20-c.cm. syringe woul deliver about 13½ c.cm. in 24 hours, or, say, 1 minim during eve 5 minutes 25 seconds.

Method of Use

100,000 to 120,000 units of penicillin are dissolved in 8 c.cm. 14 c.cm. as the case may be, and it is led through Southey's tubin and passes intramuscularly by means of a hypodermic needle, wit or without additional side holes—the instrument being placed on table 12 to 18 in. above the level of the patient. The connexio between the syringe and the tubing and the needle and the tubin are Record metal ends.

When a 24-hour run has been completed the finger screw co trolling the clutch is loosened and the screw B run back by hand the syringe is refilled, or, better still, a fresh syringe with a fres charge is taken, the exposed metal ends are flamed and reconnecte the moving parts repositioned, and another 24-hour run is starte Assembly, filling, and refilling only take a few moments; the syrin can be renewed without disturbing the needle and tubing, and needle can be changed without disturbing the syringe and tubin

Advantages and Precautions

Pain and inconvenience to the patient are practically absent, h sleep is not disturbed; and, as the small amount of penicill delivered is absorbed as fast as it arrives, there is no waterloggin The considerable amount of time spent by the nursing staff observations and adjustment is saved.

Children are easily dealt with. One little child aged 2 years wi osteomyelitis of the femur and sinuses was put in a double plast spica and a 16-days treatment of 100,000 units a day was carri out through a gap in the plaster over the only thigh available witho any distress or evidence of complaint. A 10-c.cm. syringe was us and the needle changed 6 times.

Under normal running conditions there is no "seeping" behi the piston, owing to the fact that there is a negative pressure in t syringe and tubing system. Seeping can only occur when an intern resistance is built up which more than neutralizes the negat pressure, that is equivalent to 12 to 18 in. of water. Needle blo is the main cause of this. Therefore seeping is to be regarded the warning that the needle requires changing. However, with t concentrations used, needle block has so far not occurred und 24 hours; 36 hours is a critical time, but there have been ma uninterrupted runs of 48 hours and a few of 3 days, when t needle is changed as a routine. Some authorities advocate a chan of needle every day and, with all discomfort reduced to a minimu this could not be a hardship to the patient. In addition to t evidence of "seep," a small glass pressure gauge is positioned the tubing system, which reveals very early any needle block; th gauge also has a "boost," which frequently enables an early bloc ing to be cleared.

The original experimental instrument was run off the back of standard alarum clock and has been in continuous use at the Drybu Emergency Hospital for the past 10 weeks. I also have in use the same hospital an instrument electrically driven and similar appearance to the one pictured here.

I am greatly indebted to Willen Bros. Ltd., of 44, New Cavendi Street, London, W.1, for the trouble they have taken in manufactu ing the instrument as illustrated, and for having made the vario changes and modifications that tests showed to be necessary. T final working drawings have been placed solely in their hands produce the instrument in accordance with the authorized design.

TYROTHRICIN

"Tyrothricin" is the new name given to the antibacterial substan extracted from cultures of *B. brevis*, as originally demonstrated Dubos. It is separable into two constituents—gramicidin (the na originally given to the whole extract), which is highly active again Gram-positive bacteria only, and tyrocidine, which is more to but acts also on some Gram-negative species. Tyrothricin is unsu able for the systemic treatment of bacterial infections, but is a ve powerful antiseptic when applied locally, and has been used succes fully for treating wounds, infections of the conjunctiva and corne and of the ear, nose, and throat; there are also favourable repo on its use in empyema and certain skin diseases. Tyrothricin h now been put on the market in England by Sharp and Dohme L (Mulford Biological Laboratories, Hoddesdon, Herts), who al publish a valuable booklet describing the history of its developme and indications for its use, with a useful bibliography.

Tyrothricin concentrate (human) Mulford is supplied in 1-c.c and 20-c.cm. vials of a solution containing 25 mg. per c.cm.; t is diluted fiftyfold or more in sterile distilled water for use.

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THE NATURE OF PENICILLIN ACTION

has been generally accepted until recently that penicillin bacteriostatic rather than bactericidal. This has doubtss been a good thing, since it has encouraged attempts maintain continuous action for a long period; only in ese circumstances will any antiseptic substance, whatever e nature of its action, help to eliminate bacteria from fected tissues. But in recent months several workers in is country, notably J. W. Bigger,[1] have obtained evidence at penicillin, so far from merely restraining the growth bacteria, actually kills them. These observations have en prompted by a natural curiosity about the mechanism which penicillin achieves its effect. We are no longer ntent with the knowledge that a certain substance under ven conditions will kill a particular micro-organism: we nt to know by what chemical process this is brought out, and such knowledge has been obtained for a large riety of chemotherapeutic agents within the past few ars. Not only does it place treatment on a fully rational stead of a semi-empirical basis, but it may point the way the synthesis of related agents with extended powers.

There are several facts of which any explanation must ke account. One is the peculiar specificity of the action penicillin. Everyone knows that some bacteria are sceptible and others not, and that Gram-staining reaction es not without exception distinguish them; what is not generally recognized is that the degree of susceptibility so variable. Some species commonly classed as totally sistant are in fact affected by higher concentrations; ey include even the typhoid bacillus and salmonellas, d it was predicted several years ago by the Oxford rkers[2] that the treatment even of these infections may ove worth while when pure penicillin is freely available. her bacteria which most people dismiss from their minds ere penicillin is concerned appear in a new light in view the observations of H. F. Helmholz and C. Sung[3] on action of penicillin on bacteria in urine. No one has ught of treating with penicillin any urinary tract infecns except those due to staphylococci, but these authors ve shown that a concentration 90 times greater than the nimum necessary for *Staph. aureus* has the same effect *Str. faecalis,* while a 240-fold increase will bring in *oteus,* and a 900-fold some strains of *Bact. coli*; only *ct. aerogenes* and *Ps. pyocyanea* were unaffected at this d even a higher level. Owing to the very high concentions attained in the urine by systemic administration o at least of these relatively resistant organisms may cumb to treatment in this special situation only. These amples illustrate the enormous range of susceptibility different bacteria; the peculiarity in their constitution which accounts for this has yet to be discovered. Another fact of observation is the penicillin-induced change in morphology first observed by A. D. Gardner.[4] Cocci swell to thrice their normal size, and bacilli elongate themselves into monstrous threads; this change naturally gave birth to the idea that penicillin prevents bacterial division. A third noteworthy fact is the immense possible range of habituation to penicillin, at least in some species. Whatever the action of penicillin, it is one which the bacterial cell can learn to counter or circumvent; the studies of E. W. Todd and others, which are described on page 111 of this issue, show that *Staph. aureus* can be trained to withstand a concentration 3,000 times greater than the maximum tolerated by the original culture. Unlike the pneumococcus, which has been shown to retain this property in subsequent culture or mouse passage, this organism lost it rapidly in normal media. It is consoling to read that similar treatment applied to the gonococcus failed to induce any appreciable increase in resistance.[5]

A helpful method in determining the nature of chemotherapeutic effect is to identify substances which neutralize it; this was the path which led to success in the study of sulphonamide action. So far no application of this method to the study of penicillin has been discovered; one secret of its therapeutic success is the fact that penicillin acts equally well in any medium not actually destructive to it, including any body fluid, pus not excepted. Whether the substance recently extracted by W. M. M. Kirby[6] from penicillin-resistant staphylococci will be of any interest in this connexion remains to be seen; it is not penicillinase; and, indeed, the evidence seems clear that when normally susceptible bacteria acquire resistance to penicillin this change is not due to acquisition of the power to make this substance, nor do all naturally resistant species form it. Another possible line of approach is to study the influence on penicillin action of simple physical factors such as concentration and temperature, with a view at least to discovering whether their effects on penicillin and on ordinary disinfectants are the same. Such a study is described by L. P. Garrod in the opening paper of this issue, and appears to have brought to light one peculiar feature—namely, that increase in concentration above what by clinical standards is a very moderate level brings no added effect, and will indeed, if carried far enough with impure penicillin such as is now being used, actually diminish the rate of disinfection. Subject to the results of further studies, which will evidently be dependable only if conducted with pure material, it seems that within very wide limits the action of penicillin is indifferent to concentration; its full effect is exerted at a certain quite low level—probably well under 1 unit per ml.—and no addition to this will alter the result. This property, should it be verified, is peculiar and may well be significant. It has a distinct bearing on practical treatment and indicates a policy by which efficiency and economy can be combined.

Laboratory findings have also been translated into therapeutic policy of quite a different kind by Bigger,[7] whose argument rests on the observation that in a population of staphylococci, of which the vast majority are killed by penicillin overnight, a few survive even for days. Linking this with the hypothesis that penicillin kills only dividing cells, he attributes this survival to the existence of a few cells in a dormant condition; these "persisters" are assumed to be the agency by which infection is kept alive when penicillin treatment fails in such a condition as osteomyelitis. Since "persisters," when they multiply, give rise to cells which are normally susceptible to penicillin, a therapeutic method akin to tyndallization (intermittent sterilization) is proposed; treatment is to be interrupted in order to permit bacterial growth and thus restore vulnerability. Whatever its other merits, this hypothesis stands or falls according to whether it is true that penicillin acts exclusively on multiplying bacteria. Garrod has examined this question, and contends that neither the influence of temperature nor the death rate in cultures of different ages can be interpreted in support of Bigger's hypothesis. On the other hand there is evidence that the presence of a bacteriostatic agent such as sulphathiazole will interfere to some extent with the action of penicillin. Lest too high a significance should be attached to observations of this kind, it must be remembered that reproductive activity affects the susceptibility of the bacterial cell to other disinfectants for which no such special type of action has ever been assumed, and we do not know whether combination with a bacteriostatic agent would affect them similarly. Perhaps the weightiest argument against adopting the policy of intermittent administration is to be found in clinical experience. In an analysis of causes of failure in penicillin treatment, A. L. Bloomfield, W. M. M. Kirby, and C. D. Armstrong[8] rank the too-early interruption of treatment as a major factor in their unsuccessful cases. Many others have insisted that the attack on infection by penicillin must be relentless and long-continued. He must be a bold man, not to say a rash one, who will deliberately reverse this policy.

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[1] *Lancet*, 1944, **2**, 497.
[2] Abraham *et al.*, ibid., 1941, **2**, 177.
[3] *Amer. J. Dis. Child.*, 1944, **68**, 236.
[4] *Nature*, 1940, **146**, 837.
[5] A. W. Frisch, *Amer. J. Syph.*, 1944, **28**, 627.
[6] *Science*, 1944, June 2, p. 452.
[7] Loc. cit., and *Irish J. med. Sci.*, 1944, **553**, 585.

NEGLECTED CHILDREN

The new social services to be provided after the war are designed to shower benefits upon the citizen while requiring from him hardly any co-operation beyond the payment of contributions. The encouragement of initiative and enterprise in the individual is not a popular policy. Dr. A. E. Martin, assistant medical officer of Leicestershire, who won the Haldane prize and medal in 1943 with an essay on child neglect,[9] points out the melancholy fact that many families have such grave inherent defects that, no matter what the State may do, their members cannot utilize State-provided opportunities. The problem of child neglect has itself been largely neglected by local authorities, though their existing social and health services cover every house and family in their districts. The success of any scheme for controlling and preventing it must depend first upon an efficient system of finding the neglected children and keeping them under observation. At present the health service, which supervises the child until 5, and the education committee, which is responsible for him after that, often work fair closely together. Almost every case of neglect should l detected by one of them, but the difficulty is that tl various officers have been faced with apparently insolub problems. The work is so sordid and depressing that, no definite scheme exists for calling in help, many childr have not had efficient treatment. As a first essenti according to Dr. Martin, there should be some persc on the central staff of the health authority to whom all cas may be reported, who is available for advice, and wh can give some of his time to the scheme. Normally h would be one of the medical officers. He would be th pivot of the whole scheme. Thus a teacher who suspecte that a child in the school was not properly cared for woul report it as he now reports a child with defective sigh The administrative medical officer would call for a repo on the home conditions from the school nurse or healt visitor. This would stimulate her to pay detailed attentio to the case, and a series of home visits might bring th parent up to the mark. In a more severe case medic inspection could be arranged; the sanitary inspector mig be asked to help on the housing or sanitary side; a medic officer's visit to the home might have a good influenc and, where all else failed, the National Society for the Pr vention of Cruelty to Children might be called in.

The larger part of child neglect is due to a dull or feeb mind in one or both parents. This sets an arduous an never-ending task to the health visitor, who must u the highest qualities of patience, tact, and persistence i educating the mother in household routine, cleanir children, washing clothes, and the rest of the househo duties. When this work is properly done improvement almost invariable. Health visitors are too highly qualifie to be allowed to give much of their time to each famil and more social workers will have to be provided. Fo parents who wilfully or thoughtlessly neglect their childre the inspector of the N.S.P.C.C. must be called into collabo ration. Some authorities are reluctant to do this for fe of destroying the confidential relationship between th health services and the mothers of the district. Muc experience shows, however, that full co-operation an interchange of information can exist without damagir the confidence of the parents. Prosecution is of litt use unless the child has to be removed completely fro the parents' care. The society is better qualified than th local authority to prosecute, and the combination evidence by its inspector and a doctor or nurse of th local authority would form the most helpful basis for mo cases.

The law is at present far from satisfactory, and in th present state of public opinion it would be very har to draft a Bill which would give adequate control ov neglected children and at the same time safeguard th rights of parents. The only certain method of gettir children removed is to produce evidence of really ba conditions at the last visit, but this course can be adopte only after very careful thought. The most importa necessary reform, according to Dr. Martin, is son scheme to bridge the gap between the voluntary supe vision of the society and the cases where children mu be completely removed. A neglected child should l ken away, not because the parent has been convicted ut because its own neglect and suffering have been roved. The local authority should be obliged to look fter children removed for neglect, and such children hould not have to be sent to an approved school. Conerted propaganda addressed to medical officers, directors f education and their staffs, magistrates, and the general ublic would be vital. Such a scheme, Dr. Martin says, ould be inaugurated by circulars from the Ministry of lealth and the Board of Education. Interest in it could e sustained by annual summaries prepared by the medical fficers and published in their annual reports. Dr. Martin ndoubtedly exposes a serious gap in our present social ervices which will have to be closed, at any rate in part, the new provisions are to bear fruit, and wholly if we re to have a sound and healthy population in the years o come.

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[8] *J. Amer. med. Ass.*, 1944, 126, 685.
[9] *Public Administration*, Summer, 1944.

THE HEALTH OF LONDON

The interim report for 1943 of the County Medical Officer f Health for London[1] comes to hand almost twelve nonths after the year to which it relates—a circumstance vhich robs its statistics of some of their interest, especially s 1943 was a relatively uneventful year for London comared with the years preceding and following. It will e noted that the infant mortality was a fraction higher, nd the maternal mortality a fraction lower, than in 1942, nd that among infectious diseases cerebrospinal fever ontinued to decline; diphtheria had only one-quarter of ts pre-war incidence; dysentery increased, though enteric ever, a disease spread mainly by the same channels, was lmost negligible; scarlet fever was more prevalent than n recent years, and of somewhat heightened virulence; and neasles at one point threatened to assume epidemic proporions. Notifications of tuberculosis increased, though the umber of deaths remained about the same. The only pidemic disease which caused real anxiety was influenza. Iere the number of admissions to the L.C.C. hospitals ose steeply at the end of the year, and recollections of he devastating epidemic of 1918–19 were stirred; but by he end of January, 1944, the incidence had fallen to the easonal normal.

The school medical service returns show that the condiion of London children in the third and fourth years of var was in some respects better than in the pre-war year f 1938. The proportion of children in whom an unsatisactory state of nutrition was found in 1938 was 6.6%, nd this had been reduced in 1942 to 6.2%, and in 1943 o 6%. The proportion of children with defective vision nd of those with adenoids and enlarged tonsils declined otably, and the only outstanding increase was in the umber of children found with obvious decay of the teeth. t should be added that the children inspected by dental urgeons are spread over all ages, and are not confined, s are the medical inspection returns, to the four routine ge groups. The number of children examined, on which e percentages are based, was little more than half in the ecent years what it was in 1938. An interesting comparion is given in the report concerning the trend of infant ortality in London and in New York during the present entury. The New York figures have always been better an those of London. In 1900 the infant mortality in ew York was 135 per 1,000 births, and in London 159, nd the figures in 1943 were 30.2 and 50.7 respectively. The decrease in the deaths of infants, especially since 1935, has been more pronounced in New York than in London—a fact not wholly explained by war conditions in the latter city, and calling for further investigation. From a list of causes of infant deaths it appears that there has been a much greater reduction in mortality from gastro-enteritis and respiratory diseases in New York than in London during the last forty years, and especially during the last decade, and the death rate from miscellaneous causes, but particularly infective and parasitic diseases, injury at birth, and lack of care of the newborn, is more than twice as high in London.

The history of the last war has been repeated in the continued fall in the number of mental patients in L.C.C. institutions. An attempt has been made at St. Ebba's Hospital to assess the value of electric convulsion therapy and insulin therapy given to patients. Of the first 100 female depressive patients who were treated with electric convulsion therapy 87 were cured of their depression, of whom 74 were discharged; the other 13 had for various reasons to be detained; 13 of the discharged patients relapsed and had to be given further treatment. Of 72 female acute schizophrenics who were given electric convulsion therapy and insulin, treatment had been completed in 64 cases at the time of the review, and of these 64, 56 had recovered sufficiently to return home. Similar results were obtained in certain groups of male patients.

The year 1943 saw the introduction by the Council of miniature mass radiography, the unit beginning its operations at St. Luke's Hospital, Chelsea. Up to the time of the report 13,334 miniature films had been taken, and among these 433 revealed some significant abnormality requiring large films to be taken. Of the large films 110 showed pulmonary lesions calling for investigation, 30 showed cardiovascular lesions needing investigation, 155 showed calcified and other lesions in which further investigations were not necessary, and 94 showed no abnormality. The examinees have been factory and office employees, civil defence personnel, and children in secondary schools in the neighbourhood of the hospital. In all cases in which evidence of disease was found the patient's doctor was communicated with, and the *x*-ray film and report were forwarded to him.

HEALTH RESEARCH IN INDUSTRY

In the early days of the last war munition workers laboured very long hours in an effort to make good a shortage of shells, but their output fell and sickness and fatigue increased. This failure to meet the needs of a modern army at war led to the appointment of the Health of Munitions Workers Committee, who were to advise the Government on matters affecting the health and efficiency of those in munition factories. This was the first attempt in this country to investigate scientifically and comprehensively the effects of conditions of work on health. This Committee was succeeded by the Industrial Fatigue Board (later the Industrial Health Research Board of the Medical Research Council), which, by its terms of reference, had opportunity to study all classes of industrial work. But with the return of peace and unemployment the Board had little encouragement from industry. Nevertheless, it survived the rigid economies of 1924, to flourish once again with the revived stimulus of war.

The story of the Board's present activities is told in a report issued this week of the proceedings of a conference held last September.[1] In 1942 the Medical Research Council reconstituted the Board and gave it new terms of reference, to include the whole subject of industrial medicine and disease. In May, 1943, the M.R.C. set up a new Department for Research in Industrial Medicine at the London Hospital, and under Dr. Donald Hunter its staff are energetically investigating both the old and the new toxicological hazards with which industry has to contend. But these are problems confined to specific industries. It is therefore encouraging to know that the combined efforts of this new department and others at the London Hospital are being given to a study of the widespread problem of rehabilitation and resettlement. At Cambridge the M.R.C. has established a Unit of Applied Psychology, where more fundamental research is being done on fitting the man to the job and the job to the man. Besides these two units there remain those carrying out equally important but less dramatic investigation into sickness incidence, methods of dust sampling, and the many problems associated with the heating, ventilation, and lighting of workplaces.

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[1] Published by the London County Council, price 6d., post free 7d.

[1] *Health Research in Industry.*, Industrial Health Research Board, M.R.C. H.M.S.O., 1945. (6d.)

Industrial health research must be closely linked with other types of medical and sociological study directed to the health and welfare of the man at home as well as at his job. It must link up, too, with management, the worker, and Government Departments concerned with the health of those in factories, mines, transport services, and offices. There must be facilities for determining the toxicity of various compounds before they are used in production. A wider view of the problem of the worker and his environment should bring together research workers, town planners, and industrialists to prevent the increasing loss of greensward, and the pollution of land, water, and air with industrial effluents. "It is not necessary for the physical appearance of industry to be that of an abomination standing where it should not." A move in the right direction is being made. Departments of Industrial Health have been established at three universities in industrial cities, and close contact between these and other departments of the university, local industries and medical practitioners, the M.R.C.'s Industrial Health Research Board, and the Factory Department of the Ministry of Labour will yield handsome dividends of knowledge. Sir Edward Mellanby has said: "Research can only be a spearhead, and a spearhead without a shaft and without somebody to hurl it is no good whatever." The shafts are the industrial medical officers and technicians. But the whole weapon can be hurled with effect only by an enlightened industrial community.

ASSISTANTS AND LOCUMTENENTS UNDER THE "PAY-AS-YOU-EARN" SYSTEM

It has for many years been the accepted practice of the Inland Revenue Department to regard locumtenents as exercising their profession in a particular way, and not as "employed" by the doctor in whose practices they worked from time to time. The result was that they were regarded as assessable to income tax under the rules of Schedule D and not of Schedule E, and that result was not only convenient to both the parties concerned but was more equitable inasmuch as it gave the locumtenent the normal Schedule D basis on which to claim professional expenses (including agency fees, travelling costs, etc.), of which he would have been unfairly deprived if he had been held to the very strict and limited basis applicable under Schedule E. The introduction of the "pay-as-you-earn" system led apparently to some misunderstanding of the view taken by the Revenue, and in order to clarify the position the matter was raised with that Department by the Northern Branch of the British Medical Bureau. In a letter dated Nov. 27, 1944, the Inland Revenue have stated their view as follows:

"With reference to your letter of Nov. 3 and the previou correspondence I am to say that a doctor who takes a serie of engagements in each of which he acts as a deputy for doctor practising on his own account is, in the view of thi Department, assessable under Case II of Schedule D of th Income Tax Act, 1918. If it is established that he is so asses able any short-term appointment which he may take—fc example, a substitute for an absent assistant or in a hospita —will be included in the Schedule D assessment, and n question of deduction of tax under pay-as-you-earn will aris

"A doctor who is employed as assistant is, however, in th view of this Department assessable under Schedule E, eve though he may change his job frequently.

"Tax should therefore, as a general rule, be deducted unde the pay-as-you-earn system from payments made by a docto to an assistant, whatever the length of his engagement. Ta should not, however, be deducted from payments made t a locum unless he produces a Form P45 showing the pay ments made to him and the tax deducted therefrom in previou weeks of the year."

It is understood from the last paragraph that it is alway incumbent upon the principal to deduct tax under P.A.Y.E where he engages a doctor as assistant; but, where th principal engages a doctor to act as his deputy, the prin cipal is not required to deduct tax unless the locumtenen produces a Form P45. The statement as a whole appear to be clear and satisfactory, but there are one or two point to which it may be desirable to refer. In the first plac the line of distinction between locumtenent and assistan may not always be clear. For example, an individua engaged as a locumtenent may stay on assisting in th practice, even becoming eventually a partner in the firr Clearly all such cases must be dealt with on their ow facts and preferably in consultation with the Inspector o Taxes. Secondly, there may be a little practical difficult where a doctor ordinarily working as a locumtenent take temporary duty as an assistant to, rather than as th deputy of, the local practitioner. What should the latte do in such circumstances? His appropriate action wil depend on the manner in which the locumtenent's (i.e., i the hypothetical case his "assistant's") income-tax affair are dealt with—and that is a matter outside his knowledg The most effective means of overcoming such a difficult seems to be for the locumtenent to notify his own Inspecto of Taxes on the infrequent occasions when he is on th point of acting as an "assistant," requesting him t authorize his "employer" *not* to apply the "pay-as-you earn" procedure in his case. Lastly, errors and oversight are apt to occur in any arrangement into which the huma element enters. What should be done if in fact tax i deducted from the fees or salary in such circumstance that a refund by the "employer" is impracticable? W presume that on the Inspector of Taxes being informe of the facts it would be arranged that credit would b given against the tax payable on the locumtenent' Schedule D assessment for the amount by deduction fr him under "pay-as-you-earn," or alternatively that th latter amount would be repaid by the Revenue as havin been deducted unnecessarily.

We much regret to announce that Sir Henry Gauvai M.Ch., F.R.C.S., medical superintendent of Lord Mayo Treloar Cripples' Hospital and College, Alton and Haylin Island, since its foundation in 1908, died on Jan. 1

Major-General Sir Ernest Cowell, C.B., D.S.O., has ju been appointed Principal Medical Officer to the Healt Section of the Control Commission for Germany (Britis Elements).

Reports of Societies

NUTRITIONAL RÔLE OF MICROFLORA IN THE INTESTINES

A conference of the Nutrition Society was held on Dec. 30 at the London School of Hygiene and Tropical Medicine, Dr. W. R. Wooldridge presiding, to discuss the nutritional rôle of the microflora in the alimentary tract.

The papers at the morning session were mainly concerned with the nutrition of ruminants. Dr. A. C. Thaysen suggested that the value of the bacteria present in the rumen should be ascribed not only to their ability to break down cellulose but to the nutrients derived from the digestion of the bacteria themselves after their passage from the rumen into other regions of the intestines. Mr. Frank Baker, describing technique for the study of the bacterial population of the rumen, said that in his view pure cultural methods gave an inadequate picture, and direct microscopical observation of the micro-organisms present in their natural habitat was necessary. Dr. J. A. B. Smith discussed the formation of protein from non-protein sources of nitrogen, such as urea or ammoniated beet pulp; these materials might replace some of the protein in the diets of cows without serious interference with the production of milk or meat. It appeared that the bacteria of the rumen used the urea or ammonia as a source of protein, and were themselves digested in other parts of the intestinal tract. Mr. M. H. M. Arnold considered that more crucial tests of the value of urea should be made by giving it to cows receiving a diet low in pre-formed protein, and Sir Jack Drummond, Scientific Adviser to the Ministry of Food, asked for reassurance that the urea would not pass into the milk.

Bacteria in the Synthesis of Vitamins

During the afternoon session Dr. S. K. Kon of the National Institute for Research in Dairying, reviewing our knowledge of the part played by bacteria in the synthesis of vitamins in animals and human subjects, recalled that nearly 30 years ago the South African workers Theiler, Green, and Viljoen had concluded that the vitamin requirements of cattle were so low that they might be "covered indirectly by synthesis carried out by the extensive bacterial flora of the intestines." Eleven years later Bechdel and his colleagues in America showed that heifer calves could grow to maturity and reproduce on a diet which contained insufficient vitamin B to support growth in young rats for more than 2 to 4 weeks. When food was removed by means of a fistula from the rumens of cows which had subsisted for three years on the deficient diet, the partially digested material was now found to be a good source of vitamin B for rats. A bacterium of the genus *Flavobacterium* was, moreover, found in the rumen in profusion, and, when isolated and grown on a synthetic medium, proved to be a potent source of the vitamin B complex. Later experiments by other workers indicated that this bacterium and other microflora might be responsible for the synthesis of vitamin B_1, riboflavin, vitamin B_6, nicotinic acid, pantothenic acid, biotin, and vitamin K. Vitamin A was not synthesized, and must be included either as the pre-formed vitamin or as carotene in the diet of herbivora no less than of other animals. An interesting point had emerged in the study of the nutrition of ruminants in the first few weeks after birth. Until the characteristic bacterial flora was established the young animal must depend on exogenous supplies of the vitamin B complex. Thus nicotinic acid had been shown to be essential in the diet of very young calves.

There was ample evidence, Dr. Kon said, that the intestinal bacteria of ruminants were not alone in their ability to synthesize vitamins. A number of workers had demonstrated the presence of the vitamin B complex in the excreta of birds and of non-ruminant mammals, even when they were subsisting on a diet deficient in these vitamins. Recent work by Thompson had shown that *B. proteus vulgaris* could synthesize all known members of the vitamin B complex. Other intestinal organisms—*B. coli*, *B. lactis aerogenes*, *B. faecalis alcaligenes*, and *B. mesentericus vulgatus*—manufactured at least biotin, riboflavin, vitamin B_1, and nicotinic acid, while *B. coli* also produced vitamin K. In spite of the activities of these organisms, however, rats had been used successfully for 30 years in the estimation of several members of the vitamin B complex. It was obvious, therefore, that under normal circumstances the bacteria survived in the intestines or escaped into the faeces without, as in herbivora, yielding up all their vitamins to their host. The coprophagic habits of the rabbit might be significant. As found by Morot 60 years ago, and recently confirmed by Eden and others, this animal passed two types of faeces: during the day the faeces were hard and consisted of more or less completely digested food debris; at night the motions were soft, rich in protein, and swarming with bacteria. Unless precautions were taken these soft faeces were seized and swallowed by the rabbit direct from the anus. It seemed very probable that they represented an important source of the vitamin B complex.

"Refection"

Although rats could not usually subsist on diets deficient in the vitamin B complex unless they were allowed access to their faeces, they might sometimes grow and thrive if starch was included in the diet. This phenomenon, known as "refection," was first observed by the Danish worker Fridericia in 1926. A young rat, which hitherto had been losing weight on a diet deficient in vitamin B, suddenly picked up and began to grow at a normal rate. This change coincided with an alteration in the faeces, which were no longer dark brown and compact, but white and bulky through the presence of undigested starch. Further cases of spontaneous refection were soon reported from other laboratories. It was found that the condition could be transferred to other rats by allowing them to eat faeces from an infected animal. Dr. Kon said he had found that spontaneous refection occurred more often with potato starch than with rice starch. He thought that refection was not due to a specific organism, but that the presence of undigested starch and of the requisite starch-splitting organisms in the caecum led to vigorous fermentation and an acid *p*H, which favoured the formation of vitamins. Even in rats which had not "refected," however, it seemed probable that although the intestinal bacteria did not provide adequate supplies of all vitamins they at least made substantial contributions in some instances. This must be inferred from the need for additional vitamins in the diet when the bacterial activity in the intestines was suppressed by such drugs as sulphaguanidine and succinyl sulphathiazole. The vitamins affected included nicotinic acid, "folic" acid, biotin, vitamin K, and vitamin E, although we had no other evidence that vitamin E was synthesized by bacteria.

Experiments on Human Subjects

Summarizing recent work on the place in human nutrition of the synthesis of vitamins by the intestinal bacteria, Dr. Kon said that Oppel had shown that in human subjects on a uniform diet the amount of biotin excreted in the urine and faeces might be three to six times greater than the intake. In an extensive investigation by Najjar and Holt into vitamin B_1 nine adolescent males were given a basal ration free from the vitamin. At first small supplements were given, which were gradually reduced until the subjects had subsisted for some months on intakes of only 0.1–0.2 mg., as compared with the normal requirement of 1 mg. At this stage no clinical or laboratory symptoms of deficiency were noticed, except that the amounts of vitamin excreted in the urine were very low. When vitamin B_1 was omitted altogether four of the men developed definite symptoms of deficiency, including neuritis or oedema associated with anorexia and sometimes vomiting, within the following three to five weeks. In one man the symptoms were questionable, but the remaining four volunteers showed no sign of deficiency during seven weeks' observation. While only traces of vitamin B_1 were found in the faeces of those who showed signs of deficiency, much larger amounts were found in the faeces of those who had remained free from symptoms. The ability of the large intestine to absorb vitamin B_1 was demonstrated by a marked rise in urinary excretion after the injection of the vitamin per rectum. When one symptomless subject was given succinyl sulphathiazole the faecal output of vitamin was promptly reduced. Similar experiments by the same authors had suggested that riboflavin also was synthesized in the alimentary tract. Ellinger, Coulson, and Benesch had found that the amount of nicotinic acid excreted by the human subject was often greater than the intake, and that the excretion was reduced after the administration of succinyl sulphathiazole. The pellagra-producing properties of maize might be due to its bad influence on the bacterial flora, since it was no worse than wheat (white flour?) in its content of nicotinic acid. Conversely the alleged ability of milk—a poor source of nicotinic acid—to prevent pellagra might be due to its good effect on the flora.

Dr. L. J. HARRIS, describing refection in rats in his laboratory, said that in the estimation of vitamin B_1 in bulky food materials the bradycardia method had the advantage of being very rapid, and thus did not allow time for the intestinal flora to be affected. Prof. FRIDERICIA mentioned that the starch recovered from the faeces of refected animals had recently been found to be less readily digestible than the original material.

Sir JOSEPH BARCROFT, F.R.S., recounted how, to confound sceptics, he had actually isolated 300 ml. of acetic acid from the intestines of a dead horse. Acetic acid was rapidly metabolized in a heart preparation perfused with Ringer's solution. In all herbivora about one-sixth of the digestible carbohydrate appeared to be converted to volatile acids in the course of metabolism. Dr. JAMES STEWART referred to the early work of Kellner, who had shown that, weight for weight, cellulose was about equal to starch in nutritive value. The symbiotic action of the bacteria of the rumen was therefore most efficient. The CHAIRMAN, in summarizing the proceedings, said that further work seemed desirable on the species of bacteria which were beneficial to their host. The influence of diet on the intestinal flora, and even on configuration of the alimentary tract itself, was an interesting subject. Thus it had been stated that the Russians, who were accustomed to bulky food, had large intestines of much greater capacity than those of the people of this country.

Correspondence

Health of Children in Wartime Day Nurseries

SIR,—Wartime day nurseries have now been open for some years, and doctors and nurses throughout the country have had an exceptional opportunity of observing the effect of a community life upon the health of these young children. Is it in the main a beneficial effect? Opinion seems to be divided, and there is little recorded evidence. May we therefore ask the hospitality of your columns to make known a scheme of research work which is being organized by the Medical Women's Federation into the health of children in wartime day nurseries compared with children of similar ages not in nurseries. The scheme falls into two parts. One part comprises an investigation by a whole-time clinician covering a comparatively small number of children but extending over a period of a year. This work is already being carried out by Dr. Margaret McLaughlin, on behalf of the Medical Women's Federation, in Birmingham, and we are greatly indebted to the medical officer of health and his staff in that city for making it possible to undertake this work. In the second part it is intended to compare the results of a single examination (relating especially to the evidence of respiratory infection) of a much larger number of nursery and non-nursery children throughout the country. For this the Federation will seek the co-operation of medical officers of health in many areas.

The purpose of the investigation is to obtain evidence which may have a bearing on the value of day nurseries, at least in so far as the health of the children is concerned, and which to that extent may be of assistance in determining future policy regarding day nurseries.—We are, etc.,

JANET M. CAMPBELL,
President, Medical Women's Federation.

73, Bourne Way,
Hayes, Bromley, Kent.

KATHERINE M. HIRST,
Chairman, Day Nursery Committee.

Episiotomy

SIR,—The article by Dr. J. D. S. Flew (Nov. 11, 1944, p. 620 and the subsequent correspondence are apt to be construed a an invitation, or even an exhortation, for the wholesale practic of episiotomy. If this procedure becomes almost a routin it can only add to the already ample, and seemingly inevitable damage which results from childbirth.

I have no wish to offer carping criticism, and I feel sur Dr. Flew will absolve me from any such intention when while agreeing with much of what he says, I maintain tha his indications for episiotomy are too wide, and, moreover, are not convincingly supported by his figures. Apart from the "tone of the vaginal walls," why advocate episiotomy in the 58 cases out of 135 (a worth-while percentage) in which i was not found necessary? A torn perineum with a lacerated vagina is a nasty, unsatisfactory result, too often the finale of bad obstetrics and much to be condemned; but proportionately satisfactory, and the ideal often attainable, is the well-conducted normal primiparous confinement leaving an undamaged woman showing, two months later, practically no signs of childbirth.

I believe that few will subscribe to the idea of midwives carrying out this procedure at their discretion, even after special training. The most experienced can err in his judgment and make mistakes of omission or commission. The diagnosis of undue delay and its causation is often difficult; the arrival of the head on the perineum is not signalled in unmistakable fashion, nor is any satisfactory standard of measurement of uterine contraction possible. I know that these indications are not intended to be taken too literally, but one shudders at the possibilities envisaged if their interpretation were given to an even wider field than at present.

One other statement needs very conservative acceptance: the paraesthesia of the stretched perineum is very variable and has always been exaggerated. Even now one hears that "they even cut me before I got the chloroform." No episiotomy should be performed without adequate anaesthetic, nor is there ever need or excuse for so doing.

The importance of repair is rightly stressed by all; accurate apposition is essential for restoration of function and to avoid future discomfort. Particularly, as regards the latter, is this so at what will be the edge of the future introitus, where painful tags or scar are most likely. The vaginal floor is comparatively easy to suture correctly, but not so the perineal skin, especially as it nears its junction with vagina, and I need quite often to remove these stitches on account of puckering and begin again.

I would like to offer two methods which greatly facilitate the repair of an episiotomy. During a contraction, with the perineum stretched, make three or four transverse scratches with a needle, the first close to the mucocutaneous junction, covering the area to be incised. When it comes to sewing up, the needle is inserted and brought out in the line of each scratch mark successively; if the first skin stitch at the mucocutaneous junction is used to exert traction the remaining marks will be emphasized, and complete accuracy results. (No originality claimed.)

A second method is a little more bothersome. Hold the perineum on the stretch with two fingers in the vagina, insert the stitches between contractions before incising, clip the free ends, pass a narrow metal spatula under the loops on the vaginal floor, as a form of protecting guide, or produce them externally, and incise. A little practice soon obviates the annoyance of cutting the catgut loops, and the stitches can be tied directly the second stage is completed, thus avoiding any prolongation of the anaesthetic. Additional stitches are very easily inserted if required.

On the question of the anaesthetic, while any method can be made successful, I think that local analgesia should be reserved for the rare occasions when the attendant is without assistants of any sort. Less handling, less possibility of sepsis in an already injured tissue, less discomfort to the patient, and more freedom of action resulting in greater efficiency are my reasons for advocating general anaesthesia whenever possible.—I am, etc.,

London, W.1.
F. NEON REYNOLDS.

Hypoproteinaemia during Recovery from Anaemia

SIR,—At the commencement of his article on hypoproteinaemia during recovery from severe anaemia (Jan. 13, p. 45), Dr. Trevor Davies writes: "Generalized oedema due to diminution of the serum proteins is not a common complication of the treatment of anaemia . . ."; and at the beginning of his comment he writes: "The above case illustrates the importance during the treatment of severe anaemia of maintaining a diet rich in protein."

In 1942 I published an article on the prevalence of hypochromic anaemia in the adult population. It may be of interest that since that time I have treated many cases of hypochromic anaemia with haemoglobin between 50 and 65% of normal, but I have never seen oedema either before or during treatment. I have treated groups of cases with ascorbic acid, vitamin B complex (B_1, B_2, B_6), and vitamin A, but in no group did the administration of vitamin have any influence on the Hb%. However, one invariable result of the administration of ascorbic acid (200 mg. per day) was an immediate and progressive increase in the number of red cells, without any effect on the Hb%. Finally, in no case of hypochromic anaemia have I found any diminution in the serum albumin or serum globulin either before or during treatment.

It seems probable that the condition, which continues to be prevalent in young adults of both sexes, is due to deficient intake of iron, but the deficiency is probably due to the low consumption of meat, and not the low consumption of vegetables as used to be thought.—I am, etc.,

London, S.E.24 KENNETH MCFADYEAN.

Bilateral Tuberculous Pleural Effusion

SIR,—Major Peter Kerley[1] states that double effusions are rare in tuberculosis, and Prof. Bruce Perry,[2] in his very interesting Bradshaw Lecture on the aetiology of erythema nodosum, states that a bilateral effusion is "an unusual occurrence with tuberculous effusion." This does not mean that bilateral exudative pleural effusion is rarely tuberculous, but may easily be so interpreted unless a clear warning is given.

Our experience of bilateral tuberculous pleural effusion at Sidcup can only be very briefly summarized here, and probably merits more detailed analysis, as the alleged extremely serious prognostic significance of bilateral effusions[3] [4] has not been confirmed in this unit. Of a consecutive series of 601 notified cases of pleural effusion, 319 male and 282 female, 35 were bilateral, of which 17 were male and 18 female. With an incidence of nearly 6% it appears that even the statement that double effusions are rare in tuberculosis needs correcting.

In our series of 601 cases a history of erythema nodosum has been obtained only 15 times (2.5%), of which cases 10 were female and 5 male, with an age grouping between 15 and 29 years and a maximum incidence around 21 years. All these cases were strongly Mantoux-positive with a dilution of 1:10,000. In 6 cases there was an interval of about a year between the erythema nodosum and the onset of the pleural effusion.

A history of erythema nodosum is probably best elicited by asking every patient if he has had "rheumatism with red lumps on the legs" (it was a pleasure to read that in the San Joaquin Valley the people call erythema nodosum "the bumps"!), as patients have so often been told by their doctors that they have had rheumatism. So much does the "rheumatic" aetiology stick that in 1944 a boy of 18 years was subjected to tonsillectomy a few weeks after an attack of erythema nodosum in spite of a skiagram showing a grossly enlarged right hilum; he then developed a right pleural effusion and subsequently bilateral pulmonary tuberculosis, with positive sputum.

A useful investigation in cases of doubtful aetiology is the antistreptolysin titre, which will invariably be high in streptococcal cases; this investigation can easily be performed, while intradermal streptococcal tests are not readily available.

One final point: the Scandinavian authors have clearly shown that erythema nodosum is usually an *early* manifestation of tuberculous infection. This, although true in the majority of cases, is not always true. Two of my own cases prove it.

1. A girl aged 17 had been treated at the age of 8 for tuberculous glands of neck, developed erythema nodosum 8 years later, and after a further 12 months a tuberculous ascites and right pleural effusion.
2. A boy aged 18 had a laparotomy in April, 1944, for tuberculous ascites, then developed a left pleural effusion in July; tuberculin patch test was then possible. In November a cold abscess presented above the pubis and was found to originate from the right sacro-iliac joint. He had two crops of typical erythema nodosum before being transferred to a special orthopaedic unit. A skiagram of the chest showed complete resolution of the pleural effusion and clear lung fields. Antistreptolysin titre of serum was 30.

I wish to thank Dr. R. L. Quilliam for placing at my disposal some of his case notes. I also thank Sir Allen Daley and Dr. Ellingworth for permission to publish the figures.—I am, etc.,

Queen Mary's Hospital, Sidcup, Kent. E. MONTUSCHI.

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Nursing and Tuberculosis

SIR,—After reading Dr. Esther Carling's letter (Jan. 13, p. 59) it occurred to me that a useful investigation would be a tour of hospitals by a mobile mass radiography unit, and the nursing personnel filmed, those with suspicious films to be followed up in the usual way. This would establish the incidence of pulmonary tuberculosis in nurses, and a comparison could be made: (*a*) between general hospitals and hospitals for tuberculosis; and (*b*) with the general population. Certainly many of the factors that cause a breakdown with pulmonary tuberculosis are present while a student nurse is being trained.

In the same issue of the *Journal* Dr. Grenville-Mathers draws attention to the frequent failure to investigate home contacts of cases of pulmonary tuberculosis. I agree, and would add that the nursing personnel of sanatoria are contacts as much at risk as home contacts, and therefore should be re-examined and *x*-rayed periodically.—I am, etc.,

R. WRIGHT,
Coventry Medical Officer, Sterling Metals Ltd.

A Treatment for Superficial Eye Infections

SIR,—Wartime conditions, mainly "black-out" and working in a confined atmosphere, have created an increase in superficial eye affections. These excessive conjunctival vessel dilatations are painful, leading to worry and apprehension both to the patient and to his fellow workers, and absence from work.

The use of a solution of 1% natural ephedrine hydrochloride is not frequent in eye-drops, but I have found it useful to bring about decongestion of the conjunctival vessels. To this ephedrine solution can be added a weak solution of silver vitellinate, and enough sodium chloride to make the drops practically equivalent to normal saline. It is difficult to avoid the formation of silver chloride, but if the conjunctival sacs are irrigated afterwards with warm water from an undine the possible onset of argyrosis is reduced to a minimum; if a stable solution of the three above-mentioned components can be obtained the risk of argyrosis should be *nil*.

With the combined action of a decongestive and an antiseptic the eye is irrigated and disinfected simultaneously, while the patient gets early relief and is enabled to return sooner to work.—I am, etc.,

London, W.1. GRAYDON HUME.

Spinal Analgesia in Penetrating Abdominal Wounds

SIR,—I was much interested to read in your issue of Dec. 9, 1944 (p. 769), Major R. Binning's defence of a method of anaesthesia which I had hoped all careful and prudent surgeons and anaesthetists had long ago discarded. His assertion that it was the fact that a spinal anaesthetic was used in the case reported and not the Etherington-Wilson method of giving it which was the cause of death I most definitely refute. Although it is frequently taught that spinal anaesthesia is dangerous in cases of the acute abdomen, if properly used—as he can confirm any time he chooses to visit the Manchester School—it is perfectly safe. There is no doubt whatever that the technique in the case quoted was the cause of death, as the analgesia had reached the lower cervical segments before respiratory paralysis occurred.—I am, etc.,

B.N.A.F. THOMAS MOORE.

Parotitis from Unusual Duct Obstruction

SIR,—I read the account of an interesting case of parotitis by Dr. R. H. Trinick (Jan. 6, p. 13). The following case of acute simple parotitis due to an unusual type of duct obstruction may be worth recording.

On Jan. 9, 1944, the patient, a male aged 55, attended the dental surgery at the West Riding County Mental Hospital, near Huddersfield. There was a large hard swelling of the left cheek which was causing a considerable amount of pain. The condition had been present for a week and was gradually getting worse. The left submaxillary lymph glands were enlarged and tender, and there was some difficulty in opening the mouth.

Examination of the teeth of the left side revealed no advanced caries. There was no inflammatory condition of the gums. A small amount of pus was noticed on the inner aspect of the cheek opposite the maxillary first molar. This was swabbed away, when the opening of Stenson's duct was seen to be enlarged and surrounded by a small zone of inflammation. I then noticed what appeared to be a small foreign body lying in the opening of the duct. Attempts to swab this away failed, and, on grasping the "foreign body" with a pair of dressing tweezers, a grass stalk of length approximately 2½ in. was removed from the duct. This was followed by the discharge of a small quantity of thin, yellow, fetid pus.

Irrigation of the mouth with a mild antiseptic solution was advised to keep the enlarged duct opening free from debris. The patient was seen again one week later. The swelling and pain had disappeared and the inner aspect of the cheek was quite normal in appearance.

It is remarkable that a stalk of grass of length 2½ in. could become completely embedded in the parotid duct, which has an average length of approximately 2 in. My thanks are due to Dr. D. K. Bruce, medical superintendent of the hospital, for allowing me to report the case.—I am, etc.,

Huddersfield. EDWARD I. FRIEND, B.CH.D., L.D.S.

Artificial Insemination

SIR,—I am distressed at the unrealistic attitude shown by many of your correspondents on this subject (copies of the *Journal* reach me two months late). Surveys before the war by Cattell and by Fraser Roberts showed that our national failure to reproduce was greatest among those who were above the average in their hereditary endowment for intelligence. For the past eighteen months I have been watching and doing my best to minimize the tragic preferential destruction of some of our best types—young officers and N.C.O.s of front-line infantry battalions. A similar selectively high death rate of the fittest, most courageous, and most intelligent is occurring in the other Services.

Soon this country will face a desperate shortage of types capable of leadership and of producing intelligent answers to novel and difficult problems. Temporarily we may tide over the crisis by ensuring that every child who has outstanding genetic potential gets the environmental chance to develop this potential. But this is living on genetic capital, and the future of our country depends on the rapid provision of new children born with high genetic potential for intelligence and other desirable qualities.

First and foremost, married couples who are themselves above the average must plan the size of their families to be above replacement level and above the average of the community. If, as Mr. Churchill thinks, the average couple should aim at four children, then the above-average must plan for six to eight. Secondly, "artificial insemination" should prove a most useful supplementary method of producing children of high genetic potential, since the male donors can be specially chosen for their superlative genetic endowment; for qualities where inheritance is by multiple genetic factors, as for intelligence, such children will have an endowment midway between that of the mother and the exceptional donor.

Artificial insemination should be used chiefly in two types of case. (*a*) Where a woman is unable to find a husband—there will be a considerable surplus of women over men of reproductive age after the war. In particular there will be numbers of young widows of good type, who have only been able to have one or two children before their husbands wer killed. It is greatly in the national and their own interest that these women should have further children, at least up to the level of four, which would be replacing themselves and their dead husband. (*b*) In cases where the husband is sterile or should not father children for eugenic reasons, and both husband and wife prefer artificial insemination to the adoption of children. The use of a man's own sperms artificially to inseminate his wife when there is mechanical difficulty or relative insterility is clearly dangerous unless it is certain that the disability is not inheritable.

I am not competent to pronounce directly on the ethics of the matter; but ethical beliefs are subject to natural selection according to the survival rate of those who hold them. A group or country which fails to avail itself of the possibilitie of artificial insemination will have a correspondingly lowe survival rate.—I am, etc.,

C. O. CARTER.

SIR,—The unimpassioned article on the practice of artificial insemination by Dr. Mary Barton, Mr. Kenneth Walker, and Dr. B. P. Wiesner (Jan. 13, p. 40) has come at a most timely moment. This is a straightforward procedure to be practised after due consideration on selected cases. One point, however deserves further consideration—the registration of the birth of a child resulting from donor insemination (A.I.D.). In this matter I, too, have sought and quote eminent counsel's opinion: "In my view any husband or wife or medical practitioner who knowing of the impotence or non-access of the husband, and knowing that the practice or operation of artificial insemination had been resorted to, wilfully gave information, etc., to the registrar that the husband was the father of the child conceived would commit an offence under the section. In the case of a title or inheritance being involved, questions of fraud or conspiracy to defraud the heir or other person entitled might well arise. In my opinion the only proper way to register the birth of a child conceived by artificial insemination is by leaving the columns for the name and other particulars relating to the father blank, whatever may be the subsequent embarrassment to the infant."

The advice, it will be seen, differs from that in the article, and, the possibility of disputed inheritance not being remote, it is the advice I give.—I am, etc.,

London, W. REYNOLD H. BOYD.

Deaf Aids

SIR,—It has recently been announced in the press that a Parliamentary investigation is shortly to be made into the subject of deaf aids. Perhaps my experience of these will be of interest and value to your readers.

Suffering from progressive deafness (otosclerosis) I have used aids of various types for more than 20 years, and until the war found these to be of increasing efficiency, especially after the introduction of the valve type of aid. During this time I have only once been the victim of a deliberate "ramp."

At the present time I possess three "aids," all of which *when in working order* are extremely efficient, even in my advanced deafness. The great snags now are keeping them in working order and the very high cost of maintenance. Aids A and B are of the same make, A being purchased shortly before the war and B in 1942. At first both gave excellent service and cost little more than the cost of batteries, as the jelly-type accumulators are charged at home, and a pair lasted two years. Both batteries and accumulators have since increased in price and depreciated in value. Below is a summary of the cost for repair and maintenance of A and B for the years 1943 and 1944.

1943	£	s.	d.
January	5	5	8
February		14	0
April	1	0	8
May		8	0
June		16	0
November	1	7	6
	£9	11	10

1944	£	s.	d.
March	3	0	0
April	4	4	0
November ..	1	9	6
December ..	8	15	1
	17	8	7
1943	9	11	10
Total ..	£27	0	5

Registered postage of instruments has been a heavy charge of which I have no record, nor have I any record of the cost of H.T. batteries, which last about 6 weeks and cost 6s. each (plus postage). Both instruments are carefully handled and in no case was the damage due to violent usage (except in the case of valves damaged during return by post). This high cost seems to be due to the very poor quality of wartime components, the lack of skilled service mechanics, and the impossibility of getting the slightest adjustment made without sending the aid to London and risking postal damage.

In July, 1944, as both A and B were out of commission, I purchased aid C of another make at a cost of £26 5s. This, using only dry batteries, is light, compact, and very powerful, but is much more expensive to run, costing about 7s. a week in batteries only (purchase tax must be paid on some of these). In the four months since purchase four new valves have been required and a new switch. These have been supplied free under the guarantee, but are evidence of the poor material in use. In each case breakdown has meant a journey to Manchester (fare 7s.) and the waste of valuable time. The capital cost of my deafness in two years has been £53 5s. 5d. —maintenance £27 0s. 5d. plus cost of C £26 5s. In addition to this are running costs, of which I am now keeping a record, and the mental wear and tear of frequent breakdowns at most inconvenient times. Though many of these difficulties are due to the war, I feel that the following suggestions would be of help in tackling the prohibitively high cost of combating deafness: (1) The production of a "standard model" aid which could be serviced by any competent wireless mechanic and for which spares could be obtained by local wireless engineers. This would minimize damage in transit and need not interfere with the development of special models by individual manufacturers. (2) The development of light-weight accumulators, preferably of a type able to be charged at home, and of durable batteries. (3) Removal of the purchase tax from all batteries used for deaf aids. (4) Investigation of the possibilities of "all mains" sets, especially for home or office use, at a reasonable cost.

The heavy economic and social burden of deafness can now be greatly lightened for the well-to-do, but for many others expensive aids purchased in hope have had to be abandoned in despair because of the impossible cost of keeping them going.—I am, etc.,

Brierfield, near Burnley. E. M. BARLOW.

The Non-teaching Hospital in Planning

SIR,—In reference to your notice on the formation of an Association of Voluntary Teaching Hospitals (Jan. 13, p. 55) I should like to take the opportunity of stressing the importance of also obtaining comprehensive evidence from the so-called non-teaching hospitals in any planning or negotiations arising from the Goodenough report.

The hospitals without medical schools are responsible through their resident appointments for the practical post-graduate training of the majority of the general practitioners of this country. It would be interesting to know the exact figures, and I think that if these were obtained the result would be surprisingly high. The amount of clinical material available to each resident at these hospitals is usually greater than that available to a junior resident at a teaching hospital. In addition, a relatively junior resident at a non-teaching hospital is afforded greater personal responsibility than at a teaching hospital, and this is invaluable in after-life and equally important as the continuation of academic instruction at a hospital with a medical school.

It has always appeared to me that the value of these appointments has not been fully exploited by the medical profession. At the same time I think that to a certain extent the educational value is vitiated by the fact that the actual amount of work they entail leaves the residents with little, if any, time for concurrent study. The reason is frequently one of understaffing by the boards of management for reasons of finance, since they are naturally not interested in the question of higher medical education, but are only concerned with seeing that the work of the hospital is adequately carried out.

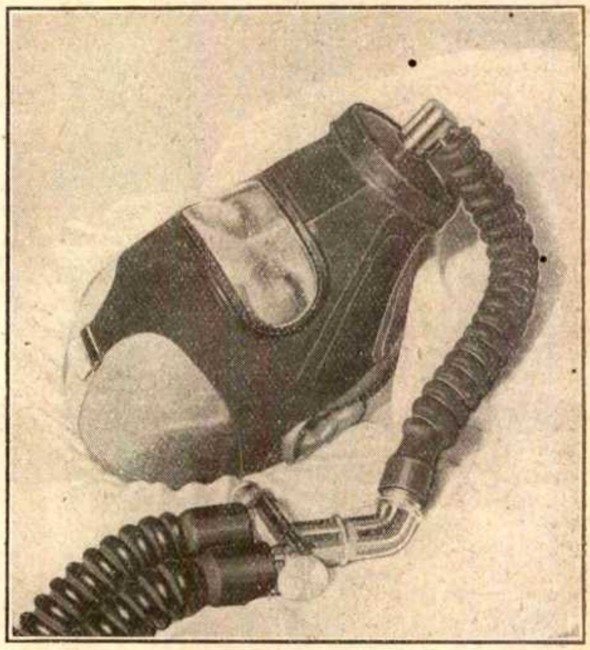
In view of their educational importance I think there should be a proper survey of the conditions of these appointments, and, if possible, a register should be kept by a central authoritative body to which recently qualified men could refer, and which would be a guarantee that the hospitals represented on the register are adequately staffed, allow reasonable time for study, and provide all the necessary facilities. I consider that there should also be some differentiation of these appointments into those which are only suitable for men proposing to enter general practice and those suitable for men wishing to proceed to a higher qualification or gain a special diploma.

In view of the increasing number of medical graduates required, it is obvious that an even larger number of men will have to rely on these hospitals in the near future for their practical postgraduate instruction, and it is important that the best use is made of the vast amount of clinical material available. At the same time more generous staffing—both resident and consultant—of these hospitals would inevitably enhance the standard of work performed and thus benefit the population as a whole.—I am, etc.,

Bournemouth. THOMAS ROBSON.

Civilian Respirator as Anaesthetic Mask

SIR,—Dr. J. Morland Smith (Dec. 23, 1944, p. 820) rightly complained that the Clausen harness often obstructed respiration by depressing the jaw. I have not, as yet, tried his remedy with the wooden tongue depressor, but it has occurred to me that an anaesthetic mask of very similar design to the ordinary civilian respirator would do much to overcome this annoying trouble. At any rate, this has been my impression with a converted gas-mask that I have been using for anaesthetic purposes during the past few months. If the correct size of mask is worn and the tapes are fairly tightly adjusted the jaw is well supported and has little or no chance of falling back throughout the anaesthetic. Furthermore, this type of mask keeps in position much more satisfactorily than the usual face-piece held by the harness, and the patient can be moved from trolley to operating table and into any position on the latter without much fear of the mask becoming displaced. With the gas in the bag at moderate pressure there is no leakage, and, when necessary, the mask can be removed and reapplied with ease and speed.



During the past three months I do not think I have had a single patient object to being so completely covered up, and all have been questioned before commencing the anaesthetic. The mask shown in the photograph is kept firmly attached to the plastic adapter by the elastic band found on the canister, and any size of mask can, if available, be used. To prevent sagging when the tubing is in position, narrow strips of plastic material have been inserted into small rubber sleeves at the sides and in front, below the window.—I am, etc.,

F. S. VAUGHAN,
Hon. Anaesthetist, County Hospital, Bedford.

Action of Eumydrine in Pyloric Hypertrophy

SIR,—In Sir Walter Langdon-Brown's fascinating address (Jan. 13, p. 35) mention is made of a subject that has long puzzled me. That is the use of eumydrine in infantile pyloric hypertrophy. The action of the vagus is generally given as that of an "emptier" and that of the sympathetic as a "filler." Now, as Sir Walter Langdon-Brown says, "atropine paralyses the vagus," and a few lines later that eumydrine, which has an atropine-like effect, is particularly useful in relieving pylorospasm. Surely its only possible action can be in abolishing the peristalsis of the stomach and so diminishing the vomiting. What is wanted is something that will paralyse the sympathetic.—I am, etc.,

Nelson. O. WILSON.

The Services

AMERICAN HONOUR FOR SIR E. M. COWELL

The President of the United States has awarded the military decoration of the Legion of Merit to Major-Gen. Sir Ernest M. Cowell, K.B.E., D.S.O., F.R.C.S., "for exceptionally meritorious conduct in the performance of outstanding services from September, 1942, to March, 1944," as director of medical services at Allied Headquarters, Mediterranean Theatre. General Cowell was responsible for the medical services of the Allied landings and later operations in North Africa, Sicily, and Italy. "He welded together the medical services of the American and British Forces and produced a highly successful organization which resulted in the saving of many lives and contributed to the well-being and comfort of the sick and wounded of both nations." He received the decoration at the hands of General Eisenhower on Jan. 15.

The following have been mentioned in dispatches in recognition of gallant and distinguished services in Italy: Brigs. (Acting) J. J. Magner, M.C., and J. G. Morgan, O.B.E., T.D.; Cols. (Temp.) C. B. C. Anderson, O.B.E., A. Angus, T.D., J. T. McOuat, O.B.E., T.D., R. M. Savege, O.B.E., M.C., C. H. K. Smith, O.B.E., M.C., J. R. N. Warburton, M.C.; Col. (Acting) G. G. Drummond; Lieut.-Col. J. H. Ward, D.S.O., M.C.; Majors (Temp. Lieut.-Cols.) W. A. Ball, T.D., W. S. Brindle, H. A. Brittain, J. D. Easton, O.B.E., W. Graham, L. J. Haydon, L. G. Irvine, D. MacD. Lyon, D. M. Mitchell, W. Patrick, G. W. Molyneux, E. F. S. Morrison, M.C., J. J. O'Connell, O.B.E., J. Pyle, M.C., J. H. Sangster, A. Wilcox, and P. H. Wood; Capt. (Temp. Major) (Acting Lieut.-Col.) N. G. G. Talbot; Major S. S. Chesser; Capts. (Temp. Majors) S. Alstead, A. H. Baker, E. L. Carter, F. A. Denz, J. F. Ford, E. M. Griffin, W. F. Hamilton, W. A. Heggie, M.C., C. C. Hurst, D. B. Jagger, D. Jefferiss, R. C. Little, J. C. MacKillop, B. J. Malley, D. Matheson, J. M. McKiddie, J. D. N. Nabarro, A. I. Ross, H. M. D. Shepherd, N. J. Y. Simpson, A. Stuart, H. Waters, W. R. West-Watson, M.B.E., J. H. Whittles, and E. G. Wright; Capts. H. Auger, E. Batley, O. H. Belam, C. Cameron, J. W. M. Christie, T. B. Davidson, K. B. Dawson, D. C. Devine, G. F. Edwards, M.B.E., J. T. A. Essex, C. Giles, S. J. G. Gilmour, R. T. Grime, A. Henderson, A. W. F. Heron, E. W. Lindeck, J. G. Macarthur, M.C., D. Macdonald, J. McLean, L. F. McWilliams, F. E. Milson, A. E. Rampling, E. M. Sewell, J. M. M. Steven, M. G. Sutton, R. T. B. Watson, C. W. M. Whitty, and M. Wirtheim; Lieuts. C. Creffield, F. B. Lee, and R. C. Medland, R.A.M.C.; Capts. (Temp. Majors) L. N. O'Hara, A. K. M. Mazhar, and V. Parkash; Capts. S. C. Gosh, I. Singh, M. K. Ray, S. Kesavelu, S. K. Misra, and P. N. Swift; Subadar (Acting Subadar Major) H. Narian; Subadars M. K. Choudhury, B. N. Ray, and S. N. Lal; Jemadar B. H. Faroque, I.A.M.C.

The Cross of Merit (with Swords) has been conferred upon Acting Squad. Ldr. P. A Carrie, R.A.F.V.R., by the President of the Republic of Poland in recognition of valuable services rendered in connexion with the war.

CASUALTIES IN THE MEDICAL SERVICES

Died in Italy.—Capt. Michael Robert Mullins, S.A.M.C.

Wounded.—Capt. N. G. D. Campbell, War Subs. Capts. J. H. Bennett, S. M. P. Conway, M.C., J. C. F. Cregan, and J. Scott, R.A.M.C.

Repatriated in September, 1943, now known to be wounded.—War Subs. Capt. N. C. Rogers, R.A.M.C.

Reported missing at Arnhem, now known to be wounded and prisoner of war in Germany.—Major C. J. Longland, R.A.M.C.

Missing.—Capt. B. d'E. Barclay, R.A.M.C.

Prisoners of war.—Lieut.-Col. W. C. Alford, O.B.E., R.A.M.C., Major C. Russell, M.C., R.A.M.C.

Obituary

SIR BUCKSTON BROWNE, LL.D., F.R.C.S.

The death of Sir Buckston Browne at the age of 94 removes a picturesque and attractive figure from his favourite haunts in Marylebone and Lincoln's Inn Fields. He retained a remarkable vigour till the end of his life. Buckston Browne belonged in spirit to a much later age than the mid-Victorian in which he was born, and physically too, for anyone listening to his strong voice and robust utterance would never have guessed his years. When he was 90 he announced his intention of living to be a hundred, and in token thereof renewed the lease of his Wimpole Street house for another ten years. At that same advanced age, after the second European war had broken out, he dismissed with contempt any suggestion that he should go to live in the country, and insisted on taking his usual walks in the "black-out." Within a few weeks of becoming a nonagenarian he addressed a public meeting on great athletic feats he had witnessed in his time, and famous pedestrians and pugilists who had been among his acquaintance. Their achievements he attributed to total abstinence, which he himself had practised for sixty years. His own particular "vanity"—to use a Wellerism which is appropriate with reference to one who was president of the Dickens Fellowship—was snuff, which he took as a prophylactic against colds in the head, but we believe he strictly rationed his allowance by putting the snuff receptacle in a distant part of his house so that some real effort was necessary if he wanted another pinch.

[Photo by Bassano, Ltd.

George Buckston Browne was born in Manchester and educated at Owens College. He was the only son of Dr. Henry Browne, physician to the Manchester Royal Infirmary and lecturer on medicine to the Medical School. Five successive generations of Brownes were doctors, the first of this line being Dr. Theophilus Browne of Derby, fellow-townsman and contemporary of Dr. Erasmus Darwin, grandfather of Charles Darwin, who lived in Derby from 1783 to 1802. George Buckston Browne was the fifth of this dynasty, and his great sorrow was that, having lost his only son, Lieut.-Col. George Buckston Browne, D.S.O., in the last war (he died in 1919), there was no one to follow him in the profession. But he found solace in the fact that his only daughter is the wife of Sir Hugh Lett, Past President of the Royal College of Surgeons.

In 1866, at the age of 16, Buckston Browne matriculated as a student of London University and entered University College, where he was presently awarded medals in anatomy, chemistry, and midwifery, gaining the gold medal for practical chemistry and the Liston gold medal in surgery. He qualified M.R.C.S. in 1874, and was made house-surgeon at University College Hospital, where he served under Sir John Erichsen, then at the end of his term as surgeon there, and was made demonstrator in anatomy under Prof. George Viner Ellis. Later he was invited by Sir Henry Thompson, then consulting surgeon to University College Hospital, with a fashionable practice in Wimpole Street—he had just numbered the Emperor Napoleon III among his patients—to be his private assistant and afterwards his collaborator. He remained in association with Sir Henry Thompson for 14 years in private surgical practice in London, and then for 30 years he practised alone. His application to his profession was so complete that it was said that for 27 years he had neither a free day nor a holiday. When he was quite a young man the Harveian Society, which he joined in 1874, and of which after 50 years he was made Life President, honoured him by asking him to give the Harveian Lectures. The remuneration was not to be despised—15 guineas for three lectures—but the giving of those lectures had an immense effect on whatever success he had met with in his profession as a private surgical practitioner in London. Later in life he showed his gratitude by endowing the annual dinner of the Harveian Society and a biennial prize for essays by young practitioners.

Buckston Browne's Benefactions

The fortune which he acquired by addressing himself zealously to his work he used magnificently in the interests of the profession and of the nation. In 1927 Sir Arthur Keith made an appeal for the preservation of Down House in Kent, where Darwin lived for 40 years and where he died in 1882. Mr. Buckston Browne, as he then was, undertook immediately to make himself wholly responsible for buying the estate and establishing a fund for its upkeep. He acquired the home from Prof. Charles Galton Darwin, grandson of Charles Darwin, and transferred it under the most liberal conditions to the British Association as a national memorial. Certain of the rooms, particularly the old study in which *Origin of Species* was written, were furnished as nearly as possible as they were when Darwin lived in them. He also commissioned the Hon. John Collier to paint replicas of his well-known portraits of Darwin and of Huxley to be hung at Down House, and the house gradually became a repository of Darwinia.

In 1931 Buckston Browne followed this with another splendid gift of £100,000 to the Royal College of Surgeons "for the erection, endowment, and equipment of an institution where problems relating to surgery or the surgical treatment of disease should be investigated by research workers chosen by the College." A surgical research farm was established in the village of Downe, adjoining Down House. The foundation stone of this enterprise was laid by the late Lord Moynihan, who declared on that occasion that Mr. Buckston Browne took his place among those who might be regarded and honoured for all time as "immortal benefactors." In reply Buckston Browne spoke of his happiness in being able to bring the spirit of John Hunter alongside that of Charles Darwin. He also made the remark that when he was a student he could not walk for ten minutes in London without seeing some unhappy person whose face was scarred with smallpox, and now the pock-marked face was hardly ever encountered, thanks to the work done by one of Hunter's pupils, Edward Jenner, on a research farm like the one at Downe, though, of course, not to compare with it in equipment.

This by no means completes the list of Buckston Browne benefactions. One happy notion of his was to endow an annual dinner for the Fellows and Members of the Royal College of Surgeons. For this purpose he set aside a sum of £5,000, the interest from which was to provide a dinner on the College premises for one hundred persons, and he stipulated that one-half of the invited guests should be members of the College (he had been a member himself for over 50 years, the diploma of Fellow being conferred on him by the Council in 1926, in recognition of his services to surgery). Possibly his appreciation of the social value of a dinner arose from his early association with Sir Henry Thompson, whose "Dinners at Eight" (for 8 persons, with 8 courses, at 8 o'clock) were famous Wimpole Street affairs, attended on occasion by royalty.

Sir Buckston Browne also gave £2,000 to University College Hospital, and from his collection presented certain pictures and articles of furniture for the common room of the senior staff of the medical school. His recreation was the study and collection of pictures and objects of art generally. He was the discoverer of previously unknown portraits of John Hunter and John Wesley, and presented them respectively to the Royal College of Surgeons and to Wesley House, Cambridge. He also made presentations of works of art to the Victoria and Albert Museum, the National Portrait Gallery, and the Harveian Society. All that had to do with past times and manners engaged his interest, which was evidenced in various ways. For example, at one of the first of the Royal College of Surgeons dinners each guest received a souvenir in the shape of a model of a catheter found in the surgeon's house at Pompeii, and many other instances of the kind could be cited. He had literary tastes, too, and was extremely proud of the dedication to him by George Meredith of the novel, *Lord Ormont and his Aminta*, published in 1894. In a letter to Mrs. Lister in 1892 Meredith wrote: "I find myself next to rehabilitation by the surgeon. This was Buckston Browne, and no victim of sharp instruments could be in skilfuller or tenderer hands. He did his work perfectly, and I had difficulty in getting him to take his fee."

The Royal College of Surgeons made him a trustee of the Hunterian Collection, presented him with the Gold Medal, and placed his bust in bronze on the staircase at Lincoln's Inn Fields. In 1932 he received his knighthood. His regret was that his wife had not lived to share that honour with him. She had died after a devoted partnership of 52 years. They married in the year in which he entered medicine. In her memory he endowed two cottages for aged people and arranged other benefactions in her native village of Sparsholt in Hampshire, and also dedicated a bed in University College Hospital.

C. FERRIER WALTERS, F.R.C.S.

We regret to record the death on Dec. 24, 1944, of Charles Ferrier Walters, F.R.C.S., consulting surgeon to the Bristol Royal Hospital. The son of Thomas Walters, chartered accountant, he was born on Dec. 26, 1874. He was at school at Burton College, where his uncle, the Rev. Dr. Ferrier, was headmaster. Apprenticed for a short time to a dentist in Park Street, Bristol, he soon decided to become a medical student, and entered the Medical School of University College, Bristol, in 1895. He did his clinical work first at the Bristol Royal Infirmary and later at the London Hospital, qualifying M.R.C.S., L.R.C.P. in 1900. He obtained his F.R.C.S.Eng. in 1904, and in 1909 was elected assistant surgeon to the Bristol Royal Infirmary. In 1915 he was elected full surgeon, and from 1925 until his retirement in 1934 he was senior surgeon to the Infirmary. During the war of 1914–18 Walters rejoined the R.A.M.C.(T.F.) and went to France with a C.C.S. During the Somme battle of 1916 he was given charge of an advanced abdominal operating centre at Aveluy, a new departure in those days, where he did much good work which went far to persuade reluctant authorities that urgent surgery could and should be carried out in the forward areas. This experience coupled with his 25 years of active work at the Royal Infirmary rendered him most eminently suitable for the post of group officer to the Bristol area when the Emergency Medical Service came into being in 1939.

Walters (writes a colleague) was a man of irrepressible energy, always in a hurry to get to work, but in his operating unhurried. He was a sound general surgeon who devoted a good deal of attention to genito-urinary surgery. In his younger days he was a fine gymnast. Throughout his life he loved handiwork—from small carpentering jobs to house-building. These were his relaxations. Among other recreations came sailing and nature study. Yet with all his bodily activity he made time for most varied reading. He was a member of the Moynihan Surgical Club, president of the Bristol Medico-Chirurgical Society (1929–30), and president of the Bath and Bristol Branch, B.M.A. (1932–3). Walters was a loyal, friendly colleague and a good teacher. He married, in September, 1905, Miss Gertrude Popham, daughter of the Rev. J. K. Popham. Their family consists of one son, now serving in the R.A.M.C., and three daughters. We offer our deepest sympathy to his widow, his children and grandchildren.

ISABELLA DOUGLAS CAMERON, M.D.

Members of the public health service and of the dinner club of paediatricians and others whose common bond was an interest in child welfare will learn with regret of the death, in an Edinburgh nursing home on Jan. 10, of Isabella Douglas Cameron, M.D., D.P.H., M.R.C.O.G., who was for 25 years a valuable officer of the Local Government Board and of the Ministry of Health, where she had a large share in the pioneer medical administration work in the setting up of the Maternity and Child Welfare Services, her contributions to which were in some degree rewarded in 1937 by a unanimous invitation of the Council of the Royal College of Obstetricians and Gynaecologists to become a member of their College.

A woman of strong individuality, with imagination and a keen sense of duty, Dr. Cameron received her medical education at the Medical College for Women, Edinburgh, and graduated with distinction in 1898. In 1906 she obtained her M.D. degree for a thesis on "A Study of the Dietary of Several Halls of Residence for Students in Edinburgh"—a companion study to Prof. Noel Paton's work on the dietary of the working classes in Edinburgh. After holding resident appointments at the Crichton Royal Institution, Dumfries, the Children's Hospital, Sheffield, and the Infectious Diseases Hospital, Walthamstow, Dr. Cameron worked in the Cambridge University Laboratories and obtained the D.P.H. of that University in 1905. She then returned to her old school as lecturer in physiology and was also engaged in research work in the Laboratory of the Royal College of Physicians, Edinburgh, where one of the results of her labours was a valuable article on the methods of standardizing suprarenal preparations. One of the processes was subsequently adopted commercially. In May, 1906, Dr. Cameron was appointed medical officer to the Carnegie Dunfermline Trust, a pioneer body so far as Scotland is concerned in the medical examination, treatment, and systematic physical training of school-children. From this appointment she went to that of medical officer to the Edinburgh Provincial Committee for the Training of Teachers, and Dr. Cameron employed the vacations her appointment afforded to visit institutions devoted to the care, management, and treatment of infants and young children in Germany, Canada, and the United States of America.

She was one of the many children of James Cameron of Stanley, Perthshire. One of her brothers is Mr. J. F. Cameron, Master of Gonville and Caius College and lately Vice-Chancellor of Cambridge University. A sister was a distinguished student of mathematics under Prof. Chrystal of Edinburgh.

W. F. MENZIES, M.D., F.R.C.P.

Dr. William Francis Menzies, for 38 years medical superintendent of Cheddleton Hospital, Staffordshire, died suddenly at Radlett on Jan. 12, aged 81. Born at Halifax, Nova Scotia (where his father was then chief cashier in the Bank of Nova Scotia), he came to this country at the age of 12 and entered Fettes College. On leaving school he began the study of medicine at Edinburgh University, graduating M.B., C.M. in 1885 and B.Sc. and M.D. in 1888. He obtained the M.R.C.P.Lond. in 1891 and was elected F.R.C.P. in 1920. Immediately on graduation he took up psychiatric practice, and was a resident M.O. first at the Kent County Mental Hospital, Maidstone, and then for a longer period at Rainhill, near Liverpool. At the end of 1898 he was appointed medical superintendent of the newly established County Hospital at Cheddleton, near Leek. He retired from the post in August, 1936, owing to ill-health.

Dr. Menzies's great skill and knowledge brought him wide recognition. In 1920 he was elected president of the Royal Medico-Psychological Association, and he published a number of valuable papers on mental disorder and deficiency. He was also honorary consulting psychiatrist to the North Staffs Royal Infirmary and honorary neuropsychiatrist to the Stoke-on-Trent Orthopaedic Centre. He joined the B.M.A. in 1891, was secretary of the Section of Neurology and Psychological Medicine at the Annual Meeting at Exeter in 1907, chairman of the North Staffs Division 1932–3, and president of the Staffordshire Branch in 1934–5; he had also been president of the North Staffordshire Medical Society. From the time that Cheddleton Mental Hospital was opened Dr. Menzies collected round him as members of his staff a number of enthusiastic musicians and started an orchestra, which gradually grew until in 1934 members of the staff and friends living in the neighbourhood brought the strength up to nearly 70, the medical superintendent himself conducting it with great success.

SIR THOMAS BARLOW, BT.

R. H. writes:

By the death of Sir Thomas Barlow the father of our profession and its oldest and most honoured member has been taken from us; but "nothing is here for tears, nothing to wail or knock the breast," for he had long outlived the ordinary span of human life. I first got to know him when I had the privilege of serving as his house-physician at the Hospital for Sick Children nearly fifty years ago. He was then at the height of his busy consulting practice, and his ward visits were apt to be hurried, but one quickly came to admire the thoroughness of his clinical investigation, the accuracy of his diagnosis, and, above all, the kindness of his heart. To him the sick were never merely "cases" but suffering human beings requiring his sympathy and help, and to children especially his kindness and sympathy were always most shown. He had also the shrewd common sense of his native Lancashire along with its dry humour. I remember telling him some years ago how, when he was attending Queen Victoria in her last illness and the reporters were waiting at the gate of Osborne House for the latest bulletin, one of them wrote to his paper: "Our spirits rose when we heard that Sir Thomas Barlow had left," and how he chuckled over the joke. But although very much *persona grata* as a physician in the highest circles he was no mere courtier, and he once said, rather wistfully, that he would gladly give it all up and "practise in a dispensary amongst poor folk"; and therein spoke the real man. He had lived so long that latterly he had come to be merely a name to many of the present generation, and it was interesting at an international gathering of paediatrists in London a few years before the war to see the look of astonishment on the faces of many of the foreign visitors—as if they were gazing on one risen from the dead—when he was introduced as the Barlow of "Barlow's disease" and to hear the deafening ovation which followed. Now he is gone, but he has left an inspiring example of a life nobly and usefully spent and of a character entirely upright, simple, and sincere.

Sir ERNEST COWELL writes:

I was privileged to serve as the penultimate house-physician to Sir Thomas Barlow at University College Hospital. This was in the days when the physician made his own diagnosis and confirmed it by laboratory test or *x*-ray examination, which were only just becoming available. The student was taught to draw conclusions by examining the patient all over, noting his tone of voice and texture of the palms and even looking under the bed.

Sir Thomas was the soul of kindness. At the end of a demonstration on a patient, which might take an hour with a pause for hot milk in the middle, he would slip a sovereign in the sister's hand and say, "Poor soul, give her this." In the passing of this great physician the profession has suffered a great loss. It is up to the present and coming generations of doctors to remind themselves of his clinical method, and, as Sir Thomas was always doing, to strive to discover fresh truths.

G. H. writes: I would like to add a few random words to the memoir printed last week, though I only knew Sir Thomas Barlow in the latter part of his long life. We came together about one or two things, more particularly in forwarding the work of the Royal Medical Benevolent Fund, which was a cause he loved more than any other in old age. I also had the happiness of meeting him in the family circle at Wendover among his children and grandchildren, with great-grandchildren in the offing. To have talked with the Nestor of our profession as he sat by the fireside, his hand cupped to his ear because of deafness and his Father Christmas face beaming with benignity, is a memory to treasure. Much has been written and will be written of his great service to medicine. He outlived all his contemporaries and many of his juniors, became a legend, and grew so old that time seemed to have forgotten him. The ceremonial idea of a 100th birthday on Sept. 4, 1945, made us wish that the veteran physician might survive a few more months and add a final decoration to the part he had played in medical history. That was not to be, and who can grudge him his rest? Thomas Barlow's work has fertilized our science and practice; his influence is incalculable, but we may be sure it goes on, passing from generation to generation, and we may doubt if the simple solid humble doctor himself ever imagined that that kind of immortality would be his.

Dr. EDWARD LESLIE HORSBURGH died at his home in Ryde, Isle of Wight, on Jan. 3. He studied medicine in Manchester and graduated M.B., B.S.Lond. in 1910 and M.D. in 1914. He was physician to King Edward VII Hospital for Officers at Osborne and medical referee to the Royal National Hospital for Consumption at Ventnor. During the last war he served as assistant adviser in pathology at the Calais base. Before settling in practice he had been house-surgeon and house-physician at the East London Hospital for Children, Shadwell, and senior house-surgeon at the Manchester Royal Infirmary. In 1929–30 he was chairman of the Isle of Wight Division of the B.M.A. T. T. H. writes: The untimely passing of E. L. Horsburgh will be mourned by many beyond the confines of his native Isle of Wight. Contemporaries in Manchester, London, and the old B.E.F. will recall his sparkling and vivacious personality—his *gaieté de cœur,* irresistible and unforgettable—and his genius for friendliness. It was my privilege to live with him as student, hospital resident, and Army doctor and to know his blithe spirit with a brotherly intimacy. Latterly of necessity our ways diverged, but the occasional reunion found that spirit and our affection undimmed by the passing years. "Whom the gods love die young" may truly be said of Leslie Horsburgh, grey hairs notwithstanding In any company he radiated mirth, hilarity, and good fellowship, for he was a superb raconteur and mimic, and a witty and trenchant conversationalist. Many a "mess" and many a fellow traveller "on life's common way" must remember his camaraderie with gratitude. In truth, his natural endowments were many and various. He could have excelled with ease in other less exacting and more spectacular fields than medicine had he so chosen. Golf, the stage, or letters might all have known him as a star, but he preferred to keep these as hobbies in his life's work as a physician. Who can doubt that he was right?—certainly not the crowded company of those by whom he was beloved as guide, philosopher, and friend. Even in his own profession he eschewed the limelight. His abilities would have carried him to the very front rank in pathology or clinical medicine. Instead he chose general practice. Again who shall criticize his choice? He was assuredly the ideal family physician—skilled, devoted, and always refreshing to the spiritually weary. Humbug he scorned; truth he diligently sought and cherished. Here was a man whom to know was to love and to love was great gain. He "shall grow not old as we that are left grow old."

Dr. ROBERT STEWART of Lytham, Lancashire, died on Jan. 4 He studied medicine at St. Mungo's College, Glasgow, and afterwards in Manchester, taking the diplomas of L.R.C.P.&S.Ed and L.R.F.P.S.Glas. in 1899; eight years later he obtained the D.P.H. of the Victoria Infirmary. Dr. Stewart belonged to the British Medical Association throughout his professional life; he took a keen but unostentatious interest in its work and was a diligent reader of the *Journal*. He attended and enjoyed many of the Annual Meetings, and was a member of the World Tour in the summer of 1935 when the B.M.A. met in Melbourne.

Dr. **Edward Smallwood**, of Knight's Hill, West Norwood, S.E., died on Jan. 15 at King's College Hospital. He studied medicine at University College, Liverpool, and in London, took the L.S.A. in 1894 and the M.R.C.S., L.R.C.P. in 1901, and soon afterwards obtained the M.D.Brussels degree. He held various junior posts at the Royal Infirmary, Liverpool, before settling in practice at Norwood, where he became medical officer to the Home for the Aged Poor and visiting medical officer to the local children's hospital. During the last war he served as honorary physician to the Chelsea War Hospital, the Meynell Hospital for Officers, and the Lambeth Auxiliary War Hospital. Dr. Smallwood joined the B.M.A. in 1889 and was a past president of the Norwood Medical Society.

A great personality has gone with the death of Dr. **Jane Lorimer Hawthorne**. She was one of the pioneers of sex education for the young and attempted successfully to tear down the veil of prurient mystery with which it had been enveloped. As a lecturer for the Alliance of Honour and the British Social Hygiene Council she had great success. A sense of humour helped her in this, as also did her power of ranging herself along with her audience. She was not a lecturer "telling people" but one of themselves discussing the matter. She positively welcomed interruptions, and would follow them down any by-way that her audience wanted. As medical officer to child welfare centres in the early days she was able to give information in a form acceptable to the working-class mother. Her views (as in all matters) were very definite, and those on the subject of dummies for babies overflowed on to the walls of her Canning Town clinic. It was not enough for her that a normal healthy child had been produced and that the mother had satisfactorily established breast-feeding; there was always a careful examination with a note on the involution or position of the uterus and the condition of cervix and perineum. New ideas were always being tried out: there was no fear of mental stagnation when Dr. Hawthorne was about. Ill-health had diminished her activities for some time, and a love of gardens and plants was added to her other interests. One could not be in her company without realizing a very remarkable, original, and many-sided personality.—L. M. P.

Dr. **Ernest Worley**'s death, while a great loss to the B.M.A. as a whole, will be particularly felt at the meetings of the City Division. Every year (writes a colleague) he drew up a programme of monthly scientific meetings where the lectures were much appreciated and followed by good discussions. He was able to infuse informality and friendliness so that the youngest, shyest, and most retiring members were made to feel that their opinions were wanted. Those who had held office will long remember the dinners before the scientific meetings, where they had an opportunity of making personal contact with the lecturer. All this meant a good deal of organizing work, which was never shirked when medical work was heavy or when Dr. Worley might have been thought to be fully occupied as organizing secretary for the Centenary Meeting. Dr. and Mrs. Worley loved the Division, and the Division loved them.

C. J. de V. S. writes: To everyone who knew **J. J. O'Mullane**, whether as friends or patients, his early death will cause much sorrow and leave behind a void it will be hard to fill. His great understanding and sympathy for those in trouble, his readiness to give a helping hand to whomsoever needed it, endeared him to all who came in contact with him. He had an outstanding sense of humour—a ready Irish wit which would often waft away the cares and troubles of his patients. For many years he suffered from indifferent health, but his insuperable energy and his indomitable courage made him carry on his practice, never sparing himself day or night to go to the aid of those who needed him. Although his practice was large he never failed to keep in touch with the latest advances in medicine, and his treatment was always the most modern. His knowledge of medicine was extensive, and if he had not felt his work lay in general practice he would have attained great heights. I have worked with him, and no words can speak too highly of him as a colleague. His early death at the age of 52 years has cut short the work he was doing in Plumstead—work in which his heart lay; but in the minds of all who knew him one thought remains above all: "He was a man."

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The programme of lectures on science in the history of thought, to be delivered in Mill Lane Lecture Rooms at 12 noon, includes one on Saturday, Feb. 10, by Dr. A. E. Clark-Kennedy on medicine and the progress of thought. These lectures are open, without fee, to all members of Cambridge or London University or of Girton or Newnham College.

UNIVERSITY OF LONDON

L. S. Penrose, M.D., has been appointed to the Galton Chair of Eugenics tenable at University College. He has been attached since 1939 to the Provincial Department of Health, Ontario, Canada, and is also a physician at the Ontario Hospital, lecturer in psychiatry in the University of Western Ontario, and medical statistician for the Province.

C. Rimington, Ph.D., B.Sc., has been appointed as from May 1 to the University Chair of Chemical Pathology tenable at University College Hospital Medical School. Since 1937 he has been on the staff of the National Institute for Medical Research.

The following candidates have been approved at the examinations indicated:

M.D.—BRANCH I *(Medicine)*: James Marshall. BRANCH II *(Pathology)*: R. E. O. Williams. BRANCH IV *(Midwifery and Diseases of Women)*: G. C. Brentnall, E. Garland Collins. BRANCH V. *(Hygiene)*: Sarah C. B. Walker.

UNIVERSITY OF GLASGOW

A graduation ceremony was held on Jan. 13, when the following medical degrees were conferred:

M.D.—*Thomas Anderson, †H. W. Bowyer, †T. McM. Curran, R. D. Campbell.

M.B., CH.B.—A. R. Beaton, J. E Bennett, Katharine N. Brittain, D. F. Bruce, J. P. G. P. Burnie, A. C. Connell, M. S. Crawford, W. A. Crawford, J. L. Crichton, W. Cullen, W. J. A. Dobson, Agnes P. Downie, R. E. Evans, R. C. Forrest, J. Freedman, Arthur Jamieson, J. L. Kelly, L. Kennedy, W. I. Kenyon, G. J. Ker, R. Lindsay, R. McP. Livingston, Margaret J. MacArthur, J. B. Macmillan, T. P. Magee, S. S. Meighan, W. Napier, A. J. Nelson, J. A. Porter, G. B. Prentice, Jean A. Purdie, J. T. W. Robertson, S. J. T. Robertson, Janette C. Russell, T. Smart, J. R. Smith, Raymond Smith, Rose K. Smith, Isobel D. Stewart, J. B. Stirling, F. H. Stone, K. J. Whitelaw, T. C. D. Whiteside, A. M. Williamson, Alexander Young.

* With honours. † With commendation.

The Brunton Memorial Prize was awarded to J. K. Watt as the most distinguished graduate in medicine of the academic year 1943–4, and the West of Scotland R.A.M.C. Memorial Prize to C. M. Ross as the candidate with the highest aggregate number of marks in surgery, medicine, and midwifery in the final examinations for the degrees of M.B., Ch.B., 1943–4.

UNIVERSITY OF WALES

THE WELSH NATIONAL SCHOOL OF MEDICINE

The following candidates have satisfied the examiners at the examination indicated:

M.B., B.CH.—*(Hygiene)*: D. Anthony, J. H. Edworthy, Hannah P. Evans, J. C. Ham, I. D. Jacobs, Jane W. James, D. G. Jones, D. O. Lewis, D. R. Lewis, W. T. Lloyd, Olwen V. Rees.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A quarterly meeting of the Council of the College was held on Jan. 11, under the chairmanship of the President, Sir Alfred Webb-Johnson, who was warmly congratulated by the Council on the award of a baronetcy. Arrangements were made for the delivery of professorial lectures on anatomy by Prof. A. J. E. Cave and on physiology by Prof. John Beattie. The first course will begin on Feb. 19. It was reported that the trustees of the Prophit Trust had reappointed Dr. D. E. Lea of the Strangeways Laboratory, Cambridge, and had appointed Mr. Peter C. Williams of the Middlesex Hospital, Prophit Research Students.

It was decided to recognize the posts of first and second house-surgeon of the Royal Northern Infirmary, Inverness, for the six months' surgical practice required of candidates for the Final Fellowship examination.

Diplomas

Diplomas of Membership were granted to Flavia Z. L. B. James and H. B. Marsden.

Diplomas in Public Health, in Psychological Medicine, and in Laryngology and Otology were granted jointly with the Royal College of Physicians of London to the following candidates:

DIPLOMA IN PUBLIC HEALTH.—P. S. Jaikaran, H. G. Williams.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—P. Cassar, Louise F. W. Eickhoff, R. K. Freudenberg, G. W. Green, D. Jackson, P. D. Scott, L. M. Sborvon, G. D. F. Steele, E. Wellisch.

DIPLOMA IN LARYNGOLOGY AND OTOLOGY.—R. G. Boyd, A. S. Davidson, N. A. Punt, G. Snowden, P. A. Thorpe.

ROYAL COLLEGE OF SURGEONS IN IRELAND

Prof. W. N. Rae, Sc.D., Registrar of the Royal College of Surgeons in Ireland, Dublin, has received the following letter from Sir Alfred Webb-Johnson, President of the Royal College of Surgeons of England, dated Dec. 28, 1944:

> "I beg to acknowledge with thanks the receipt of your letter of the 22nd instant enclosing a donation of one hundred guineas from the Royal College of Surgeons in Ireland to the fund for the restoration of my College. I shall be glad if you will inform the President, Vice-president, and Council of your College that this spontaneous gesture is very deeply appreciated by me and my colleagues on the Council of this College. The gift will always be remembered as a token of our friendly relationships and as an earnest of our cordial co-operation in the future."

Medical Notes in Parliament

Women Medical Students: Admission a Condition of Grant

Dr. SUMMERSKILL on Jan. 18 asked Mr. Willink to make a statement on the report of the Interdepartmental Committee on Medical Schools.

Mr. WILLINK replied that the committee recommended a comprehensive programme for the reform and development of medical education and research. Certain of the matters involved would require legislation. These the Government proposed to discuss with the bodies concerned. Apart from these the committee's recommendations were in the first place for the responsible educational authorities to study in framing their future policy. The Government accordingly invited universities, medical schools, and teaching hospitals to give the report early consideration. Recognizing the fundamental importance of medical education and research to the future of the country's health services, the Government accepted the principle of increased grants for the purposes of medical education and research to be distributed by the University Grants Committee through the universities to medical schools, postgraduate schools and institutes, and hospitals used for teaching and research. They also accepted the suggestion that for a limited period these additional grants should be separated from the block grants received by universities for their work as a whole. The amounts of grant to be made from time to time, whether for capital or for recurrent expenditure, would be determined after consideration in the light of the recommendations of the University Grants Committee and the general financial position prevailing. The Government shared the views expressed in the report on the importance of affording to women equal opportunities to those enjoyed by men for medical training and for obtaining postgraduate experience. They had therefore decided, as recommended by the committee, that future payments of grant to medical schools should be conditional on the adoption by the school of the principle of admitting a reasonable proportion of students of both sexes. They recognized that schools at present open to one sex only might need periods of varying lengths to adjust their arrangements to a co-educational basis. They therefore proposed that the University Grants Committee in consultation with the university authorities concerned should be charged with the responsibility of determining from time to time whether the action taken by each of these schools complied with the principle to the extent that is reasonable. The Government attached equal importance to the revision of the medical curriculum. Their acceptance of the principle of increased grants for medical education and research was dependent on the early completion of this process. They were glad to learn that, as recommended by the committee, the General Medical Council had already taken the initiative in the matter.

Deaf Aids Committee

Sir D. HACKING asked on Jan. 8 for the names of the members of the committee appointed to advise and assist the Medical Research Council in promoting research into electro-acoustical problems of design and application of instruments in alleviation of deafness.

Mr. ATTLEE: The members of the committee are as follows: Dr. W. G. Radley (chairman), Mr. E. J. Barnes, Sir Lawrence Bragg, Mr. N. Fleming, Dr. C. S. Hallpike, Mr. L. C. Pocock, and Dr. T. S. Littler (secretary). The committee has formulated a detailed programme of research, and investigations in which physicists are collaborating with otologists and physiologists are in progress. The investigations will take some time to complete, and it is not anticipated that the committee will be in a position to make any recommendations before the end of the year.

Tuberculosis in Repatriated Prisoners of War

On Jan. 16 Miss WARD asked the Secretary of State for War whether he was aware of the dissatisfaction of relatives with the arrangements made for repatriated prisoners of war suffering from tuberculosis; and if he would consider these complaints with a view to an alteration of the present policy. Sir JAMES GRIGG replied: It is the policy of the Army to discharge soldiers suffering from tuberculosis as soon as possible so that if necessary they may enter civil sanatoria near their homes. Repatriated prisoners of war are given special consideration, but I am aware that there is sometimes delay in admission owing to pressure on accommodation. The Minister of Health has therefore set aside a number of beds in E.M.S. hospitals specially for Service patients awaiting transfer to sanatoria. This should materially help to remove any cause for complaint.

Miss WARD asked if Sir James Grigg would inform the Minister of Health that his arrangements were most unsatisfactory and ask him to improve them in the future. Sir JAMES GRIGG said he would certainly pass on the message, but whether he should do it in quite those truculent terms was a matter he would like to consider. Dr. SUMMERSKILL: In view of the fact that these men contracted the disease in the Army, can Sir James Grigg say why he is shelving his responsibility in this matter? Sir JAMES GRIGG: Because that happens to be the arrangement prescribed in the Army Regulations. The Army does not look after tuberculous patients. Patients discharged for disability in the Army are looked after, in the case of tuberculosis, by the Ministry of Health, and in the case of other diseases in Ministry of Pensions hospitals.

Distillation of Salt Water

On Jan. 16 Capt. STRICKLAND asked the Parliamentary Secretary to the Ministry of War Transport what steps had been taken by the Government to encourage research into the conversion of salt water into drinking-water by demineralization, evaporation, or other processes; whether any effective and convenient method had been evolved; and whether it was proposed to make the fitting of the necessary apparatus compulsory on all sea-going vessels, including their boats. Mr. NOEL BAKER said that the Government had done extensive research into the distillation of salt water by demineralization and evaporation, and apparatus designed by private inventors had been examined and tested. As a result two types of fresh-water producers for lifeboats were now issued on free loan to shipowners. A third and smaller pattern for use in emergency rafts was in production. Sea-going vessels carried adequate supplies of drinking-water for use on board. The filtering type as well as the distillation type was being used.

Medical News

A meeting of the Medical Society for the Study of Venereal Diseases will be held at 11, Chandos Street, W., to-day (Saturday, Jan. 27) at 2.30 p.m., when Dr. David Erskine will give an address on "Difficulties in the Successful Treatment of the Venereal Disease Patient."

Dr. Andrew Topping will speak on the "Aims of U.N.R.R.A. in the Health Field" at a meeting arranged by the Polish Medical Association in the U.K. to be held in the Hastings Hall of B.M.A. House, Tavistock Square, on Jan. 30, at 5 p.m. The lecture is open to all and will be followed by questions and discussion.

Prof. T. Wallace, D.Sc., will deliver two lectures on "The Diagnosis of Mineral Deficiencies in Crop Plants" before the Royal Institution, 21, Albemarle Street, W., on Tuesdays, Jan. 30 and Feb. 6, at 5.15 p.m.

The Science (Research) Society has arranged two public lectures. The first, on Wednesday, Jan. 31, at 6.45 p.m. in the City Literary Institute, Stukeley Street, Drury Lane, W.C., will be by Lady Eve Balfour, of the Haughley Research Trust, on "The Living Soil"; the second, on Saturday, Feb. 24, at 3 p.m. in the Hastings Hall of B.M.A. House, Tavistock Square, will be a technical discussion on "Soil Biology," by Lady Eve Balfour and Dr. E. W. Russell of the Rothamsted Experimental Station.

The Seventh Addendum to the *British Pharmacopoeia, 1932*, which was noticed in an annotation last week (p. 89) will be published on Feb. 1, and becomes official from that date. Constable and Co. Ltd., 10, Orange Street, Leicester Square, London, W.C.2, publish it for the General Medical Council.

Prof. F. Wood Jones, F.R.S., F.R.C.S., will give an address on "The Mammalian Toilet" before the Royal Institution, 21, Albemarle Street, W., on Friday, Feb. 16, at 5 p.m.

The following lectures will be delivered at the Royal Institute of Public Health and Hygiene, 26, Portland Place, W., on Wednesdays, at 3.30 p.m.: Feb. 7, Surg. Rear-Adml. G. Gordon-Taylor, "Surgery and Russia"; Feb. 14, Dr. G. H. Newns, "The Problem of Infant Mortality"; Feb. 21, Dr. I. H. MacLean, "The Problem of Whooping-cough Immunization"; Feb. 28, Dr. Harold Balme, "The Place of Rehabilitation in Hospital Service"; March 7, Lord Forrester, "Industry and its Environment—Physical and Social"; March 14, Mr. V. Zachary Cope, "Surgery in the Life of To-day"; March 21, Dr. Janet Aitken, "Rheumatism in Children"; March 28, Mr. Frederick W. Pratt, "Some Obstructive Abdominal Conditions in Infancy."

Field-Marshal Alexander has convened a medical conference, to be held in Rome at the end of the month, which will be attended by leading medical officers from the Allied Medical Services.

Orange-juice jelly, having a declared minimum content of vitamin C of 12 mg. per oz., will be available to school canteens, residential schools, etc., from Feb. 4, price 6½d. a lb. in cases of 42 lb. The average potency of the vitamin is expected to be about 17 mg. per oz. Local food offices will issue particulars of the scheme to the establishments concerned.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* during the week the incidence of measles rose steeply, 3,077 more cases being notified than in the previous week. Acute pneumonia, whooping-cough, and dysentery also showed increases, of 430, 359, and 81 respectively. There were 50 fewer cases of scarlet fever.

The rise in whooping-cough was general throughout the country and there were no large local variations in incidence. Yorks West Riding reported a fall of 52 in scarlet fever notifications. Those of pneumonia were the highest for a year, and in Lancashire, Warwickshire, and Yorks West Riding there were increases over last week's totals of 98, 51, and 50 respectively. Practically every county showed a substantial increase in measles: Warwickshire reported 415 more cases than last week, Lancashire 323, Staffordshire 321, Nottinghamshire 306, Cheshire 209, Yorks West Riding 193, Durham 131, and Middlesex 117.

Returns for dysentery in London rose from 16 to 67 (Wandsworth 44). The other large returns were those of Lancashire 24, Surrey 21, Yorks West Riding 13, Essex 11.

In *Scotland* measles notifications were 226 higher than last week, and whooping-cough 31, while the only disease to decline in incidence was scarlet fever, with 26 fewer cases than last week. The notifications of cerebrospinal fever, 37, were the highest in recent months; one-half of these cases were recorded in Glasgow. The largest returns of dysentery were Glasgow 37, Edinburgh 13, Lanark County 13, and Fife County 10.

In *Eire* a fall in the incidence of diphtheria reduced the notifications by 81, but the disease is still widespread: the 110 cases were reported from fifty areas.

In *Northern Ireland* infectious diseases were more prevalent. The increases over last week's totals were: Measles 93, scarlet fever 18, diphtheria 12, whooping-cough 8. In Belfast C.B. notifications of measles and whooping-cough rose by 100 and 8 respectively. Londonderry had 8 more cases of diphtheria than last week.

Quarterly Returns for England and Wales

During the September quarter the birth rate was 17.6 per 1,000 and was the highest rate for a third quarter since 1926. The birth rate in the third quarter of 1943 was 16.2, and the average for the third quarters of the preceding five years was 15.0. Infant mortality was 40 per 1,000 live births—below the average of the ten preceding third quarters. The diarrhoea death rate under 2 years of age was 6.4 per 1,000 live births, compared with 5.9, 5.2, 5.1, and 3.5 in the preceding four quarters. The stillbirths represented 2.7% of the total births registered. The general death rate was 10.3 per 1,000, compared with 9.4 for the third quarter of 1943, and with 9.9 for the average of the five preceding September quarters. The natural increase, excess of births over deaths, was 76,340, the corresponding figures for the third quarters of 1941–3 being 46,285, 71,000, and 70,833 respectively. There were 164,604 persons married in the quarter—an increase of 1,696 on the third quarter of 1943, but 76,408 below the five-years average.

Week Ending January 13

The returns of infectious diseases in England and Wales during the week included: scarlet fever 1,330, whooping-cough 1,678, diphtheria 459, measles 10,979, acute pneumonia 1,399, cerebrospinal fever 53, dysentery 302, paratyphoid 5, typhoid 5. Seventy-two deaths were attributed to influenza in the 126 great towns.

No. 1

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Jan. 6.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London) (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	49	5	37	2	2	92	2	28	12	2
Deaths		2	2				3	1		
Diphtheria	439	17	141	110	27	661	38	179	125	32
Deaths	14	—	—	1	1	22	2	5	5	1
Dysentery	204	67	110	—	—	165	22	37	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	—	—	—	—	—	1	—	—	1	—
Deaths		—					—			
Erysipelas			59	11	2			58	14	6
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				13					11	
Deaths	41	6	5	6	3	44	11	10	10	3
Measles*	11,947	240	697	10	281	515	82	43	82	3
Deaths	13	—	1	—	—	—	—	—	—	—
Ophthalmia neonatorum	63	6	14	1	—	64	6	15	1	—
Deaths										
Paratyphoid fever	1	—	—	—	1 (B)	4	—	1 (B)	1	—
Deaths	—	—	—	—	—	1 (B)	—	—	—	—
Pneumonia, influenzal†	1,242	60	14	2	20	1,608	140	79	44	6
Deaths (from influenza)	55	9	2	2	1	255	31	21	5	2
Pneumonia, primary			368	19				516	28	
Deaths		65		24	15		85		28	17
Polio-encephalitis, acute	2	—				1	—			
Deaths		—					—			
Poliomyelitis, acute	3	—	—	1	—	3	—	3	1	1
Deaths		—					—			
Puerperal fever		3	15		—		4	12		1
Deaths							—			
Puerperal pyrexia‡	124	10	11	2	—	147	11	13	1	5
Deaths		—								
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,462	48	192	18	67	1,791	108	220	37	87
Deaths	—	—	—	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	8	1	—	8	—	4	—	2	10	3
Deaths	—	—	—	1	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,538	80	84	72	19	1,793	195	121	76	25
Deaths	15	—	2	1	1	7	1	2	1	
Deaths (0–1 year)	480	54	72	43	35	425	75	120	61	26
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	6,796	1105	697	315	171	6,084	977	839	339	162
Annual death rate (per 1,000 persons living)			15·8	20·3	§			19·3	22·1	§
Live births	7,753	821	929	451	305	7,001	854	1,025	407	281
Annual rate per 1,000 persons living			18·6	29·1	§			20·8	26·6	§
Stillbirths	224	20	26			228	29	31		
Rate per 1,000 total births (including stillborn)										

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London*. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Inheritance of Cancer

Q.—*What are the latest views on the inheritance of cancerous tendencies? Is there evidence to support the popular view that such tendencies are hereditary or familial?*

A.—Though actual proof is not an easy matter, there can be little doubt that heredity does play some part in the determination of neoplasms in the human subject. Such tumours as glioma of the retina, the neurofibromas of von Recklinghausen's disease, and polyps of the large intestine are hereditary beyond any doubt. But how large is the hereditary factor? This cannot easily be answered by statistical investigations on man; the generations pass too slowly, and errors of various kinds creep in. Cancer families have been described, and a mere statement of the observed facts is impressive. For example, in a family studied by Warthin there were 175 individuals in four generations of whom 41 died of cancer; 26 cases were of the gastro-intestinal tract and 15 of the body of the uterus. But in a disease so widespread as cancer the chance accumulation of cancer in one family may occur. We must therefore depend upon deliberate experiment in short-lived animals—e.g., the mouse—in which irrelevant elements can be bred out by brother-sister matings and the tendency or lack of tendency to cancer can be concentrated. Genetic investigations of this sort have proved conclusively that for certain cancers—especially mammary, lung, and bone tumours—heredity is an important factor in the genesis of cancer. In mammary cancer it has been proved conclusively that the inherited tendency to cancer, transmitted by male or female and therefore chromosomal in origin, added to the action of the hormone oestrone and a factor present in mother's milk of high cancer strains, are, all acting together, essential to the development of tumours of the breast.

Epileptic Fits in Theatre

Q.—*A patient aged 17 has had epileptic fits for two years. They occur only when he visits a theatre or cinema, and take the form of convulsions, biting of the tongue, incontinence of urine, followed by headaches, giddiness, and falling to sleep. He vomits after the fit. Recently he has bed-wetted. Physical examination reveals nothing abnormal. Although the fits seem to be those of idiopathic epilepsy, are they possibly functional, as they occur only in the circumstances described?*

A.—These are undoubtedly epileptic attacks. There is no suggestion that they are hysterical. In some patients epileptic fits arise in response to highly specific stimuli and in highly specific circumstances. It is usual to find that, although a special trigger will produce a fit, they also occur spontaneously, and it is likely that the recent bed-wetting is the result of unrecognized nocturnal attacks. The present story is interesting, though not remarkable, and at least the patient knows how to reduce the number of his attacks.

Recurrent Phlebitis

Q.—*A man aged 53, weight 14 st., is subject to frequent attacks of phlebitis chiefly affecting superficial veins. Eight years ago he had a large infarct in the lung. He is strong and healthy and does not appear to have any other disease. Can you offer suggestions about treatment?*

A.—To cause a recurrent phlebitis there must be a septic focus somewhere which "spills over" into the blood stream from time to time. The common foci are the nasal sinuses, the tonsils (especially if there has ever been a quinsy), and the teeth—either carious or dead, or dead and filled. As the man weighs 14 st. he may have gall-stones (a previous history of typhoid is occasionally present). The prostate may be the focus, and the urine should be examined for pus cells after a prostatic massage. The patient may be a diabetic with declared glycosuria; or hidden diabetes with no glycosuria but a high blood sugar may be found. The fact that the phlebitis is in the leg indicates diseased veins here, almost certainly varicose. The remedy, therefore, is to locate and eliminate the septic focus and to have the varicose veins treated by a surgeon expert in this.

Excessive Flatus

Q.—*A male aged 65 suffers from excessive flatus—so bad that he has to leave the room several times a day to expel it. Bowels act regularly with paraffin. At times the colon becomes so disturbed as to resemble megacolon under x-ray examination, which also reveals much spasm of the colon. There is considerable pain in the left loin—probably the result of the gaseous distension. Belladonna gives no relief. What treatment would you advise?*

A.—In later life absorption of gas from the bowel may be diminished owing to age changes in the blood vessels. Efforts should therefore be made to check the formation of gas from air-swallowing or fermentation in the colon. Excessive flatus is characteristic of intestinal carbohydrate dyspepsia, in which incompletely digested starch grains reach the colon and give rise to acid and gas there. Most authors attribute this to a disturbance of intestinal motility, and phenobarbitone, gr. 1/2 to 1 b.d., may be of value in checking hypermotility and spasm. A mucilaginous aperient such as psyllium seeds or one of the proprietary preparations thereof would probably be better than liquid paraffin. Potatoes and rice should be forbidden and takadiastase gr. 5 given at meal-times.

Control of Colostomy Evacuations

Q.—*A patient who had a permanent colostomy performed in May, 1944, has never been able to control the colostomy evacuations, which do not occur with reference to meals. I have tried allowing him one big meal a day, at midday, and thereafter fluids only. He has been given bismuth in a mixture, as well as tinct. opii, but to no avail. What do you advise?*

A.—The question does not provide enough information to enable a useful reply to be given. What was the type of colostomy:—was it transverse or sigmoid colon which was used? What was the condition for which it was performed? Are the motions loose or merely erratic in their appearance? Answers to all these questions are necessary before an opinion can be given. A transverse colostomy is usually rather more difficult to control than a left iliac, owing to the difference in the consistency of the contents of these regions of the colon. Then, again, the original condition may be present proximal to the opening as well as distal—for instance, a secondary carcinoma or a widespread diverticulosis, and so on. Most colostomy patients find the secret of success lies in the establishment of a moderate degree of constipation; but while some rely upon this alone, others adopt a regular routine wash-out of the bowel twice a day. Either of these methods may be entirely satisfactory, and it is not possible to prognose which will be the better for any individual patient. Both should be given a trial. Of course, considerable modifications of the diet are often necessary to achieve the desired consistency of the motions, and because of the great idiosyncrasies of the bowel the patients usually find out for themselves what article of diet they must forgo.

Malaria and Pregnancy

Q.—*An English lady of 32 had malaria 12 months ago on the Gold Coast. She returned to England last July, and was free from attacks until the beginning of December, when she had two with two days' interval. She is expecting her second baby in February. How much quinine can safely be given to stop the attacks? Is mepacrine less dangerous? Is the baby likely to be infected with malaria? Her first baby was born 2 years ago on the Gold Coast, and she took 4 gr. quinine daily as a prophylactic during the whole time of her pregnancy without any ill effect.*

A.—Thirty grains of quinine daily may be given to stop the attacks of malaria if they occur, but in view of the possibility, so near term, of quinine's having some action on the uterus, mepacrine 0.2 g. thrice daily for 2 days, and then 0.1 g. t.d.s. for 5 days, would be preferable for this purpose. It would be infinitely better, however, to forestall relapse of the malaria by giving a suppressive course of mepacrine forthwith and continuing it for at least one month after parturition. One tablet (0.1 g.) daily should be taken throughout the period to achieve this end. The risk of the infant's being infected is negligible.

Fungus Infection of Toes

Q.—*A boy of 15 had a reddish rash with very small papules on the dorsum of his large toe, causing no pain or discomfort. This improved in the holidays with soaking in weak permanganate of potash. The condition has now spread to several other toes on the same foot. Is this a fungus infection, and what is the treatment?*

A.—A diagnosis may be made on inspection, or by the correct method of direct microscopical examination and culture with the object of proving the presence of ringworm fungus and the kind of fungus causing the infection. The second procedure is recommended, as otherwise the diagnosis rests upon guesswork.

Chemotherapy for Spastic Colitis

Q.—*Having moderately severe spastic colitis, considered to be the late aftermath of an acute enteritis contracted some years ago, I was put on a 5-day course of a total of 30 g. of sulphaguanidine with marked benefit, followed by partial relapse a month later. I repeated the course with further benefit and lesser relapse. I should like to know the views on the toxicity of sulphaguanidine. What precautions apart from blood count are advised, and how frequently can such courses be repeated?*

A.—Sulphaguanidine owes its action in the lower bowel to the fact that a large proportion of it is not absorbed at all; hence the blood levels attained are low, and, as would be expected, toxic effects are rare. The risk even of frequent repetition of the short course specified is very slight, and no special precautions are necessary except the cessation of treatment in the unlikely event of toxic symptoms being produced, such as fever or urticaria. The necessity for further repetition argues some degree of failure, and might be considered an indication for substituting succinyl sulphathiazole (sulphasuxidine); the degree of absorption of this drug is even less, and its antibacterial action in the bowel is somewhat more potent.

"Stress Incontinence"

Q.—*A young girl, aged 23, who suffers from the distressing condition of urinary incontinence only in increased abdominal pressure, especially when laughing, is engaged to be married but dreads the day because of this complaint. There is nothing in the urine beyond phosphates. She is healthy. She has been tried with sedatives, ephedrine, and ergot, but to no avail. Is there anything in the fact that the uterine muscle is of the same structure as the sphincter? I should be glad of advice on the subject. If the line of treatment is ergot, how long should the treatment be kept up?*

A.—Stress incontinence, believed to be due to a developmental weakness of the sphincter mechanism of the urethra and bladder neck, does occur in nulliparous women but does not usually manifest itself until later in life, when muscle atrophy sets in. It is rare in young girls, and in this case other causes should be excluded by careful investigation. Early organic nervous disease affecting the spinal cord, spina bifida occulta, a small pelvic tumour, lesions within the bladder or urethra—including developmental faults such as diverticulae, and a minor degree of epispadias which might not be noticed on inspection of the external meatus—are among the possibilities. Masturbation is also said to cause stress incontinence in young women. Apart from a thorough examination of the nervous system, examination under anaesthesia and cystoscopy may well be indicated.

If, after exacting inquiry, no other cause can be found, then a congenital or developmental weakness in the muscles and fasciae concerned in the control of the urethra must be assumed, and treatment is not easy. For stress incontinence due to obstetrical injury, various plastic operations on the bladder neck and urethra are carried out, but the results are by no means uniformly successful. In a case such as this, if the musculature is inherently weak then such operations would be even less likely to be successful, and something in the way of a fascial transplant from the abdominal wall to form a sling round the urethra might be required. It is difficult to say whether operative treatment is indicated here; it depends how troublesome the incontinence is, how often it occurs, what part is played by anxiety and loss of confidence, whether the patient intends to have children—and if so it might be more opportune to deal with it when the incontinence has been made worse—as it is likely to be—by childbearing. Unless the loss of bladder control is frequent and really troublesome, treatment on more general lines seems preferable, at any rate for the moment.

The patient should be told to pass urine frequently and to avoid a full or distended bladder. Contrast baths might help to tone up pelvic musculature, but, above all, pelvic-floor exercises should be tried. The urethral sphincters are assisted by the "accessory sphincter muscles"—i.e., the levatores ani and other muscles of the pelvic floor—and these might be trained to compensate for the weakness of the involuntary structures. Calcium and nux vomica are advised, but drugs are not likely to improve matters. Ergot in the form of the liquid extract was advised by some of the older writers. If it has any action on the involuntary sphincters, then presumably it is by reason of its alkaloids, ergotoxine or ergotamine, which have a stimulating effect on plain muscle supplied by motor sympathetic nerves. But recent workers suggest that the involuntary sphincters of the urethra are controlled by parasympathetic rather than sympathetic nerves, and in any case it is difficult to see how contractions resulting from ergot could have any lasting effect on the incontinence. Moreover, since ergotoxine and ergotamine are both liable to produce gangrene, they could not safely be given for more than a few days at a time.

It is not clear what is meant by the statement that the uterus and the urethral sphincter are of the "same structure." There is not a single sphincter in the female, but rather a sphincter mechanism which is complex and by no means fully understood. The internal and external sphincters are composed of involuntary muscle, the latter being of little significance. Between the two is the compressor urethrae, which is at least partly under voluntary control. To these must be added the fibromuscular fascia and ligaments lying beneath the anterior vaginal wall and around the urethra and bladder neck, and the accessory sphincter muscles of the pelvic floor; the length and direction of the urethra and the position of the bladder in the pelvis also play a part. It is not possible to compare a system of this kind with the uterus, and the only comment which might be made is that if this patient's incontinence is due to developmental weakness of the musculature of the urethra and surrounding parts, then the supports of the uterus and vagina may be similarly affected and she is perhaps predisposed to prolapse.

Treatment of Undulant Fever

Q.—*One of my patients, a man aged 53, has had undulant fever for 4 months. After 6 weeks the agglutination reaction of Brucella abortus was positive to a titre of 1:1250. His temperature still varies from 99° to 101° F. I understand that T.A.B. vaccine given intravenously is sometimes useful in cutting short the pyrexia. I shall be grateful for any information regarding this, or any other form of treatment, with details of dosage, etc.*

A.—Protein shock with T.A.B. vaccine has been used with some measure of success in undulant fever. It is usual to give three intravenous injections containing 25, 50, and 100 million organisms at 4 to 5 day intervals, but dosage will depend on the degree of pyrexial reaction to the first injection. A course of sulphonamide is sometimes effective, but it should not be continued beyond 10 days without white-cell counts. Another drug that has been recommended for undulant fever is "fouadin" (stibophenum) injected intramuscularly: the dosage is 1.5 c.cm. on the first day, 3.5 c.cm. on the second day, and then 5 c.cm. on alternate days. However, this patient's illness has already lasted 4 months and is likely to terminate spontaneously at any time now (the average duration of abortus fever is 10 weeks), so that it is doubtful if any heroic measures should be instituted at this stage.

A Case of Eunuchoidism

Q.—*A well-developed and otherwise healthy boy of 17¾ was brought to me because his voice had not "broken." He had no sign of hair on the face. Pubic hair was, with the exception of two or three downy hairs, also absent. Penis was diminutive, and scrotum atrophic and empty. No sign of presence of testes anywhere was obtained. A course of gonadotrophic hormones was begun at once without result. What further treatment is indicated?*

A.—The failure to respond to gonadotrophic hormones suggests that the primary disorder is gonadal and not pituitary, the diagnosis therefore being eunuchoidism. It seems improbable that one could produce gonadal development in this case; but secondary sexual characteristics would be developed, or maintained, by androgens. These could be given in three forms: (1) injections of testosterone propionate, 25 mg. twice weekly for 6 or more weeks; (2) methyl testosterone, 5-mg. tablets dissolved under the tongue, 1 t.d.s., for similar periods; (3) the implantation of 6 testosterone propionate pellets, 100 mg. each pellet, in the subcutaneous fat of the abdominal region, the effect lasting some 8 months. On cessation of therapy, in all methods, there is a tendency to regression, but not complete. Nevertheless, the therapy is substitution therapy, and has to be carried out continuously or intermittently if remission is to be avoided.

As to the question of the undescended testicles, even if the condition is primarily of pituitary origin, descent will not be obtained by the administration of hormones should the testes be ectopic and mechanical anatomical obstruction be present. Occasionally cases have been described, of similar character to the present one, in which the gonads unexpectedly turned out to be ovaries or ovo-testes.

Sleep-walking

Q.—*A girl aged 14, normal in every respect, recently walked in her sleep. She dreamt she was going for a walk through a window. She climbed out of the window of her bedroom, and dropped 20 ft. on to the stones below, fracturing her spine. She is known to have walked in her sleep only once before. She is a stable girl, with apparently strong nerves, and not upset by such things as bombing, etc. What precautions could be taken against a repetition of the above?*

A.—Sleep-walking (like dreams) is a sign of an unresolved problem: in psychological language it is a case of "perseveration"—i.e., the tendency of the mind to revert to an unfinished train of thought. In ordinary language we call it "worry"; but in sleep-walking the worry has been repressed and has become dissociated and therefore acts automatically. Usually in a dream the attempt to work out the problem takes place purely subjectively, and without discharging itself in any motor path. But occasionally the problem is so urgent and vivid that, as in the case of Lady Macbeth, it discharges itself in action, and this action takes the form of re-enacting the original unresolved problem to try to find a solution. The dream helps us to discover what that problem is. Obviously the only satisfactory way of preventing a recurrence in this girl is to find out what that problem was, or is, and for this a really good medical child-psychologist should be consulted. It is quite usual for those having subjective problems and anxiety to be free from objective fear, as of bombs, and also to appear perfectly normal in behaviour.

Vitamin C and Hay-fever

Q.—*I have seen it stated that hay-fever has been cured or greatly alleviated by large doses of vitamin C—up to 500 mg. a day. The authority quoted is Dr. Holmes, president of the American Chemical Society, 1942. Has this investigation been followed up, and where is further information obtainable?*

A.—It was claimed by Holmes (*Southern Med. Surg.*, 1943, **105**, 56) and Holmes and Alexander (*Science*, 1942, **96**, 497) that vitamin C in doses of 200 to 500 mg. daily is effective in the treatment of hay-fever. The clinical trials, however, were not adequately controlled, and in Holmes's series conclusions were based on the study of only 25 patients. Strict control is essential in all studies on allergy. Other workers have failed to substantiate the claims made for vitamin C in the treatment of hay-fever (*J. Amer. med. Ass.*, 1939, **112**, 662; *J. Allergy*, 1944, **15**, 236).

LETTERS, NOTES, ETC.

"Skiagram"

Dr. H. CLEMENT SIMCHOWITZ (Guildford) writes: With reference to this matter may I be allowed to correct the quotation of Roentgen's paper in the letter from your correspondent (Dec. 23, p. 833), who, rightly, points out that Roentgen's discovery of *x* rays was not a "stumble" by "accidentally fogging a plate" but the result of systematic experimental research while professor of physics at the University of Wuerzburg, Bavaria. Roentgen's original paper, "Eine neue Art von Strahlen" (a new kind of rays), a copy of which is in my possession, was published in the *Sitzungsberichte der Physikalisch-medizinischen Gesellschaft zu Wuerzburg* (Proceedings of the Wuerzburg Physico-medical Society), December, 1895.

Payment of Doctors in Mental Hospitals

"A.M.O." writes: The letter in the *Journal* of Oct. 28, 1944 (p. 579), raises a matter which should be of paramount importance to medical officers in mental hospitals. A matron in a large hospital may now receive £600 salary and, in addition, emoluments valued at £200. The average salary of a medical officer is £400 to £500. The cost of qualifying in medicine is now about £1,500. Substantial increases in remuneration have been received by the nursing and clerical staffs. This service may become even less attractive to medical men unless the scale of salary is raised and the conditions in general improved.

Headache and "Acute Abdomen"

Mr. D. G. WILSON CLYNE (London, W.1) writes: I was interested to read the note from Dr. T. L. Crawhall (Jan. 13, p. 70) on headache in relation to the acute abdomen. The crux of the whole matter seems to be the exact meaning of the expression "acute abdomen." If one considers acute salpingitis to be a localized type of acute abdomen, then I cannot agree with his aphorism, "An acute abdomen with a headache is never an acute abdomen." During the first two years of the war I was called upon to perform all emergency operations in a large county hospital as an E.M.S. surgeon. This departure from my normal type of work gave me ample opportunity of noting the incidence of headaches, particularly in relation to acute appendicitis. I entirely agree with Dr. Crawhall's aphorism in so far as it applies to this condition, and would even go further and state that on no occasion in a large series of acute appendices did I encounter headache as one of the cardinal symptoms. This cannot be explained by the fact that I omitted to question the patients as to the presence or absence of this symptom; the contrary was the case. In gynaecological practice I have often been impressed by the frequent association of headaches with both salpingitis and pyelitis, and some time in the past I think that I must have encountered another aphorism which runs rather like this, "Abdominal pain and headache in a woman, of acute onset, suggest that she is suffering from either pyelitis or salpingitis." I have repeatedly found the presence of headache of value in the differential diagnosis between salpingitis and appendicitis, and would even say that there is only one really common acute abdominal condition with which headache is often frequently associated—namely, salpingitis. In fact the presence of headache in a woman with an "acute abdomen" should make one consider very carefully before performing a laparotomy.

Coarse Tremor in the Elderly

Dr. W. N. LEAK (Winsford) writes: In "Any Questions?" (Jan. 13, p. 67) your contributor says: "I cannot suggest any medicinal treatment which will help these patients"—i.e., elderly people with a coarse tremor. In 1935 (*Journal*, 1, 1097) I mentioned that prominal might "possibly find its most distinctive use in the control of tremors of various sorts, for many of which there is at present no effective medication." Experience since then has confirmed my opinion, and in the coarse tremor of the aged prominal (phemitone) sometimes produces dramatic improvement. For example, an aunt of mine, who could barely manage to drink her tea using both hands, within a week of commencing prominal was pouring out tea with one, to her great satisfaction.

Peptic Ulcer

Dr. P. K. MUSPRATT (Pleasington) writes: There appear to be many contributory factors in the aetiology of peptic ulcer, but I should like to stress one which is often ignored—namely, the ingestion of over-hot liquids. Digestive trouble is particularly prevalent among bus drivers and conductors, and I suggest that this may well be due to their consuming very hot tea which they have to drink quickly owing to the short time they have at the terminus. As the drivers appear to suffer more than the conductors the sedentary nature of their occupation may play some part. Women probably have more time and therefore drink their tea when it is cooler, especially as they take, as a rule, more sugar and milk, which cool the tea. The discomfort resulting from hot fluids is often not associated with its true cause, as it comes on a considerable time afterwards and is often associated with a feeling of faintness. I do not, of course, minimize the other contributory causes such as tobacco, alcohol, and perhaps the fumes from gas-fires with no chimney outlet, which escape into the room.

Mental Hospitals

Mr. J. P. SPENCER WALKER (Hove) writes: Dr. Otho FitzGerald (Dec. 2, p. 744) objects to the word "asylum," preferring mental hospital. He states that such institutions "are no longer merely places of rest and detention but provide active and specific forms of treatment." The word "asylum" is a beautiful word meaning sanctuary or place of refuge, and the word "hospital" means a place for the reception of guests, but neither in their original sense had anything to do with medical treatment—for example, St. Mary's and St. Bartholomew's Hospitals at Chichester. The former is still an almshouse, and so was the latter until recent times. The change from "asylum" to "hospital" was made owing to the debasing in the public mind of the former word.

Sensitiveness to Strychnine

Surg. Lieut. CAREY BAKER, R.N.V.R., writes: Dr. D. R. C. Shepherd's account of his case of sensitiveness to strychnine (Nov. 25, p. 694) recalled to mind a similar happening in my own experience. A married woman aged 36, a cook by practice, had been under my care for a week suffering from a heavy cold. On returning to work she felt rather listless and asked for a tonic. I gave her a mixture of iron and strychnine containing two minims of liq. strych. hyd. to the dose. I also was hastily summoned to find the patient collapsed, cold, pale, and almost pulseless within ten minutes of taking the first dose. Though I was sceptical about the attack being due to such a small dose of strychnine I could discover no other cause and was not prepared to experiment further. There was no previous history of sensitivity to the drug, but then, as the patient said, she seldom had to take any medicine. Fortunately no ill will was felt, the patient quickly recovered, and was given a strychnine-free mixture.

Gauze Impregnated with Paraffin

Messrs. JOHNSON AND JOHNSON (GREAT BRITAIN) LTD. write: We would draw attention to the article which appeared on page 856 of the *B.M.J.* of Dec. 30, 1944, entitled "Curtain Net Impregnated with Paraffin." This product was manufactured by us for many years under the name "porowax" gauze, and was demonstrated extensively on several occasions at the London Medical Exhibition and on one occasion at the British Medical Exhibition. It was listed and illustrated for several years in our catalogue, and we would be grateful if due acknowledgment could be made to these circumstances in your *Journal*.

Corrigenda

The duration of pregnancy in three of the cases of "A.I.D." reported in the *Journal* of Jan. 13 (p. 43) is given as "45 weeks." The sentence should, of course, read "terminated successfully at 35 weeks."

The medico-legal note headed "A Fatal Overdose of Carbachol" published on Jan. 13 stated, incorrectly, that the report of the inquest appeared in our issue of July 4, 1944. The date should have been July 4, *1942* (p. 28).

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THE CLINICAL CHARACTERS OF PAIN*

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in has been defined as a specific feeling that protects from xious stimuli. Pain is, however, not a single feeling. It is ther a group of distinct feelings, each of which has clinical aracters of its own. Thus pain of the skin is different from in of the muscles. Each type is related to a definite group tissues. Examination of this relation is of theoretical and agnostic interest.

Severity

The general level of severity of a pain can be influenced much by the patient's personality and surroundings that reliable conclusions can be reached from its study. The amination of the relative sensitivity of tissues is more useful. ot all tissues are equally sensitive. Some, like the cornea, e exposed to injury, and yet the effects can be serious even ough the injury be slight. These tissues, as may be expected, ve a high degree of sensitivity; but the sensitivity of ordinary sues is much lower. It would be very inconvenient if the nsitivity of all tissues were high. When the injury is so ild as not to be of any consequence it does not reach nsciousness. On the other hand, if the stimulus, even though ild, persists too long or if the tissue is still suffering from e after-effects of a previous injury, further damage of any gree can be dangerous and the threshold of pain is then wered. The sensitivity of a tissue is not a constant, but a riable that changes with the previous history of the injured sue.

Thus if the skin is damaged in any way there develops after short interval a diffuse area of tenderness which surrounds e site of injury. This area is hypersensitive to stimuli of at, cold, pressure, etc., that from their degree would not rmally be enough to produce pain. This hypersensitivity limited specifically to the organs of pain; for example, e organs of touch are not affected, as can be tested by y's hairs. The central mechanism of this hyperalgesia is timately segmental, but the nerve distribution within the in is such that the area of tenderness around the site of jury follows a geometrical, not a segmental pattern, being ncentrical around the injured spot. It is never referred to a stance.

In the deeper tissues hyperalgesia occurs also. When 2 c.cm. a 6% hypertonic saline solution was injected deep in my ceps muscle, after five to six minutes there appeared definite nderness even on slight pressure over the site of injection. ter an interval the tenderness was more diffuse and was t over a large part of the posterior aspect of the arm. The nderness was not equally marked everywhere. Over the jury it was easy to elicit and to locate; at some distance was present as hypersensitive spots which kept changing eir place from time to time, especially after active exercise. ese spots were not easily located, and were vaguely circumcribed. Active exercise of the arm re-exacerbated the tenderss when it had become milder after rest.

Similar tenderness is met with in numerous clinical conditions, d its presence in a diffuse form may mislead as to the al site of injury. It has the same distribution as with deep in, it has not a geometrical but a segmental pattern, and can even be referred to a distance. Thus deep tenderness in diaphragmatic pleurisy may accompany pain over the neck and shoulder.

Power of Discrimination

The tracing of the curve of a pain's intensity against time is called the curve of time-intensity of that pain. The type of curve is influenced by the activity of the stimulus, but depends upon the properties of the injured tissue. In fact, the same stimulus applied in the same manner produces different curves in different tissues.

When 0.5 c.cm. of a 6% hypertonic saline solution was injected intradermally into my forearm it caused pain that was felt very early and rose very rapidly to its maximal intensity. When an equal amount of the same solution was injected into my triceps muscle the pain took some seconds to appear and some seconds more to become maximal. Again, when a pin-point is applied to the cutaneous surface the pain is immediate and maximal from the very start; it fluctuates in intensity with the variations in pressure of the pin, and disappears as soon as the pin is taken away. When, however, the skin and the subcutaneous tissue of a zone over the triceps muscle were anaesthetized by 2% novocain solution and a needle was inserted through this area into the triceps, the pain was not immediate. It took several seconds to appear; it increased slowly in intensity, did not fluctuate with the movements of the needle within the muscle, and persisted long after the needle had been removed. While skin pain portrays in its intensity curve the activity of the stimulus, muscle pain is not a faithful index of this activity, and is in this sense non-discriminative.

In the deep tissues discrimination is also defective in the power to distinguish as separate two distinct stimuli. When the overlying skin was anaesthetized two separate injections of 0.5 c.cm. 6% saline into my triceps, four inches apart, were not felt as distinct sources of pain. This was noticed whether the injections were given simultaneously or at an interval of 30 seconds from each other. With two injections the distribution of pain was somewhat different from that with a single injection; but the pain from either injection was so diffuse and its distribution overlapped so much in the area of distribution of the other pain that it was impossible, even with an effort of will, to detect two separate foci.

Power to Locate.—The power to locate the site of the injury from the pain that is felt depends upon the type of tissue injured. It is perfect on the cutaneous surface, but gets progressively more defective the deeper the tissue, as will be discussed later on.

Quality

Quality is the distinctive character of a sensation; but it is a character that cannot be described. We can, for example, say what physical stimulus carries the feeling of green vision or which objects look green, but we cannot describe green itself. Similarly with pain. We can say which stimuli cause a certain type of pain or we can compare it with another familiar pain, but we cannot describe the pain itself (Lewis, 1938). We use as terms of comparison a familiar pain which is related to some part of the body, as when we say that the pain feels like a tummy-ache; or we compare pain with that which is related to a function, as when a mother compares her pain to a labour pain. Much more commonly we make comparison with a pain that is provoked by a familiar stimulus, as when we call a pain "burning" because the same type of pain is produced by a burn. This is reflected in our terminology of pain (Lewis, 1938).

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* From a paper read in 1943 to the Malta (Over-seas) Branch of e British Medical Association

This common method of comparison based on the stimulus too often conveys the false impression that the characters of a pain are a function of the stimulus. If the quality of a pain were a function of the stimulus we could not explain why the same stimulus applied in the same manner should give pain of a different quality in different types of tissue. Thus the injection of 0.5 c.cm. of 6% hypertonic saline produces burning in the skin, aching pain in the muscles, and pain of a different quality in the subcutaneous tissue of the forearm. The quality of a pain is a function of the injured tissue. The same tissue will always give pain of the same quality, whatever the stimulus (Lewis, 1938). To become convinced of this one must take every precaution to obtain the pain in as pure a quality as possible. It is necessary to avoid stimuli that excite more types of tissue at a time; to eliminate all concomitant modifying feelings of touch, pressure, stretch, and temperature; and to use stimuli that act for equal intervals of time when comparing two tissues.

Types of Somatic Pain

From the quality and from other characters of their pain it is possible to classify human tissues into groups. Neither anatomical structure nor physiological function determines to which group a tissue belongs. Thus the injection of hypertonic saline within the triceps muscle of a patient who had post-undulant arthritis of the hip-joint produced pain which he regarded as of the same quality as the pain in his thigh. Injection of 0.3 c.cm. of 6% hypertonic saline within the tendon of my flexor carpi ulnaris gave pain whose quality and characters resembled the pain from my triceps but was different from pain provoked by an equal dose of the same solution injected at the surface of my tendo Achillis about an inch above its insertion. At least three types of somatic pain can be distinguished: (1) Surface pain, from the cutaneous and mucosal surfaces. (2) Subsurface or intermediate pain, from the subcutaneous tissues (where these are thin), from the submucosae, and from some adjacent structures when the subcutaneous tissue is very thin. (3) Deep pain, from muscles and from all the other sensitive deep tissues in general.

Surface Pain

If pain from the skin is very short it is pricking, if prolonged it is burning; the difference between the two being only of duration, not of quality (Lewis, 1938). Pricking can be elicited from exactly the same spot and by the same stimuli that give burning when the injury is prolonged. Pricking and burning are the only sensations of pain from the normal skin. They are generally modified by concomitant subcutaneous pain or by touch, temperature sense, etc., but if these feelings are eliminated the skin is unable to respond to any sort of injury except by pricking or burning. Burning is the sensation which we associate with excessive heat, but it is definitely not the response of the temperature organs to the excess of heat. Excessive heat produces burning because it produces prolonged injury and stimulates the cutaneous organs of pain. Also cold, if intense enough to cause injury, produces burning, as can be evidenced by prolonged immersion of a finger in a freezing mixture, by a cold wind, or by chilblains. Pricking or burning is absent in injury to the skin only if the cutaneous organs of pain are not functioning on account of destruction or otherwise. On the other hand, if the lesion is only superficial, as in a mild burn, no other pain will be added.

Itching

Injury to the skin can also produce itching, but for itching to appear the stimulus must act on a skin that is hyperalgesic. Itching is not elicited from a normal skin. In a skin that has been already injured, as in dermatitis, it can be provoked even by very slight added injury, such as scratching, the application of ointments, changes of temperature, etc. The quality of itching cannot be distinguished from the pricking-like pain which is produced by droplets of strong acids or of other irritants if they fall on the skin in size so minute as not to be felt. is suggested that itching is only a variety of surface pa which is completely free from any other sensation and whic occurs in skin that is hyperalgesic from a previous injury.

Other Characters of Cutaneous Pain

The functions of surface pain are obviously directed towar providing enough information about the offending stimulus make adequate defensive reactions possible. In fact, all i characters tend to promote accuracy: the pain is very we located; it is localized and never referred to a distance; t power of discrimination is good. The protective reflexes pr voked by the injury are all directed with considerable precisi towards the elimination of the stimulus or towards the wit drawal of the injured part from danger. Typical are t scratch and the flexor reflexes. If the stimulus is adequa there is an added systemic reaction which invigorates the mi and the body and enables the individual to face the dange Sympathetic activity is then increased; the mind is on the ale and emotions of anger, rage, fear, etc., may appear. The reactions are sometimes provoked purposely by inducing surfa pain. Thus they occur when we stimulate horses by whippi or during certain forms of treatment of a fainting fit.

Pain from the Mucosae

Not all the mucosae are sensitive. Those that are dista from injury of external origin are insensitive. When, howeve a mucosa is sensitive its pain is pricking or burning, as c be expected when we consider that a mucosa is a surfac Itching, pricking, and burning are familiar results of inju to the stratified mucosae of the conjunctiva, mouth, thro anal canal, urethra, labia, and lower vagina. Whatever t stimulus, the pain is always of the same quality. Thus burni in the mouth occurs whether the injury is due to hot fo or to a chemical irritant, catarrhal inflammation, ulcer, atrophy from a deficiency disease.

The oesophageal mucosa is normally insensitive to t presence of gastric juice, which regurgitates even during norm digestion. When, however, the mucosa is injured from a cause it becomes sensitive to further injury. Its pain is th burning. The pain occurs during the ingestion of irritan or during digestion when acid juice regurgitates. It is th spoken of as heartburn. It is diffuse, and is located vague behind the lower part of the sternum.

The pain of cervical erosion is not burning; but the muco of the cervix is so much adherent to the underlying tissu that the pain of cervical erosion is probably due to the subjacent tissues. The mucosa itself is probably insensitiv it does not respond to pin-prick. Equally the pain of t nasal mucosa, when provoked by ordinary stimuli, is d chiefly to the underlying periosteum to which the thin simp mucosa is adherent. If stimuli that act only very superficial are used, as in the inhalation of ammonia or on the instillati of hypertonic drops, the pain elicited is purely pricking burning. The nasal sinuses and the middle ear are usual described as having a sensitive mucosa; but probably t mucosa is insensitive and the pain which is felt is perioste Pain from the larynx is pricking or burning.

The transitional mucosa of the urinary bladder also gi pricking or burning pain, but its behaviour is peculiar. T mucosa over the fundus is innervated from the lumbar segmen while that over the trigone is innervated from the sac segments. The sensitivity varies accordingly. When cystos[illegible] patients, under local analgesia, were examined in my presen it was shown convincingly that the mucosa of the fundus w completely insensitive and that pain from the fundus cou be elicited only from the structures underlying the muc In contrast to this the mucosa of the trigone was very sensiti Crushing of a tiny fold between forceps produced pain wh quality was unmistakably burning. However, the pain w not located to the bladder but to the surface of the perineu Pain of a different quality was obtained only if the stimul also excited tissues that lie beneath the mucosa.

Subsurface or Intermediate Pain

The tissues that lie immediately beneath the skin or benea the mucosae give pain whose characters differ from those surface and of deep pain.

There seems to be a difference in the quality of the pain. Subcutaneous injury to a region where the subcutaneous tissues are thin, as over the forearm, gives pain of a quality which is distinct from pricking, burning, or aching. However, it is possible that this difference in quality from deep pain is felt only because it is modified by concomitant surface pain. When testing the subcutaneous tissues it is desirable to eliminate cutaneous pain, but it is not easy to do this convincingly without interfering with subcutaneous sensitivity. If unguentum anaesthesinae be rubbed over an area of lightly scarified skin till this feels numb to a pin-prick, or if an intradermal wheal be produced by a solution of novocain and adrenaline, a subsequent injection of hypertonic saline in the underlying subcutaneous tissue can be presumed to give pain that is unmodified by cutaneous pain. Its quality differs somewhat from deep pain; it is, if one may say so, of a higher tone.

Where the subcutaneous tissues are thick, as in the female mammary region, pain of the inner strata is not described as different in quality from deep pain. On the other hand, where the subcutaneous tissues are very thin, so that the skin is adherent to the deep fascia and underlying structures, the pain from these structures is also different from deep pain. Thus the periosteum over the tibia or over the knuckles, the outer fibres of the tendo Achillis, and the fibrous web between two fingers give pain whose quality differs from deep pain (Lewis, 1938).

Just beneath the body surface there is a second coating of tissues, pain in which is distinct in character from deep pain and complementary to surface pain in detecting injury of external origin. More than in quality, this intermediate type of pain differs from deep pain in its power to discriminate and to locate the injury. The pain is somewhat diffuse, but its diffusion is always limited to a narrow zone around the injury. It gets wider when the tissue is deep, but it is not referred to a distance. The reflexes provoked through it reinforce the surface reflexes in producing brisk movements, as can be evidenced by the technique adopted for the Babinski response.

The submucosae and some other structures to which the mucosa is adherent when the submucosa is very thin, as in the muco-periosteum of the nasal sinuses, are the seat of pain which is also distinct from deep pain. Thus pain from inflammation within a nasal sinus or within the middle ear is different in its quality from surface and deep pain. This pain, however, is not easily located. When the submucosa lies in a cavity that is at a distance from injury of external origin the pain is referred to an area over the surface which is innervated by the same segment.

Deep Pain

Pain from deep tissues has an aching quality. It is common to muscles and to all the other sensitive deep tissues in general.

Deep pain raises the alarm when injury reaches a deep locality, but it does not by itself furnish any useful information to help in eliminating the stimulus. It is non-discriminative. It is unable to disclose more sources of pain even if these are considerably distant from each other. It starts late, persists long, and does not portray the activity of the stimulus by fluctuations in its intensity. The pain is always very diffuse. It is impossible, from a deep tissue, to get pain which is felt only at the site of injury. The pain radiates to a distance, and this radiation is often extensive. There are several factors which determine whether the pain remains local or radiates extensively. The severity of the injury is important. A stronger concentration or a bigger dose of the hypertonic saline which was injected in my triceps determined different grades of diffusion. The time-interval after the injury is important too. When adaptation to pain starts after a variable interval, the pain becomes restricted to a narrow area; but subsequent injury of any nature, or even active muscular exercise, can not only re-exacerbate the pain but also make it extend to some distance. A very important factor is the depth of the injured tissue. The deeper the tissue the greater is the tendency of the pain to radiate extensively (Kellgren, 1939). The relation of the injured tissue to structures of vital importance, as the spine, is perhaps also important. The nearer the tissue to such structures the more the pain is radiated.

The radiated pain can be as intensive at a distance as over the site of injury. Thus when 2 c.cm. of a 6% saline solution was injected into my triceps the pain in my elbow and forearm was as intense as the pain in the arm. Sometimes the pain is more intense at a distance than over the injury. When 1 c.cm. of hypertonic solution was injected into the upper margin of the trapezius muscle at an equal distance between the head and the shoulder the pain was felt most intensely at the angle of the jaw, so that one would locate the injury much higher than it actually was. In these circumstances one speaks more of the diffused pain than of the pain over the injury, and indeed can ignore the latter pain completely, unless an added factor directs attention to the real site of injury. If the pain is exacerbated by the movements of a joint or by the active contraction of a muscle of which the patient is fully aware, it will be easy for the injured individual to connect the pain with the region that causes the exacerbation. Equally, if deep injury is accompanied by injury to overlying subcutaneous tissues or skin and subcutaneous tissues, the power of these tissues to locate will direct the individual's attention to the site of injury. Thus when 2 c.cm. of hypertonic saline was injected into my triceps by means of a very wide-bored needle through a normal skin, the pain was felt in the arm, elbow, forearm, and even hand, but it could be made out that its source was in the arm. When, however, an intradermal wheal was produced by a solution of novocain and adrenaline and the injection was performed through this wheal with a very fine needle, which was inserted to the same depth as on the previous occasion, the pain had practically the same distribution as before; but, so long as the arm was kept at rest, not even with an effort of attention was it possible to be sure that the pain originated in the arm. When the triceps was made to contract, especially if it was made to contract isometrically against resistance at the wrist, the pain in the arm was exacerbated, and that made the source appear more manifest.

Possibly, pain that is referred from certain viscera is badly located for similar reasons. It has been determined that many viscera are connected by their pain afferents to the centres which subserve the deep somatic structures. These centres can therefore be stirred into activity from either source, so that pain from the viscus and pain from the somatic tissues cannot be distinguished from each other (Lewis and Kellgren, 1939). Thus stimulation of the first lumbar interspinous ligament evokes pain with the distribution and other characters of renal colic, including retraction of the testis; stimulation of the left seventh cervical or of the left first thoracic ligament evokes pain which extends down the arm and cannot be distinguished from angina of effort. In these instances the patient is unable to distinguish whether the pain is visceral or somatic, or to locate its source. In either case there is no added factor which can attract his attention to the injured somatic spot or to the disturbed viscus. The patient will hence speak only of a diffuse deep pain along the segment.

The reflexes that accompany deep pain, far from provoking brisk defensive movements, produce tonic contractions and quiescence. They aim more at resting the injured part and protecting it from subsequent injury than at eliminating the offending stimulus. The contraction is slow in onset and gets maximal only after a considerable interval. Sometimes the rigidity is slight and passes unobserved, the patient limiting his movements more from fear of exacerbating the pain than from inability to move on account of spasm. When, however, the injury is appropriately located as near a joint, near a cavity, or near a vital organ, the spasm may be such as to resist even deep anaesthesia and hamper operative intervention. It may be localized, but when severe it may form a definite barrier around the greater part or the whole of the injured segment, and may even occur at a distance from the injury. Thus the cremaster may contract when the injury is located in the spine.

The general reactions that are associated with deep pain tend equally to inhibit activity. Far from being invigorating, they cause mental and physical depression, with diminished knee-jerks, low blood pressure, etc. If the injury is severe, especially if it is diffuse and located within the trunk or very near to it, the full picture of "nervous" shock appears.

The Segment

However diffuse or referred deep pain may be, its distribution follows always a segmental pattern (Kellgren, 1938). The same pattern fits the deep tenderness as well as the muscular rigidity that accompanies the pain. If in embryonic life the injured tissue has migrated from its first relative position to another segment, the pain still extends along the segment from which the tissue has migrated and to which it has remained attached by its innervation. This is exemplified typically by the pain from a lesion to the central part of the diaphragm whose area of diffusion lies in the area of distribution of the third and fourth cervical nerves.

Within the affected segment the direction of the diffusion of deep pain is determined more by the level of the segment than by the situation of the injured spot in the segment. Thus in a thoracic segment the pain is felt anteriorly even if the injury is situated as far backwards as an interspinous ligament. In the last thoracic and in the upper two or three lumbar segments there is hardly any space anatomically for an anterior diffusion, and deep injury at this level causes backache. In the upper cervical segments the direction is predominantly posterior to the occiput; in the lower cervical it is predominantly anterior to the arms.

This extension of pain in an anterior or posterior direction occurs the same whether the pain is visceral or somatic in origin. As already stated, renal colic and interspinous injury give pain with identical distribution. Backache can be caused by a lesion in a pelvic viscus or in a somatic structure. With thoracic or abdominal pain there is a tendency to look for visceral lesions and to forget somatic causes; and, in lumbar pain, to look for somatic and forget about visceral lesions. This tendency probably arises from the greater frequency of visceral lesions in thoracic or abdominal pain and of somatic lesions in lumbar pain; but it is wise to be "segmentally minded" and to investigate all structures within the segment in every case.

Visceral Pain

The viscera lie, as a rule, so deep within the segments that they are well protected and do not therefore respond to the stimuli that provoke pain ordinarily in the somatic tissues. Many viscera are completely insensitive, and any pain that is associated with them is caused by an extension of the lesion to adjacent tissues, as to the parietal peritoneum or to the retroperitoneum. Other viscera are sensitive, but their stimuli must be appropriate to them, and their pain has the same characters and is probably furthered by the same mechanism as somatic pain. Embryologically these viscera are intimately connected with the somatic tissues. They arise entirely from the mesoderm, from each side of the segment; they are paired, or have been paired during some period of their embryonic life. Examples are the kidneys and the heart.

There is still another group of viscera. These are hollow organs which have never been paired, but have had always a mesial attachment and have included ectoderm in their cavities. Pain from these organs has distinct characters. It is exemplified typically by the pain of obstruction from a stenosing carcinoma of the colon. The appropriate stimulus is related to the spasm, which is a response to the stretching provoked by the obstacle. This pain, in quality, is not different from deep pain, and can be simulated by injecting hypertonic saline in the abdominal rectus muscles, but it is never accompanied by muscular rigidity or by tenderness of any kind; hence compression of the wall and active movements are not resented, and the patient may press his abdomen, bend, and writhe about restlessly in a vain attempt to obtain relief (Morley, 1937). The pain is diffuse, but even when maximal it remains always mesial and never extends beyond the abdominal wall to the limbs. Its distribution is segmental (Brown, 1942). It is referred to the level from which the viscus migrated in embryological development. It is epigastric for the stomach, duodenum, and gall-bladder; umbilical for the small intestine and appendix; hypogastric for the colon and urinary bladder. Pain from the rectum is felt vaguely about the site of the viscus.

Pain from Nervous Tissues

Before concluding it must be mentioned that clinically there is yet another type of pain derived from a lesion to the nervous tissues, central or peripheral. In the sense that it is never meant to serve a defensive purpose this pain is not physiological, and therefore is not considered further here.

Conclusion

From their clinical characters we can distinguish types of pain each of which is related to a definite group of tissues. These tissues have in common their relation to the body surface.

There must be in each segment a complex mechanism which presides over the manifestations of deep pain in that segment. This mechanism can be set in motion by certain visceral as well as somatic afferents. Their connexions must be such that the whole or the greater part of the mechanism can be set in motion even by limited injury; hence the pain is distributed widely and lacks discrimination. More superficial tissues have connexions which are more limited, while the connexions of the hollow abdominal viscera which have a mesial attachment in their embryonic life are distinct.

The connexions from the skin must be entirely different, as the pain differs not only in discrimination, power of location, and type of reflexes provoked, but also in quality.

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SOME SOCIAL ASPECTS OF BURNS IN GLASGOW

BY

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The Magnitude of the Problem

The present high incidence of accidental burns in the civilian population, causing incapacity often of long duration, is a problem of great importance to the community in a state of total war. The study of the factors related to the occurrence of these injuries is of immediate interest. It should reveal also whether or not the high incidence may be expected to continue with the resumption of more normal conditions.

The progressive increase in the numbers of cases of burns admitted to hospital in Glasgow over a period of 100 years has been shown clearly by Dunbar (1934); it is probable, as Dunbar himself suggests, that part of this increase was due to a greater liability or inclination of burned patients to be treated in hospital in the latter part of the period surveyed, but that can hardly be the only factor concerned. Thus at the beginning of the period—in the decade 1833–42—the maximum number of cases admitted to the Glasgow Royal Infirmary in 12 months was about 80. At that time the Royal Infirmary was the only Glasgow hospital to which patients with burns were admitted. In the last decade considered by Dunbar—1923–32—a level of about 320 admissions in 12 months was reached, in spite of the fact that by this time two other large voluntary hospitals were treating these injuries. In the 10-year period 1933–42 a maximum yearly admission of 327 cases was attained. In the 14 months from June, 1942, to Aug., 1943, 1,803 cases of burns were treated in the burns unit of the Glasgow Royal Infirmary, and, of these, 303 (16.8%) were admitted to the wards.

The following points should be noted as a preliminary to the considerations given later: (*a*) The Royal Infirmary Glasgow, is situated in an industrial area and might therefore be expected to deal with a high proportion of industria accidents. (*b*) The large numbers of infants and children treated for burns at the Infirmary do not represent all the

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[*] Working with a part-time grant from the Medical Research Council.

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cases of burns in the district. Some would be treated at the Royal Hospital for Sick Children. (*c*) There is no reason to suspect preferential admission of one or the other sex to the burns unit of the Infirmary. (*d*) No cases of burns due to enemy action are included in this series.

Incapacity due to Burns

The 1,803 cases of burns are responsible for a considerable amount of incapacity among the wage-earners of the community. Analysis of the period of disablement in the various age groups of the 303 cases admitted to hospital is made in Table I. The figures indicating the disablement period include the total time spent in hospital and an average of 7 days during which outdoor treatment was given. This is a very conservative estimate.

TABLE I.—*Age and Sex Distribution of 303 Cases of Burns admitted to Glasgow Royal Infirmary*

Age (Years):	0–10	11–20	21–30	31–40	41–50	51–60	60+	Total
Males . ..	77	23	13	22	13	11	8	167
Females	65	19	13	12	9	10	8	136
Total ..	142	42	26	34	22	21	16	303
Average period of disablement (days) per case	34·2	36·1	44·6	39·4	38·8	39·2	32·9	

In the age group 15–60 years the immediate result was a loss to the community of an average of 3,180 man-hours per month. In addition an average loss of 2,900 man-hours per month (calculated on the basis of an 8-hour working day) occurred in 668 cases of this age group treated wholly as out-patients. This loss of a total of 6,080 man-hours per month does not include a period of partial incapacity, the extent and duration of which it has been impossible to estimate; nor does it take account of the remote effects of the more severe burns sustained during the first 15 years of life, or the remote effects, psychological and material, of severe disfigurement.

Mortality due to Burns

Some idea of the magnitude of the problem can be obtained from the recorded mortality figures in relation to burns in Britain, and the United States of America (Table II). (The figures for Britain were obtained from the Reports of the Registrar-General, 1937; those for America from the U.S. Bureau, Vital Statistics, Special Reports, 1939, **7**, 77, quoted by McClure, 1939). The increasing numbers of burns noted by Dunbar, together with the attendant disability and these mortality figures, suggest that there is every prospect of the maintenance of this high incidence.

TABLE II.—*Mortality from Burns in Great Britain and the U.S.A.*

	Scotland, 1937	England and Wales, 1937	U.S.A., 1939
Population	4,976,610	41,031,000	128,000,000
Deaths from burns ..	256	1,318	6,240
Death rate per 10,000	0·51	0·32	0·49

All differences mentioned in the present report have been tested for statistical significance, and are unlikely to have arisen as the result of chance unless it is specifically stated.

Aetiological Factors

Analyis of the cases treated at the Glasgow Royal Infirmary from June, 1942, to Aug., 1943, provides the following information.

TABLE III.—*Age Incidence*

Age Group (Years)	Population, 1931 Census	%	Total Burns	%	Rate per 1,000	Total Admissions	% Total Cases
0–	225,334	20·7	737	41	3·28	142	19·3
11–	192,173	17·7	392	22	2·05	42	10·7
21–	188,215	17·3	216	12	1·15	26	12·0
31–	153,856	14·1	181	10	1·18	34	18·8
41–	130,875	12·0	150	8	1·15	22	14·7
51–	107,355	9·9	77	4	0·72	21	27·2
61+ ..	90,653	8·3	50	3	0·55	16	32·0
All ages ..	1,088,461	100·0	1,803	100	—	303	16·8

Age.—Of the total of 1,803 cases 41% occurred in the first 11 years of life, the proportion falling with each successive decade. Only 3% of the cases occurred in persons over 60 years of age (Table III). The very high incidence of burns in infants and children is shown by the fact that 53% of the cases occurred in the first 15 years and 25% in the first 3 years of life. On the basis of the age distribution of Glasgow's population in 1931, no excess of burns in children could have been suggested if only 20% had occurred in the first 11 years of life. The figure is, however, so much greater than this (41%) that it is probably significant in spite of changes in the age distribution due to the outbreak of war. With regard to the age distribution of cases admitted to hospital, Table III also indicates that the admissions in each age group were not proportional to the total cases. Fewer patients under 21 and more of those over 21—particularly in the ages above 40—were admitted to hospital. These differences are significant, and the general impression is confirmed that, while the incidence of burns is higher at the younger ages, the injuries are more serious in the older patients.

Sex.—Of the 1,803 cases 56.3% were males and 43.7% females—a ratio of 128:100. Of the 303 patients admitted to the wards, 55% were males and 45% females—a ratio of 123:100. Comparing the age distribution of male admissions with that of females, no real difference is demonstrable. In Dunbar's series, until 1865 the ratio of 200:100 obtained, and in the last decade considered by him the ratio was 100:100. Even if males and females were equally represented in the population of Glasgow it would be valid to deduce from the above figures an excess of male patients. But the 1931 Census figures show that females were slightly more numerous (93:100), and the withdrawal of men to the Services has probably emphasized the difference. It is concluded, therefore, that burns are more frequent among males than among females at every period of life, that this is equally true whether the cases are mild or severe, and that in these respects the position has altered but little in the last 10 years.

Cause of the Burn.—Information as to the cause of the burn was available only for patients admitted to the wards (Table IV). It is of interest to record that 13.9% of the domestic burns were due to hot tea.

TABLE IV.—*Causes (303 Cases)*

Type of Burn*	Cases	% Total	% Domestic
Industrial	52	17·2	—
Domestic	251	82·8	—
Scalds	*132*	—	*52·6*
Fire	*107*	—	*42·6*
Petrol	*8*	—	*3·2*
Electric	*4*	—	*1·6*

* No case of burn from enemy action or from conflagration is included in this series.

Contributing Factors.—The chief intrinsic factors apart from age and sex are mental. They include epilepsy, alcoholism, and insanity with attempted suicide. The incidence of these factors in the admissions is shown in Table V. Mental dullness was noticed in many cases, but in the absence of reliable criteria for its assessment no accurate statement can be made on this point. The influence of these factors is more accurately shown in relation to the number of burns in adults. The term "alcoholism" refers here only to a degree of intoxication amounting to stupor at the time of burning. Many patients had taken alcohol in small amounts, and its relation to the accident was difficult to assess.

TABLE V.—*Contributing Factors in 303 Cases admitted to Hospital*

	Cases	% Total	% in Patients over 15
Epilepsy	12	4·0	11·7
Alcoholism	6	2·0	5·9
Attempted suicide	2	0·7	1·9

Time of Burning.—The time of sustaining the burns in 1,803 cases is shown in Table VI. As might be expected, the majority of patients sustained the injury between 9 a.m. and midnight. In addition, the six-hour period which shows the greatest number of cases is 2 to 8 p.m. The time of burning in relation to age is of particular interest (Table VII). Altogether, 386 (21%) of the 1,803 patients received the burn after 8 p.m. Of this number 287 (74%) were under 16 and 144 (37%) were under 4 years of age. During the remaining part of the 24 hours only 47% of the burns were sustained at ages under 16 and only 22% at under 4. Statistical tests show no difference between the two periods as regards age distribution among patients under 16. But it is a grave reflection that while from midnight to 8 p.m. slightly less than half of the burns occurred in children under 16, yet from 8 p.m. to midnight—i.e., a time when one would expect young children to be in bed and safe—three-quarters of the burns sustained occurred at these young

Table VI.—*Time of Burning in 1,803 Cases*

Time	Cases	Time	Cases	
12 mn.–	8	12 noon–	126	
1 a.m.–	6	1 p.m.–	97	
2 ,, –	8	2 ,, –	120	
3 ,, –	4	3 ,, –	154	
4 ,, –	6	4 ,, –	148	
5 ,, –	7	5 ,, –	154	
6 ,, –	17	6 ,, –	111	
7 ,, –	19	7 ,, –	149	
8 ,, –	50	8 ,, –	121	386
9 ,, –	101	9 ,, –	109	
10 ,, –	74	10 ,, –	100	
11 ,, –	58	11 ,, –	56	

ages. The last column of the table shows that the proportion of burns occurring after 8 p.m. was highest between ages 1 and 2 (38% of all burns at this age happened after 8 p.m.). The proportion varies between 23 and 30% at other children's ages, but for all ages over 16 combined it is as low as 11.7%.

Table VII.—*Age and Time Distribution (1,803 Cases)*

Age Group (Years)	Total No. Burned	Up to 8 p.m.			After 8 p.m.			Burns after 8 p.m. as % of Total at Each Age
		No.	%		No.	%		
0– ..	154	107	7·6	47·2	47	12·2	74·4	30·5
1– ..	202	126	8·9		76	19·7		37·6
2– ..	92	71	5·0		21	5·5		22·8
4– ..	147	104	7·3		43	11·1		29·2
7– ..	124	86	6·1		38	9·8		30·6
10– ..	104	74	5·2		30	7·8		28·8
13– ..	133	101	7·1		32	8·3		24·3
16+ ..	847	748		52·8	99		25·6	11·7
All ages	1,803	1,417		100·0	386		100·0	21·4

Extent of the Burn.—The average extent of the burn differed greatly in the sexes. This is seen to be due to the large proportion of males with burns of minor degree, and the greater proportion of severe burns in females (Table VIII). Only 13% of the males had burns involving over 15% of the body surface, against 27% of the females. In addition, the average area of the burn was 8% in the males and 14% in the females. The tendency for the more severe burns to occur in the female may be related to the difference in clothing.

Table VIII.—*Extent of Burn in 297 Admissions for which Data were available*

Area Burned (%)	Males		Females	
	Cases	% of Total	Cases	% of Total
0–	90	55	54	41
5–	52	32	43	32
15–	12	7	21	16
30+	10	6	15	11

Deaths due to Burns

In the series of 303 admissions there were 40 deaths. Fatality rates by age and sex are given in Table IX. At every age group the rate is higher for females than for males, and this in itself indicates that the excess fatality rate for females at all ages combined—17.6%, as compared with 9.6% for males—is significant. Using broader groupings, the figures suggest that the fatality rate is much higher at the older ages; but the total number of deaths is too small for valid statistical tests, so that this conclusion must be accepted with reserve.

Table IX.—*Fatality Rates by Age and Sex in 303 Admissions*

Age Group (Years)	Males			Females		
	Cases	Deaths	Fatality Rate (%)	Cases	Deaths	Fatality Rate (%)
0–	77	8	10·4	65	9	13·8
11–	23	0	0	19	2	10·5
21–	13	0	0	13	0	0
31–	22	2	9·1	12	2	16·3
41–	13	1	7·7	9	3	33·3
51–	11	1	9·1	10	1	10·0
61+	8	4	50·0	8	7	87·5
All ages	167	16	9·6	136	24	17·6
0–	100	8	8·0	84	11	13·1
21–	48	3	6·2	34	5	14·7
51+	19	5	26·3	18	8	44·4

When the age distribution of the deaths in this series is compared with that of deaths from burns in Scotland as a whole for 1941[*] no real difference can be demonstrated (Table X).

Table X

Age Group	This Series	Scotland, 1941
0–	17	105
11–	2	21
31–	8	21
51+	13	89
All ages..	40	236

$\chi^2 = 4{\cdot}9$. P = 0·17.

It is possible, therefore, to arrive at a very crude estimate of the number of admissions to hospital from burns in the whole of Scotland. For if 40 deaths arose from 303 admissions, then 236 deaths would have arisen from 1,788 cases of burns serious enough to be admitted to hospital.

The mortality from scalds was lower than that of other types of domestic burn. In 132 cases of scald 9 (6.8%) deaths occurred, whereas 29 deaths occurred in the other 119 domestic cases (24.4% mortality; difference, 17.6±4.5%). Only 2 deaths occurred as a result of industrial burns (3.8% mortality, as compared with domestic 15.1%; difference = 11.3±5.2%).

Summary and Conclusions

This report gives a statistical analysis of 1,803 cases of burns treated in the burns unit of the Glasgow Royal Infirmary between June, 1942, and Aug., 1943, particularly in regard to 303 patients who were admitted to hospital. It is supplementary to the series of papers published in "Studies of Burns and Scalds: Reports of the Burns Unit, Royal Infirmary, Glasgow, 1942–3" (Med. Res. Cncl. Sp. Rep. Ser. No. 249, 1944).

The incidence of burns was high at the younger ages, but the results were more serious in older patients. The incidence was higher among males, but fatality was greater among females.

The injuries were sustained most frequently between 2 p.m. and 8 p.m., but the incidence of burns at a late hour was greatest in the early age groups. Between midnight and 8 p.m. less than half the burns sustained occurred in children under 16, but between 8 p.m. and midnight three-quarters of the accidents occurred at these young ages. The grave social implication of this finding is stressed.

We are indebted to Mr. A. M. Clark, surgeon in charge of the burns unit, for permission to publish these findings; and to Dr. L. Colebrook, Prof. J. W. S. Blacklock, and Prof. M. Greenwood for much helpful criticism.

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CHRONIC INTRACEREBRAL HAEMATOMATA

THEIR PATHOLOGY, DIAGNOSIS, AND TREATMENT

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Intracranial haemorrhages may result from rupture either of normal or of diseased blood vessels. Apart from tearing by accidental forces, healthy cerebral blood vessels rarely burst; on the other hand, when weakened by disease or by congenital malformation the walls of a cerebral blood vessel may give way when subjected to normal stresses and strains.

Spontaneous subarachnoid haemorrhage is a well-known cerebral catastrophe, diagnosis readily being made by lumbar puncture. The clinical picture is usually characteristic. A previously healthy young or middle-aged person is struck with a sudden and severe pain in the head which rapidly radiates into the neck and may reach as far as the fingers and toes. Consciousness may or may not be impaired, and when impairment does occur this may be immediate or delayed. Cranial nerve and limb palsies may or may not develop.

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[*] Latest figures available.

Blood is always present in the cerebrospinal fluid. Such haemorrhages result from the rupture of aneurysms of congenital origin, which most commonly arise from the vessels forming the circle of Willis. They do not result from the weakening of the vessel walls by syphilis or by any other degenerative process. Embryologically, the endothelial element of the cerebral vascular system is laid down first as solid columns of cells, and these columns later canalize to form the blood channels. The mesodermal coats of the vessels are laid down in sheets. Occasionally these mesodermal sheets fail to meet perfectly at the apex of the junction of two vessels, thus leaving a weakness or congenital defect. It is at such a site that the endothelial coat is likely to balloon and rupture even under the forces of a normal blood pressure. An alternative hypothesis on the formation of aneurysms is that they arise from the stumps of primitive vessels which normally completely disappear. Since the aneurysms arise from vessels that lie in the subarachnoid space, it is thought that when they rupture bleeding must always take place into the subarachnoid space. Occasionally, however, a congenital aneurysm may become attached to the brain tissue and rupture intracerebrally, to cause a chronic haematoma with resulting hemiplegia, as the following two cases will show.

Case I

On the evening of Jan. 22, 1943, a woman aged 28 was admitted to the Royal Victoria Infirmary, Newcastle upon Tyne, under the care of one of us (A. G. O.). It was ascertained from a relative that two hours previously, while sitting at a table writing a letter, she had suddenly slumped forwards. At this stage of the episode she was still conscious, and complained of severe pains over the right eye; the left side of the mouth was twisted and the left arm and leg were stiff. Vomiting occurred on two occasions. Previous to the attack she had been in excellent health and had not been subject to headaches.

When first examined in hospital, the woman was found to be in a state of semicoma; the left side of the body was paralysed; both pupils were of mid-dilatation and both reacted briskly to light; the optic nerve heads were not oedematous; the pulse rate, blood pressure, and temperature were normal; and respiration was deep and rapid. A diagnosis of a spontaneous subarachnoid haemorrhage was made, and this was later confirmed by lumbar puncture, the cerebrospinal fluid being heavily stained with blood. Later, special investigations proved that there were no metabolic disturbances resulting from dysfunction of the kidneys, pancreas, or liver. The blood Wassermann reaction was negative. We came to the conclusion that the subarachnoid haemorrhage was due to rupture of a congenital aneurysm situated somewhere on the circle of Willis, and probably on the right middle cerebral artery because of the left-sided hemiplegia.

On the third day after admission to hospital the woman was fully conscious and fully orientated, but the left-sided hemiplegia remained complete; she felt ill and suffered from considerable pain in the head, particularly over the right eye. From this time onwards very little change was noticed, save that occasionally she would become drowsy, when co-operation was imperfect. She complained continuously of severe headaches.

On Feb. 14 papilloedema was noticed for the first time; the hemiplegia was still complete, there being no evidence of any kind of improvement. On Feb. 16 she was transferred to the neurosurgical unit at the General Hospital, Newcastle upon Tyne, under the care of one of us (G. F. R.). At this date the neurological picture was as follows:

The woman was fully conscious and perfectly co-operative. Sight, speech, smell, and taste were normal. The whole of the left side of the body was densely paralysed. There was no sensory loss or any abnormal cerebellar signs. Both pupils were dilated and both reacted to light and to accommodation; there was a bilateral papilloedema of one dioptre. The blood pressure was 130/80.

Case II

During the evening of July 2, 1943, a young man aged 23 collapsed in his seat at a cinema and his friends carried him into the vestibule. Later he was taken home, and arrived there in a state of confusion, complaining of very severe headache. The next day he was admitted to the Royal Victoria Infirmary under the care of one of us (A. G. O.). At this time the man was in coma and the whole of the left side of his body was paralysed. The pupils were contracted and fixed and both eyes were pulled to the right; the optic disks were flat; both plantar reflexes were extensor; the knee-jerks were increased and the abdominal reflexes were absent. The man's head was extended and there was marked neck rigidity.

A diagnosis of subarachnoid haemorrhage was established by lumbar puncture. In the left lateral position the pressure of the cerebrospinal fluid, as measured by manometry, was 240 mm. of water, the normal figure lying between 150 and 50 mm. Further investigations proved that there was no generalized disease of the cardiovascular system, the blood pressure being normal. No metabolic disturbances were found to point to dysfunction of the kidneys, pancreas, or liver. The blood Wassermann was negative.

The next day the man was still unconscious, but less deeply so than on the day of admission; the hemiplegia on the left side, however, was still complete. On July 6, although his mental condition had improved, he was still confused. The pressure of the cerebrospinal fluid was 80 mm. The red blood cells had disappeared from the fluid, but there was xanthochromia. On July 18 the man was still complaining of severe headaches, and the pressure of the cerebrospinal fluid had risen to 180 mm. During the next two weeks his mental condition remained unchanged and there was no improvement in the hemiplegia. On Aug. 2 he was transferred to the neurosurgical unit at the General Hospital, Newcastle upon Tyne, under the care of one of us (G. F. R.). At this time the clinical picture was as follows:

The man looked ill and obviously had lost a good deal of weight. He was confused, but could co-operate in a simple neurological examination. The left side of his body was completely paralysed and the reflexes were typical of those of an upper motor neurone lesion. There was no sensory loss, nor were there any signs to point to dysfunction of the cerebellum. A bilateral papilloedema of one dioptre was present. The blood pressure was 140/95.

Discussion on Diagnosis and Treatment

In the above two cases the diagnosis of an intracranial congenital supraclinoid aneurysm was reasonably certain. Also, because of the hemiplegia, it was obvious that the aneurysms arose either from the middle cerebral artery or from some vessel close to it. From experience it is known that, with complete rest in bed, bleeding in this type of case will usually cease spontaneously and the hole in the aneurysm close by natural processes. Ligature of the internal carotid artery in the neck, although of great value in the treatment of a cavernous or subclinoid aneurysm, is of little use in the treatment of supraclinoid aneurysms. Repeated bleedings, in spite of rest, in ruptures of supraclinoid aneurysms are best treated by exposure of the aneurysm and local ligature or repair by muscle grafts.

It was, however, in the problem of the hemiplegia that we were particularly interested, and we came to the conclusion that the possible causes of the paralysis were as follows: (i) Obliteration of the channel of the middle cerebral artery either by rupture or by thrombosis. (ii) Pressure on the middle cerebral artery by the aneurysm itself. (iii) Pressure on the middle cerebral artery by a localized blood clot in the Sylvian fissure. (iv) Pressure due to an intracerebral blood clot. (v) Hydrocephalus due to blocking of the cerebrospinal fluid pathways.

Some years ago one of us (G. F. R.) saw a young woman who had had a spontaneous subarachnoid haemorrhage, due, no doubt, to rupture of a congenital aneurysm. From the start she was densely hemiplegic; papilloedema developed at a later date. In the belief that there might be a large surface clot compressing the convexity of the brain, the motor cortex was exposed by raising a bone flap. A large subarachnoid blood clot was in fact found and easily removed. Closure of the wound was so made that a subtemporal decompression was provided. After the operation the hemiplegia did not recede and, in spite of repeated lumbar punctures which proved that there was no further bleeding, the decompression continued to bulge. The girl was densely hemiplegic a year later.

In view of this experience, it was thought that some factor other than surface compression was the cause of the hemiplegia in the two cases under consideration. The secondary rise in intracranial pressure, as shown by the delayed papilloedema, was very suggestive of recurrent bleeding, although lumbar puncture proved on several occasions that bleeding into the general subarachnoid spaces had not occurred. In view of our uncertainty of the cause of the secondary rise in intracranial pressure and of the hemiplegia, it was decided to explore the region of the anterior end of the Sylvian fissure wherein the middle cerebral artery and its many branches lie.

Operation Notes and Results

Case I

On Feb. 18, 1943, under local analgesia, a temporal exposure was made through a muscle-split approach (Rowbotham, 1942). A piece of bone about the size of a five-shilling piece was removed. No blood was found in the extradural or subdural spaces. There was no blood clot beneath the arachnoid mater. The brain was bulging, and was obviously under pressure. All the exposed brain tissue was stained a yellowish colour. The upper temporal gyrus was widened and flattened, and beneath it a softening could be palpated with the finger-tip. The frontal gyri were normal.

By means of a brain cannula a large cyst was found at a depth of 2 cm. in the temporal lobe of the brain immediately below the Sylvian fissure. An incision was made into the brain tissue and the cyst opened; this was about 4 cm. in diameter. Its contents were fluid, consisting of altered black-coloured blood, and were easily removed by gentle suction. The wall of the cyst was smooth and, so far as could be judged by the naked eye, was formed by condensed brain tissue. There was certainly no adventitious membrane such as invariably surrounds a chronic subdural haematoma. In the roof of the cyst a small mound of hard blood was firmly attached to the cyst wall. This no doubt marked the site where rupture of the aneurysm had occurred. Also, it was obvious that the parent vessel was the middle cerebral artery or one of its main branches as it lies deep and high in the Sylvian fissure. In order to minimize the danger of further bleeding, the blood clot was covered with a muscle graft. The dura was left open to provide a decompression; the muscle and scalp layers were re-formed in the usual way, drainage of the cyst being maintained through a fine rubber tube for 12 hours.

Immediate Result.—At the end of the operation the woman's condition was no worse. The next morning there was definite improvement; she was much more alert and her attention was better sustained. Already she could make weak movements with her paralysed arm and leg. From this time onwards improvement was rapid, full power in the limbs being regained before the reflexes returned to normal. The papilloedema had receded by the third day. On the tenth day after operation the woman got out of bed, and finally walked out of hospital on March 6—that is, 16 days after operation.

Late Result.—Her convalescence was steadily progressive, and six weeks after leaving hospital she had regained her normal health. Later she became pregnant, and a child was born on Feb. 2, 1944. After the confinement her general health deteriorated considerably; she became extremely nervous, and for a period lost the use of her left arm. In September she went away for a holiday, and on her return had made a complete recovery. She was examined on Dec. 18; she then had no complaints and stated that she was feeling very well. She was a plump, healthy-looking woman, and neurologically there was not a single abnormal sign.

Case II

On Aug. 4, 1943, under local analgesia, a right temporal exploration was made by means of a periosteal slide (Rowbotham, 1942). A square of bone was removed from the anterior half of the exposure. On opening the dura mater no blood or any other abnormal collection of fluid was found in the subdural space. There was no clot in the subarachnoid space. The brain was bulging, and was obviously under pressure. All the exposed brain tissue was stained a yellowish colour. The gyri of the frontal lobe were widened and flattened, and beneath them a softening could be palpated with the finger-tip. The exposed gyri of the temporal lobe were normal.

By means of a brain cannula a large cyst was found at a depth of 2 cm. in the frontal lobe of the brain immediately above the Sylvian fissure. An incision was made into the brain tissue and the cyst opened. The cyst was about 4 cm. in diameter. Its contents were fluid, consisting of altered black-coloured blood, and were easily removed by gentle suction. The wall of the cyst was smooth and, so far as could be judged macroscopically, was formed by condensed brain tissue. There was certainly no adventitious membrane such as invariably surrounds a chronic subdural haematoma. In the floor of the cyst a small mound of hard blood was firmly attached to the cyst wall. This no doubt marked the site of rupture of the aneurysm. Also, it was obvious that the parent vessel was the middle cerebral artery or one of its main branches as it lies deep and high in the Sylvian fissure. In order to minimize the danger of further bleeding, the blood clot was covered with a muscle graft. The dura was left open to provide a decompression; the muscle and scalp layers were re-formed in the usual way, drainage of the cyst being maintained through a fine rubber tube for 12 hours.

Immediate Result.—At the end of the operation the man's condition was no worse. The next morning there was definite improvement. He looked better and said that he felt better. He was much more alert, and his attention was better sustained. Already the hemiplegia was beginning to recede; weak but definite movements were possible in both the leg and the arm. From this time onwards improvement was rapid, full power returning before the reflexes became normal. On the fifth post-operative day there was no sign of papilloedema and the decompression was flat. On Sept. 16 the man had completely recovered from his illness and walked briskly out of hospital.

Late Result.—Some weeks after his discharge from hospital he had a peculiar feeling as if things were receding from him; also the left side of the face began to twitch. He did not lose consciousness, and felt well again in a few hours. A similar episode occurred some weeks later. In Feb., 1944, he returned to his employment as a melter in a steel-smelting works and has worked regularly ever since, no time having been lost because of ill-health. On examination on Nov. 20 he was a healthy-looking man of excellent physique. He had no complaints, and, apart from the operative defect in his skull, which is of little importance, not a single abnormal sign was to be found.

Commentary on the Underlying Neuro-physiological Mechanism

Probably a combination of cerebral shock and widespread arterial spasm accounted for the sudden impairment of consciousness that occurred at the moment of rupture of the aneurysm. The sudden loss of power on one side of the body probably was due partly to the effect of the above two factors and partly to the fact that the blood which should have been passing along the channel of the middle cerebral artery was passing out of the hole in the aneurysm. The deepening unconsciousness and deepening paralysis which further questioning confirmed or established were due to increasing haemorrhage. As the bleeding ceased and as cerebral shock and arterial spasm receded, consciousness to a large extent returned. The mental dulling which remained was probably due to the pressure of the blood that had been extravasated.

On the other hand, even though consciousness largely returned there was no improvement in the hemiplegia in either of the two cases under consideration. Subsequent events, however, proved that the channel of the middle cerebral artery had not been irretrievably destroyed, because full recovery of function finally did take place. Therefore, although we did not know it at the time, the paralysis must have been due either to vascular spasm or to pressure interfering with the arterialization of the motor cortex. Moreover, the ischaemia could not have been complete, because absolute ischaemia even for a few moments leads to irreversible injury and to permanent paralysis of function.

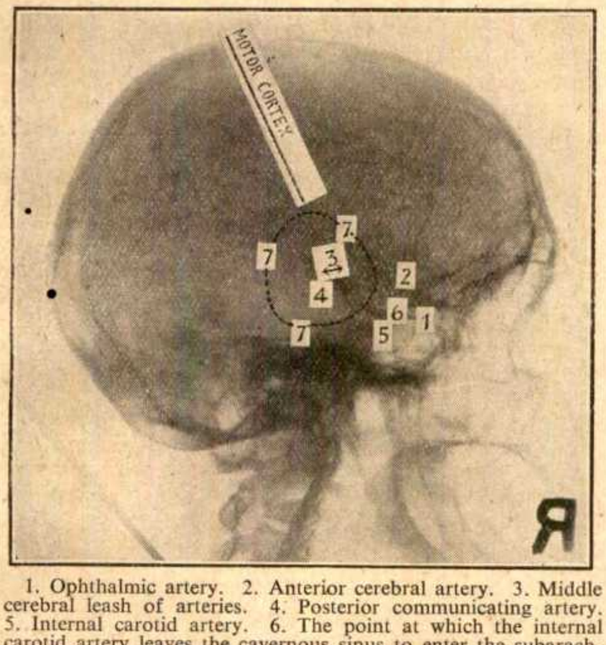
We felt that if the paralysis were due to the pressure of the extravasated blood it would be reasonable to assume that with time the blood would absorb and the paralysis resolve. The opposite, in fact, happened. Instead of the patients slowly recovering, intracranial pressure began to rise after an interval, and it is more than possible that they would have died of rising intracranial pressure. Even if death had not resulted it is very unlikely that recovery from the paralysis would have occurred from natural processes. The secondary rise in pressure was due to the breakdown of the intracerebral blood clot. As the clot broke down its molecular content increased, leading to a rise in osmotic pressure, so that fluid was drawn into the blood clot from surrounding tissues to form a blood cyst of increasing size. This increase in size accounts for the secondary rise in intracranial pressure, which was evidenced in both cases by the appearance of papilloedema and measured in one case by lumbar manometry. After drainage of the blood cyst recovery from the hemiplegia rapidly took place, thus proving the paralysis was due to the pressure of the cyst. The pressure could either have acted directly on the motor cortex by pushing up from below or have acted on the middle cerebral artery, causing partial obstruction of its lumen.

We came to the conclusion that pressure on the middle cerebral artery was probably the mechanism causing the hemiplegia, since recovery from the paralysis was so rapid. In our experience, in cases of hemiplegia due to long-standing compression, relief of the pressure does not lead to such quick improvement as occurred in the above two cases. It might be objected that recovery of function takes place rapidly after the removal of a large extradural blood clot caused by bleeding in the middle meningeal vessels. In such cases, however, the compression has lasted at most for one or two days, whereas in the two cases under discussion the compression and the hemiplegia had lasted 27 days in one case and 32 days in the other.

It might be suggested that at the time of operation it would also have been wise to expose the aneurysm, removing it or ligating its base, as well as draining the haematoma, so as to prevent the recurrence of further haemorrhages. This was not done because opening of the anterior end of the Sylvian fissure introduces the danger of starting up bleeding which is difficult to control, leading to the possible necessity for ligating the middle cerebral artery, with resulting hemiplegia of a permanent kind.

We should like to point out that the nature of the illness was explained to each patient before leaving hospital. The decision not to lead a completely sedentary life—one to have a child and the other to work before an open furnace—was made by the patients themselves. We believe they made the right decision. It is wrong to allow the sword of Damocles to hang too closely above one's head.

The above, so far as we are concerned, is a new venture into the therapeusis of intracerebral haemorrhages, and it has been a very successful one. It must be realized, however, that we chose to operate at the stage of the chronic subdural haematoma and not at the stage of an acute intracerebral haemorrhage. Possibly in those cases of hemiplegia following a subarachnoid haemorrhage it is also wise to operate even when there is no secondary rise in intracranial pressure. We doubt, on the other hand, whether surgery has much to offer in the treatment of ordinary apoplexy or, in fact, in the early stages of a cerebral haemorrhage due to any cause.



1. Ophthalmic artery. 2. Anterior cerebral artery. 3. Middle cerebral leash of arteries. 4. Posterior communicating artery. 5. Internal carotid artery. 6. The point at which the internal carotid artery leaves the cavernous sinus to enter the subarachnoid space. 7. The region in which the chronic cerebral haematomata were found in the two cases described in this paper.

Arteries which arise above the level of the cavernous sinus or clinoid process are classified as supraclinoid aneurysms; they burst usually into the subarachnoid space, rarely into the brain tissue, and sometimes into both. Infraclinoid aneurysms rarely burst either into the subarachnoid space or into the cavernous sinus itself. They do, however, commonly stretch the structures enclosed within the walls of the cavernous sinus, causing in particular a third-nerve palsy.

REFERENCE

Rowbotham, G. F. (1942). *Acute Injuries of the Head*, E. and S. Livingstone Ltd., Edinburgh.

With its issue for January, 1945, *The World's Children* starts its twenty-fifth annual volume and reverts to monthly publication. According to the leading article, the journal began as a record of the suffering caused to children as a result of the first world war, and in those days it earned the reputation of being, in the words of a Scottish newspaper, "the most melancholy magazine in existence." But there have also been bright spots in the twenty-four years' record of the welfare of children, and they too have had full place in the pages of *The World's Children*. It is published by the Save the Children Fund, 20, Gordon Square, W.C.1.

SULPHANILYLBENZAMIDE, SULPHANILYLAMIDOBENZAMIDE, AND SUCCINYL SULPHATHIAZOLE IN THE CHEMOTHERAPY OF SONNE DYSENTERY

BY

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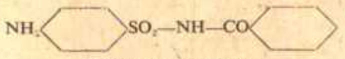
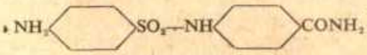
The treatment of bacterial infection of the intestinal tract by chemical agents was greatly encouraged by the introduction of sulphanilylguanidine (sulphaguanidine) (S.A.G.) by Marshall and his colleagues. The use of the drug is based upon the poor absorption from the gut of a compound soluble enough in the gut contents to be antibacterial to the pathogens concerned. S.A.G. is a rather poor antibacterial substance, and, while effective against dysentery due to Flexner strains, it has proved much less satisfactory in Sonne infections, particularly in effecting bacteriological cure of the Sonne carrier. To meet the difficulty, Brownlee and Tonkin (1941) have suggested the use of sulphanilylbenzamide (S.A.B.); and more recently sulphanilylamidobenzamide (S.A.A.B.) has been introduced. The constitution of these two drugs is shown below:



Sulphanilylbenzamide



Sulphanilylamidobenzamide

A point bearing on the toxicity of these two drugs is that, while their absorption is greater than that of S.A.G., they are acetylated to a less degree. The solubility of S.A.B. varies from 91 mg. per 100 c.cm. in an acid urine (pH 5.8) to 484 mg. in an alkaline urine (pH 7.8). The corresponding solubilities of S.A.A.B. are 112 and 95 mg. per 100 c.cm. (Brownlee: unpublished communication).

We are reporting the results of a clinical trial of S.A.B. on 41 patients of all ages suffering from Sonne dysentery, of S.A.A.B. on 112 patients, and of succinyl sulphathiazole (sulphasuxidine) (S.S.) on a small series of 26 for comparison. The majority were barrier-nursed, while the remainder were nursed in separate glass-walled rooms. In Sonne dysentery the symptoms are usually mild and the disease is more of a nuisance than a danger to the patient. Chemotherapy is therefore directed to the clearance of *Bact. sonnei* from the bowel rather than cure of the "illness," but it does in fact have a beneficial effect in that, in acute cases, within 24 to 48 hours the stools are usually formed, are normal in colour, and contain no blood or mucus when S.A.B. is used. This is true, though to a slightly less degree, for S.A.A.B.

The use of the rectal swab (Cruickshank and Swyer, 1940) and the introduction of desoxycholate citrate agar (Hynes, 1942) have shown that the convalescent carrier is much more common than was at one time believed. In fact, it has been stated that more than half of the clinically infected cases may still be excreting the organism 3 to 4 weeks after onset. Therefore elimination of this carrier state is of the greatest importance. The existence of the carrier being now generally accepted, control untreated cases were dispensed with in the present series and all bacteriologically proved cases were drug-treated. The patients' stay in hospital was divided into a preliminary observation period which averaged 9 days for the S.A.B., 4.5 for the S.A.A.B., and 6 for the S.S. series respectively, a treatment period of 5 days, followed by a second observation period averaging 14.8, 10.9, and 13.2 days for the same three series. As will be seen from an examination of Table II, the length of both preliminary and second observation periods varied considerably. This was caused by such events as concurrent diseases which delayed discharge of bacteriologically free patients, or by other circumstances beyond our control. During the whole of the three periods in the S.A.B. series daily specimens of faeces and rectal swabs (Sundays excepted) were plated on desoxycholate citrate agar, but in the S.A.A.B. and S.S. series bacteriological examinations were done on alternate days. Dosage of all drugs was according to weight of the patient, as shown in Table I.

TABLE I.—*Dosage of Drugs (in Grammes)*

Body Weight (in stones)	Initial Dose (1st 24 hours)	Daily Maintenance Dose for Next Four Days				Total Dose for Course
		1st	2nd	3rd	4th	
1	3·5	1·0	0·5	0·5	0·5	6·0
2	6·5	1·5	1·5	1·5	1·0	12·0
3	10·0	2·0	2·0	2·0	2·0	18·0
4	13·5	3·0	2·5	2·5	2·5	24·0
5	16·5	3·5	3·5	3·5	3·0	30·0
6	20·0	4·0	4·0	4·0	4·0	36·0
7–12	20·0	6·0	6·0	6·0	6·0	44·0

It will be seen from Table II that the average time taken to obtain bacteriological clearance with S.A.B. was 1.8 days, after an average of 9 days persistently positive. It is submitted that this rapid change from positive to negative, especially in patients with long preliminary-observation periods, may in a significant proportion of cases be attributed to chemotherapy. The second observation period of 14.8-days average may be too short to eliminate every intermittent carrier, but to do this thoroughly repeated examination over a much longer period would be necessary. This is not practicable in hospital routine. There was very little difference in the time required to obtain bacteriological clearance in the various age groups.

TABLE II.—*Time Required to Clear Bact. sonnei from Faeces and Rectal Swabs (155 Patients)*

Drug	Age Group	Cases	1st Observation Period in Days			Total Drug (g.)	Days to Clear Bact. sonnei	2nd Observation Period in Days		
			Longest	Shortest	Average			Longest	Shortest	Average
S.A.B. Full dosage	0–5	30	34	2	10·0	10·6	1·7	58	6	15·8
	5–12	3	9	4	5·6	20·6	2·0	16	8	12·3
	Over 12	5	8	4	5·4	37·7	2·0	15	6	11·0
	All ages	38	34	2	9·0	15·0	1·8	58	6	14·8
S.A.A.B. Full dosage	0–5	45	21	2	4·6	11·3	3·8	35	6	10·7
	5–12	19	8	2	3·0	20·0	3·0	35	6	12·1
	Over 12	7	4	2	2·6	51·4	4·4	36	6	14·0
	All ages	71	21	2	4·0	17·8	3·6	36	6	11·4
S.A.A.B. Half dosage	0–5	17	22	2	6·7	5·6	1·9	35	6	9·9
	5–12	8	8	1	4·2	11·2	3·1	11	6	8·4
	Over 12	4	7	1	4·0	28·0	4·0	20	6	11·0
	All ages	29	22	1	5·6	10·3	2·5	35	6	9·7
S.S. Full dosage	0–5	14	27	3	6·1	13·7	2·2	27	6	14·0
	5–12	2	5	4	4·5	24·0	3·0	12	10	11·0
	Over 12	1			5·0	54·0	4·0			8·0
	All ages	17	27	3	6·0	16·7	2·4	27	6	13·2

TABLE III.—*Blood and Urine Concentrations (mg. per 100 c.cm.)*

		Free			Acetylated			Total		
		Highest	Lowest	Average	Highest	Lowest	Average	Highest	Lowest	Average
Blood	S.A.B. 38 cases	8·0	0·5	3·0	1·5	0·25	0·66	8·0	0·5	3·66
	S.A.A.B. Full dose. 17 cases	2·0	0	1·23	0·5	0	0·38	2·5	0	1·60
	S.A.A.B. Half dose. 25 cases	2·25	0	1·16	0·5	0	0·40	2·75	0	1·56
	S.S. 14 cases	0·75	0	0·42	0·25	0	0·17	1·0	0	0·58
	S.A.G. 5 cases	1·25	0·5	0·70	0·5	0·25	0·40	1·75	0·75	1·10
Urine	S.A.B.	270	40	125	150	5	51	320	52	130
	S.A.A.B. Full dose	500	30	193	100	10	48	560	40	241
	S.A.A.B. Half dose	380	12	97·2	120	5	22·2	460	24	119·4
	S.S.	40	7	14·6	10	3·5	6·2	45	14	20·8
	S.A.G.	200	70	148	60	20	38	260	110	186

Using full doses of S.A.A.B. in 71 cases, the average time of clearance was 3.6 days, after an average of 4 days persistently positive. This clearance time is twice that needed with S.A.B., but it must be remembered that in this and the remaining two series culturing on alternate days only may have unfairly lengthened the apparent clearance time. As S.A.A.B. is absorbed less rapidly than S.A.B. and the concentration of drug in the intestine is therefore higher, it was thought that smaller doses of S.A.A.B. might be equally effective. A series of 30 cases was accordingly treated with half the original dose. The results were interesting in that both the time to obtain bacteriological clearance and the number of relapses to positive were less. The S.S. series, treated with full doses, gave a clearance time of 2.4 days, but the relapse rate was the highest of all.

Intermittency of Excretion or Reinfection

Bacteriological relapses—i.e., the reappearance of the Sonne bacillus in faeces or rectal swab after two or more consecutive negative results—occurred in 24 instances. These cases, which are not included in Table II, arose in all age groups, being relatively greatest in the 1–2 and 2–3 years groups, which contained 7 and 5 respectively. Distribution among the various series was as follows: In the S.A.B. series, 3 out of 41 cases (7.3%); in the S.A.A.B. full-dose group, 11 out of 82 (13.4%), and, in the half-dose group, 1 out of 30 (3.3%); while the S.S. group produced 9 out of 26 (34.6%).

Of the 3 cases occurring in the S.A.B. series two became negative after a second course of S.A.B., while the third cleared without further drug. Of the 11 full-dosage S.A.A.B. relapses 8 cleared after a second course, 1 after a third, and 2 without more treatment. The single half-dose S.A.A.B. relapse failed to clear after a second half-dose course, but did so after a further full-dose course. The S.S. relapses cleared as follows: 2 after a second course of S.S.; 2 after a second course of S.S. plus one course of S.A.A.B.; 3 after a course of S.A.A.B.; and 2 without further treatment.

These relapses, when they occurred within a period of a week from the time when the first negative was obtained, are most probably to be attributed to intermittency of excretion, and the majority of our cases fell into this group. But in 4 patients there were 4, 8, 14, and 6 consecutive negative cultures over periods ranging from 2 to 5 weeks, and in these cases reinfection would seem to be a more likely explanation for the reappearance of the Sonne bacillus in the faeces. Sonne dysentery is among the most infectious of diseases, and with the present difficulties with nursing staff it is not always possible to be certain that the high standard necessary in a barrier ward is being maintained. It is important to remember that after an attack of Sonne dysentery constipation may be a troublesome feature, and one or two negative findings immediately after cessation of chemotherapy may be attributable to constipated stools.

Absorption and Excretion

To obtain some idea of the absorption and excretion of the drugs in man the blood concentrations were estimated at the end of the course of drug administration. For the purpose of comparison similar investigations were carried out in five patients who received similar dosages of sulphanilylguanidine (S.A.G.). The results are shown in Table III, from which it will be seen that the concentration of S.A.B. is roughly four times that of S.A.G. and that 20% of this is acetylated, as compared with 34% of S.A.G. With full dosage of S.A.A.B. the concentration is about 30% more than that of S.A.G., and 24% is acetylated. Blood concentration with the half dose is almost as high as with the full. S.S. in full doses gave only one-half the concentration of S.A.G., and of this 29.3% was acetylated.

In addition to the blood estimations a differential white cell count was carried out before, during, and after treatment in the earlier part of each series; but as no significant changes were observed this practice was later abandoned.

The drugs are rapidly excreted in the urine, specimens of which were examined for free and acetylated drug at the same times as the blood estimations. These figures are given in Table III, together with comparative values for S.A.G. In a few cases urine was again tested for presence of S.A.B. and S.A.A.B. 24 hours after cessation of treatment, and was found to contain none with the former and only about 25 mg. (total) per 100 c.cm. with the latter drug. This had disappeared after a further 24 hours.

Toxic Symptoms.—Apart from slight anorexia in adults, especially at the beginning of treatment, possibly due to the large initial dose, none were observed.

Discussion

Although the rapid arrest of the diarrhoea and clearance of *Bact. sonnei* from the stools and rectal swabs of this series of cases, some of which had been persistently positive for a month or more, are striking, the occurrence of 24 cases in which there was bacteriological relapse is disappointing. Intermittency of excretion is obviously a troublesome problem for the hospital administrator who has to decide how many successive negative cultures are necessary before the patient can be considered free of infection.

Working with sulphapyridine in smaller doses than those employed in this series, one of us (Swyer, 1943) found that in a series of 57 cases no bacteriological relapses occurred after 3 days of the negative state, but among 35 controls 6 such relapses developed at periods ranging from 7 to 36 days after apparent clearance. Yannet and his colleagues (1942), on the other hand, reported that in an outbreak of 44 cases of Sonne dysentery in an institution, of which 27 were treated with sulphathiazole, the time needed to obtain bacteriological clearance was actually longer in the drug-treated cases than in controls. Although in the chemotherapy of intestinal infections in which the infecting organism is not found in the blood stream preference is given to drugs of a low degree of absorption, it is worthy of note that in the three series recorded here and the sulphapyridine series quoted above, the efficacy of the drug, particularly in clearing up carriers, was in direct proportion to the degree of absorption of drug from the intestine.

Summary

In the above series 179 patients suffering from bacteriologically proved Sonne dysentery have been treated with sulphanilylbenzamide, sulphanilylamidobenzamide, or succinyl sulphathiazole in doses governed by the patients' weight. The stools became formed, normal in colour, and free from blood or mucus in 24 to 48 hours in the S.A.B. series, and in 38 of these cases bacteriological clearance was obtained in an average of 1.8 days. Improvement in characteristics of stools was marked with S.A.A.B., but rather less so than with S.A.B. The average time for clearance was 3.6 and 2.5 days with full- and half-dosage respectively. With S.S. there was not a great improvement in stools, but clearance time was 2.4 days. Bacteriological relapse rates were: with S.A.B., 7.3%; S.A.A.B., full dose 15%, and half dose 3.3%; S.S., 34.6%.

We have to thank Messrs. Burroughs Wellcome for supplies of S.A.B. and S.A.A.B., and Dr. Prescott and his colleagues of the Wellcome Research Institution for information regarding the chemistry of and animal experiments with the drugs; Dr. R. Cruickshank and staff in the North-Western Group Laboratory, L.C.C.; and Mr. L. G. C. Maslen of the North-Eastern Hospital Laboratory for carrying out the large number of bacteriological, haematological, and biochemical investigations involved in this work. We are also grateful to members of the nursing staff for willing co-operation and help.

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HAEMOLYTIC DISEASE OF THE NEWBORN IN ONE OF DIZYGOTIC TWINS

BY

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The occurrence of haemolytic disease in both children of twins is well known (Snyder and Ford, 1941; Buhler, Seely, and McCormick, 1942), but the occurrence of the disease in one of the twins, the other being normal, is less well known. Macklin (1939) collected six such cases from the literature, but in three instances it seemed likely that both children were affected.

The aetiological connexion between the Rh factor and haemolytic disease, and the iso-immunization theory developed by Levine, Burnham, Katzin, and Vogel (1941) to explain this association, supersede the earlier theories of Macklin (1939) and Darrow (1938). Since this theory was formulated, twins affected with haemolytic disease have been described by Buhler, Seely, and McCormick (1942); the children were Rh-positive, as was the father, the mother was Rh-negative, and her serum contained Rh antibodies. Langley and Stratton (1944) reported a case in which an Rh-negative mother gave birth to twins, both affected and both Rh-positive. The maternal serum contained strong Rh agglutinins. Since then those authors have studied two further cases of twin pregnancy in which both children were affected. In each instance the maternal blood was Rh-negative and contained Rh iso-agglutinins, while all the children were of genotype Rh_1rh.

Kariher (1943) reported a case of binovular twins whose mother was Rh-negative, her serum containing Rh antibodies; and while the unaffected child was Rh-negative, the affected child was Rh-positive, the diagnosis being made clinically and confirmed at necropsy. Potter (1944) has reported a double-ovum pregnancy in which one infant was normal but the other died of erythroblastosis on the second day of life. The maternal blood contained no anti-Rh agglutinins, but was Rh-negative; the living child was Rh-negative and the dead one Rh-positive.

The following case is described because it was studied clinically, pathologically, and serologically; moreover, it is of interest, as although only one child was affected both were Rh-positive.

Case Report

Mrs. X., aged 28, was delivered five years ago of an infant which has been completely normal; there was no history of abortions. When first seen in June, 1944, she was found to have a twin pregnancy, the estimated date of delivery being Aug. 20. Her general condition was satisfactory. Four weeks before the expected date she was delivered in hospital, after a normal labour, of a female child weighing 3 lb. 10 oz. and a male child weighing 4 lb.

Both children cried immediately and were vigorous. There were two placentae with separate amniotic sacs. Within six hours of birth the male child showed jaundice of a canary-yellow colour; 12 hours later this had increased in intensity. Twenty-eight hours after delivery the haemoglobin was 70% and the red cells 3,120,000 per c.mm. Vitamin K (5 mg.) was given intramuscularly. An attempt to give a blood transfusion was a failure. On the third day his haemoglobin was 42% and the red cells 1,850,000 per c.mm.

A further attempt at blood transfusion into the tibial bone marrow was unsuccessful, and the child died on the fourth day.

The female twin gained weight steadily, never showed any jaundice, pallor, or other abnormality, and on the fifth day haematological examination showed: haemoglobin 100%, red cells 5,000,000 per c.mm. When 6 weeks old she weighed 5 lb. 8 oz. A blood count showed haemoglobin 70% and red cells 4,000,000 per c.mm.

Pathology.—The relevant post-mortem findings were as follows: Naked-eye:—The skin and mucous membranes were deeply jaundiced (bright yellow). Blotchy haemorrhages were present in the lung, and there were a few small haemorrhages on the peritoneal surface of the gut. Bile was present in the intestine. The liver was enlarged and deeply jaundiced; the bile ducts were normal. The spleen was enlarged and firm. The brain was pale. The other organs showed no abnormality, except bile-staining.

Microscopic:—Many of the liver cells were vacuolated as by fat, and about half the remainder showed the clear watery appearance of glycogen infiltration. The reticulum framework was normal. There was widespread haemosiderosis. Bile thrombi were present in the intercellular canaliculi. Fairly numerous foci of haemopoiesis were found outside the sinusoids. These were mostly erythropoietic, though there were a few myelocytes. Primitive blood cells were also present in the sinusoids. There was marked leucopoiesis in the portal tracts, but there were also some erythropoietic foci. The general architecture of the spleen was normal. There was a fairly intense leucopoiesis, but only scanty erythropoiesis. The kidney showed subcapsular glomeruli incompletely developed; no haemopoiesis. The blood in the vessels of the liver and kidney contained many nucleated red cells.

Serology.—The Wassermann reaction in the mother was negative. The results of examination of the erythrocytes of children and mother were as follows:

	α	β	α_1	Anti-Rh	Anti-Rh_1	Anti-Rh_2	St	
Mother ..	+	−	+	−	−	−	+	A_1 Rh-neg.
1st child ..	+	−	+	+	+	−	+	A_1 Rh_1rh
Twins A (♂)	−	−	−	+	+	−	+	O Rh_1rh
Twins B (♀)	−	−	−	−	−	+	+	O Rh″rh

The maternal serum contained a weakly active Rh antibody when first tested on the second day after delivery. When retested a month after delivery the Rh agglutinins were much stronger, and titration at 37° C. gave the following results:

Cells	Rh_1Rh_2	Rh_1rh	Rh_2rh	Rh_1Rh_1	Rh′rh	Rh″rh	Rh-neg.
Titre	64	32	16	64	4	0	0

Comment

The male twin was considered to be affected with haemolytic disease, the diagnosis being based on the clinical, haematological, and pathological data. The picture was that of a jaundiced newborn second child with a progressively severe anaemia in the absence of syphilis, sepsis, or haemorrhage, resulting in the death of the child. In the haematological data the normoblast count was unfortunately not recorded, but at necropsy the liver and kidney blood vessels contained many nucleated red cells. Prematurity, confirmed by the incomplete glomerular development and hepatic glycogen infiltration, rendered the interpretation of the histological appearances difficult. Haemopoiesis was, however, rather more intense than is usual with this degree of prematurity, and there were marked splenic leucopoiesis and excessive portal erythropoiesis. All the above findings are consonant with a diagnosis of haemolytic disease of the newborn.

The female child is considered to be healthy and unaffected by the haemolytic disease. Any suggestion that the above might be a mild case is negatived by the clinical and haematological findings.

The blood group Rh has been shown (Wiener, Sonn, and Belkin, 1944; Race, Taylor, Boorman, and Dodd, 1943; Race, Taylor, Cappell, and McFarlane, 1944) to consist of many subtypes, or, more correctly, the Rh gene is an example of multiple allelomorphism. In differentiating the types of Rh certain human sera are used. In this family the mother is Rh-negative (rhrh), while the affected child was of genotype Rh_1rh; the unaffected one is Rh″rh. It seems that the father is therefore Rh_1Rh″.

The maternal Rh antibodies are of the type anti-Rh′, and showed a considerable rise in titre during the first few weeks after birth of the child. It will be seen that while they react strongly with cells of a genotype similar to that of the affected child, they completely failed to react with erythrocytes of a genotype like those of the unaffected infant.

In previous cases described (Potter, 1944; Kariher, 1943) the unaffected child has been of the same group as the mother—that is, Rh-negative—and therefore quite incapable of reacting with Rh antibodies in the maternal serum. In this case, however, the child is Rh-positive, and it seems that the mother has failed to respond adequately to this stimulus—hence a normal child.

These observations afford substantial confirmation of the theory of Levine *et al.* (1941) that iso-immunization of the mother by "dominant hereditary blood factors" seems necessary for the child to be affected.

Summary

A case of haemolytic disease of the newborn is described in one of dizygotic twins, both being Rh-positive but of different genotypes.

The affected child became jaundiced within six hours of birth and died four days later, post-mortem findings confirming the diagnosis.

The Rh agglutinins detected in the maternal blood correspond to sensitization by the affected child, thus confirming the iso-immunization theory.

Our thanks are due to Prof. S. L. Baker, Dr. Ramsey, and Dr. J. F. Wilkinson for permission to publish this case. We are indebted to Dr. G. L. Taylor for a supply of St serum.

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Medical Memoranda

Impetigo treated with Sodium Penicillin Cream

In view of the present overcrowding in Service conditions the following case record may be of some interest.

On July 12, 1944, a rating complained of a rash on his face which was irritable, wet, and spreading. This on examination showed typical raised yellow crusts and was diagnosed as impetigo. Treatment was started by de-scabbing with warm eusol, thoroughly drying, and applying twice daily a paint consisting of acriflavine 1/2 gr., tannic acid 20 g., and water to 1 oz.

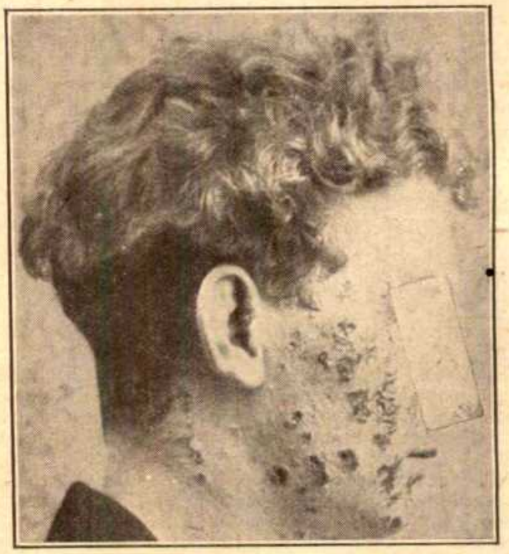

FIG. 1

In spite of treatment the condition continued to spread, and ung. hydrarg. ammon. dil. was tried without effect. On July 21 the patient was admitted to sick quarters, when Fig. 1 was taken.

Treatment with sodium penicillin cream was now begun. This consisted of equal parts of lanolin, cod-liver oil, and water, to which was added enough sodium penicillin to make a cream of 500 Oxford units per gramme. The cream was applied thinly twice daily after de-scabbing with warm eusol. The treatment was repeated for three days. On the second day of treatment there was a vast improvement, with at least 50% reduction of the lesions, the remaining areas being dry and showing signs of healing. On the third day of treatment all the smaller spots were healed and the larger ones were 25% of their original size. The spots on the pinnae were much slower in healing than those on the cheeks or neck. On the fourth day (July 24) all areas except the lower part of the right ear were healed. Two days after this the spot on the ear showed no change. Treatment was altered to ung. hydrarg. ammon. dil., and this spot cleared on July 31—i.e., 10 days after penicillin treatment had been started.

A Gram-stained smear of the lesions before sodium penicillin treatment showed a mixed infection of streptococci and staphylococci, also a few Gram-negative cocci and bacilli—type not recognized.

In all, 10 g. of cream was used, each gramme containing 500 Oxford units: total local dosage, 5,000 Oxford units. No parenteral treatment was given. This cream has also been employed with equal success on septic burn cases. As a face cream it is too soft, tending to run downwards.

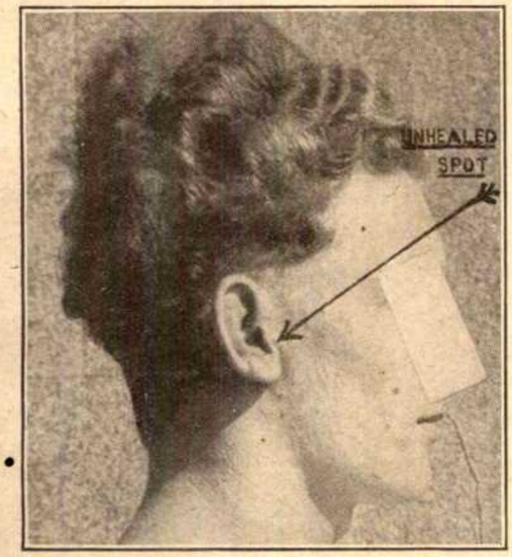

FIG. 2

The photographs show the patient before sodium penicillin treatment was begun and four days later, when all areas had healed except a small spot on the lower part of the right ear.

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Carcinomatosis simulating Appendicitis

The following unusual case may be found to be of clinical interest.

A patient aged 50, suffering from cardiac disease, developed symptoms of appendicitis. Generalized central abdominal pain settled down in a tender right iliac fossa, with vomiting, rise of temperature, and slight leucocytosis. There was no history of rheumatism or of syphilis, and the Kahn blood and C.S.F. tests were negative. While further investigation was in progress a cardiac attack suddenly proved fatal, and a post-mortem examination revealed inflammation of the appendix due to invasion by secondary carcinoma. Both the internal and the external appendicular structures contained growths, while an intracaecal mass obstructed the appendix orifice. The coronary arteries were in bad condition, with thrombotic obstruction of the first part of the left. There was generalized arteriosclerosis.

Microscopical examination revealed inflammation and invasion by columnar-celled tubular carcinoma which was secondary to a recto-sigmoid carcinoma of small dimensions but showing unusually early spread. Blood-stained fluid was present in the peritoneal cavity and there were a few peritoneal metastatic implants.

Before the "appendicular" attack there had been no signs or symptoms of any intra-abdominal pathology. This is a type of case which serves to warn that a light-hearted prognosis given before an intra-abdominal operation can sometimes be rudely shattered.

I am indebted to Dr. R. Ström-Olsen, physician-superintendent of the hospital, for permission to publish this case.

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Reviews

TREATMENT OF SYPHILIS

The Modern Treatment of Syphilis. By Joseph Earle Moore, M.D., with the collaboration of Jarold E. Kemp, M.D., Harry Eagle, M.D., Paul Padget, M.D., Mary Stewart Goodwin, M.D., and Frank W. Reynolds, M.D. Second edition, third printing. (Pp. 717; illustrated. 38s. 6d.) London: Baillière, Tindall and Cox. 1944.

The second edition of *The Modern Treatment of Syphilis* by Joseph Earle Moore appeared in 1941, and was reviewed in these columns on Aug. 1, 1942; a second printing was carried out in May, 1943, when the chapter on intensive arsenotherapy of early syphilis was completely rewritten and a chapter on venereal disease control in the U.S. Army and Navy included, largely contributed by Frank W. Reynolds, whose name has been added to the list of collaborators; a third printing was carried out in March, 1944, and this is now available.

The section on intensive therapy has been enlarged from 7 pages to 18, and the bibliography much extended. This form of treatment has many advocates and appears to give a high rate of cure; nevertheless, the mortality from treatment, as shown in Table 126, would seem to preclude its routine use, since daily injections of mapharside over a period of 3 weeks give an estimated fatality rate of 1 in 400. Incidentally, the method recently employed in the U.S. Forces in this country, whereby daily injections of mapharside, plus a few injections of bismuth, are given over a period of 20 days, has been remarkably free from fatalities, due, no doubt, in part at least to the fact that patients have all been young and healthy men. It is surprising that no mention is made of penicillin—at least the word is not to be found in the index—for this drug was used by Mahoney in New York as long ago as December, 1943, and is now being employed on a large scale in both the American and British Forces for the treatment of early syphilis. The chapter on V.D. control in the Army and Navy is particularly opportune, and deals with the incidence of these diseases in the armed Forces in peace and war, their control in civil life and their relation to the armed Forces, treatment in the Services, prostitution, prophylaxis, education, punitive measures, and the V.D. control officer in this war. The section devoted to penalties imposed on U.S. Service men contracting V.D. is of special interest; it is generally agreed that such penalties are utterly illogical, do not appreciably reduce the incidence, and do tend to encourage concealment.

This is surely the most compendious and authoritative book in the English language on the treatment of syphilis; but methods are changing so rapidly that much of the contents of such books must be out of date before they reach the reader.

PERSONALITY AND BODILY MAKE-UP

The Physical Basis of Personality. By V. H. Mottram. (Pp. 124. 9d.) Harmondsworth; Penguin Books.

Here is a popular treatise on how much our personality owes to our bodily constitution, written on the whole in simple non-technical language and with that lucidity which is characteristic of the author. Bodily constitution must depend on hereditary endowments; and the cell, with its nucleus, its chromosomes, and its genes, is described. The ballet of the chromosomes and their illumination of the Mendelian theories of inheritance are vividly depicted, and attention is drawn to the advances made in mapping the chromosomes and the identification of the location upon them of unit factors in inheritance at least in the fruit fly. Mendelian transmission in man is illustrated by colour blindness and haemophilia, but it is pointed out that all such characteristics are not clear-cut, and features distinct in the parents may be blurred in the offspring—"one white, one black, and two khaki."

The influence on the personality of variations in the structure and function of the nervous system is pointed out, and Prof. Mottram devotes a long chapter to the effects of over- and under-activity of the endocrine glands, especially the gonads. He is, however, at pains to warn the reader against too easy acceptance of a physical as opposed to a psychic explanation of behaviour. As he says of the pituitary: "The abnormal person may be morose, a bully, disobedient, a liar, and a thief directly because his pituitary is not exerting a due influence, or he may have become so because he feels at a disadvantage in coping with affairs in a world of well-endowed folks and compensates for his inferiority by these unpleasant reactions."

In a final chapter the author deplores the pessimistic material philosophy of the universe to which scientific acceptance of a physical basis of the personality would condemn us. Against this he himself rebels, and points out that the whole scientific structure of knowledge is based on the somewhat slender foundation of our senses. Science explains how but not why the universe works; its laws merely imply that phenomena may be observed as if they obeyed them; the true scientific attitude makes no claim that they do so behave. Prof. Mottram believes that mystical vision denies this true reality and that the "scientific personality" may not be "that quality or assemblage of qualities which makes a person what he is as distinct from other persons" (O.E.D.) but rather a "persona" masking a spark of that transcendental reality experienced by the mystics.

INTRACRANIAL ANEURYSM

Intracranial Arterial Aneurysms. By Walter E. Dandy. (Pp. 147; illustrated $2.50.) New York: Comstock Publishing Company.

This monograph has been based on 108 cases of intracranial aneurysm, accumulated during many years of cranial exploration—some diagnosed, some suspected, and others just discovered. Very detailed data on these cases are contained in tables at the end of the book. The rest is made up of a careful analysis of all aspects of the case material and a synopsis of much of the literature. After describing intracranial aneurysm in general Dr. Dandy devotes a large chapter to the features presented by aneurysms arising from each of the main arteries in turn, and then goes on to a lengthy description of preoperative and operative techniques and results. The two chapters dealing with operative treatment are the most valuable of those written by Dr. Dandy, for they are superbly illustrated by artist's sketches and demonstrate vividly his technical achievements in this field. Dandy does not consider that all congenital aneurysms arise from medial defects at bifurcations, so well demonstrated by Forbus, but thinks that some begin at the point of origin of obliterated tributaries, and he thus explains the appearance of aneurysms distant from an arterial division. He gives an interesting account of some unusual symptoms of aneurysms, especially those which may follow lesion of the third nerve.

The most important section of the book, in which an original contribution to knowledge has been made, is that written by Dorcas Padget on the embryology and anatomy of the circle of Willis. She presents the results of study of the cerebral arterial tree of 17 embryos ranging from 3 to 43 mm., and co-ordinates her own observations on the circle of Willis in adults with those of earlier workers.

Notes on Books

Prof. A. D. GARDNER'S *Bacteriology for Medical Students and Practitioners*, which has appeared in its third edition (Oxford University Press; 8s. 6d.), is a little less slim than its predecessors, but still perhaps of unduly modest size for its purpose. Its clear and simple descriptions, illustrated by line drawings, are admirable of their kind, but some teachers prefer that the student should use a more ambitious and comprehensive textbook. A notable new feature in this edition is a chapter on disinfectants, antiseptics, and bacterial chemotherapy, which embodies conclusions from the author's own original work.

The issue of the *Proceedings of the American Philosophical Society* dated September, 1944 (Vol. **88**, No. 3), is devoted to a symposium on wartime advances in medicine, and also the text of the Penrose Memorial Lecture on "International Labour Organization Lessons for 25 Years," by Mr. Harold B. Butler, Minister from Great Britain at H.M. Embassy, Washington. The subjects of the papers include water requirements of castaways; blood derivatives and blood substitutes; the present status of penicillin in the treatment of infections; advances in the treatment of wounds; human problems in military aviation; immunization; and neuropsychiatry. The publications of the American Philosophical Society are issued from Independence Square, Philadelphia, Pennsylvania.

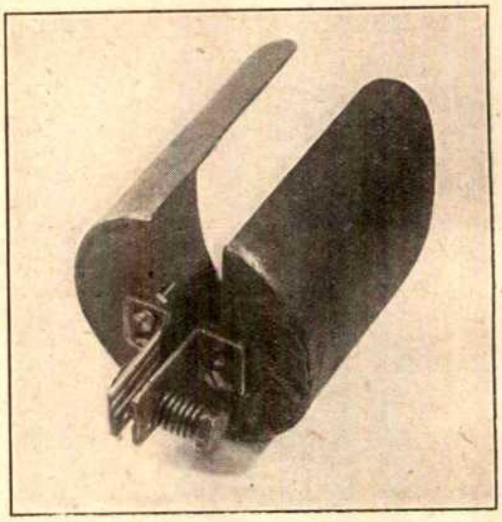
Preparations and Appliances

A PROTECTIVE SCREEN FOR ARC WELDERS

Fl. Lieut. J. NOEL JACKSON, M.B., B.S., writes:

Some of the constructional work in the establishment to which I devote part of my time as factory doctor is carried out by means of spot welding. For this the arc-welding method is used. I was impressed by the somewhat inadequate precautions taken against the radiation emitted by the arcs, and decided that arc workers should be provided with individual booths so that the eyes of other workers were protected from the harmful rays.

The first step to this end was to screen off each individual welder with thin sheet metal, finished with a dull black matt surface. As an additional safeguard I designed and made the hood shown in the accompanying photograph. The result is crude but effective. The hood is clipped on to the welding-rod, which fits into one or other of the grooves shown on the bracket, depending on the thickness of the rod. I found that these two grooves and the employment of a nut and bolt provided all the adjustment necessary for use with the varying thicknesses of arc-welding rods. It should be remembered that the arc-welding rod is burnt away in use and that this hood has to be moved backwards. Although the hood itself becomes quite hot, it can be readily moved by the operator, who wears very thick gloves.



The hood is roughly cylindrical, but the open end is cut off at an angle. After watching many operators, I found that some of them adjust the rod at an angle of about 45° to the surface on which they are working. The rather broad slit along the top of the hood enables the operator to see the point of the rod. This also allows an escape of the rays, but only in an upward direction away from other workers, and backwards in the direction of the operator himself, who is, however, holding a shield, so that the rays do him no harm.

Civilian patients likely to be detained in hospitals and sanatoria for long periods may be given the opportunity to pursue educational courses. The Ministry of Education has informed education authorities that a course of study or craft work can contribute materially to accelerating the recovery of patients, and the Minister believes that the suggestion will be considered by authorities with every sympathy. It would be for the hospital or sanatorium authorities to decide, on the advice of the medical officer in charge of the case, whether a patient should be encouraged to pursue any such course. In suitable cases the patient will be put in touch with the Chief Education Officer for the area. This scheme does not apply to members of H.M. Forces detained in hospital. They are the responsibility of the Service Departments and are covered by the War Office Correspondence Scheme until discharged from the Forces on medical grounds. If they are retained in hospital after such discharge they become civilian patients falling for consideration under this scheme, except that they may complete any particular correspondence course for which they were enrolled under the War Office scheme.

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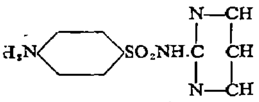
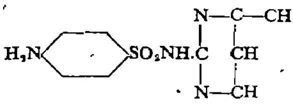
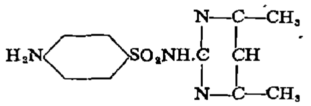
SATURDAY FEBRUARY 3 1945

LPHAMERAZINE: A NEW SULPHONAMIDE

he output of new sulphonamide compounds is less brisk an was the case some years ago, and there is reason to ppose that the antibacterial activity of this series of mpounds will not be significantly increased by future scoveries. Nevertheless, one new compound—sulphaerazine (or sulphamerizine)—has been the subject of uch work in America, and it appears likely to become a luable addition to the clinical armamentarium. Sulphaerazine is 2(*p*-amino-benzene sulphonamido)-4 methyl rimidine, and its relation to sulphadiazine and to sulphamethyl pyrimidine (sulphamethazine or sulphamezathine) shown by the following formulae:


Sulphadiazine


Sulphamerazine


Sulphamezathine

hese three compounds have approximately the same antiacterial activity *in vitro* or in experimental infections of ice, but their pharmacological properties vary somewhat; e choice between them depends chiefly on differences in osorption, blood concentration, and excretion.[1]

Sulphamerazine is more quickly absorbed than sulphaiazine and more slowly excreted than sulphamezathine, that its concentration in the blood rises more quickly d is sustained longer than in the other two compounds. dose of 3.5 g. to a 150-lb. man by mouth produces an verage blood concentration of 8 mg. per 100 c.cm. in hours, and 10 mg. in 4 hours; a level greater than 6 mg. maintained for 24 hours, and one greater than 3.5 mg. r 48 hours. An effective blood level is reached more uickly with sulphamerazine than with sulphadiazine, and ere is less need in acutely ill patients to start the treatt with an intravenous injection of the sodium salt in rder to avoid delay while the compound is being absorbed om the intestine. Since sulphamerazine is retained in the ody to a greater extent than sulphadiazine it is rather ore toxic, dose for dose; but when the higher blood oncentration is taken into account there is no significant ifference between them. An average blood concentration f 27 mg. per 100 c.cm. can be tolerated by monkeys for ng periods (provided that sufficient fluid is given to preent renal blockage); but one of 32 mg. per 100 c.cm. is toxic, causing damage to the kidneys, depression of the activity of the bone marrow, and possibly degeneration of the liver. However, these blood concentrations are much higher than what is needed for clinical purposes, and in actual practice these toxic effects are not to be expected. In particular, the occurrence of peripheral neuritis or damage to the nervous system should be extremely rare, or completely unknown, judging by animal experiments; sulphamerazine is less damaging to the nervous system of the chick than either sulphadiazine or sulphathiazole. In man 9% to 15% of the drug in the body is in the conjugated form, and so is 37% to 50% of the drug in the urine. Urinary excretion accounts for 40% (average) of the drug after 24 hours, and for 58% after 48 hours, following a single dose of 3 g. by mouth; the final total recovery is 84% to 100%. The concentration in the cerebrospinal fluid is about 0.3 to 0.7 of that in the serum. The ratio between the concentration in the serum and that in the red blood corpuscles varies greatly, but averages about 3 to 1, and the concentration in the whole blood is about three-quarters of that in the serum.[2 3] The toxic symptoms caused in man are much the same as those caused by sulphadiazine.[4]

As stated above, the toxicity of sulphamerazine for the body as a whole in animals is about the same as that of the other two compounds when measured in terms of equal blood concentrations. The toxicity for the kidneys, however, varies widely in the different cases. In animals sulphamezathine never damages the kidney, no matter what the blood concentration may be. Sulphamerazine may cause damage after high doses, owing to blockage of the urinary passages by crystals of the drug or of its acetyl derivative, but it is much less toxic in this respect than in sulphadiazine. These differences in respect of the kidney seem to depend upon the different solubilities of the compounds. In acid urine sulphadiazine is the least soluble of the three and sulphamezathine the most soluble: thus at *p*H 6.0 (acid) the solubility of sulphadiazine is 17 mg. per 100 c.cm., of sulphamerazine 38 mg., and of sulphamezathine 69 mg., while the solubilities of their acetyl derivatives are respectively 30 mg., 39 mg., and 67 mg. per 100 c.cm. However, if the urine is made neutral or slightly alkaline the solubilities of all the compounds are much increased, and the differences between them are much less. Thus at *p*H 7.6 (faintly alkaline) the solubility of sulphadiazine is 139 mg. per 100 c.cm., of sulphamerazine 158 mg., and of sulphamezathine 144 mg., while the solubility of the acetyl derivatives ranges from 176 to 210 mg. per 100 c.cm. Accordingly it is found in animal experiments that, if the urine is kept alkaline by giving alkalis by mouth, none of the three compounds has injurious effects upon the kidney.[1] Though it is not possible to do analogous tests on man, the clinical experience is in general agreement with these experimental results. Sulphadiazine, as is well known, is apt to lead to blockage of the urinary passages, but if the urine is kept alkaline very large doses can be given with impunity. Sulphamerazine has caused renal symptoms in 6 out of about 400 reported cases. Sulphamezathine seems very rarely to cause urinary lesions, although one case of transitory urinary suppression and one of haematuria occurred among 77 patients treated by Peters and Easby.[4] The other toxic symptoms caused by sulphamerazine in man are much the same as those caused by sulphadiazine.[5]

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[1] Schmidt, L. H., Hughes, H. B., Badger, E. A., and Schmidt, I. G., *Pharmacol.*, 1944, **81**, 17; Schmidt, L. H., Sesler, C. L., and Hughes, H. B., id., p. 43.

[2] Murphy, F. D., Clark, J. K., Flippin, H. F., and Patch, *Amer. J. med. Sci.*, 1943, **205**, 717.

[3] Goodwin, R. A., jun., Peterson, O. L., and Finland, M., *Proc. Soc. exp. Biol.*, N.Y., 1942, **51**, 262.

[4] Peters, B. A., and Easby, M. L., *British Medical Journal*, 1943, **2**, 230.

The dosage recommended for sulphamerazine (e.g., in lobar pneumonia in adults) is an initial dose of 3 to 4 g., followed by 1 g. every 6 hours until the temperature remains normal for 48 hours; then the dose is reduced to 0.5 to 1 g. every 8 hours and the drug is discontinued on the fifth to eighth day. According to the clinical experience reported so far sulphamerazine is therapeutically very similar to sulphadiazine. Thus Gefter and his colleagues[6] treated 45 patients with meningococcal infections, giving on the average 56 g. in 9½ days; their mortality rate was 6.7%; in a previous series treated with sulphadiazine their mortality rate had been 12.5%. Lepper, Sweet, and Dowling[7] treated 22 cases of meningococcal meningitis with sulphamerazine and 22 alternate cases with sulphadiazine; in each series the mortality rate was 9.1%. Flippin and his co-workers[8] treated 80 cases of lobar pneumonia with sulphamerazine and 80 alternate cases with sulphadiazine. Apart from a slightly quicker defervescence among the patients treated with sulphamerazine the clinical results of the two treatments were practically indistinguishable as regards both therapeutic efficiency and freedom from toxic reactions. Six of the patients on sulphamerazine and eight of those on sulphadiazine died. Experience gained during the treatment with sulphamerazine of 116 cases of miscellaneous infections has also been reported by Hall and Spink[9]; they found its therapeutic activity and toxicity to be similar to those of sulphadiazine, a lower dosage being required to produce the same result. It was less toxic than sulphanilamide, sulphapyridine, or sulphathiazole, but sulphathiazole appeared to be more effective in the treatment of staphylococcal infections. Similar experiences have been reported by Hageman, Harford, Sobin, and Ahrens.[10] Anderson, Oliver, and Keefer[11] found that sulphamerazine was as effective as sulphadiazine and that the total dose required was only one-third to one-half as great.

Altogether it may be concluded that sulphamerazine is closely similar to sulphadiazine in its toxicity and therapeutic effectiveness, and that its chief advantage is the lower and less frequent dosage needed for its use; this feature seems to have recommended it strongly in the Australian Armed Forces, no doubt because less frequent administration represents a great saving of the labour of the nursing staff. The compound is not yet available in this country for general clinical use, and presumably it may remain unobtainable until the end of the war. But when supplies do come to hand sulphamerazine is a compound which will deserve careful clinical trial. Provided that the price is not too high it might well prove to the most desirable sulphonamide compound for gene medical use.

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[5] Clark, J. K., Flippin, H. F., and Murphy, F. D., *Amer. J. med. Sci.*, 1943, **205**, 846.
[6] Gefter, W. I., Rose, S. B., Domm, A. H., and Flippin, H. F., ibid., 1943, **206**, 211.
[7] *J. Amer. med. Ass.*, 1943, **123**, 134.
[8] Flippin, H. F., Gefter, W. I., Domm, A. H., and Clark, J. H., *Amer. J. med. Sci.*, 1943, **206**, 216.
[9] *J. Amer. med. Ass.*, 1943, **123**, 125.
[10] Ibid., p. 325.
[11] *New Engl. J. Med.*, 1944, **230**, 369.

SURGICAL TREATMENT OF INTRACEREBRA HAEMORRHAGE

Elsewhere in this issue Rowbotham and Ogilvie report tw cases in which a large intracerebral collection of bloo was successfully aspirated and the patients, who had be hemiplegic, made a full recovery. In both the presum cause of the bleeding was rupture of a congenital intr cranial aneurysm. It is important that both patients we young, for a congenital defect in the tunica media is n the only cause of intracranial aneurysms. The authors well to discount syphilis as a cause of these aneurysms and they are not alone in this—but there will be few w agree with them that they are not caused by any oth degenerative process, for some authorities consider th arteriosclerosis is the most common cause of intracran aneurysms,[1] while mycotic aneurysms accounted for int cranial haemorrhage in 5 out of 120 cases described Dandy.[2] Dandy has recently questioned Forbus's[3] conte tion that all congenital aneurysms arise at the bifurcati of vessels, for he considers that some arise along the leng of a vessel at the point of origin of an obliterated and v tigial offshoot of the parent trunk. This conception wou explain the appearance of some aneurysmal sacs at a sh distance from a bifurcation of the branches of the cir of Willis.

This emphasis on the exact cause and site of intracran aneurysms has practical importance as well as theoreti interest, for although aspiration of an intracerebral haem toma may remove the immediate danger to life and relie many of the symptoms which it has produced, the su geon's main concern should be to eradicate the cause the bleeding. This is a much more difficult undertaki than removal of the extravasated blood. In his rece monograph Dandy[2] has described the results of operati treatment of the aneurysms themselves. It has for ma years been recognized that the patient is more likely survive if, as in the present two cases, the aneurysm ru tures into the cerebral substance, for the resistance this tends to limit the amount of bleeding. After t catastrophe a state of equilibrium between the pressu in the aneurysm and its surroundings is established, if t patient is fortunate. With the high intracranial pressu which has developed as a result of the mass of blood cl papilloedema slowly appears and increases in degree, b the delay in the papilloedema does not necessarily indica a delayed rise in intracranial pressure. When the state equilibrium is reached it is a comparatively simple matt to aspirate the intracerebral haematoma, but Dandy urg that after this an attempt should be made whenever po sible upon the aneurysm itself. In the past six years has operated upon 36 of these cases and has succeeded finding and dealing with the aneurysm in 30 of them.

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[1] Strauss, I., Globus, J. H., and Ginsburg, S. W. (1932). *Arch. Neurol. Psych* Chicago, 1932, **27**, 1080.
[2] *Intracranial Arterial Aneurysms*, 1944, Ithica, New York.
[3] *Johns Hopk. Hosp. Bull.*, 1930, **47**, 239.

s claimed a cure in 20 of these (70%), but 9 of his 36 tients have died. These results are laudable, for they ould be judged against the technical difficulties which e encountered in this field of neurosurgery. Dandy takes e view that the aneurysm must be isolated from the circle Willis, and does not advise ligation of the internal carotid tery alone, whether the aneurysm is above or below the inoids. His reasons for this are that the results are both certain and disappointing. When the aneurysm is below e clinoids the affected vessel should be clipped distal to e aneurysm and the internal carotid artery ligated in the ck. Matas's[4] test—trial occlusion of the artery in the ck for 10 minutes—should always be carried out before is course is adopted. When the aneurysm is localized tracranially and is accessible to intracranial operation e of many different methods of ablation, each of which pends upon the situation and type of aneurysm, may be opted. These involve tying or clipping on each side of e aneurysm, coagulating it, or actually removing it cometely. McConnell[5] successfully introduced a portion of uscle into the sac and secured complete thrombosis of e aneurysm, while Dott[6] applied muscle to the hole in e sac and so cured the bleeding without disturbing the eurysm. Dandy advises electrocoagulation as well as troduction of muscle in order to increase the speed of agulation.

It is not many years since Symonds[7] paved the way to the rrect diagnosis and location of intracranial aneurysms, d now the surgical cure in suitable cases is an estabhed fact. Unexplained intracranial haemorrhage in ung patients does not now necessarily carry a gloomy ognosis or prospects of an invalid existence. Even so, effect a very slight improvement in the mortality from ese aneurysms requires great skill, for it is hard to say nich is the most difficult—to locate the site of the causal eurysm or to render it harmless after it has been cognized.

NEURONE AND MIND

a stimulating address to the Royal Society of Edinrgh[8] Prof. R. J. A. Berry has expounded the general esis that the neurone is the organ of the mind, and—no urone, no mind. Prof. Berry sets out to show this by king such simple measurements as the size and weight of e post-mortem brain. Between birth and the age of 6 the ain approximately quintuples in size and weight; between th and maturity it adds to its weight by roughly 1,000 ammes. Most, though not all, of this increment is due the myelinization of the cerebral axones of the white edullary centre. When the mentally defective are comred with the normal the mean weight of the defective ains becomes smaller and smaller as more and more vere degrees of defect are studied. Within the range of normal there is enormous variation. As a group the gest brains were shown by university teachers; the allest averages within normal range were shown by the iftless and thriftless, criminals, and reformatory boys. ze and weight, though closely related to intellectual velopment, can be imperfect guides. Some defectives can have heavy brains, the abundant weight being due to an excess of glial tissue.

It has been estimated that the normal healthy brain contains about 14,000 million cells. The possible number, variety, and complexity of neuronic arcs that could be developed on such a structural basis are sufficient to explain the whole range of human behaviour. But how can one conceive of this immensely complicated organ operating in its functions of memory, deliberation, and action? If we think of the primitive nervous system being developed out of the reflex arc an essential part in attaining a greater complexity of behaviour is played by the interposition of a great array of cells between the receptor and effector parts of the arc, with a resulting temporal delay. These intervening cells are involved in actions of many kinds and over many years, so that the experiences of the past can be expected to have an influence on the behaviour of the present. Different workers have different ideas of how this happens. Herrick has spoken of "a complex web of interrelated associational cortical neurones, technically known as an 'engram.' Once these cells have been activated they remain charged with a potential energy. When reactivated in recall the reserve energy of these engrams is released . . . and we have thoughts of previous stimuli —that is, memory of past events." Importance is attached not only to the mere existence of engrams but also to the proper order and sequence of their activation.

Prof. Berry illustrates the practical use of such a theory to explain the phenomena of dreams. In sleep there is a temporary inactivity of certain of the most recently evolved cells of the neo-cortex. Engrams become incomplete; there is no barrier to stop the energy of still active cells of other engrams overflowing into arcs to which they do not belong. The result is a commingling of distorted bits of recent and remote memories, with the fantastic effects which we all know. Berry considers that this neuronic theory of cerebration excludes the possibilities which have been mooted in different quarters, of dreams of the future and of thought transference. However this may be, it provides a schema of great potential usefulness for the understanding of such various observations as drug effects, effects of local brain lesion, and Pavlovian conditioning. It will by some be regarded as an over-simplification; but simple theories are always to be preferred when it is only simple facts that are known with precision.

INTESTINAL ANTISEPTICS

Intestinal infections are usually divided into two categories: typhoid and paratyphoid, in which the local intestinal lesions are accompanied by systemic invasion; and dysentery, cholera, and the bacterial food-poisonings, where the infection is confined to the gut. So far no drug of the sulphonamide series has proved effective in shortening the chemical course of enteric infections, although amelioration of the toxaemia has been claimed. The failure to cure or to eliminate the infecting organism may be attributed partly to the pathology of typhoid, which makes the organism in the lymphoid tissue and in the gall-bladder rather inaccessible to attack, and partly to the natural resistance of the typhoid–salmonella family to the bacteriostatic action of the sulphonamides. Thus salmonella gastro-enteritis, although a self-limited and localized disease of one or two days' duration, is frequently followed by a convalescent carrier state which is quite unsusceptible to sulphonamide therapy. Therefore the search for new drugs that may prove effective against this group of intestinal pathogens still goes on. Unfortunately it is not possible with these organisms to reproduce in animals a

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J. Amer. med. Ass., 1914, **63**, 1441.
Zbl. Neurochir., 1937, **5**, 269.
Edinb. med. J., 1933, **40**, 219.
Guy's Hosp. Rep., 1923, **73**, 139.
"Some Recent Advances in the Study of the Brain as the Implement of nd," *Proc. roy. Soc. Edinb.*, Section B, 1944, **62**, 86.

e syndrome similar to the natural infection in man, and the experimentalist has to rely on test-tube results in assessing the value of new preparations against the intestinal pathogens. In this way Schweinburg and Yetwin[1] have tested a number of new sulphonamides prepared from drugs of known potency—sulphamerazine, sulphadiazine, and sulphathiazole—by the addition of a phthalyl radicle. Their results showed that *in vitro* sulphamerazine and phthalyl sulphadiazine were more effective than sulphadiazine against the dysentery organisms but less so against the typhoid-paratyphoid bacteria. The addition of the phthalyl radicle to sulphamerazine decreased its activity against all intestinal pathogens, while phthalyl sulphathiazole had no advantages over sulphathiazole itself. The possibility of using enteric-coated tablets of the more active sulphonamides—e.g., sulphathiazole and sulphadiazine—to ensure a local antiseptic action in the lower reaches of the bowel seems to be worthy of more consideration.

In the case of the dysenteries there is now abundant evidence that Flexner infections respond well both clinically and bacteriologically to most sulphonamides, which is in line with the greater susceptibility of the Flexner group of organisms in the test-tube. However, in view of the greater clinical severity with considerable dehydration in Flexner infections, preparations which are not readily absorbed—e.g., sulphaguanidine or succinyl sulphathiazole in doses of 9 to 12 g. daily for 5 to 7 days—are preferable to others which, being absorbed, may have deleterious effects on the kidney. On the other hand, Sonne dysentery, which is the prevalent infection in this country and which, if notifications are reliable, is greatly on the increase, does not respond to sulphaguanidine unless the drug is given early in the infection or in large doses—e.g., 30 g. in the first 2 days followed by 7.5 g. daily. In the cure of the frequent convalescent Sonne carrier succinyl sulphathiazole in doses of 10 g. daily for 5 days has been found effective, but in our present issue Swyer and Yang rank it behind two new drugs—sulphabenzamide and sulphamidobenzamide, which have been found active *in vitro* against both the enteric and dysentery groups of organisms. The absorbability of these new drugs is intermediate between succinyl sulphathiazole and sulphaguanidine and the other common sulphonamides, and in moderate doses given according to weight they have proved remarkably effective in the bacteriological cure of Sonne carriers. Thus, with sulphabenzamide only 3 out of 41 cases (7.3%) and with sulphamidobenzamide 12 out of 112 cases (10.7%) were not cured, or relapsed after the initial course of treatment. A number of the bacteriological "relapses" occurred after 4 or more consecutive negative rectal-swab examinations, and it is difficult to be sure if they were due to reinfection or to intermittency of excretion of the organism. Intermittency of excretion has become rather a bogy for the hospital administrator, who is naturally unwilling to retain a young child in hospital for some weeks after that child is clinically well. The patient with Sonne dysentery admitted to hospital represents only a small fraction of all infected children in the community, and it seems irrational to isolate one child in surroundings which may be prejudicial to its health while the other 99 are free to spread the infection. With Sonne dysentery, a widespread endemic infection, 2 or 3 negative cultures before discharge are probably adequate unless the child is returning to a residential institution or day nursery, when 4 to 6 successive negative examinations may be required. Control of dysentery in a community depends on a high standard of personal hygiene, an appreciation by the practitioner of the frequency of the mild atypical
case and the contact carrier, and the use of an intestin
antiseptic that will ensure bacteriological as well as clinic
cure of the infection.

NEW INTERNATIONAL SANITARY CONVENTION

Drafted and sponsored by U.N.R.R.A., two new Inte
national Sanitary Conventions, amending those at prese
in force, came into operation on Jan. 15. By that da
the signatures of 17 of the Governments of the Unit
Nations were affixed to the new Conventions in Washin
ton. Even before the war it was recognized that advanc
in preventive medicine had rendered the present Conve
tions obsolescent—that governing sea and land traf
dating from 1926, and that on air travel from 1933. Tl
development of vaccination against yellow fever in pa
ticular has required changes in the yellow-fever clauses
the air convention, and the British Interdepartmental Cor
mittee on the Control of Yellow Fever had already recoi
mended drastic alterations in these provisions: the
changes have been adopted in the areas in Africa co
cerned. Moreover, the migrations of large numbers
people expected after the war required special consider
tion, although the health measures needed for the
organized movement have been dealt with by a speci
agreement between the Governments concerned, which
is hoped will shortly be signed. The International Offi
of Public Health in Paris—the technical body charg
with the revision of the Sanitary Conventions—being th
in enemy territory, U.N.R.R.A. was entrusted with t
work of revision, and early in 1944 its expert Commissi
on Quarantine, under the chairmanship of Dr. P. G. Sto
of the Ministry of Health, completed the work in a remar
ably short time. The drafts of the revised Conventio
were approved in principle by the Council of U.N.R.R.
at its second session in Montreal in September, 1944, a
were referred to the standing technical Committee
Health for final revision. Meanwhile Paris has be
liberated, and negotiations to safeguard the position
the Paris office and to ensure its collaboration wi
U.N.R.R.A. were successfully undertaken. Both t
English and the French texts of the revised Conventio
are equally authentic.

U.N.R.R.A., as a temporary measure until a full int
national sanitary conference can be called, will adminis
the new Conventions and receive and transmit intelligen
about epidemics. Such information will not, as hither
be confined to occurrences of the five "Convention" di
eases—plague, cholera, yellow fever, typhus, and sma
pox—but signatories are now under an obligation to not
U.N.R.R.A. immediately of the presence and course
any epidemic disease which may constitute a menace
other countries by its potential spread across frontie
Signatory Governments also undertake to pass on as reg
larly as possible statistics of all notifiable diseases occ
ring in their countries; U.N.R.R.A. will in turn distrib
its information to the Governments concerned. In ad
tion the Conventions make a new departure in that
U.N.R.R.A. is entrusted the delimitation of zones in whi
yellow fever is endemic, and the setting up of appro
standards of vaccine against yellow fever. Action h
already been taken in these matters by the Quaranti
Commission of U.N.R.R.A. The Conventions al
recommend the adoption by Governments of model int
national forms of certificates of immunization agai
various diseases.

The next session of the General Medical Council w
open on Tuesday, Feb. 27, at 10 a.m., when the Preside
Sir Herbert Lightfoot Eason, will take the chair.

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[1] *New Engl. J. Med.*, 1944, 230, 510.

ELIMINATION OF CROSS-INFECTION
AN EXPERIMENT

BY

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The treatment of illness in hospital rather than in the home as many advantages. It also has one serious drawback. This the risk—sometimes slight, but in some classes of patient genuine and ever-present—of acquiring a fresh infection. To uppose that the great reforms of the latter part of the nineteenth century did away with this risk or even reduced it o minor proportions is a grave mistake. . . . The danger is reatest among children." (Leading article, *B.M.J.*, 1944, **1,** 97.) "We must ask ourselves whether, even if we had the most perfect hospitals and nursing, we would wish to keep hese infants for many weeks undergoing treatment, and hether that is economically and socially a sound procedure." Dr. Donald Paterson, *Proc. roy. Soc. Med.*, 1941, **35,** 49.)

All those whose work lies among infants and children in hospitals indeed realize to the full the truth of these statements, and the kind of surgical cases with which we personally have o deal are peculiarly liable to cross-infection in hospital wards. Many years ago we realized the truth of this in respect of left-palate cases, in which the upper raw nasal surface is just trap for all types of infectious organisms floating about hospital ward, and from which cross-infection, dehiscence, and sloughs are apt to ensue. Similar cases are hypospadias, angiomata, and syndactylism; for we are firm believers in arly operation in all of these—for the reasons that in infancy he patient is fully controllable by the mother, one has a comparatively passive subject to work upon, and the child grows up without any knowledge of deformity or disfigurement (a very important psychological point). All congenital eformities tend to get worse rather than better with age, and left until later childhood the mother has lost control and here are only fear and non-cooperation on the part of the atient—factors which make plastic surgery infinitely difficult.

We determined long ago to undertake no such cases in hospital ards. For many years all such infants have been nursed y their mothers either in their own homes or elsewhere. This of itself eliminated a very large amount of cross-infection—possibly 75%—but it was not entirely satisfactory. Conditions n some of the homes were far from desirable, and occasionally ome other member of the family would come home with bad cold, resulting eventually in an infection of the baby. he parents of these babies were for some inscrutable reason nearly always impecunious, with all the resulting restrictions of facilities for nursing; they rarely had telephones, and a ngle room in a nursing home was quite out of the picture. et these babies were worth making into useful members of ociety. We had had very many encouraging results—and also some reverses—for once a palate, for instance, has failed, he child is often doomed to take a very back seat in life, o matter how well developed he may be mentally or physically. We seemed to have reached an impasse. We felt that there as no reason why any cleft-palate, hare-lip, or hypospadias operation for infants should ever fail, provided that the right onditions could be obtained for their treatment. What we elt was necessary was some place where mothers could stay ith their babies in peace, cleanliness, and happiness, and with easonable facilities for treatment, and where extraneous ources of cross-infection could be rigidly controlled. We sought in vain for any support for such a scheme from private, fficial, and philanthropic sources. Then, on the advent of ocial security hospital benefits in New Zealand, we thought we saw our way to do what we wanted to do for these babies. But we did not want a hospital staffed in the usual way; we equired, and insisted, that each mother must nurse her own aby with as little extraneous interference as possible. But would the Government make benefits available to these mothers? After full investigation they did; and on behalf of the mothers and babies we wish to express our thanks to the New Zealand Health Department for their wise and valuable assistance.

The Scheme in Operation

Being assured that the greater part at least of the expenses of maintenance would be found, we obtained a suburban house with a reasonable-sized garden, and proceeded to convert it into something like what we considered was necessary to fill the bill. We now have accommodation for 12 mothers and babies. Each mother with her baby has a room to herself; some of the rooms are quite small, but all conform to the Health Department's requirements. Each has a large window facing the sun, and is daintily furnished—not at all like a hospital ward. We invite the mothers to come and nurse their babies just as if they were at home. No charge is made for maintenance, and only very occasionally are parents themselves able to pay any fees at all for treatment (some hospital boards pay very modified fees). A large workshop in the garden was converted into an isolation ward, but we have had to use it only once as such—for a mild case of chicken-pox, which did not spread. We have also built a small but very efficient theatre block in the garden. We are therefore fairly self-contained. The scheme has been in operation for three years, so that we can with fairness now perhaps estimate its value. The clinic has been full nearly the whole time; and so far there has not been a single case of cross-infection, local or general, not a single slough, not a single case of dehiscence. The worst that has happened has been the loss of a suture, and that only rarely, and no sign of what Sir W. de Courcy Wheeler called that other "bugbear of cleft-palate surgery—hyperpyrexia." There has been no failure with any cleft-palate or hypospadias case, nor loss of graft for angiomata or syndactyly. Post-operative antiseptics or sprays (beyond a little weak argyrol in the nose occasionally) are not used at all, so absence of infection cannot be due to their use. We do not claim to have reached perfection, for we are always endeavouring to better our methods and technique, but it is fairly certain that if 12 beds in a children's ward had been occupied with similar cases for three years, a considerable proportion would have been badly infected, either locally or generally, and therefore have been more or less failures. We believe that in some hospitals the infection rate is very high, though figures are difficult to obtain, and there was early last year much correspondence in the *Journal* about hospitals being dangerous places for infants. We therefore think that our experiment has justified itself, and we can claim to have so far eliminated the danger of hospital cross-infection in this class of case.

Other points to be noted as contributing to such results are:

1. All dressings are done in the theatre, under "theatre conditions."
2. Each baby is seen practically every day.
3. No mother or baby is permitted to come if either has a cold, and visitors are not encouraged.
4. Very great attention is paid to the feeding of the babies and to their weights. A strict rule is, "No gain in weight, no operation."
5. Mothers are encouraged to take their babies out in "prams" and to nurse them out of doors in the sunshine between operations.
6. Mothers must be kept happy. A disgruntled mother means a miserable and discontented baby, for whom any plastic operation would probably fail. This is possibly the hardest job of all, for one such mother may upset all the others. If she cannot be cured quickly (in two or three days at the most) we send her home; she comes back in a quite different frame of mind. Mostly, however, mothers are very glad of the rest and change and freedom from household cares, and co-operate splendidly in the work.

Comment

Prof. Grey Turner has recently stated (*Journal*, 1944, **2,** 92) that in Newcastle-upon-Tyne he also used to treat as outpatients many acute surgical conditions in infants as well as hernias and cleft palates—that is to say, he relied on the nursing of the mothers. He further states: "I believe that in most cases these little ones have a better chance if dealt with in this way, for they go back to an environment to which they are accustomed, and . . . receive the undivided attention of persons with whom they are thoroughly familiar." We think, though, that our plan of keeping mother and child together under as near ideal conditions as possible is an improvement—a step forward that is reflected in our greatly improved results during the past three years. An infant's environment is, and should be, its mother. We are using sedative drugs less and less, and often none at all. A baby is expected to be back on spoon feeding within eight hours of any operation.

The rationale of the whole scheme is based on the fact that a baby is born with a certain degree of passive immunity to its mother's organisms, and that it acquires further immunity in the next few months; and we endeavour to expose it to no other organisms whatever.

Since writing the foregoing account the Minister of Health has announced that in future his Department will defray the cost of treatment and maintenance of mothers and babies in our clinic.

A FACULTY OF OPHTHALMOLOGISTS

The following statement outlining a plan for the formation of a Faculty of Ophthalmologists has been received from the Council of British Ophthalmologists, whose honorary secretary is Mr. Frank W. Law, F.R.C.S.

There is obvious need for an authoritative and representative body to guide ophthalmologists through the intricate and important problems which are to be settled in the near future, to represent their interests to the State, and to co-ordinate their efforts, so that in the coming reorientation of the medical service of the country the greatest good accrues to the people, while at the same time the interests of the profession are preserved. It is generally accepted that, although circumstances may necessitate that changes be gradual, fundamental principles are now being evolved which will profoundly affect the medical profession and the community at large. So far as the ophthalmic services are concerned, the alternative to having policies imposed by others is to establish an authoritative body which will be able to initiate and criticize policy so that the interests both of the profession and of the community may be furthered.

The need for a body of this sort became apparent towards the end of the last war, and on the initiative of certain leading ophthalmic surgeons a general meeting of British ophthalmologists was held on May 2, 1918, at which it was decided to establish a Council of British Ophthalmologists, consisting of the Presidents and Past Presidents of the Ophthalmological Society of the United Kingdom and the Section of Ophthalmology of the Royal Society of Medicine, together with nine members elected annually, four each by the Councils of these bodies and one by the Council of the Oxford Congress. Later the Master and the Past Masters of the Oxford Congress were added as permanent members and the number of elected members was increased.

The functions of the Council, as stated in its rules, were "To take cognizance of, and to act in, all matters of ophthalmic interest arising in connexion with national industries and public services, and to initiate or to advise concerning movements which have for their object the welfare of the eyesight of the community." The Council of British Ophthalmologists has done much valuable work in many different fields—political, educational, and scientific; but recently it has been felt that this Council would have more weight and authority if it were more directly representative of the whole body of ophthalmologists in the country.

Some of the immediate problems which require examination and early solution are of great moment. The White Paper outlining the Government's proposal for a National Health Service deals vaguely with an ophthalmic service, although it is clear that it is the Government's intention to establish such a service. It will be the first task of the Faculty to examine the many questions arising in this connexion, and its aim, in collaboration with the appropriate Ministries and other bodies concerned, to play an important part in determining the form which this service will take. This raises questions not only of conditions of service but of the relation of the ophthalmic practitioner to the dispensing and sight-testing opticians, the methods of spectacle supply, the establishment and control of clinics, ar so on, all of which are of far-reaching importance. Moreov the institution of a National Service will raise the issue of t personnel who are to be considered as ophthalmologists, a the regionalization of hospital services will require adequa planning.

In addition to these medico-political matters it is evide that the questions of education and research, clinic and hospi policy, industrial problems, and a host of others are to assur importance in the immediate future. It is advisable that t whole body of ophthalmologists should play a part in the ins tution of such policies as they affect their specialty and be possession of a mechanism to influence their developme Organizations apart from ophthalmologists are taking an inter in such questions. It would seem of importance that the should be some body more representative than the Council British Ophthalmologists, as at present constituted, to gui the profession and advise the State. The Council of Briti Ophthalmologists has therefore decided to promote the form tion of a Faculty of Ophthalmologists.

Functions of the Faculty

The functions of the Faculty will be:

1. To take cognizance of, and to act in, any matters of ophthalm interest.
2. To encourage suitable standards of education in ophthalmolo for undergraduate and postgraduate students.
3. To encourage research in ophthalmology and cognate subjec
4. To secure such conditions in ophthalmic practice as will attra persons of high professional attainments and afford ample scope the exercise of their abilities.
5. To maintain a high ethical standard in ophthalmic practice.
6. To act as an authoritative body for the purpose of consultati in matters of public and professional ophthalmic interest.

Details of Constitution

The Faculty shall consist of Members and Associates w must be registered medical practitioners and have the followi qualifications:

Members.—Only ophthalmologists of full consultant status sh be eligible for membership. They shall be: (1) Ophthalmic surge to hospitals recognized as schools of ophthalmology by universit or other medical examining bodies. (2) Ophthalmic surgeons ot than the above who have been engaged for at least five years full-time practice as specialists and have charge of beds in volunta hospitals approved by the Council (at the initiation of the schen approved by the C.B.O.). Provisionally, these shall be gene hospitals of more than 200 beds and special ophthalmic hospit of more than 20 beds. (3) Persons no longer on the active staffs hospitals who have held appointments specified in Classes (1) and ((4) Other ophthalmic surgeons of consultant rank approved by t Council, including those in the Services or holding Governme appointments.

Associates.—Any ophthalmologist who has been for at least t years in full-time practice as a specialist (civilian or Service) sh be eligible for election as an Associate, on application in prescrib form and approval by the Council.

The above qualifications for Members and Associates are possi temporary standards which may require revision in case of t establishment of a national grading of consultants and specialists.

Executive Organization.—Executive powers shall be vested in council which, for the sake of continuity, shall be known as t Council of British Ophthalmologists. This Council shall consist 21 members, of whom 15 shall be elected by Members and 6 Associates of the Faculty.

Officers.—The officers of the Faculty shall be the President, Vi President, Hon. Secretary, and Hon. Treasurer, who shall be ele annually by the Council from among its members. Election to t Council shall be by postal ballot on a national basis, but with p vision as follows for regional representation. The electorate will divided into five regions. In the case of Members, the candid in each region who receives the highest number of votes in t national ballot shall be deemed elected as the representative of particular region. Thereafter the remaining seats on the Coun shall be filled by those other candidates receiving the highest nu bers of votes in the national ballot. In the case of Associates, candidate in each region receiving the largest number of votes the national ballot will be deemed elected, except in the Lond region, where the two candidates receiving the highest number votes will be deemed elected. As there will be five regions all six seats open to Associate candidates will thus be filled. One-th of the members of the Council shall retire each year. The memb of the Council to retire in every year shall be those who have be longest in office, but as between persons who became members of the Council on the same day, those to retire shall be determined by the Council by such method as it shall think fit. Members of the Council shall be eligible for re-election for a further period of three years, but after the second period of three years shall be eligible only after a lapse of one year.

The Council shall call an annual general meeting of the Faculty to receive and discuss its report. Any Member or Associate of the Faculty shall have the right to bring up for discussion at the annual meeting, after giving due notice to the Secretary, any subject within the province of the Faculty. The Council shall have the power to call a special general meeting of the Faculty at any time in case of need.

Standing Committees.—The Council shall appoint standing committees to deal with certain branches of its work. These committees shall have no independent executive power. Their function shall be to advise the Council on the subjects with which they deal. Any Member or Associate of the Faculty may be appointed to serve on them, but the chairman of every standing committee shall be a member of the Council. Persons not Members or Associates may be co-opted for temporary service on standing committees when required. The same rules shall apply with regard to period of service on a standing committee as in the case of the Council.

Special Committees.—The Council shall have power to appoint special committees to deal with special subjects and report thereon to the Council. Persons who are not Members or Associates of the Faculty may be invited to serve on special committees, and these committees may be given power to co-opt such persons.

Subscriptions.—Members of the Faculty shall pay an initial subscription of three guineas and Associates one of one guinea. The subsequent subscription shall be determined by the Council.

Co-operation and Organization

It is anticipated that the new Faculty will work in co-operation with the Universities, Royal Colleges, and Corporations of Great Britain and Northern Ireland, and maintain a close liaison with the Ophthalmic Group Committee of the British Medical Association.

The Council of British Ophthalmologists has appointed a special committee to organize the Faculty, to enrol Members and Associates, and to make the necessary arrangements as soon as possible for the election of the Council. When the new Council has been established it will assume all the functions of the present Council of British Ophthalmologists, which will hand over all its records and any other property in its possession.

Forms of application for enrolment as Members or Associates may be obtained from the Hon. Secretary of the organizing committee, Mr. Frank W. Law, 45, Lincoln's Inn Fields, London, W.C.2.

ORDER OF ST. JOHN

The following medical promotions in and appointments to the Venerable Order of the Hospital of St. John of Jerusalem have been announced:

As Knights, Major A. T. Smith, O.B.E., and Capt. R. Williams. *As Commander (Brother)*, J. P. Mitchell, O.B.E. *As Officers (Brothers)*, Drs. W. D. Jenkins and T. B. Sellors and Mr. W. F. J. Whitley. *As Serving Brothers*, Lieut. (local Major) J. C. B. Whycherley, R.A M C., Majors J. P. Quinn, *M.C.*, and J. Misquitta, Capt. G. R. H. Wrangham, Drs. R. G. Fear, L. A. Daly, T. S. Cochrane, C. Homi, J. Grant, I. M. Hughes, T. S. Taylor, H. L. Groom, R. Sells, W. D. Mitton, J. Prentice, W. O. Pitt, E. J. Blackaby, H. D. McCall, A. Madwar, M. C. Cooper, *M.C.*, H. R. Wynne, R. C. Allen, J. Pearce, R. R. M. Porter, *M.C.*, A. J. Struthers, H. M. Golding, D.F.C., and E. Schwartze. *As Associate Serving Brothers*, Drs. M. B. Jay, J. M. Raphael, B. L. Chopra, B. B. Sharma, and T. C. B. Chowdhary. *As Serving Sisters*, Drs. Doris Johns, Christina R. Laing, Mary A. C. Ainscow, Hilda Burnett, Catherine J. van Dyk, Jean S. Henderson.

The Welfare Equipment Development Association is the name given to an association of makers and distributors of welfare equipment which was set up at a meeting in London on Dec. 6. The meeting was the outcome of a report by interested manufacturers that there was ample scope for such a body, and it was suggested that among firms to be invited should be those interested in the manufacture of first-aid and medical equipment, sanitary equipment, and safety devices. Dr. R. A. Galway, who was among the speakers on Dec. 6, suggested many ways in which the association could harmonize the efforts of manufacturers and the requirements of welfare officers to give maximum benefit to workers. The offices are at 61, St. Paul's Churchyard, London, E.C.4, and the acting honorary secretary is Mr. A. D. Hinds.

Correspondence

A Common College Site and an Academy of Medicine

SIR,—The discussions taking place in the *Times* and elsewhere for the establishment of an Academy of Medicine and the bringing together of the three Royal Colleges on a common site, referred to in the *Journal* of Jan. 20 (p. 92), show that both proposals have influential support. The convenience and economy of a common site are so obvious that there is really no difference of opinion as to its desirability, but only as to its practicability from financial and other points of view. But the mere propinquity of the three Royal Colleges has little to do with and could have little influence on the establishment of an Academy of Medicine.

When the chief medical societies were amalgamated to form the Royal Society of Medicine the project was regarded by its founders as a step towards an Academy of Medicine. That this object has not been attained is due to many causes, one of which is the overwhelming prestige of the Royal Colleges of Physicians and of Surgeons and the lack of any enthusiastic official support from them. As Sir Stewart Duke-Elder has pointed out, some of the chief functions of an Academy of Medicine are "to uphold and foster the scientific progress of medicine, maintain professional standards . . . and stimulate the spirit of research." Sir Ernest Rock Carling has added another—to co-ordinate the various branches of medicine. While the Colleges of Physicians and Surgeons have for centuries opposed specialism, they themselves are the oldest examples of it. Now that specialism has inevitably become universal in all the sciences the active fostering of co-ordination has become at least as important as that of the specialties themselves—which indeed can quite well look after themselves. The Royal Society of Medicine has done more than any other body to co-ordinate the branches of medicine. It is therefore somewhat disheartening to a past-president to find that the part which the R.S.M. has already played and the far greater part which it might yet play in the formation of an Academy of Medicine have received no recognition in the discussions.

The fundamental and all-important functions of an Academy of Medicine are, however, *identical* with those of the Royal Society with regard to the physical and general biological sciences. Just as the active and energetic co-operation of scientists and their societies is indispensable to the success of the Royal Society, so is the co-operation not only of the Colleges and the Society of Medicine but also of many other scientific bodies for an Academy of Medicine. It is true that several scientific societies are neighbours of the Royal Society at Burlington House, but though this may be occasionally a convenience it is otherwise an almost negligible advantage. The common College site and the Academy of Medicine are both eminently desirable and deserve energetic support, but it will be a disservice to the latter to *exaggerate* the advantage to be derived from the former.—I am, etc.,

Far Headingley, Leeds. J. HERBERT PARSONS.

An Academy of Medicine

SIR,—The term "an academy of medicine" has a pleasing quality, although its modern advocates are hardly precise in the definitions they attach to it. On the other hand, it may surely be submitted that there already exists an organization which may claim in medicine an academic status—namely, the Royal Society of Medicine. An open platform, a democratic administration, freedom of debate with recorded and circulated records—what more can be desired?

In any event the last thing to be welcomed in the field of medical opinion would be a regime of authority.—I am, etc.,

Hove. C. O. HAWTHORNE.

The Oldest Medical College

SIR,—In the article "A Common College Site in London" in your issue of Jan. 20 you refer to the Royal College of Physicians of London as being "by far the oldest medical college in this country, for it was founded by Henry VIII in 1518." It must have escaped your memory that the Royal College of Surgeons of Edinburgh was founded in 1505, and is therefore thirteen years senior to the Royal College of Physicians of London. I draw your attention to the point in the interests of historical accuracy, and I shall be glad if you will accept a copy of the late Mr. Creswell's *Royal College of Surgeons, Edinburgh, 1505–1905*, which contains the relevant historical notes.—I am, etc.,

Edinburgh.
R. W. JOHNSTONE,
President, R.C.S.Ed.

Anaesthesia in Shock

SIR,—I am appalled at the complacency of Messrs. A. C. Crooke, C. J. O. R. Morris, and R. G. Bowler in their article of Nov. 25 (p. 863). Apparently they are so engrossed in their "scientific" investigations that they cannot see the wood for the trees. Their results and conclusions may or may not be of value to the profession, but there seems to be no excuse for allowing patients to die from lack of common sense and elementary clinical knowledge. Of the 5 illustrative cases, 3 died and 2 recovered. Clinical descriptions are apt to be misleading, but the following observations seem to be fair comment.

Case 1.—This patient was admitted at 10.15 a.m., "probably not severely shocked, because the surgeon left him." But he had a double compound fracture and a severe flesh wound, and at 4.15 p.m. (6 hours after admission) he was ashen grey and cold and his blood pressure was 50/45 mm. Hg. Three-quarters of an hour later somebody with a tiny spark of clinical acumen "made an attempt to start a transfusion," but after 2 hours the patient had received only 924 c.cm. of fluid, of which 686 c.cm. was plasma and the rest blood. At this time the blood pressure was still only 60/40 mm. Hg, but the patient was "even smiling at the doctors," so they stopped his life-saving transfusion and operated on him and he died on the table. His minor wounds were "cleaned and sutured," but the major "compound fracture with much laceration of tissue" was not touched.

Surely it is common knowledge in the profession that a patient with a compound fracture and a severe flesh wound who is ashen grey and cold and has a blood pressure of 50/45 mm. Hg requires early and rapid transfusion of blood, and operation as soon as the blood pressure reaches the 100 mark: Also the transfusion should be continued *during* the operation and for a short time afterwards.

Case 2.—This patient was admitted at 1.45 a.m. He was drowsy and ashen-coloured and his blood pressure was 60 mm. Hg, but as there was "no obvious haemorrhage" he was left until 6 a.m. before transfusion was started. But he had a compound fracture of the right forearm with a severe injury of the right hand. There were also multiple wounds of the right leg of such severity that the vitality of the leg was abolished. He must have lost a lot of blood before admission. At 8 a.m.—i.e., over 6 hours after admission—he had received only 2 pints of blood, but the transfusion was stopped. Three hours later a plasma transfusion was started, and during the next 10½ hours, while "investigations" were being carried out, 3 pints of plasma were given slowly. Eventually, 20¼ hours after admission, he was operated on with a blood pressure of 100/55 mm. Hg. But between 6 a.m. and 9.30 p.m. (time of operation) his blood pressure had fluctuated between 105 mm. Hg and 130 mm. Hg. The day after operation "he was too ill to have his gangrenous leg amputated."

What a sorry story of fiddling while Rome burns! Again, the severity of the injuries demanded early transfusion and operation, and the essential part of the latter was the removal of the gangrenous leg as quickly as possible. To wait 20 hours and then to omit the essential part of the operation is just incomprehensible.

Case 5.—Intravenous pentothal is not the best anaesthetic for an old man of 67 who has a fractured femur. To repeat the dose 4 days later in order to correct a malposition which could well have waited 10 days was to court disaster.

Cases 3 and 4 were admitted with a blood pressure of over 100, and seem to have been suffering from so little clinical evidence of shock that they were able to withstand investigation of their non-existing shock.

Finally, in their conclusive recommendation of cyclopropane and oxygen as the best anaesthetic for the severely shocked patient, Messrs. Crooke, Morris, and Bowler make the astonishing remark (astonishing after 5 years of war) that "in modern war it is possible for the great majority of patients to be brought back for operations to base hospitals." Do these gentlemen not yet realize that compound fractures, severe flesh wounds, and amputations are operated upon in the forward areas, where the anaesthetist has neither cyclopropane nor nitrous oxide at his disposal? Yet the mortality rate in such cases is less than 1%.—I am, etc.,

B.L.A.
R. STRANG,
Major, R.A.M.C.

SIR,—Dr. D. C. Devitt asserts (*Journal*, Dec. 16, p. 798) that the conclusions reached in our article on general anaesthesia in shock are based on only 26 cases. These cases, on which he bases his criticisms, formed a control group which were not shocked and had normal plasma volumes. For reasons of space we reported fully only 5 cases of shock from a wide experience. These cases were chosen to demonstrate the greater tendency of anaesthetics to lower blood pressure when the plasma volume was reduced. The only "far-reaching conclusion" to which we have come is that anaesthetics affect the blood pressure mainly through the vasomotor system, and we consider that the evidence which we have presented is adequate.

In reply to Major Strang's letter, I should like to state that we are in agreement with a number of his criticisms, but would point out that they should be directed to the clinicians in charge of the cases. We went as independent observers and had no control over the management of any of the three cases in question, which were all seen in outlying hospitals. I would urge Major Strang, however, to be more careful of his facts; thus, in Case 1 he states that "after 2 hours the patient had received only 924 c.cm. of fluid, of which 686 c.cm. was plasma and the rest blood." This is very different from the statement made in our paper. The patient actually received sufficient fluid by transfusion to restore the plasma volume to normal. We selected this case as an example of mismanagement in another way—namely, the choice of anaesthetic.—I am, etc.,

London Hospital, E.1.
A. C. CROOKE.

War Malaria

SIR,—Sir Philip Manson-Bahr's contribution to war malaria (Sept. 9, 1944, p. 350) is indeed welcome, as it expresses the common sense of the position. In Egypt it was not my business to treat malaria cases, but it was my business to advise the D.M.S. what was to be done with them. I soon found (what Sir Philip Manson-Bahr now states) that benign tertian malaria is more of a nuisance than a serious disease, except in the uncommon cases where there is some complication.

The matter came under my notice when travelling in Egypt, when the medical officers in the hospital trains, who were well informed, asked me to deal with the men they called the "round trippers." What actually happened was that some with benign tertian malaria were sent to Egypt and taken into hospital. They were carefully examined—I think in some instances by men who had never seen malaria cases. As they could find nothing the matter with the men they sent them back again. They got as far as the Canal, where a glass of water, etc., brought on another attack. They were sent back to a hospital in Egypt, usually not the hospital which discharged them. The result was that the hospital trains were littered up with these cases. I had a discussion with the chief, and the following procedure was arranged.

They were all put into garrison battalions and set to work. A small detention hospital was provided, and whenever they got an attack they were put into hospital. As soon as they were right they were put to work. The effect was twofold: it helped to eliminate malaria and prevented men from thinking they had a serious disease, and the "round trippers" were eliminated.

As Sir Philip Manson-Bahr says, malignant malaria is a different disease. It is protean and it can be very deadly. It may have been on his advice—that I cannot say—but the instructions were that if a soldier was sent to a forward station and had a rise of temperature he was immediately given quinine. If you waited until you found out whether he had malaria and what type of malaria it was, it was sometimes too late. The benign tertian cases which returned to Australia from that campaign have gradually disappeared, but I can only say that malignant malaria engenders profound respect in anyone who has to deal with it.

The extent of malaria can be gathered from the fact that the day after Armistice, when we left Egypt, there were 54,000 men in bed, mostly malaria cases, and that the Medical Research Council of Great Britain informed me that there were 650,000,000 cases on the globe and 4,000,000 deaths annually. But it is obvious that in such places as India and Malaya it is difficult to see which type you are dealing with. I believe in the epidemic in Ceylon 2,000,000 of the 5,000,000 people suffered from malaria, and 100,000 died. The details are not known to me.

Sir Philip Manson-Bahr rendered a great service in clearing up the problem, which for a time was a source of worry to the Army in Egypt.—I am, etc.,

Melbourne. JAMES W. BARRETT.

Terminology in Malaria

SIR,—In your annotation on terminology in malaria (Jan. 20, p. 88) you refer with approval to more precise descriptions of the various forms of malaria as *vivax* malaria, *falciparum* malaria, etc., "in place of such clumsy and archaic names as 'simple tertian,' 'benign tertian,' and the like." A recent attempt I made to employ this more precise nomenclature in the commentary for a medical film had to be abandoned because in the case of quartan malaria the phrase *malariae* malaria proved to be a cause of confusion, and well-nigh impossible to enunciate clearly. This difficulty might be avoided by referring to the four common forms of malaria as *vivax*-tertian, *falciparum*-tertian, *ovale*-tertian, and *malariae*-quartan—terms certainly less archaic but scarcely less clumsy than the old familiar names "benign tertian," "malignant tertian," "ovale tertian," and "quartan."—I am, etc.,

School of Tropical Medicine, Liverpool. J. W. S. MACFIE.

Prisoner-of-War Mentality

SIR,—I have read Major D. L. Charters's letter (Jan. 6, p. 24) with great interest. Briefly speaking, it is an objection raised to a statement made by Dr. Harkness in a letter last April. The statement he quotes is as follows: "The very large majority of our returned prisoners of war will be problems for their lifetime."

I agree with Major Charters that such a statement is pessimistic and probably far from the truth. I do not believe that a large majority or even a majority, but a very definite minority, remain problems for their lifetime. There can be no accurate statistics to prove such a statement either way; but I would be quite prepared to believe the figure well under 10%. An article appeared in the *Journal* of Jan. 1, 1944 (p. 8), and was written some six months after I had returned from a prison camp. In that article emphasis was laid on the problems of the period following repatriation. The repatriates' reactions were called "release phenomena." The period was likened to that time when a man is released from a caisson and shows symptoms of caisson disease. It was stressed that this was not really a disease but normal phenomena shown by a normal body as a result of release from an abnormal external environment. I hope I shall in no way offend or hurt Major Charters and his companions who join him in giving evidence against Dr. Harkness's statement if I point out that they are still within the caisson and are unable to judge accurately what are to be their reactions after release.

At the time that article was written I was myself passing through the period of reaction. Since then I have taken much interest in this subject and have met many returned prisoners of war, and can perhaps now convey an impression somewhat nearer the truth. Prisoner-of-war life probably exaggerates neurotic and psychopathic tendencies. It is the small minority with these latent weaknesses who may show symptoms of such for the rest of their lives. It is for these cases that I thought fit to suggest that there should be set up after the war a special rehabilitation centre with a psychological staff in attendance. The average man, who is in the large majority, on repatriation shows release phenomena. It should be stressed once more that these are not neurotic or psychopathic phenomena, but a normal response of a normal man to release from an abnormal external environment. It might even be termed an over-swing due to the inertia of failing to adapt immediately to a different environment. These symptoms are not those of mental abnormality and do not need specialist treatment. There may in some cases, however, as described previously, be some need of a "long-distance guidance." These symptoms will pass away and leave no trace. It seems evident that a tendency to show these phenomena is present in everyone, and that many do show them to a degree sufficient to be remarked upon.

These symptoms are the result of many factors, among which are: (1) An abnormally high morale due to sudden cessation of a hard life. This, keyed up by an idealistic image of their home country, gives rise to an impatience at the slow rate of progress and lack of enthusiasm at home. (2) An impatience to catch up after so much wasted time resulting in a tendency to cut corners in the accepted style of normal business and social life. (3) Not merely a lack of respect for authority but an actively encouraged disrespect and spirit of sabotage against authority. Running parallel but in opposition to these positive entities is a negative spirit, one of lethargy and apathy, born of years of frustration. These positive reactionary symptoms may therefore be considered as normal to the repatriate during a certain period of time.

In the same article I stated that at this time a man needs sympathy. It was an ill-chosen word. The repatriate himself wants not sympathy but a square deal and a job to get on with. He does not want charitable sympathy but a sympathetic understanding, an acceptance and a recognition of his value. With this in mind, the community will gain the confidence of the returning prisoner of war and reap the benefit from his latent spirit of high morale. Without this understanding there is a risk that he will join the lines of the discontented and thereby become a problem for the rest of his life. The repatriate wishes to rejoin the queue where he left it years ago, not at the back.—I am, etc.,

P. H. NEWMAN,
Major, R.A.M.C.

Psychology's Opportunity

SIR,—Dr. A. C. Wilson's letter (Jan. 20, p. 96) is as timely as it is trenchant, for not only does he indicate the source of many of the ills of the present-day world but he also points the way whereby they may be extirpated. Psychologists have long recognized that basically war, with all its implications, results from causes due to social maladjustments of persons and peoples. Freud, Ernest Jones, Glover, and many others have clearly demonstrated this in their writings and pointed a moral, but unfortunately their warnings have not been heeded, for those very evils which promote racial aggression and subsequently war still flourish unchecked.

With the exception of Soviet Russia the countries of the Western Hemisphere continue to labour under the yoke of an archaic ecclesiastical rule, which for centuries has imposed its taboos, fetishes, and imperfections upon mankind. In no country was this domination more shamefully abused than in Russia prior to the Revolution, but there to-day the greatest social experiment of all time is being carried out with results apparent for all to witness. There the aggressive instincts of a race have been sublimated into constructive channels, and the health and happiness and general welfare of the populace immeasurably improved thereby. In modern Russia, as Dr. Wilson points out, the psychologist has been heeded, and advanced thinking rather than a blind devotion to outworn social, economic, and religious creeds has wrought changes which must become the model for the rest of the world.

What great prospects await us here, too, if progressively minded men are but chosen to guide! Their task will be a hard one, however, for not only will they need to be equipped with a deep psychological understanding of the problems of to-day but they will also require force and courage to break down the centuries-old barriers which obstruct their path. That the present guardians of the barriers have failed is all too apparent to those who survey the present misery of the world, and the tragedy of the situation is intensified by the knowledge that such horror might have been averted. Greed in any section of society inevitably engenders hate and fear in others, and from these unholy twins springs that form of undesirable aggression which leads to war.

These processes must be clearly understood if the world is to be freed from recurring tragedies such as that which engrosses civilization to-day, and modern thought should eventually prove capable of averting such disasters, but the old order must go and reason must prevail in its stead; with the growth of knowledge among the people as a whole the ultimate salvation of mankind will be achieved.

It is a significant fact that from the mass of literature written on this subject during the past decade only that which recognizes psychological concepts regarding the causes of war has proved accurate in its anticipations or genuinely constructive in its prophylactic suggestions. The soldiers, churchmen, politicians, and "big business" men have all failed because consciously or subconsciously they were activated by selfish motives; the psychologist has none of these, so why not follow Russia's example and give him his due place in the vast problems which will follow in the wake of peace?—I am, etc.,

A. TANDY CANNON.

*** Nevertheless we may well be thankful that the aggressive instinct of the Russian is so much in evidence on the Eastern front at the moment.—ED., *B.M.J.*

Relation of Neurology to Psychiatry

SIR,—In reply to Dr. F. A. Pickworth (Jan. 20, p. 95), whose views as to the frequency of incidence of organic lesions in the brains of mentally disordered persons seemingly differ from my own, I would suggest that much depends upon what one interprets as significant. This matter of interpretation is beset by many pitfalls and fallacies. Not least of these is the confused picture that results from lesions occasioned by the illness from which the patient died, as against those, if any, which truly appertain to the mental disorder as such. It is, of course, unusual for mental disorder *per se* to kill the patient save in certain well-recognized forms. Other fallacies relate to agonal and to post-mortem changes, also to changes occasioned by the process of fixation of tissues—to mention just a few to which the brain is specially vulnerable.

Even if all the lesions found could indubitably be regarded as related to the symptoms of disordered mind—and this indeed is a great supposition—the questions then arise, "In what temporal order did those lesions occur? Did the organic changes precede or follow the psychical? These questions are of the utmost importance as regards aetiology. It may be that the organic lesion is itself but the end-product of prolonged and repeated dysfunction, such as capillary spasm with ischaemia or arteriosclerosis following hyperpiesia, both of which may occur in states of emotional tension and lead either to actual degenerative lesions or to increased tissue susceptibility to other noxious agents. The application of dynamic conceptions to the field of organic pathological change has not nearly received sufficient attention.—I am, etc.,

Warlingham Park Hospital. WM. H. SHEPLEY.

Absence of Surgical Shock in Epileptics

SIR,—In view of the criticism by Mr. H. Haxton (Jan. 13, p. 61) of the inference I made (Dec. 30, p. 867) that absence of shock in my case of injury while in a major epileptic fit supported the theory of the nervous actuation of shock, may I amplify my reasons.

I did not mean to suggest, as Mr. Haxton implies, that the almost severed limb distal to the site of injury (which I described as cold and bloodless) could in any circumstances have come into the clinical picture. It was the extensive trauma to the muscles round the shoulder and to the joint itself, proximal to the point of severance, that I should have expected to produce severe shock, the absence of which I attributed to the epileptic state of the patient.

As a practising surgeon with a clinical rather than an experimental approach to the subject of shock, I should like to record my hesitation in accepting the "toxic" theory as the major cause of shock, based as it is upon animal experiments which seldom appear conclusive. For instance, the experiments quoted by Mr. Haxton in support of this theory, in which decerebrate animals suffer shock if the blood supply to an injured limb is maintained, are offset by others in which shock develops after release of a clamped artery supplying a traumatized limb, but is not increased when the vein too is released. May not the path of the centripetal shock-causing impulse travel by the sympathetic nerves accompanying the artery? This sympathetic route is favoured by: (1) the pain and mild shock sometimes caused by the clamping of an artery while operating under local anaesthesia, and (2) the severe shock often produced by traction on the upper abdominal mesentery during laparotomy.

As a clinician, I find it very hard to square with the "toxic" theory cases of shock approaching the fatal in degree which occur from time to time from purely psychological causes, and those in which the circulation, as in a volvulus of small gut, is automatically occluded. Again, the wide variation in the degree of shock produced by similar injuries in individuals of contrasting psychological make-up is much more suggestive of a nervous than a chemical onslaught.

While admitting, therefore, that the prolongation of shock may often depend on some toxic product, I prefer to consider that its first onset is more often actuated by some nerve impulse.—I am, etc.,

Beccles, Suffolk. C. GRANTHAM-HILL.

Supervision of Mental Defectives

SIR,—Dr. J. S. Cookson's article (Jan. 20, p. 90) deals so briefly with a subject with so many facets that it begs for amplification. His plea seems to be for the subsidization by the local authority of employment for mental defectives who at present readily find a full-time occupation owing to labour shortage, but who, when labour conditions return to normal, will be unable to compete for employment with those of adequate intelligence except in carefully selected individual jobs, which naturally will be few. Dr. Cookson quotes the view that institutional (colony) training tends to adapt the defective to the needs of the institution. His figures are for defectives (adults) ascertained in childhood who are not under certificate and who presumably have never received institutional care and training. Perhaps the following figures might supplement Dr. Cookson's, and show the picture of employment from a colony source within the same geographical area.

Out of 477 adult male defectives of all grades at present on the books of this colony 46 are on licence living with parents or employers where the nature of employment is that normally done by adults and is full time, 35 are at various agricultural workers' hostels, and 27 are going out from the colony to daily full-time work normally that of an adult, giving a proportion of 22% employability from "institutionalized" defectives to compare with Dr. Cookson's 48 out of 227, or 21%. Dr. Cookson's lowest mental level is 5 years, and one assumes that his 227 ascertained defectives under statutory supervision are not the grosser types who are for the most part in institutional care in any case.

As well as supplementing Dr. Cookson's figures I think this may be taken as refuting the belief that institutional employment leads only to "institutionalization."—I am, etc.,

J. JOHNSTON MASON,
Westbury-on-Trym, Bristol. Medical Superintendent, Brentry Colony.

Hypoproteinaemia in Severe Anaemia

SIR,—Dr. T. Davies's article (Jan. 13, p. 45) has stimulated me to record a similar case.

A woman aged 48 was admitted to hospital on Nov. 10, 1944, with a history of ten years' menorrhagia. She has been "anaemic" for years and used to "swell upwards" some days *after the periods stopped*—i.e., while protein was taken up in the formation of haemoglobin. On examination her conjunctivae were pale, so were the nail beds and palms; koilonychia was present; superficial glossitis was evident. Generalized oedema stopped at the level of the 4th intercostal space. Her thigh measured 36½ in. and the abdomen was 46 in. in girth. There was cervical congestion of 4 in. above the manubrium and some cardiac enlargement. A haemic systolic murmur was heard at the apex. B.P. 130/70. No hydrothorax or ascites, the abdominal girth being due to oedema of the wall. The blood picture was Hb 31%; R.B.C. 3,150,000; C.I. 0.5; icterus index 15 U.; Wintrobe vol. index 0.8; plasma proteins (copper sulphate method) 5.40; cholesterol 100 mg. per 100 c.cm.; van den Bergh positive indirect 5.6 units. The urine excretion was 30 oz.; no abnormal constituents. Jaundice became clinically obvious. The patient felt very poorly and she was grossly orthopnoeic. On Brig. Whitby's advice one pint of whole blood group O was given, followed by *double-strength* reconstituted plasma. A high protein diet was started and supplemented by ferrous sulphate, HCl, vitamin C, thyroid, and desiccated hog's stomach. On Nov. 23 Hb 55%; R.B.C. 4,500,000; plasma protein 5.8%; thigh girth 30 in., abdomen 41 in.; urine output 40 to 45 oz. daily.

It was noticed that oedema remained more pronounced on the left side, and it was suggested that a fibromyoma might be pressing on the left venous and lymphatic return and also accounting for menorrhagia with the whole sequence of events. This was subsequently confirmed when pelvic examination became possible. On Dec. 19 the patient was discharged with practically her normal measurements, "fitter than ever before," and with a healthy red colour in her cheeks.—I am, etc.,

Dorset County Hospital, Dorchester. D. CAPPON.

Artificial Insemination

SIR,—May I say how I, and I am sure many others, welcome the letter of Dr. Leonard G. Parsons (Jan. 20, p. 96) and the breath of wholesome common sense and moral indignation it brings to the discussion on artificial insemination that has been conducted in recent numbers of the *Journal*. It is difficult to argue with the advocates of this latest novelty in techniques offered to the community, for they seem to have no clear ethical principles and, we may be sure, will be disdainful of those that have. To invoke the Christian ethic, as Dr. Parsons has had the courage to do, will elicit nothing but jibes from them, and yet it must be invoked if medicine is not to become the servant of hedonism.

The legal sanction is the only one likely to appeal to the advocates of extramarital insemination; but even the law may alter, as we saw when the speculation that a pregnant girl, stated to have been raped, might develop a neurosis was equated with "danger to life," and the artificial termination of her pregnancy pronounced lawful.

The logical conclusion of this advocacy of artificial insemination is the human stud farm, with the making of a stud book, and the State registration of semen donors. We shall then have a new profession (or shall we call it a trade?) of donors, presumably a very select one, for those who do not blush to adopt it. A new medical specialty will follow (with a new-coined Greek or Latin name), asking for a special diploma from the relevant examining bodies, and, in due course, for its own special place in the medical curriculum. Thus "medicine" advances from triumph to triumph and retreats from decency after decency. —I am, etc.,

London, W.1. F. M. R. WALSHE.

SIR,—Mr. T. C. Clare (Jan. 13, p. 62) asks at what age a child, the result of A.I.D., should be told the circumstances of his or her birth. In my experience as certifying factory surgeon I found that most adopted children had not been told that they were illegitimate before they left school. If the parents follow the instructions of the A.I.D. surgeons to have the child registered in the husband's name, there will be no need to inform the child at any time. But is this instruction not an incitement to commit a felony?—I am, etc.,

Birmingham. ROBERT ANDERSON.

SIR,—Many aspects of artificial insemination have been discussed, but one aspect has been ignored until Mr. T. C. Clare called attention to it. The effect of this scientific experiment on its victim is surely of vital importance. It has been somewhat airily assumed that he would know nothing of it, but this is most unlikely. "Murder will out": he is obviously illegitimate, and this cannot be concealed without criminal liability involving both parent and doctor. For this reason alone I advise no medical man to have anything to do with it. What would be the reaction of a young man or girl to the knowledge that they were the offspring of a test-tube supplied by some unknown man, and what would they think of their mother? It is difficult to believe that any decent man would lend himself to this proceeding; even the tempting possibility of being the father of 400 children a week, so alluringly mentioned by one of your contributors, would not seduce him to join a stud farm. Surely, if a couple are prepared to accept the intervention of a third person it would be most natural to let this man operate in the natural way; morally I can see no difference.

One might make another point: suppose the woman was not satisfied with one child and wanted three or four—who is to limit her? And one may reasonably assume several donors; it would certainly be a very interesting family, but how would it work?—I am, etc.,

Brighton. J. A. ROOTH.

SIR,—I have read the correspondence about the above and the article in the *Journal* of Jan. 13 (p. 40). I find myself in complete agreement with the able letter of Dr. Leonard G. Parsons (Jan. 20, p. 96). In my opinion this procedure is illegal, immoral, and disgusting. I consider it is wrong to introduce into the human body living organisms except in the natural way. One of your correspondents compares this procedure with the crime of murder, and suggests extenuating circumstances; I cannot conceive any similar extenuating circumstances, but by this statement he certainly admits the illegality of the procedure.

The care of the health of the people is the doctor's job, not the production of artificial babies. The general suggestion seems to be that the profession should adopt their own moral code. I am afraid we are deteriorating rapidly.—I am, etc.,

York. F. J. WILFRID SASS.

SIR,—What a picture this subject conjures up! A man masturbating—as a "favour" or for a fee; the fertilization of another man's wife by his semen, artificially introduced by a doctor who is blind to the moral issues raised thereby; registration of the child in the name of the woman's husband, but not of the real father; and, finally, the life-long mental effect that must be produced in both the man and his wife from the knowledge that the child is not *their* child but the mediate adulterous offspring of a stranger! The most surprising thing is that there should be members of our profession who apparently are willing to lend themselves to such a form of procuration, and, over and above it all, are not ashamed to write to the medical press and boast of their share in such iniquity.—I am, etc.,

Brookwood, Surrey. H. M. STANLEY TURNER.

SIR,—I take the strongest exception to the pages of the *B.M.J.* being used to propound the pagan way of life. Your contributors on artificial insemination (donor) (Jan. 13, p. 40) have said nothing particularly original except perhaps to suggest that the marriage service in the Book of Common Prayer means just nothing to them. Personally I regard this article as the most diabolical thing I have ever read, and it must offend every member who even half-heartedly favours the Christian view of the family. The whole article reeks of vicious expediency, half-truth, and advocacy of plain lying—e.g., birth registration—a scheme of things which if tolerated would not enhance our reputations with the laity.—I am, etc.,

Stourbridge. C. F. KEANE.

Handbook on the Care of Laboratory Animals

SIR,—Last year we wrote to all holders of the Home Office licence asking them to send us information for use in the forthcoming handbook. Thanks to valuable help from workers in Britain and also in America, Russia, and elsewhere, it has been possible to deal with most if not all of the smaller laboratory animals; but we are anxious to get into touch with those who have been successful in maintaining healthy stocks of the larger species—cats, dogs, the smaller ungulates and primates. These species will not be dealt with in detail in the handbook, but we should like to include references to published accounts of methods of maintaining healthy and contented stocks and also to mention laboratories at which advice on the subject can be given at first hand. We should be most grateful if those who could help in either of these ways would get into touch with us as soon as possible.—We are, etc.,

C. W. HUME,
Hon. Secretary,
F. JEAN VINTER,
Secretary,
Universities Federation for Animal Welfare.

284, Regent's Park Road,
London, N.3.

Future of the G.P. Specialist

SIR,—Mr. J. K. B. Waddington's letter (Jan. 20, p. 97) ventilates a most important problem which does not appear to have received any consideration by the Government in the White Paper. There are several hundreds of experienced surgeons, physicians, and anaesthetists attached to hospitals performing splendid work while at the same time engaged in general practice. Their future appears to be nobody's concern. Recently a colleague engaged in general practice operated successfully on an eminent physician and an equally eminent ear, nose, and throat surgeon. Such skill must not be put aside because the possessor of it is also engaged in general practice.

I suggest that all such physicians, surgeons, and anaesthetists should join together to voice their views and state a case to the Government through the Negotiating Committee. I am prepared to organize a united effort to be presented to the British Medical Association if I receive support from members of hospital staffs.—I am, etc.,

New Place, Horsham, Sussex. GERALD DELACEY.

Death of Robert Burns

SIR,—In reply to Dr. Archibald Ogg's letter to the *Journal* of Jan. 13 (p. 62), may I suggest that the late much-respected Sir James Crichton-Browne viewed the matter of Burns's last illness as a somewhat prejudiced historian working with scant material rather than as a cold clinician doing the same, using other men's unsubstantiated facts?

The words "rheumatic endocarditis" indicate what is only symptomatic of an acute valvulitis in the one case, of cicatrized valves in the other, chronic, case; being simply a label, a part diagnosis recording an incident in the course of the illness and not the disease itself. A fact well known to practising medical men is this: that scarred heart-valve cusps occurring as a sequel to acute articular rheumatism (rheumatic fever) commonly dispose to and determine the site of a bacterial endocarditis many years after. However, we need not "split straws": clearly, Burns died of an actively infective disease of the whole heart, not from alcoholism, which itself could have neither provoked nor excited the disease. Thus far, I dare say, Dr. Ogg would agree with me; then we can forget it, and turn again to enjoy Burns's delightful poetry.

In reply to Dr. Letitia Fairfield's letter (Jan. 20, p. 98), may I point out that she, unreasonably as I think, places the blame for Burns's death on the doctors; meaning, I suppose, Dr. Maxwell, though he without doubt would advise to the best of his ability in conformity with the then medical teaching. Gentle and generous towards the sick poet as he was known to be, the doctor was much liked by Burns, who named his posthumous child after him—a deed which speaks for itself.

Perhaps the "tonic treatment" ordered—crude as it was to include sea-bathing, horseback exercise, iron water and port-wine together—might in some circles be fancied even to-day as being not unorthodox and likely to be helpful, though in Burns's case unsuited to his condition of health at the particular time when he was out of the doctor's sight, away from his professional supervision. Could the doctor be held blameworthy for this? I think not. Though unsuitable in relapse, the prescribed treatment was probably believed suited to his case before Burns left for the Solway. Dr. Fairfield's statement will call to the minds of medical men with long experience of practice instances where they have been wrongly held responsible for causing the patient's disease, let alone his death.—I am, etc.,

Bournemouth. S. WATSON SMITH.

The latest news bulletin concerning the Friends' Ambulance Unit (4, Gordon Square, London, W.C.1) gives a record of work by the oversea section, whose members now number more than 500. Throughout last year the main increases in oversea personnel were made in response to demands in the field of European relief. Among other items of information from various parts of the world is a first-hand account of conditions in Tengchung, a large city retaken by the Chinese on the Yunnan front, where the F.A.U. is initiating some measures of medical relief. The chairman has returned from a four-months tour of Mediterranean sections and Ethiopia. The annual report of the F.A.U. for 1944 was published on Jan. 23.

Medico-Legal

BUSINESS OR PROFESSION?

An optician practised in St. Helens. The income-tax authoritie said he was carrying on a business, and assessed him for exces profits tax. He appealed to the Inland Revenue Commissioners, an they held that he was carrying on a profession. The departmen took the case to the High Court, where Mr. Justice Macnaghten sai that, although the Commissioners had found as a fact that he wa carrying on a profession, the right view of the case was that h was conducting the business of selling spectacles. The learne judge's decision necessarily meant that there was no evidence o which the Commissioners could have found that the optician wa carrying on a profession, for if there had been any such evidenc his Lordship would not have been entitled to upset their finding The optician appealed to the Court of Appeal, who said that th Commissioners had evidence before them upon which they coul reach their conclusion, and its correctness was therefore not a matte of opinion. The Court accordingly held that the optician had bee practising a profession and therefore could not be assessed for exces profits tax.

As their Lordships went fairly fully into the distinction betwee a business and a profession, their decision has general importanc The essential notion of a business, within the meaning of the Financ (No. 2) Act, 1939, S. 12 (3), is that it is commercial in characte Lord Justice Scott said the section left in his mind a strong impres sion that the primary object of the excess profits tax was to dea with profits which were likely to be greatly augmented by the effec of war upon supply and demand without any relation to the effor of the owner of the business. That view, he thought, was con sistent with the characteristic of the tax that professions, whic essentially depended upon skilled but non-commercial individu initiative, should be exempt. Six considerations pointed to th optician's carrying on a profession. There was no advertising, eve outside the premises; he had the appropriate waiting-room and tw consulting-rooms; no prices were mentioned in connexion with th seven or eight types of frame exhibited in his little windows for th observation of patients. He carried out the functions of examinin and testing eyesight and prescribing the suitable glasses an assembling them in their frames—meaning, no doubt, for exampl that they were set in the frames at the appropriate angle, which c course was essential. His net earnings were very substantia particularly in relation to his expenditure on material—what woul be called the stock-in-trade of a business; and the proportion betwee those earnings and the item for stock-in-trade was far larger tha it would normally be in any trading business. The Court of Appe disagreed with the Solicitor-General, who argued for the Crow that the livelihood of a professional person was attributable to h intellectual qualifications. A professional man, they said, migl utilize aesthetic qualifications, and one who dealt with a subjec matter cognate to medicine might use many other qualification They therefore disagreed with the judge's finding that as a matt of law an optician is not carrying on a profession.

The Services

Temp. Surg. Lieut. M. J. Brosnan, R.N.V.R., has been appoint M.B.E. (Military Division) for great courage and devotion to du in organizing rescue parties and in first aid to the injured wh H.M.S. *Blackwood* was lost.

Temp. Surg. Lieut. R. C. P. Aldridge, R.N.V.R., has been me tioned in dispatches for good services during operations in Italy.

Col. (Acting) D. P. Levack, R.A.M.C., has been appointed C.B. (Military Division) in recognition of gallant and distinguished se vices in the field.

Major (Temp. Lieut.-Col.) J. A. Chapel, M.B.E., R.A.M.C., h been appointed O.B.E. (Military Division) in recognition of disti guished services.

The Efficiency Decoration of the Territorial Army has been co ferred upon the following: Lieut.-Col. E. Walsh; Majors (Tem Lieut.-Cols.) A. H. Charles, E. J. G. Glass, F. W. A. Warren, a J. F. Wilde, R.A.M.C.; Major H. P. Gabb, M.C.; and Capts. Jack and J. H. B. Livingston, T.A.R.O.

CASUALTIES IN THE MEDICAL SERVICES

Major BARNETT FREEDMAN, who died over-seas on Dec. 2, 194 aged 30, was, at the time of his death, Deputy Assistant Director Medical Services (Nutrition) at Headquarters, Allied Land Forc outh-East Asia Command. He studied medicine at the Middlesex ospital from 1934 until he qualified M.R.C.S., L.R.C.P. in 1939. fter working as R.M.O. at the Albert Dock Hospital during the eriod of intense air raids on the docks area, he joined the R.A.M.C. n Dec., 1940. In the Army he served first in Wales and then went broad in April, 1942. Arriving in India, he was posted to the orth-West Frontier and spent a year there. His special interest in nd knowledge of nutrition caused him to be appointed as nutritional dviser, first to Central Command, and latterly to Allied Land orces. His work to improve the nutritional status of British and ndian troops constituted an important contribution to the war effort nd earned for him a considerable local reputation. He travelled ontinually and examined approximately 40,000 men in the course of utritional surveys. His personality, especially his modesty and ense of humour, endeared him to those with whom he was ssociated. His death leaves a gap hard to fill and removes a man f great promise.

Previously reported missing at Arnhem, now officially reported ied as prisoner of war.—Capt. John Howard Keesey, R.A.M.C.

Missing, presumed killed.—Temp. Surg. Lieut. Lachlan McLachlan, .N.V.R.

Prisoner of war.—Lieut.-Col. E. Townsend, M.C., R.A.M.C.

Obituary

SIR HENRY GAUVAIN, M.D., M.CH., F.R.C.S.

y the death of Sir Henry John Gauvain the medical profession as lost not only a pioneer and eminent authority on surgical uberculosis and heliotherapy but also a man of remarkable ersonality and charm.

Gauvain was born in Alderney in 1878. He was the son f William Gauvain, and both his parents were descendants f old Alderney families. He was educated privately and ater entered St. John's College, Cambridge, as a scholar. He ad a distinguished career at Cambridge and obtained first-class honours in the Natural Sciences Tripos of 1902. He then went to St. Bartholomew's Hospital as a scholar. After qualifying in 1906 as M.B., B.Ch., and M.R.C.S., L.R.C.P. he became house-surgeon to Mr. C. B. Lockwood, and also held intern and extern obstetric appointments.

In 1908 Sir William Treloar founded the Lord Mayor Treloar Cripples' Home at Alton for children suffering from surgical tuberculosis, and offered Gauvain the post of resident medical officer. Many of Gauvain's friends tried to dissuade him from accepting a post nvolving treatment of a condition for which practically nothing ould be done, but he, being a man of vision, thought otherwise. t that time little was done in this country for children suffering rom bone and joint tuberculosis. Gauvain paid a brief visit o Berck-sur-Mer, where the treatment of these cases by onservative methods had been carried on for about 30 years, nd he started the treatment at Alton on the same lines, odifying and amplifying it in accordance with his own ideas nd experience. In a few years' time Gauvain's work, and the esults obtained, proved the words "Cripples' Home" to be a isnomer, and the title of Lord Mayor Treloar Cripples' ospital was given to the institution, which was acquiring both national and an international reputation, and Gauvain was ppointed medical superintendent.

In view of present-day treatment of bone and joint tuberulosis it is perhaps interesting to refer to some of Gauvain's arly troubles. Many of the members of the honorary medical oard, which was composed of distinguished consulting surgeons nd physicians of the time, were strongly opposed to Gauvain's reatment of tuberculous abscesses by aspiration. They saw o need for an x-ray apparatus, and he also had great difficulty in obtaining their sanction to buy a sterilizer for dressings, as the medical board did not consider sterile dressings to be necessary in tuberculous conditions.

Gauvain's name has always been associated with heliotherapy, and from the time he first started work at Alton he had been interested in the effects of sunlight on his patients, and had successfully demonstrated its value in suitable cases. For many years he was convinced of the value of sea-bathing in conjunction with heliotherapy in properly selected cases, but it was not until it was found possible to open the marine branch at Sandy Point, Hayling Island, in 1920 that the outstanding benefits of this form of treatment could be demonstrated. A few years before this time Gauvain had recognized the need for children at Alton to have some form of education. At first this was given by one or two nurses chosen for the purpose, but later the then Prime Minister, Mr. Lloyd George, on the occasion of a visit to the hospital, was so impressed by the need for educational facilities that the matter was brought before Parliament, and Alton became the first of the hospital schools in this country.

In 1920 Gauvain received the honour of knighthood for his services to cripple children. In 1925 he opened the Morland Clinics for private patients, where it is hoped that the work he started will continue. In 1927 he was elected Fellow of the Royal College of Surgeons, having proceeded to the degrees of M.D., M.Ch. 9 years earlier. For several years before this there had been further increase in the interest taken in light treatment, more especially in artificial light treatment, and Gauvain was one of the leaders in the movement. He paid several visits to the Finsen Institute, where he was elected an honorary member of the Medical Society of Copenhagen. He was always interested in the treatment of lupus, and a relatively large number of such cases were always under treatment in the Light Department at Alton. He held very definite views on the treatment of adult lupus patients and favoured the colony system, with suitable occupational therapy, as opposed to attendance as an out-patient at a hospital or clinic.

In 1926 he went on a lecture tour in the United States and Canada, and in 1936 he was made the recipient of the Distinguished Service Gold Key of the American Congress of Physical Therapy. In 1935 the British Medical Association Meeting was held in Australia, and Gauvain was president of the Section of Tuberculosis and Public Health. He gave the presidential address on sea-bathing in the treatment of surgical tuberculosis, and received the honorary degree of M.D.Melbourne.

About 15 years ago the rebuilding of the hospital at Alton was begun. This gave full scope to Gauvain's interest in hospital design and organization, and the present hospital with its imposing structure and equipment stands as a monument to his work. Following a generous benefaction in 1938 plans were made to build a hydrotherapeutic centre for the treatment of anterior poliomyelitis at the Hayling Island branch. He had always cherished the hope that this would be used for both adults and children of all classes. In 1940 he took under his care at Morland Clinics 100 Belgian children from an orthopaedic hospital evacuated from Ostend. In gratitude for his kindness to them he received a book from the Belgian Government containing letters from the Prime Minister, the Belgian Ambassador, and the President of the Belgian Red Cross.

Gauvain was consulting surgeon in tuberculosis to three county councils and held numerous other consulting appointments; he was also the author of papers on surgical tuberculosis, hospital design, and heliotherapy. But it was perhaps as medical superintendent of the hospital at Alton that he was best known. He was considered by many to be the ideal medical superintendent. He was beloved by his patients and his staff. He chose his staff with care, and if he was convinced of their competence gave them adequate scope, and remained himself unobtrusively but keenly observant of their work. But to those who had worked longest with him and knew him best it was his great-hearted kindliness that so endeared him to them; truly we shall not look upon his like again.

He married in 1913 Louise, daughter of the late William Butler, M.R.C.S., formerly I.M.S., and is survived by her and a daughter who is also a doctor.

CECIL JOLL, M.D., M.S., M.CH., F.R.C.S.

We regret to announce the death on Jan. 25, at the comparatively early age of 60, of Mr. Cecil Joll.

Cecil Augustus Joll was the second son of Mr. F. W. Joll of Bristol, where he was educated at the University College of that city before coming to University College Hospital in London. Alike in the number of his academic distinctions and of the hospitals to which he was attached as surgeon, he exhibited an exuberance which testified to the driving-power of one of the most dynamic surgeons of the generation which is now mostly sexagenarian. He had begun by studying dentistry, and became L.D.S., R.C.S. in 1907. Taking up medical study, in 1909 he was M.B., B.S.Lond., gold medallist with honours in medicine, surgery, pathology, forensic medicine, and hygiene. Gold medals and scholarships were common incidents in a career which included F.R.C.S.Eng. in 1910, M.S.Lond. in 1911, M.Ch.Bristol in 1911, and several other degrees or diplomas from each of these corporations. After qualification he was senior house-surgeon at the Leicester Royal Infirmary, house-physician at the Birmingham General Hospital, and senior R.M.O. at the Royal Free Hospital, London, where he was later for many years on the visiting surgical staff, and, finally, senior surgeon. He was senior surgeon to the Royal Cancer Hospital, London, surgeon to the Victoria Hospital for Children and to the Miller General Hospital; he was also surgeon to seven or eight hospitals in the Home Counties within reasonable distance of London. In the last war he was surgeon-in-chief to the Majestic Hospital in Paris, senior surgeon to the Richmond Military Hospital, surgeon to the Endsleigh Place Hospital for Officers, to the Michie Hospital in Queen's Gate, to the Maxillo-Facial Hospital, and to the Brook Hospital.

[Photo by Lafayette, Ltd.

This imposing catalogue of activity is an index to the man himself. He drove himself and all his subordinates with relentless energy, and was never so happy as when facing an operation list of ten or twelve or fourteen cases—in fact, would grumble at his house-surgeon if confronted with less. He loved to keep two theatres open with a separate theatre staff in each; when he had completed the essentials of one operation he would leave a trusted assistant to do the suturing and immediately start on a case, already anaesthetized, in the other one. As an operator his technique was masterly; never appearing to be in a hurry, he was so purposive that everything looked easy, and his rapidity and dexterity were almost unbelievable. His reputation stood highest, perhaps, in the surgery of the thyroid gland; but he was just as pre-eminent in the technique of gastric surgery; indeed, a visitor from the Antipodes, who had concluded a surgical tour of American and Continental clinics with a visit to London, once said that in gastric surgery Joll was the best operator he had seen. He could, moreover, do extremely well almost everything that comes within the ambit of a general surgeon. Nor was he merely an operating machine; his judgment was excellent, and his estimate of how much of the thyroid gland not to remove was very seldom at fault. No doubt the all-round experience gained in early days, including that of dental surgery, was of value in the make-up of one who came close to Moynihan's description of himself as "a physician who operates." And the end-results of his cases were as satisfactory as the operative technique: he did not operate to show off what he could do with a knife. The confidence of his surgical colleagues was shown by his election to the Council of the R.C.S.

As for the man himself, he touched life at many points. As a collector he had sound taste, and could buy only first-rate stuff. Water colours were a hobby he indulged freely, and he was also knowledgeable in furniture and pottery. He was a notable connoisseur of good food, good wines, and good cigars. He was also a keen ornithologist. He was Hunterian Professor at the Royal College of Surgeons in 1923; and in 1932 he produced his *magnum opus, The Diseases of the Thyroid Gland.* Most, but not all, of his contributions to surgical symposia (and to these columns) dealt with the surgery of this organ. He joined the B.M.A. in 1909, was honorary secretary to the Section of Surgery at the Annual Meeting o 1924, and president of the Section in 1931. His capacity for work was prodigious, and he worked longer hours, almost certainly, than any other surgeon of his time; yet he wa always eager to spend half the night dancing as well, and would then rise at some very early hour of the morning to visit and operate at one of the hospitals outside London to which he was attached. Returning when many men had hardly finished breakfast to carry on his large private practice he would spend the afternoon operating at one or other of his London hospitals till dinner time; and this routine would go on day after day and year after year. He was a phenomenon the like of whom certainly his contemporaries and his junior associates have not met before and are not likely to meet again Joll married first, in 1924, Miss Laura Winsloe of Liverpool she died in 1931, and he married secondly, in 1936, Miss Antonia Ramsden. He had two sons (one by each marriage) who with his second wife survive him; to them a wide circle in the profession and outside it offer their sincere sympathy

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Major **WILLIAM NAPIER**, M.B., F.R.C.S.I., who had practised for many years at Epsom, has died as the result of enemy action. He was born in Co. Down 50 years ago, and wa educated at Campbell College, Belfast. He broke off hi medical studies at the Queen's University, Belfast, at the beginning of the 1914–18 war and was soon in command of a combatant unit in France. Towards the end of that war he graduated and took the F.R.C.S.I. in 1920. At school and universit he was one of the best forwards in the rugby sides and playe in the Irish Trials. Most of his life was spent in practice at Epsom, where he was deservedly beloved and trusted by his patients and by all the racing fraternity in that town. He was in addition to being a very successful practitioner, a surgeon o no mean ability. He rejoined the R.A.M.C. in the present war William Napier (writes J. C. R.) owes no small portion of h success in life to the sympathy and tender care which h received from his devoted wife. What meant most to him i life was not the plaudits of the world but his friends and his beautiful and perfect family life. "We live in deeds, not years: in feelings, not in figures on a dial. He most lives wh thinks most, feels the noblest, acts the best."

Dr. **CHARLES FRANKLIN PEDLEY**, who died on Jan. 9, was deputy medical officer of health for Bournemouth and hel office as honorary secretary of the Section of Public Healt (including tuberculosis) at the Annual Meeting of the B.M.A at Bournemouth in 1934. He was born in Rangoon on Feb. 1888, son of Thomas Franklin Pedley, M.D., and from Marlborough went to study medicine at Jesus College, Cambridge, where he took his B.A. in the Natural Sciences Tripo He went on to Guy's Hospital for his clinical course and qualified M.R.C.S., L.R.C.P. in 1914. After house appoin ments at Guy's he became in turn assistant resident medic officer at the North Wales Sanatorium, Denbigh, and a Baguley Sanatorium, Manchester, and was then senior R.M.O at Winsley Sanatorium, near Bath. During the last war he was surgeon to a Belgian field hospital. After demobilization and before taking up the appointment at Bournemouth Dr. Pedley was assistant school medical officer under the Birmingham Education Committee. He obtained the D.P.H of Cambridge in 1925.

The late Dr. **JAMES REID DICK**, a former chairman of the Scarborough Division of the B.M.A., studied medicine a Downing College, Cambridge, and the London Hospital. He graduated B.A. with honours in the Natural Sciences Tripo of 1906, M.B., B.Ch. in 1912, and took the F.R.C.S.Ed. in 1919. After qualifying with the English Conjoint diplomas in 1909 he held a number of house appointments at the London Hospital. A colleague writes: "Dick was outstanding in hi loyalty. At whatever hour of the day or night, however bus he was, a call to a patient or to a consultation always had an instant response. At all times he did his utmost and never let a patient or a colleague down. He was an excellent exponent of practical surgery, and his judgment and surgical acumen were equally good. He loved his work at the Scarborough Ho pital, to which he gave devoted service, and much that he d there was unknown and unseen. He knew his limitations in surgery and would often refuse to operate when he thought that others had more experience for that particular case. His work was his main and abiding interest, and nothing was allowed to interfere with it; but after his work his love of golf came very close. His loyalty was unquestioned but never blind, and if he saw a fault he tried hard to remedy it. He had a decisive mind and was not easily persuaded by argument against reason. In medical politics he was most conservative and detested the prospect of political interference in medical freedom. A fine partner, a very true and loyal friend and teacher, has passed on." C. G. G.-W. writes: "For over thirty years, in a happy partnership, Dick revelled in his practice at Scarborough and gained the affection of both patients and friends for his lovable qualities and his exceptional gifts in the profession to which he gave his all until sickness cut him down while yet in his prime. I learnt his worth when serving with him in France and Italy in the first world war, and can vouch for the high standard which he set himself and never ceased to maintain. 'Richard,' as his friends in France styled him, was a glutton for work and his relaxation was golf, at which he excelled. To have twice holed out in two at the long 18th hole at Gauton was a remarkable feat, if not unique. It is especially to those lovable qualities, which endeared him to so many, that I wish to pay a grateful tribute. When his light went out so suddenly an aching void was left in the hearts of his many friends. To his wife and three sons serving in the war our sympathy goes out."

News has reached this country from his pupil, Dr. Aldo Muggia, of Quito, Ecuador, of the death of Prof. BENEDETTO MORPURGO. He was born at Trieste on Aug. 15, 1861, and died in Buenos Aires on Aug. 21, 1944. It was in 1903 that he followed his teacher, Prof. Bizzozzero, in the chair of general pathology at the University of Turin. In the words of our correspondent, Prof. Morpurgo was deeply convinced of the morphological orientation of medical science, and he remained firmly loyal to his principles even when new tendencies began to prevail. His earliest work (1888) was a study of the laws which govern the regeneration of organic cells. With Canalis he began in 1890 experimental tests showing that complete fasting caused the loss of natural immunity against infections. He made many important contributions to the physiology of nerve and muscle, to cellular pathology, and on homoplastic and heteroplastic grafts. On the occasion of the 35th anniversary of his professorship a collection of original papers was offered to him by his disciples and by scientists from various parts of the world; this filled two large volumes, and contained treatises on a number of subjects in physiopathology. Prof. Morpurgo was an associate member of many foreign medical academies and often attended international congresses on general pathology, presenting there the results of his own investigations and those of his pupils. From 1925 to 1938 he directed the Cancer Institute of the City of Turin. After the Fascist Government had interrupted this charitable work its racial laws sent Prof. Morpurgo into exile.

Universities and Colleges

UNIVERSITY OF OXFORD

In Congregation on Jan. 23 the title of professor was formally conferred on Miss Ida Mann, D.Sc.Lond., F.R.C.S.Eng., Fellow of St. Hugh's College and Margaret Ogilvie Reader in Ophthalmology in the University. She is the first woman to receive the title of professor at Oxford. Prof. E. H. T. Liddell said in Congregation that hitherto the University had been making up the small stipend attached to the readership in ophthalmology to £1,000, and this would now be doubled; they were confident that the title of professor would assist Dr. Mann to build up a distinguished staff for her new Department of Ophthalmology.

In a Congregation held on Dec. 23, 1944, the following degrees were conferred:

B.M., B.Ch.—P. B. S. Fowler, L. Parker, R. A. Sladden, P. West, A. H. James, A. E. Preston, Mary R. Barker, Margaret K. Wilder. *In absence.*—R. G. Howell, A. A. Jefferson, D. Leigh, R. M. T. Walker-Brash, G. M. Colson, R. H. Marten, C. J. H. Starey, Joan F. Scott.

UNIVERSITY OF EDINBURGH

At a graduation ceremonial on Jan. 20 the following medical degrees and diplomas were conferred:

M.D.—*†M. E. S. Harrison, *A. S. Johnstone, I. F. Mackenzie, †E. G. L. Mark, †J. M. M. Batheson, lieut.-col., R.A.M.C., *†J. B. Pennybacker, †H. G. Triay.

D.Sc.—Department of Pure Science: J. N. Davidson, M.D.

M.B., Ch.B.—D. F. Aitken, M. M. Andrew, C. Austin, A. D. Bethune, C. G. H. Bourhill, Henrietta M. Brand, R. B. Crombie, G. B. Debenham, T. F. Elias-Jones, I. S. Ferguson, J. C. Foster, M. I. Girdwood, C G. I. Gordon, Vivian M. Guthrie (*née* Duncan), Jessie H. Ingram, D. M. Johns, F. R. C. Johnstone, J. Lister, R. C. W. Lowe, P. S. Lurie, E. M'Ewen, K. M'Lay, J. M'Lelland, W. W. M'Phail, R. Mendick, A. G. Moffoot, †K. S. Mowatt, J. E. Norman, Joyce M. B. Orr, Patricia M. M. O. Paterson, Barbara Petrovskaia, T. Philp, K. H. S. Pottinger, ‡R. F. Robertson, ‡J. S. Robson, P. F. Scott, H. A. E. Simpson, Carol M. S. Spence (*née* Walker), J. T M. Stevenson, J. L. Stewart, B. J. I. S. Sutherland, R. W. Tonkin, J. G. Trimble, J. G. Walker, M. Wiederlight, E. A. M. Wood, A. D. C. Young.

DIPLOMA IN MEDICAL RADIOLOGY.—M. M'Alley, Lesley I. Thomson (*née* Stewart), C. Kelly, Margaret S. King, K. A. Mackenzie.

* Highly commended for thesis. † *In absentia.* ‡ With honours.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Sir Girling Ball will deliver the Bradshaw Lecture at the College (Lincoln's Inn Fields, W.C.) on Thursday, Feb. 8, at 3 p.m. His subject is "End-results of Treatment of Growths of the Bladder."

The Hunterian Oration on "The Hunterian Museum" will be delivered by Prof. G. Grey Turner at the College on Wednesday, Feb. 14, at 3.30 p.m.

Medical Notes in Parliament

Paper for Medical Books

Major NEVEN-SPENCE asked on Jan. 17 for an increase in the paper quota available to the medical group of publishers in order to counteract the growing decline in the production of medical books. Capt. WATERHOUSE replied that quotas of paper were based on publishers' pre-war usage and did not vary with the types of books they produced. Mr. Dalton, however, had arranged last autumn for a substantial increase in the special reserve for books of particular importance, including medical books, which publishers could not produce from their quotas.

Emergency Medical Service

Mr. LIDDALL suggested on Jan. 18, in view of the fact that throughout the country many people were unaware of the activities of the E.M.S., that Mr. Willink should make a statement on the services that have been and still were being rendered.

Mr. WILLINK answered that aspects of the Emergency Hospital Scheme, commonly known as the Emergency Medical Service, had been described in recent annual reports of his Department, and had also been the subject of many newspaper and magazine articles and broadcasts. The scheme provided treatment not only for the sick and wounded of the Forces and for air-raid casualties but also for many classes of civilian sick and injured. The scheme had also developed such allied services as rehabilitation, blood transfusion, laboratories, and ambulances. There might be an opportunity of reviewing the scheme as a whole on some future occasion such as a debate on the Estimates. He wished to pay tribute now to the hospital authorities and to the medical, nursing, and other staff of the hospitals, who had co-operated so well with his officers in making the scheme a success.

Bethnal Green Shelter Disaster

On Jan. 19 Sir JOHN ANDERSON read in the House of Commons a statement which Mr. Herbert Morrison had prepared about the Bethnal Green shelter disaster. In this Mr. Morrison disclosed that when he directed High Court proceedings to be *in camera* he had before him an opinion, delivered by an experienced metropolitan magistrate after a painstaking inquiry during which 80 witnesses were examined, that the effective cause of the disaster was that a number of people lost their self-control at a particularly unfortunate place and time. He added that the Government decided in April, 1943, that public reference to the psychological cause might be an incitement to the enemy, with the resources then at his disposal, systematically to continue a form of attack which seemed likely to create a considerable disturbance to the life of the Metropolis. There was the added possibility of heavy casualties being caused until structural alterations could be made in the light of experience to many underground shelters.

Foot-and-Mouth Disease

In the House of Commons on Jan. 23 Mr. TURTON raised the question of the continued outbreaks of foot-and-mouth disease. He urged the importance of disinfecting the vehicles which carried imported meat from Argentina before they were used for livestock and feeding stuffs.

Mr. T. WILLIAMS said that if we could concern ourselves with the disease alone, obviously the straightforward method would be to prohibit the import of meat from those countries where foot-and-mouth disease was endemic or outbreaks were known to be occurring. That, however, was almost out of the question. To concern ourselves with disease alone would reduce our meat ration to about 9d. per person a week. Vehicles used for conveying imported meat were also used to convey home-killed meat. He was sure that Parliament would not agree to an Order which required that vehicles used for the distribution of meat should not be used for carrying livestock and should not subsequently be used for carrying other goods until properly cleansed and disinfected. An Order covering the wholesale distribution of meat would cause great dislocation difficulties. Last year (1944) saw a heavy wave of disease in South America, which, if the transport risk had been great, ought naturally to have expressed itself in outbreaks where vehicles had conveyed meat and other goods to and from farms in their daily work. Not one original outbreak in 1944, however, was traced to a vehicle conveying imported meat. Nevertheless no opportunity should be lost of impressing on those who conveyed imported meat the importance of properly cleansing and disinfecting vehicles before carrying livestock. With regard to pigs it was not so much the butcher as meat scraps which were a danger to livestock. If the Orders already in existence were faithfully complied with the danger would be reduced enormously.

Direction of a G.P.—In a reply on Jan. 18 to Sir Arthur Evans, Mr. Ernest Bevin said a doctor in general practice in Cardiff had been found guilty of failing to comply with a direction to take up a post in a hospital, alleging conscientious objections. For this offence the doctor had been convicted and fined, but remained liable to be directed to other suitable employment. Directions would be issued accordingly if and when a post was found for him which was suitable, having regard to his experience, qualifications, and other circumstances.

Bedding and Upholstery Stuffing.—Mr. Hewlett alleged on Jan. 18 that this country was considerably behind other countries in the standard of cleanliness required for the filling of bedding and upholstery and that British importers were being offered objectionable materials.

Mr. Willink answered that the need for a comprehensive review of this subject led in 1938 to the appointment of a Departmental Committee. In view of the importance of the subject arrangements were now being made for the committee to resume its work.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the incidence of measles was less than in the previous week by 968 cases, and that of scarlet fever by 132, while for other diseases the following rises were reported: acute pneumonia 157, whooping-cough 140, dysentery 98, and diphtheria 20. Deaths from influenza in the great towns have increased, the total now being 72; in the previous two weeks they numbered 35 and 55. In the combined regions of London, south-east, south-west, south midland, and eastern, notifications of diphtheria rose from 58 to 102, but for the rest of the country they fell by 24. Acute pneumonia is also prevalent in the south. The only large local variation in whooping-cough was Lancashire—a rise of 47 cases over last week's total. Lancashire reported 307 fewer cases of measles than last week, Nottinghamshire 252, Staffordshire 175, Cheshire 81, and Middlesex 59, but in Yorks West Riding cases mounted by 92, in Yorks North Riding by 78, and in Worcestershire by 69.

In Yorks West Riding notifications of dysentery rose from 13 to 100 (Wakefield C.B. 81, Sheffield C.B. 14). The other large returns were those of London 36, Lancashire 40, Southampton 16 (Petersfield R.D. 12), Buckinghamshire 14 (Aylesbury R.D. 13), Glamorganshire 10 (Cardiff C.B. 9).

A case of smallpox has been confirmed during the week ending Jan. 27 in a military camp in Anglesey. The 1,400 personnel have been vaccinated and placed in quarantine and the civilian population have been offered vaccination facilities.

In *Scotland* rises over last week's total notifications occurred as follows: whooping-cough 201, measles 192, scarlet fever 20, diphtheria 13. Notifications of primary pneumonia fell by 49, and those of dysentery by 28. A new outbreak of dysentery occurred in Clackmannan County, where 14 cases were reported.

In *Eire* the incidence of whooping-cough fell by 22, the totals for the other diseases remaining constant.

In *Northern Ireland* the notifications of measles fell by 42, and those of diphtheria by 7.

Week Ending January 20

The returns of infectious diseases in England and Wales during the week included: scarlet fever 1,564, whooping-cough 1,785, diphtheria 518, measles 12,054, acute pneumonia 1,399, cerebrospinal fever 77, dysentery 377, paratyphoid 1, typhoid 11. Influenza deaths in the large towns totalled 56.

No. 2

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Jan. 13.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	53	1	30	2	—	64	4	19	1	5
Deaths		1	3				3	1		
Diphtheria	459	20	154	113	20	673	41	158	106	51
Deaths	5	1	3	5	—	16	1	2	3	—
Dysentery	302	36	82	—	5	175	34	39	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	4	—	1	1	—	1	—	1	—	—
Deaths		—					2			
Erysipelas			45	9	4			43	12	1
Deaths		—					1			
Infective enteritis or diarrhoea under 2 years				10					9	
Deaths	52	2	9	14	1	61	13	10	14	7
Measles*	10,979	210	889	14	239	559	98	207	71	2
Deaths	18	2	2	—	—	—	—	—	—	—
Ophthalmia neonatorum	58	—	19	—	1	78	8	14	—	1
Deaths										
Paratyphoid fever	5	—	3 (B)	—	1 (B)	4	—	—	—	—
Deaths	1	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	1,399	72	17	5	14	1,294	105	50	25	6
Deaths (from influenza)	72	14	2	2	1	197	19	12	3	11
Pneumonia, primary			319	22				357	18	
Deaths		85		23	29		79		21	6
Polio-encephalitis, acute	3	—				—	—			
Deaths		—					—			
Poliomyelitis, acute	7	—	—	1	—	9	2	1	1	1
Deaths		—					—			
Puerperal fever		4	6		—		2	12		—
Deaths										
Puerperal pyrexia‡	127	8	6	—	—	152	12	13	2	1
Deaths		—					—			
Relapsing fever	—	—		—		—	—			—
Deaths										
Scarlet fever	1,330	52	212	21	37	1,747	146	229	29	92
Deaths	3	—	—	—	1	2	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	5	1	3	2	1	1	—	2	1	3
Deaths	—	—	2	—	—	1	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	1	—	—
Deaths				—	—				—	—
Whooping-cough*	1,678	57	285	50	9	2,023	184	252	52	12
Deaths	13	1	2	1	1	14	1	1	—	1
Deaths (0–1 year)	512	53	68	66	34	437	79	70	57	25
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	6,857	1089	745	288	170	5,715	975	739	292	170
Annual death rate (per 1,000 persons living)			16·9	18·6	§			17·0	19·1	§
Live births	6,586	647	884	286	260	6,363	749	883	379	251
Annual rate per 1,000 persons living			17·7	18·5	§			18·0	24·7	§
Stillbirths	203	18	38			195	14	39		
Rate per 1,000 total births (including stillborn)			41					42		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

Dr. Albert Schweitzer, philosopher, theologian, musician, and doctor of medicine, was 70 years old on Jan. 14. In his medical capacity he has run a hospital in French Equatorial Africa for the past 30 years. A *Bulletin* celebrating Schweitzer and his work has been published by the British council for his hospital and is issued from Friends House, Euston Road, London, N.W.1.

A meeting of the Medical Society of the L.C.C. Service will be held at Paddington Hospital, Harrow Road, W., on Wednesday, Feb. 7, at 2.30 p.m., when members of the staff of Paddington and St. Charles' Hospitals will demonstrate cases.

The next quarterly meeting of the Royal Medico-Psychological Association will be held at 11, Chandos Street, W., on Wednesday, Feb. 7, at 10.30 a.m., when discussions on "Electro-encephalography in Relation to Psychiatry" and "The Impulsive Psychopath" will be opened by Dr. Denis Hill and Dr. R. Sessions Hodge respectively, and Mr. W. Grey Walter will speak on "The Analysis of the Fine Structure of the Electro-encephalogram."

A lecture on "The Health Services of the Soviet Union" will be given by Dr. S. A. Sarkisov, professor of neuropathology at the Moscow Institute of the Brain and representative in Great Britain of the Red Cross and Red Crescent of the U.S.S.R., at the Pharmaceutical Society of Great Britain, 17, Bloomsbury Square, W.C., on Thursday, Feb. 8, at 7 p.m. A discussion will follow.

The Association of Scientific Workers has arranged a conference on "Science in Peace." to be held at Caxton Hall, Westminster, on Saturday and Sunday, Feb. 17 and 18. The subjects for discussion are "Science and Production," on Saturday afternoon at 2.15; "The Future Development of Science," on Sunday morning at 10; and "Science and Everyday Life," on Sunday afternoon at 2.30. Tickets, price 5s. (or 2s. 6d. for each of the three sessions) may be had from the A.S.W., Hanover House, 73, High Holborn, W.C.1.

The inaugural meeting of the London and Home Counties Medical Group of the Newman Association will be held in Hereford House on Sunday, Feb. 11, at 5 p.m., when Dr. H. E. Magee will speak on "Science and Life." All Catholic doctors are invited.

The Leverhulme Trustees invite applications for fellowships and grants in aid of research from British-born senior workers prevented by routine duties or pressure of other work from carrying out research. Forms may be had from the secretary, Dr. L. Haden Guest, M.P., Leverhulme Research Fellowships, Unilever House, Blackfrairs, E.C.4. They must be returned by March 1.

The Council of the Royal Society of Medicine has appointed a committee, under the chairmanship of Prof. E. C. Dodds, to investigate the effects of oestrogens in cancer.

Dr. J. R. Peters, senior assistant medical officer of health for the City of Glasgow, will succeed Dr. Thomas Ferguson as deputy chief medical officer of the Department of Health for Scotland. Dr. Ferguson was recently appointed to the chair of public health in Glasgow University in succession to Prof. James M. Mackintosh.

Dr. R. A. Young, consulting physician to the Middlesex and Brompton Hospitals, has been elected vice-chairman of the National Association for the Prevention of Tuberculosis, in the place of Sir Percival Horton-Smith-Hartley, who has retired on grounds of ill-health.

Prof. L. S. P. Davidson, M.D., of Edinburgh University, has accepted the invitation of Harrogate Town Council to investigate the lines of research which should be taken by the Corporation on the internal and external use of the Harrogate waters, the bathing establishments, and the treatments given.

Circular 170/44 issued to local authorities by the Ministry of Health deals with diphtheria prophylaxis. It is accompanied by a brochure on this subject (published by the Ministry of Information for the Ministry of Health and the Central Council for Health Education) which sets out particulars of facilities available for local publicity, with samples of printed material, etc., in a pocket at the back. The Minister feels that the brochure should now be distributed so that local authorities may make their plans for local campaigns in the spring and summer of 1945. Between Jan. 1, 1940, and Dec. 31, 1943, the number of children in England and Wales who, at ages under 15, had been immunized against diphtheria during those years under local authorities' arrangements was over 4,800,000. Of these more than 1,680,000 were children under 5 years of age when immunized. These figures show the widespread response by local authorities and their officers, as well as by doctors, parents, and others, to the call to combat the disease. Normally the best time for immunization is just before the first birthday, because the ensuing years, in which the risk of infection is high, are thus covered from the outset.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent; London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Brittle Nails

Q.—*A school nurse, 54 years old, has an excellent medical history except for sudden onset of amenorrhoea when 28 years of age. In the past months her nails have become brittle and have receded in some cases to within 1/4 in. of the cuticle. When cut, lateral growth is more rapid than central. She has never used nail varnish. Lysol and dettol are employed in the clinic, but she has used them for years. Her diet is as full as wartime permits.*

A.—In general, diseases of the nails may be divided into three categories: (1) Those caused by general or local infections. The latter refer to ringworm; the fungus may be found in scrapings made from the nail surface. (2) As a part of some general skin disease, such as psoriasis, where nail changes are commonly found. (3) As an idiopathic process in which, as a rule, the normal nail growth is gradually re-established under treatment. The case in question seems to belong to the third category, but ringworm infection should of course be excluded. If this has been done, treatment consists of giving arsenic by the mouth and small doses of *x* rays to the nail.

Phlebitis Migrans

Q.—*What is migratory or ambulant phlebitis, its cause and treatment? A patient suddenly, without apparent cause, starts phlebitis in the right saphenous vein, in Scarpa's triangle, an inch or two below its junction with the femoral. A few days later this apparently clears up, and a patch of inflamed saphenous vein appears in the inner side of the leg. Shortly afterwards the saphenous vein on the other side becomes similarly affected and behaves in a similar manner. One area improves as another becomes affected. This particular patient has never had veins affected elsewhere. May I have suggestions on treatment and relief of this distressing and disturbing complaint?*

A.—Migratory or ambulant phlebitis is a big subject. It would be helpful to know the age and sex of the patient. The fact that the trouble is confined to the legs suggests that the veins here are diseased—? varicose, ? compensatory to old phlegmasia alba dolens. The patient may have had a previous prolonged infectious condition like typhoid, peritonitis, or puerperal fever. A septic focus elsewhere will cause the infective condition in the diseased vessels. Blood diseases, such as a marked ordinary anaemia, pernicious anaemia, acholuric familial jaundice, must be excluded, as well as syphilis, gout, diabetes, low blood pressure, and nutritional debility. Occasionally subacute rheumatism is present, or the migratory phlebitis may be a manifestation of thrombo-angiitis obliterans, usually in males who smoke excessively. Should the patient be a female, then an abdominal tumour must be excluded as well as a urinary infection; to a much less extent this applies to the male. Rarely phlebitis migrans announces an undetected malignant disease in the stomach in the male, and in the uterus or cervix in the female. Thus a complete blood examination is essential. The common septic foci should be searched for—e.g., the nasal sinuses, the teeth (dead ones should be extracted without hesitation), the tonsils (a previous quinsy is a direct indication for tonsillectomy, as are tonsillar remnants), the gall-bladder, appendix, prostate, and cervix. (While the investigation is taking place, the tendency to clotting can be discouraged by injections or dicoumarol, if the attacks are inconveniently frequent.)

For treatment: if the veins are varicose, ligature and injection at the groin and ankle will settle the trouble. If the veins are not varicose, firm bandages (elastoplast if tolerated) will relieve the discomfort and discourage the phlebitis. During the painful and pyrexial stage the patient should rest in bed for two weeks, with the application of glycerin and belladonna t.d.s. and firm bandages; getting up for toilet purposes is permissible. If there is a smart pyrexia or rigors, then a blood culture should be taken during the exacerbation of temperature, and sulphathiazole (and possibly penicillin) may be needed. When the infected element is pronounced, there is, as your inquirer remarks, the danger of embolism. Reading aloud (unconscious breathing exercises) and gentle purposeful exercises are of assistance in keeping the circulation reasonably brisk, assisting repair, and discouraging further stasis and thrombosis. By mouth, an anticoagulant mixture such as pot. cit., gr. 20 to 30, spirit. ammon. aromat., minims 10 to 20, ammon. carb., gr. 3 to 6, glycerin, minims 20, aqua to 1/2 oz. given four-hourly by day and night is helpful. The diet must be well balanced.

Some American authorities advise the prompt ligature and injection of the termination of the internal saphenous vein at the saphenous opening; not only does it eliminate the danger of embolism, but also it cuts short the length of illness. This requires an expert opinion and technique, and the need to eliminate septic foci still remains.

Subacute Combined Degeneration of Cord

Q.—*What is the latest treatment for subacute combined degeneration of the cord associated with almost complete achlorhydria?*

A.—In subacute combined degeneration of the cord one would expect the achlorhydria to be complete, and the presence of free HCl even in small amounts would cast doubt on the diagnosis. An answer on prognosis and treatment was published on Aug. 7, 1943 (p. 190), and there is little fresh to add. In the early stages of treatment a full dose of liver extract—e.g., 4 c.cm. of one of the ordinary intramuscular extracts—should be injected three times a week. After a month or six weeks the number of injections may be reduced to one a week, but this should be continued for two or three years and only then reduced to one every three weeks. Treatment of this intensity should maintain the red cells above 5 million per c.mm.; if it does not, it should be supplemented by desiccated stomach or proteolysed liver by mouth, half an ounce t.d.s. If haemoglobin regeneration lags behind the red cells iron may be given—e.g., ferrous sulphate gr. 3, t.d.s., p.c. Vitamins B and C are advocated in some quarters, but are unnecessary if the patient is taking a good mixed diet. Physiotherapy is of value in severe cases, particularly re-education and persuasion to do more.

Faecoliths after Cholecystectomy

Q.—*A female aged 50 had a cholecystectomy 3 years ago. She has since complained of intermittent attacks of diarrhoea. During a recent attack she passed about ten stones, on which the pathologist's report is: "Reddish-brown stones weighing from 0.9 to 0.5 g., not easily crushed; small black portions visible when crushed; very little organic matter present; apparently a trace of fat only; consist almost entirely of ferric oxide (haematite), with some sulphide and traces of phosphate and calcium. Analysis: 69.7% iron (ferric oxide contains 69.9% iron)." She has been having no medicine containing iron, but admits to taking pure cod-liver oil for long periods. What might be the nature of the stones, the possibility of their being manufactured in the bowel, and the process by which they might be made?*

A.—Faecoliths are usually composed of calcium salts. It is hardly conceivable that amounts of iron of this order should be derived from the blood or tissues. It is little more credible that they should come from the food. The ferric oxide calculi are probably formed from ferric hydroxide, and a considerable amount of inorganic iron would seem to be necessary to produce this material in such quantity and purity. As the trouble followed a cholecystectomy, one's first thought would be that an instrument had been left behind and found its way into the bowel. Otherwise one would suspect that an inorganic preparation of iron was being taken by mouth. In any event the patient should be examined by x rays. A plain film should be taken, and if this does not solve the mystery a barium meal should be given in case there is a diverticulum in which ingested iron is accumulating.

Chronic Mastitis and Cancer

Q.—*Is chronic mastitis precancerous? Can you quote facts and figures to prove it? Should young women of 30 to 35 sacrifice both breasts, the scar of chronic mastitis, or should they remain under supervision? Is it ever cured, and by what means?*

A.—This collection of questions cannot be properly answered without defining chronic mastitis. Unfortunately the term is applied clinically to a variety of pathological states, including abnormal activity or involution determined by hormones, retention cysts, and the peculiar epithelial hyperplasia the relation of which to cancer was worked out by Cheatle. Of these, the last, a comparatively uncommon condition, is the only one which clearly leads up to carcinoma. Though it would be wrong to suppose that this is in fact the only link between mastitis and neoplasia, it is equally misleading to make the sweeping statement that chronic mastitis, in all its forms, is precancerous. There is no statistical proof that carcinoma occurs with greater frequency in breasts affected by chronic mastitis than in "normal" breasts. The only justification for mastectomy for chronic mastitis in young women is the persistence of pain and disease in the breast in spite of adequate conservative treatment, in the presence of a strong family history of carcinoma of the breast. Conservative treatment should include, first, attention to the general bodily and mental health; secondly, the administration of hormones in suitable cases; and also exposure to small doses of x rays, which may modify, without destroying, epithelial activity in the breast.

Angina and Coronary Occlusion

Q.—*At necropsy on a case of angina pectoris there is always found some degree of coronary sclerosis or occlusion. It would seem, therefore, that coronary occlusion is merely a more advanced (morbidly) state of angina pectoris. In fact it is taught that if angina pectoris pain persists over 15 minutes occlusion is probably present. Why is it, then, that nitrites are recommended for cases of angina pectoris but contraindicated in occlusion? Is one to infer that in the latter the general blood pressure is so low that a further lowering would endanger life? Is it not more logical to argue: (1) blood pressure in the first part of the aorta is always high enough to ensure that blood will flow through whatever part of the coronary circulation is still patent; (2) by lessening peripheral pressure we lessen the work of a heart only part of which is now functioning—and so—give nitrites? Would not the most rational treatment in occlusion appear to be to lay patient flat on back with the foot of the bed raised, and give nitrites (with, of course, morphine for pain)?*

A.—Nitrites relieve the pain of angina of effort, but do not relieve the pain of coronary occlusion. Naturally it is undesirable to lower still further the diminished blood pressure following coronary occlusion. The lowered pressure in the aorta probably renders the coronary circulation less efficient, and a drop in blood pressure is associated with a rise in rate, which increases the work of the heart. If shock and lowered blood pressure predominate the patient should lie flat, but dyspnoea and heart failure may make it necessary for him to sit up.

Unsatisfactory Marriage and Dipsomania

Q.—*How should I advise a husband aged 67 about his wife, aged 44, who is suffering from alcoholism associated with early menopausal symptoms? She has obviously developed a complex, since conjugal frigidity developed 11 years ago when their last child, a son, was born. The husband has since then developed a state which has now become one of complete sterility in spite of treatment. What form of "treatment" should be adopted in order to break his wife of the dipsomaniacal state?*

A.—This is a complex case deserving a treatise. I can only suggest the most probable causes and treatment. The most likely cause of the wife's frigidity is a fear, not necessarily conscious, of getting another child; or she may have ceased to be in love with her husband from that date. It is not surprising, considering his age and her frigidity and lack of response, that he should become progressively impotent. Alcoholism in this case (as in all such cases) is usually an escape from her problem, internal and external; and is most commonly due to frustration. This may have to do with subconscious frustration from her frigidity and her inability to respond. But a great deal of what is put down to sexual frustration is really due to the feeling of lack of affection, especially in a woman, who, more than a man, desires to be loved. At the menopause especially a woman feels that her attraction is going, that her husband will not love her any more, which in this case is accentuated by her frigidity and her husband's consequent sterility Since sex is the symbol of love she would be confirmed in her idea that she was no longer loved. She takes to alcohol as an escape. If such is the situation the husband would be well-advised to give her a great deal more affection and even "fussing," quite apart from sex, to encourage in her the feeling that she is still "wanted"; and she would then have less desire to escape to alcohol.

This, however, is suggested only as a "first-aid" measure, and deals only with probable precipitating causes; but her alcoholism may be due to much deeper emotional disturbances. For instance, she may have married the older husband as a father substitute, and in the course of time grown out of this and now feels thwarted of a husband more her own age. In any case both her frigidity and her alcoholism, as well as desire to escape from life, are probably a regression to an infantile attitude of mind. Even so the demonstration of affection I suggest would not come amiss.

Chloroform in Midwifery

Q.—*I have used chloroform as an anaesthetic in upwards of 5,000 maternity cases, and have never seen any ill effects; but a great deal of discussion has taken place on its use in these cases, and I should be glad of an expert opinion.*

A.—The normal parturient woman stands all anaesthetics extremely well. Her mental approach is good and she welcomes the anaesthetist. Light anaesthesia suffices for the job; in fact, deep general anaesthesia is contraindicated, since it abolishes uterine contractions. The toxic effect of chloroform in these cases is negligible. In the toxaemias of pregnancy or in dehydration from prolonged vomiting the additive effects of even a little chloroform may gravely influence the existing liver dysfunction. In cases of obstructed labour anaesthesia may be prolonged and the cumulative effect of chloroform harmful. It is in institutions to which labour complications are sent that the ill effects, sometimes mortal effects, are seen. Chloroform is excellent in the straightforward case, but should be banned when complications exist.

Sterility after X-ray Therapy

Q.—*How long after the onset of an artificial menopause induced by x-ray or radium therapy may permanent sterility be assumed; and after how long a period of amenorrhoea occurring as a side-effect of x-ray or radium therapy may recovery of ovarian function be hoped for?*

A.—Permanent sterility cannot be assumed for certain after the induction of an artificial menopause with x-ray or radium therapy until three months after the completion of treatment. Patients should be warned of this, as the occurrence of pregnancy after a menopausal dose of radiotherapy is highly undesirable. After an artificial menopause it is usual for one, two, or occasionally three periods to occur, and these may be unusually heavy.

No definite answer can be given to the second part of the question, since so many factors are involved. These include the age of the patient, the dosage employed, and the amount of irradiation delivered to the ovaries. There is also considerable individual variation in the reaction of the ovaries to irradiation.

? Glomus Tumour

Q.—*A married woman aged 30, with one child aged 8, has suffered intermittently for the past 7 years with paroxysmal pain in the left leg over the internal malleolus. Formerly the attacks occurred at intervals of 4 to 6 months, but recently they have become more frequent. The patient describes the pain as "lightning" and as sometimes "shooting" along the tibia towards the knee-joint. When severe it causes her to sweat and vomit and leaves an ecchymosis over the internal malleolus. What are the diagnosis and treatment?*

A.—It is assumed that careful examination of the nervous system has revealed no evidence of organic disease in the region of the 4th lumbar segment of the cord or the saphenous nerve. Lightning pains always suggest tabes dorsalis, which in this patient would presumably be of the congenital variety. If these possibilities have been excluded, the most likely diagnosis is a glomus tumour or angioneuromyoma in the skin or subcutaneous tissue of the ankle. For a brief review of glomus tumours see the article by C. M. Ottley (*Brit. J. Surg.*, 1942, **29**, 387). Fifteen cases were well described by A. C. Lendrum and W. A. Mackey in the *B.M.J.* of Sept. 30, 1939 (p. 676), and the subject was commented on in an annotation in the same issue. Glomus tumours are liable to bleed if knocked or injured. Although they are often small, it should be possible to palpate the tumour, which is characteristically painful. The appropriate treatment is excision.

Penicillin for Syphilis

Q.—*Is there any evidence, and if so what, to demonstrate that Spirochaeta pallida is susceptible to the action of penicillin "in vitro"? How has the present recommended dosage of 2,400,000 units of penicillin for a case of early syphilis been arrived at? Has any literature been published on the treatment of early syphilis with penicillin?*

A.—The cultivation of *T. pallidum* is technically so difficult that proof of its susceptibility to penicillin by *in vitro* test is almost impracticable. The experimental basis for the present clinical study was the demonstration of the efficacy of penicillin in the treatment of syphilis in the rabbit. The present scale of dosage has been determined by clinical experiment. The lower the total dose (below 1,200,000 units, the largest amount used in the only extensive series hitherto published) the more frequently did serological tests become positive again some months after treatment. The original reports on these studies (*J. Amer. med. Ass.*, 1944, **126**, 63, 67, 73) were reviewed in a recent leading article in this *Journal* (Dec. 23, 1944, p. 821).

Goat's Milk for Infants

Q.—*What is the correct method of modifying goat's milk for feeding normal infants?*

A.—The composition of goat's milk is stated to be somewhat variable, but average figures show that the totals of the main constituents (protein, fat, and sugar) are essentially the same as those in cow's milk. Moreover, the amounts of caseinogen and of lactalbumin are also similar, and both milks have the same caloric value of 20 per ounce. It therefore follows that goat's milk should be modified exactly as cow's milk is modified. There is one variation, however, if it is desired to produce anything resembling breast milk—namely, that cow's milk cream must obviously not be used as an addition; instead, one of the synthetic fat emulsions should be used. But, in general, modern paediatric practice is not in favour of "humanized" milk mixtures. Therefore simple dilutions (2, 3, or 4 of milk to 1 of water) with addition of sugar are to be recommended. Dried goat's milk is also available and corresponds in composition to full-cream dried cow's milk. To sum up, goat's milk can be used exactly as cow's milk is used.

Attacks of Cyanosis and Giddiness

Q.—*A childless married woman aged 36 noticed 3 years ago, on movement of the arms or on bending, some blueness of the face, neck, and upper chest, with giddiness and black-outs—the latter particularly after stooping. Menstruation regular but scanty. Diagnosis of goitre has been made. X-ray examination of thorax shows nothing abnormal. E.C.G. shows slight tendency of the electrical axis of the heart to lie transversely, and negative T and P waves in Lead III. Blood pressure variable between 140/104 and 130/100. Arm band of sphygmomanometer causes slight cyanosis of arm. I should like help with prognosis and treatment. The patient is excitable, and when worried her face becomes puffy, but the blueness and distress come on only through exertion.*

A.—One would be chary about attributing this particular group of symptoms to a mental or functional disturbance, particularly in the absence of any history indicating that the attacks have a psychological cause or meaning. Evidence of venous obstruction from thrombosis of the superior vena cava or constrictive pericarditis should be looked for. Carotid-sinus syncope is another possibility, and the neck should be examined with the patient sitting to see if the carotid reflex is over-active. If no mental or psychological cause can be found, the patient should be given a favourable prognosis and treated by sedation with phenobarbitone gr. 1/2 to 1 b.d. Digitalis should be strictly avoided.

Hypervitaminosis D

Q.—*Is there any real danger of hypervitaminosis D? If I take large doses of vitamins A and D (5,400 i.u. of vitamin D per day), I seem able to do my work better.*

A.—There is a real danger of hypervitaminosis D. The symptoms of toxicity are an initial feeling of well-being and good appetite, followed by loss of appetite, nausea, vomiting, diarrhoea, frequency of urination, depression, headaches, sweating, and "pins and needles." Five deaths due to overdosage with vitamin D have been reported in the literature. Necropsy showed calcification of the arteries, cardiac muscle, kidneys, bronchi, and stomach. Excessive doses of vitamin D mobilize calcium and phosphorus so that soft tissues tend to become calcified. Massive single doses appear to do no harm, but the continual use of large doses produces toxic effects. It is difficult to state the dose which will produce toxic effects if taken continuously, as personal sensitiveness seems to vary. 10,000 i.u. per lb. of body weight is stated to be toxic, although doses as low as 500 i.u. per lb. of body weight have produced toxic effects, and even 200 i.u. per lb. is said to have resulted in the death of a child. In an adult 5,400 i.u. daily is unlikely to do any harm, although there is no point in taking such a large dose. 1,000 i.u. daily is ample even in pregnancy and lactation.

INCOME TAX

Assistant formerly Resident in Eire

H. O. has been employed in England as an assistant for the past six months, having come to this country from Eire in May, 1944. Is he liable to deduction of tax under the "pay-as-you-earn" system?

⁂ Yes; his salary as an assistant ranks as an emolument assessable under the rules of Schedule E, and therefore is brought within the "pay-as-you-earn" system.

Part Use of Residence for Professional Purposes

F. G. is in general practice and has a surgery about half a mile from his residence. The residence "is used quite a lot for professional purposes"—e.g., emergency cases outside surgery hours, other cases by appointment, etc. Hitherto a deduction has been allowed representing roughly half the cost of running the residence, and the inspector of taxes proposes to reduce the allowance drastically.

⁂ The deductions in the past have represented almost the maximum allowance made when the main surgery is on the residential premises and seems clearly to have been excessive. On the other hand, it may be that the new basis suggested (1/6th of rent, rates, etc., and £50 for part cost of domestic service) is not adequate—it depends on the actual facts of the case. We cannot advise our correspondent to carry his objection to an appeal to the Commissioners, but personal discussion with the inspector might induce him to make some increase in the deduction he proposes—e.g., 1/4th instead of 1/6th.

Payments for "Sickness Insurance"

"Pi" has in the past treated payments for insurance against illness as professional expenses. The inspector proposes to refuse the deductions in future and to correct past assessments.

*** Such payments are not properly regarded as "wholly and exclusively . . . expended for the purposes of the . . . profession;" neither do they rank for the special "Life Insurance" relief. The inspector is therefore acting within his rights. On the other hand, sums *received* in respect of the insurance are not taxable—but "Pi" has not received any such benefits in recent years.

Assistant: Whether Expense Allowable

M. M., a married woman, is employed as an assistant. If a plate is put up outside her residence, "By Appointment Only," would that justify her in claiming as an expense part of the remuneration payable to her housekeeper? There is one child to be considered.

*** M. M. would have to establish that the expense was incurred "solely, exclusively, and necessarily" in the performance of her duties—including the fact that her contract of employment necessitated her seeing patients at her residence. If that can be established, she would be entitled to deduct some part of the housekeeper's remuneration—probably determined by a proportion of the whole-time spent on dealing with callers.

LETTERS, NOTES, ETC.

Flea-bites and Ingrowing Toenails

Dr. E. Hayling Coleman (Wolverhampton) writes: I am very interested in the query about flea-bites in the *Journal* of Oct. 14, p. 520. I much sympathize with the sufferer, for I have "been there." Before the rebuilding of our out-patient department I rarely came home from out-patients without one of these pests; also after attending medical examinations of recruits during the last war. They raised large urticarial wheals over considerable areas. After trying many things I found a panacea—powdered flowers of sulphur sprinkled inside my underclothing.

With regard to ingrowing toenails, I would mention a simple remedy, usually effective. Pack some powdered lead nitrate down between the side of the nail and the skin. Cover with adhesive plaster to keep it in place. In a few days scrape away the dead skin and re-pack. Usually a few applications effect a cure. Of course the sides of the nail should not be cut beyond the level of the toe. Another method is to cut a V from the *side* of the nail. This takes 20 minutes or more and needs care, but it should cause no pain and is usually very successful. The V. is about 1/8 in. wide at the bottom, tapering slowly upwards nearly to the root of the nail. Both these methods are simple and do not take much time.

Promotion in P.O.W. Camps

"Repatriate" writes: The paragraph bearing this title in "Medical Notes in Parliament" (Jan. 13, p. 65) gives a completely erroneous impression. The only promotion applicable to officers of the R.A.M.C. and A.D.C. is that of lieutenant to captain, and a large number held the latter rank before captivity. The statement hinges on the use of the word "normal." Surely the conditions are most "abnormal," and the position of M.O.'s, dental officers, and chaplains is so vastly different from other officer prisoners of war as to justify abnormal opportunities for promotion being instituted. A statement of this kind only illustrates official disinterest or ignorance of the work M.O.s and D.O.s are doing in captivity.

Translation, Please

Dr. James Burnet (Edinburgh) writes: The difficulty encountered in translating the words "anthrax" and "carbuncle" is due to the fact that in some languages the same word is used indifferently for both conditions. The following notes may prove helpful to your correspondent (Jan. 13, p. 70):

Anthrax.—French: *pustule maligne* (also *anthrax*). Spanish: *ántrax*. German: *Milzbrand* (malignant pustule); *Milzbrandfieber* (the disease itself). Italian: *antrace*.

Carbuncle.—French: *charbon.* Spanish: *carbunclo.* German: *Karbunkel.* This word is sometimes used for "malignant pustule," but the Hun distinguishes "*Karbunkel bösartiger*" (malignant pustule) and *K. gutartiger* (carbuncle). Italian: *carbonchio.*

Pethidine for Asthma

Dr. J. Hepburn (Bedfont) writes: As one who for the past 7 months has personally used pethidine as a help for asthma, perhaps my observations may be of interest. I started with 25 mg. by injection at night—increased soon to 50 mg.; I did this mainly to secure a night's sleep. I soon found that it was a nerve sedative and for various reasons I took extra doses, and now have an average daily amount of 300 mg. Small doses of 25 or 35 mg. act promptly and efficaciously in the morning, and the effects—sedative and antispasmodic—last usually for 4 to 5 hours. Thereafter, 35 or 50 mg. are necessary at more frequent intervals to procure the same results. I have experimented with different amounts and have taken 100 mg. at a dose without deleterious effects. With these bigger doses there is an accentuation of the heart beats and an evanescent light-headedness which soon wear off. I think it unlikely that poisonous doses can be achieved for the simple reason that the atropine-like factor inherent in the composition makes the mouth and throat so dry that further medication is repulsive.

The general claims made on behalf of pethidine are generally correct so far as obstetric, post-operative, and chronic painful conditions are concerned; especially in prostatic enlargement with nocturnal frequency I find it, in doses of 75 to 100 mg., excellent, and the dose need not be increased. There is no doubt that habit formation is more likely if administered parenterally than if taken in tablet form. As regards asthma and tracheitis and mild bronchial catarrh, it certainly is of great help, especially when, as in my own case when holidays and rest are impossible, work has to be done in spite of the infirmity. The larger doses of 100 to 150 mg. certainly give a transient feeling of euphoria, and the inclination is always there to resort to the larger dosage in times of excessive stress and mental and physical strain. It is difficult for me to understand how the symptoms of Dr. Bedo Hobbs's case (Sept. 2, p. 328) can be attributed solely to the pethidine. This drug is rapidly destroyed in the liver and is non-cumulative. The doses his patient took—400 mg. daily for 3 days—should only have had the effect of inducing sleep. Much larger doses have been given—650 mg. in 24 hours—and I myself have taken 400 mg. daily with only the effect of drowsiness and a very dry mouth and pharynx. Still, I do feel that patients may be inclined to take too much, and addiction is a sequela which should be guarded against.

In the treatment of asthma, if addiction be observed, it should be insisted upon that the dose should be kept to the minimum amount which gives relief and comfort; also the oral route should be used. I do not yet know if, in time, it will effect a cure, by virtue of its sedative effect on the central nervous system and its relaxation effects on the unstriped muscle of the bronchi, with, of course, the atropine-like effect of limiting and drying up nasal and bronchial secretions. But, having tried everything already known for asthma and finding that adrenaline causes disturbing cardiac and nervous effects—tremors, etc.—I feel that pethidine is of definite use in cases of asthma which have a psychological factor, and which are associated with bronchial and upper respiratory tract catarrh. I find also that cigarette smoking, whether from the mechanical irritation of the mucosae or from the absorption of the pyridine substances in the smoke, is a deterrent to the best results of the administration of the drug. The drowsy effects from a large dose do not last long, and I have on several occasions had to go to an emergency call in the middle of the night and found no difficulty in collecting all my faculties and in being mentally efficient. Definitely pethidine has its place in the treatment of asthma—especially of the type I have described—but its effects should be watched and regulated.

The Albino and the Swallow

S. W. S. writes under this heading: So far as it was possible to know, the two being related were yet unrelated. The elder of the two sons of a family, full brothers, both albinos, was the more devoid of pigment: his hair was white, his eyes pink; he had a constant nystagmus and a rapid nictitation, and was of somewhat subnormal mental calibre, being withal a silent man. His age was 30 when I first saw him: he was a cellarman, his day's work being carried on under artificial light, well away from sunlight. This albino had found this habit worth cultivating, because thereby he enjoyed the privilege of drinking without paying. In return for a free bottle of ale he could perform thuswise: he stood at the edge of a circle of awed admirers, bent his head backwards till mouth and gullet were aligned, then with the bottle-neck to his mouth, tilted the full bottle upright and swallowed the contents without once going through the act of deglutition. His pomum adami, in its immobility, was watched intently by the onlookers to confirm the fact. At decent intervals this profitable trick was repeated—as often as the generosity of others would extend to the necessary pint, or even quart, of ale. The performance seemed worthier of applause than sword-swallowing. Is the habit one that can be acquired? It is certainly an excessively rare accomplishment. I ask the question, of course, not to emulate, but purely out of curiosity, and mention the instance from greater interest after coming across some reference to the practice in the Acharnians (Aristophanes) in the admirable Hookham Frere translation: "I quaffed it off within my breath; I gulped it in a guggle." A footnote there makes reference to this as "drinking without deglutition; still practised in Catalonia—the Thracian Amystis."

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THE MEDICAL CORPS IN RED ARMY OPERATIONS

ITS TASKS AND THEIR FULFILMENT

BY

Prof. YEFIM SMIRNOV

Colonel-General of the Red Army Medical Corps

In the fighting against the German invaders the Medical Corps of the Red Army has played an important part. The enormous scope of the operations which began suddenly in June, 1941, along a front stretching from the Barents Sea to the Black Sea made large-scale organization in the Medical Corps essential: during the period of intensive fighting on the defence the necessary units—field, army base, and front hospitals, clearing stations, and anti-epidemic institutions—were formed and equipped; an extensive network of medical institutions was organized in the rear areas; and doctors—especially surgeons—were allotted posts in accordance with their specialties. The large number of medical workers who entered the Army had to be trained in the problems of war medicine, in the methods employed in dressing and clearing stations, and in anti-epidemic technique during the course of military operations.

The Objective

In this war the Red Army Medical Corps has been and still is faced with quite concrete tasks which entail the employment of the latest ideas in war medicine. These tasks are as follows: (1) To return the maximum number of wounded to the ranks. (2) To reduce to a minimum the cases of mortality among sick and wounded at all stages of evacuation. (3) To reduce to a minimum disablement among those wounded in battle; to ensure that the maximum number of wounded retain their ability to work when their injuries prevent further service in the Red Army. (4) To prevent the spread of epidemics among the troops.

The personnel establishment of the Medical Corps, the tactics adopted under various war conditions, and the equipment and training of the personnel were all directed towards fulfilling these tasks as efficiently as possible. Success in this respect has only been possible because the Red Army Medical Corps works in accordance with a simple doctrine of war medicine under field conditions. In the main this doctrine is based on the following principles: (*a*) A uniform conception of the origin, development, and progress of diseases, and of the principles of surgical and therapeutical work in the field. (*b*) Correct sequence in the treatment of sick and wounded at various stages during their evacuation. (*c*) The obligatory employment of brief, accurate, and consistent medical documents, enabling the sick and wounded to be classified in a thorough manner and their treatment to be uniform at all stages of evacuation. (*d*) A single school of thought, with uniformity in methods of prophylaxis and treatment of sick and wounded at the various stages of evacuation. This school must be based on all that is best in modern medical science, both in the theoretical and in the practical sphere.

In modern warfare the work of the surgeons and its organization are of the utmost importance in the fulfilment of the tasks with which the Medical Corps is faced. The experience gained in war medicine during the 20th century has shown that all gunshot wounds are primarily infected. Naturally the most reliable method of combating the infection of wounds is by early primary treatment. A large number of wounded need early surgical measures, and the best results are obtained when wounds are treated within a few hours of their infliction. This fact to a very considerable extent determines the organization and tactics of the Medical Corps in the field under various war conditions.

To ensure that gunshot wounds are treated surgically as soon as possible we have organized our field units in such a way that the wounded are removed from the battlefield even under enemy small-arm and mortar fire and given skilled surgical treatment in the field medical units. This procedure is dictated by two considerations: first, mortality among wounded in the forward area is most often due to loss of blood; and, secondly, in the army and forward base zones gunshot wounds are complicated by gas gangrene, sepsis, and shock. The chief task of the forward medical units, therefore, is to combat serious loss of blood and to give prophylactic treatment against complication of wounds. For those categories of wounded who require specialized treatment (wounds of skull, eyes, jaws, thorax, the principal long bones, and the larger joints) the Red Army Medical Corps has arranged for this to be given in all institutions, beginning with the mobile field hospitals operating in the zone of the army base. The treatment and evacuation of the slightly wounded and of medical cases are dealt with separately, beginning with the forward units. Mobile therapeutic field hospitals and mobile field hospitals for the slightly wounded are a component part of the medical service of the army in the field.

Principles of Treatment and Evacuation of Wounded

In general, the treatment of wounded in the Red Army is based on a system which deals with each stage of evacuation to a definite destination. This system consists in dividing treatment into a number of stages, without the establishment of specialized hospitals and departments. At each stage the wounded are treated by specialists, and at the same time are evacuated into rear areas of the country. Evacuation is not carried out mechanically from stage to stage, but depends on the type of wound and the condition of the evacuee and also on conditions at the front. Treatment given at the stages of evacuation is consistent and consecutive, progressing in scope and method as the distance from the forward medical stations increases. It is very important to stress the fact that the scope and methods of treatment, the organization, and the speed of evacuation are determined more by the military situation than by purely medical considerations. The following points have therefore to be taken into consideration: the type of operation in which the troops are engaged; the number and the rate of arrival of sick and wounded; the number of qualified doctors, especially surgeons, available at a given stage in evacuation; the availability of transport and the presence, quality, and length of metalled roads; the availability of premises for the accommodation of sick and wounded; the supply of stores and special equipment (surgical instruments, plaster-of-Paris, *x*-ray outfits, etc.); the season of the year and the state of the weather.

To carry out this system of treatment by stages during evacuation to a known destination it is not only necessary to maintain sufficient medical personnel, to render first aid, to give regular treatment, and to evacuate the wounded, but also efficiently to organize and control medical service, especially in the field. The removal of the wounded from the battlefield, the application of first aid, and primary treatment by a doctor are carried out by the forward field units of the Medical Corps, while qualified surgical treatment begins at the casualty clearing stations of army formations in the mobile field hospitals. The evacuation of sick and wounded, starting with the divisional casualty clearing stations, takes place through the medical units of army formations, on warrants issued by them. The slightly wounded that can be treated at the army base go immediately to special local hospitals; wounded needing specialized treatment are dispatched to field surgical hospitals; the sick go to therapeutic hospitals. Patients suffering from infectious diseases are isolated as soon as the diseases become known, and measures are at once taken to prevent spread of the infection; the isolated patients are then evacuated to special mobile field isolation hospitals. The system of evacuation of sick and wounded to a definite destination for qualified specialized attention provides the best possible conditions for their treatment and all the prerequisites for a rapid and complete recovery; it is at the same time a reliable means of combating mortality at all stages of evacuation, and greatly reduces later incapacitation from wounds.

The treatment of wounded at the various stages of evacuation can be carried out only when the medical service is well organized and equipped. An important factor in this respect is the correct distribution of available beds among field, base, and rear hospitals, due attention of course being paid to specialization within each zone. Our war experience has taught us that the number of hospital beds in field, base, and rear-area hospitals depends directly on the nature of operations and the general situation at the front. During the first phase of the war, for example, when our troops were withdrawing under enemy pressure, the situation demanded that the minimum number of beds be retained in the field and base hospitals. When the Red Army assumed the offensive and the rate of advance to the west quickened, it became necessary not only to make a great increase in the number of beds in field and army base hospitals but also greatly to augment the number of hospital units in these areas.

In carrying out the treatment and evacuation of wounded there are four main points on which success or failure of the system depends. First, the correct diagnosis of wounds and the proper classification of wounded at all stages of evacuation; secondly, the presence of a network of specialized hospitals at army bases and their correct clearing in the general directions of evacuation; thirdly, precision work on the part of transport and the organization of clearing centres, which ensure the rapid dispatch of wounded to the next stage; fourthly, the manœuvring of available hospitals, transport, and reserves in accordance with changes in the military or medical situation.

Principles of Organization of Anti-epidemic Work

Experience has shown that in all wars infectious diseases are a serious danger to troops in the field. The Red Army Medical Corps therefore employs a carefully planned system of anti-epidemic measures. Among the prophylactic measures adopted the most important are: constant strict medical control regarding the observation of all rules of hygiene, including personal hygiene, feeding, water supply, and billeting of troops; the systematic inspection by sanitary personnel of the territory occupied by the troops, including bath-houses, sources of water supply, slaughterhouses, bakeries, etc., and the medical inspection of the civilian population; the constant and careful sanitary reconnaissance of new areas occupied by the troops in the course of battle; prophylactic treatment of troops against possible epidemics, and the search for, registration of, and systematic treatment of chronic sufferers and carriers; extensive sanitary instructional work as a means of educating the troops and bringing about their participation in active anti-epidemic measures. On the outbreak of infectious disease the anti-epidemic measures employed include the immediate segregation of the patient for his later admission to an isolation hospital, and the disinfection of his quarters and all those who have had contact with him.

In the event of the discovery of a nidus or an outbreak of any epidemic disease it is most important that all the means of combating epidemics, including isolation hospitals, should be immediately transferred to the scene of the outbreak. In practice in the Red Army, when a nidus of infection is discovered the mobile isolation hospital and other anti-epidemic units are at once dispatched to the place where the patients are concentrated. The Medical Corps is specially equipped for the carrying out of extensive anti-epidemic measures. Depending on the general military situation and the nature of the epidemic, laundry and bath-house units, etc., are allotted to the troops in the forward positions; or in cases of necessity the existing sanitary units are strengthened by disinfection companies mobile sanitary-epidemic units from the base, etc.

The freedom of troops from epidemic diseases depends to a considerable extent on the timely sanitary reconnaissance of the territory liberated and the medical inspection of its civilian population. The Red Army Medical Corps therefore undertakes anti-epidemic work among the civilians of liberated areas as well as among the troops. The collection and analysis of data on the health of the troops and the general state of the territory occupied by them and in which they will operate and the carrying out of necessary prophylactic measures against infection and to eliminate nidi within the army area, are done under the direction of the Army Sanitary-Epidemic Unit which has special sections attached to the various army formations.

The system of anti-epidemic work among the troops is effected through the following urgent measures. First, sanitary reconnaissance is carried out uninterruptedly, and includes no only the zone in which the troops are actually quartered a the moment but also the area in which it is assumed they wil operate when they advance; secondly, a report is made at once to every branch of the medical service concerned, and first and foremost to the immediate superior, of the discovery of all foci of infection, or of anything which may affect the troops freedom from infectious diseases. The timely reporting of such occurrences makes it possible to take into consideration the slightest change in the epidemic situation, to adopt the necessary prophylactic measures, and to mobilize rapidly all means for liquidating the epidemic danger that has been discovered.

Thirdly, we have the careful planning of anti-epidemi measures based on the tasks to be accomplished by the troops the analysis of information provided by sanitary reconnaissance and the general situation with regard to epidemic diseases. The plan must include the constant and strict control of all objects of significance from the standpoint of infectious diseases; th dispatch of anti-epidemic equipment in directions where concentrations and movements of troops are in progress and also to points where there is a danger of an epidemic outbreak; th maintenance of reserve equipment to strengthen forward sanitary units and neutralize the sudden outbreak of epidemics and the working of the anti-epidemic service at definite stage of an engagement

Fourthly, the constant readiness and perfect mobility of anti-epidemic units are always borne in mind, with the rapid manœuvring of all available personnel and equipment to such changes in the military and the sanitary situation; and, fifthly we carry out the careful simultaneous mass application of al forms and methods of prophylaxis and anti-epidemic measures

The entire freedom of the Red Army from epidemic disease has been achieved by the simultaneous and correlated activit of all units concerned, and is due to the fact that anti-epidemic measures among the troops are not carried out by individua specialists but by the Medical Corps as a whole. The absenc of any serious or lengthy outbreaks of infectious diseases in the Red Army despite the extraordinarily unfavourable conditions which it meets with in its advance to the west lead us to assume with confidence that the anti-epidemic measure adopted are adequate and are fully abreast of the achievements of modern science.

In the course of the war fresh contingents of doctors and nurses have come into the Red Army, and extensive and valuable experience has been gained. The high level of medica service is ensured by the fact that the whole Red Army Med cal Corps, from general to private, is being systematically trained to improve military and medical knowledge, and is studying the new experiences which have been gained. For this purpose all medical units in institutions run planned courses of instruction; short courses for medical personnel are arranged to improve their knowledge of special branches; and numerous conferences of surgeons, physicians, epidemiologists, and workers in other specialties are held at which the experiences of the most progressive specialists and institutions are studied, summarized, and popularized.

Conclusion

The organization of the Red Army medical service does not stand still, but by the correlation of war experiences and study of the latest achievements in war medicine, its personnel and their distribution, the forms and methods of work are constantly being perfected. This is a guarantee that the Red Army Medical Corps will in the future be able to cope with the tasks with which it is faced.

TREATMENT OF GUNSHOT FRACTURES OF THE EXTREMITIES IN EVACUATION HOSPITALS OF THE U.S.S.R.

BY

Prof. NIKOLAI N. PRIOROV

In wartime the treatment of bone injuries has exceptional significance. According to data from Soviet hospitals fractures of the extremities constitute 38% of all wounds encountered during the present war. If fractures of the skull, face, spine, and ribs are added to this figure the total reaches 45 to 47%, or almost half of all wounds incurred at the front. Correct fracture treatment must involve not only restoration of lost function but restoration of fighting capacity as well and the return of an experienced and tried soldier to the Army.

Wartime gunshot fractures have these features:

1. They are open, compound, and complicated by infection.
2. Like closed fractures, they are accompanied by displacement of bone fragments.
3. They are associated with extensive destruction of soft tissue, not observed in closed fractures.
4. They are often encountered as comminuted fractures, with a large number of splinters scattered throughout the area surrounding the wound.
5. Wounded men with bone fractures are unavoidably subject to many-staged treatment in various stations and centres, beginning with field hospitals and ending in the deep rear.
6. Treatment is protracted and the results are less satisfactory than in treatment of closed fractures.

Principles of Treatment

Treatment of gunshot fractures in the U.S.S.R. is based upon the following principles: (1) First aid is administered on the battlefield at the spot where the wound is incurred, either by sanitary instructors or occasionally by other soldiers. (2) An aseptic dressing is applied to the wound and the limb is immobilized with splints made of plywood, bark, or wire netting. (3) Surgical débridement is performed at the first field medical stations.

Through-and-through wounds, with perforations of soft tissue at the sites of entry and exit, are always treated with antiseptics. The wound is always excised if there is extensive destruction of soft tissue. All devitalized and necrotic tissue is excised. Supplementary excision is performed in the presence of pockets or if an outpouring of lymph into spaces is likely. When the wounded man has not been treated for 24 hours after injury the wound is merely incised, and excision of devitalized tissue is carried out if necessary.

In treating the wound free bone splinters are removed and the periosteum is preserved; the wound is never sutured. Sulpha drugs and, more recently, penicillin are utilized. Reduction of the fracture is considered obligatory.

The following rules are observed in fracture reduction: (1) The fracture must be reduced at the earliest possible moment. (2) Reduction must be performed under general or local anaesthesia. (3) Reduction must be by manipulation or with the help of special orthopaedic tables and traction apparatus. (4) After reduction the position of the fragments must be verified by radiographs or by comparative measurements of the extremities. Plaster cast, Cramer, and Thomas splints and the Dieterich wooden splint are used for fixation of the extremities after surgical treatment. Cramer splints are preferable for injuries of the upper extremities; plaster cast or Thomas splints for injuries of the lower extremities.

Plaster casts are most often used, and are applied without cotton inner padding. Practice has shown not only that they effectively immobilize the fracture but that they are very effective in draining wound seepage. They keep the wound undisturbed and prevent secondary infection. The patient wearing a plaster cast must receive careful attention. High temperature, complaints of illness, pains in the extremities, all stress the necessity for examination and observation of the wound either by means of cutting a window in the cast or, occasionally, by removing the cast completely. Closed plaster casts must not be used if the presence of gas infection is suspected or if there is a possibility of haemorrhage.

Blood transfusion is widely used in treating shock and loss of blood. All wounded men receive antitetanus serum, and anti-gas-gangrene serum is also given in the presence of extensive and severe injuries to the tissue. The wounded, if transportable, are evacuated to rear hospitals by ambulance, hospital train, and aeroplane.

A network of special hospitals has been established for treatment of gunshot bone fractures. Distribution of the wounded among these hospitals is based upon the severity and location of their wounds. For those with slight injuries of the fingers, wrist, forearm, and foot there is a special hospital where they can simultaneously receive surgical treatment, physiotherapy, gymnastics, and occupational therapy. A separate hospital also exists for patients with injuries of the thigh, lower leg, and upper arm. This system makes possible correct allocation of requisite apparatus to the various hospitals, and also facilitates the assignment of cadres of specialists. It enables doctors and nurses working with a uniform contingent of wounded men to master more speedily the correct methods and technique of treatment.

Treatment in Base Hospitals

Patients arriving in base hospitals are subject to careful observation, which includes *x* rays, laboratory analysis of blood and urine, and bacteriological examination if necessary. If phlegmon or inflammatory processes exist in the region of the injury, especially when primary débridement has for some reason been omitted, secondary excision of the wound is performed. A wide incision is made and foreign matter, free bone splinters, and necrotic tissue are removed. Reduction is carried out simultaneously if the condition of the patient permits, the fragments being brought into juxtaposition and occasionally even fixed by suturing. Such delayed reductions are performed as late as four and even five months after injury if there is extensive displacement of bone fragments and union has not been secured. The wound is not sutured after secondary surgical débridement and late reduction; it is tamponed and commonly treated with antiseptics (including sulpha drugs and penicillin). Our observations enable us to recommend delayed reduction to surgeons with sufficient experience. In most cases extremely good results have been noted after these operations. A flare-up of infection occurs as a rare complication in individual cases.

Two methods are used for the treatment of gunshot wounds in rear hospitals: (1) the plaster cast and (2) skeletal traction. The plaster cast is employed in treating fractures of the upper arm, forearm, foot, and lower leg, and in all cases in which complications occur during the course of illness. In most instances closed plaster casts, in which openings have been made as a precautionary measure, are employed. Skeletal traction is used in fractures of bones of the thigh, lower leg, and upper arm, in the presence of displacement, and when complications are absent or have already been overcome, as well as in closed fractures. Thus, plaster cast and skeletal traction are not mutually exclusive but, on the contrary, supplement each other. In certain cases treatment begins with the closed plaster cast and concludes with skeletal traction; in others it begins with skeletal traction and concludes with the closed plaster cast.

In gunshot wounds union is protracted. To stimulate this process we make wide use of physical therapy, quartz, paraffin, and ozocerite, as well as the antireticular cytotoxic serum of Prof. Bogomoletz and the tissue therapy of Prof. Filatov.

Considerable importance is attached to good nutrition and the prescription of vitamins. At the earliest moment that the patient's health permits, general and specialized physiotherapy (gymnastics) are used in order to improve his general condition and prevent muscle debility, contractures, and limitation of joint mobility.

Complications

A variety of complications may occur in the treatment of bone injuries. These include: (1) abscess, phlegmon, pus pockets; (2) osteomyelitis; (3) haemorrhage; (4) delayed consolidation, non-union, and pseudarthrosis; (5) malunion; (6) contractures, limitation of mobility, and ankylosis of joints; (7) sepsis. Each of these complications demands timely discovery, diagnosis, and special treatment.

Conclusion

We consider that considerable success has been achieved in our treatment of gunshot fractures. More than 50% of our wounded with bone injuries are returned to the Army. Complications in wounds of the thigh and lower leg have sharply decreased and the number of amputations considerably diminished.

AMPUTATION OF THE EXTREMITIES, AND PROSTHESIS, IN THE U.S.S.R.

BY

Prof. NIKOLAI N. PRIOROV

In gunshot wounds, amputation of the extremities is in many cases the sole means of saving life. In comparison with previous wars the number of amputations in the present war, both in the rear and at the front, has diminished by half. The reasons for this decrease are as follows: (1) approximation of surgical aid to the wounded; (2) application of first aid soon after injury; (3) radical excision of the wound in medical sanitary stations near the front and in field hospitals; (4) the use of antitetanus serum in all cases of trauma and of anti-gas-gangrene serum in cases of severe trauma; (5) wide use of sulphonamide preparations; (6) employment of blood transfusion, without exception, where indicated; (7) the possibility of retaining patients with severe wounds of the extremities in front-line hospitals until their condition becomes less grave; (8) complete immobilization of the injured parts.

We consider the plaster cast the best method of immobilization. The majority of amputations are performed at the front, and only an insignificant number—approximately one-fifth of all amputations—are carried out at hospitals in the rear.

Reasons for Amputation

The first and chief reason for amputation (up to 40%) is severe destruction and crushing of soft tissue, bones, and joints, with acute disturbance to nutriment of the extremities. The second reason is the tearing away of an extremity by shell fragments, bombs, etc., the remaining part being connected to the body by a mere patch of skin, thus necessitating only completion of amputation. Third, the presence of sudden and rapidly developing gas infection when other methods of controlling it are unsuccessful. Fourth, gangrene of the extremities, after injury to the blood vessels, burn, freezing, etc.: amputations of this type are not numerous (from 1 to 2% of the total). Fifth, the septic condition of the patient after trauma of the extremities, in the presence of phlegmon and purulent pockets, and in acute osteomyelitis, when all methods of treatment prove unsuccessful and it becomes necessary to sacrifice the injured part. Amputations as a result of these conditions constitute, according to our data, 7 to 9% of the total. They are performed in hospitals close to the rear.

Methods of Amputation

We use both chop and guillotine methods, but greatly prefer the latter because enough skin is saved to allow of a later skin graft. In individual cases we cut out one or two skin flaps, which, if conditions are favourable, can later be used to close the amputation wound. In order to protect the flap from infection it is rolled into tube form and sutured. Primary amputations are never sutured.

We consider the following safeguards obligatory in amputation: (1) To prevent the patient from becoming chilled during the operation and to provide him with heat (warm blankets, heat pads, etc.). (2) To give blood transfusions before and after operation. In primary amputation blood is transfused in large quantities; in secondary amputation it is transfused in small quantities. (3) To apply a tourniquet during the operation and not to lose a single drop of blood. (4) To operate under anaesthesia. We commonly use inhalation, intravenous, and local anaesthesia, and also freezing. (5) Observation and care, in the field hospitals where the amputation is performed, for a period of two or three days after operation.

Treatment of Stump

The reason for amputation, and the methods of amputation just indicated, determine subsequent treatment of the stump. An infected stump is never sutured. When it progresses favourably we recommend an initial dressing on the eighth or tenth day, preferably under anaesthesia. In such cases the amputation site is usually clean and covered with fresh granulation tissue, and inflammation is absent. Secondary suture, preferably with the use of plastic buttons, is possible, the edges of the wound being gradually approximated by tightening the suture. These measures guarantee a good stump for prosthesis and preclude the necessity for re-amputation.

When the stump does not progress favourably, owing to the presence of infection—phlegmon, osteomyelitis, phlebitis, etc.—the wound is treated by the usual surgical measures: supplementary excision, antiseptics (sulphonamide preparations, penicillin, gramicidin, bacteriophage, and others), and also by physiotherapeutic methods. The stump wound is treated with the aid of a Thomas brace in order to prevent the development of contractures.

A significant number (up to 80%) of amputation stumps are diseased or defective. Diseases of the stump comprise non-healing wounds, ulcers, osteomyelitis, ligature fistula, exostosis, neuritis, pains in the stump, phlebitis, disorders of the skin, and contracture. Defects of the stump consist of excessively long or short stumps, disarticulated stumps of the knee-joint, ankle-joint, wrist, and shoulder, stump scars with bone adhesions, conical stumps, ankylosis, and defects following osteoplastic operations.[1]

In treating diseases of the stump and to remove defects, physiotherapy, heat, mud, tar, paraffin, and ozocerite are extensively used. Cases that do not respond to conservative treatment are dealt with as follows: (*a*) by skin grafting; (*b*) by grafting adjacent tissue; (*c*) by excision of scar tissue, with skin grafting; (*d*) by removal of adhesions and ligatures; (*e*) by removal of neuromas and neurolysis; (*f*) by sequestrectomy; (*g*) by re-amputation.

Re-amputations form from 40 to 60% of all operations on the amputation stump and need special attention. The three chief points arising with regard to re-amputation are: (1) indications for re-amputation; (2) time of re-amputation; (3) method of re-amputation. According to data compiled during the war by Soviet hospitals, indications for re-amputation have occurred in the following proportions: non-healing wounds, up to 60%; osteomyelitis, from 17 to 20%; extensive scars with bone adhesions, 10%; exostosis, pains, etc., 10%.

The time for re-amputation can never be a matter of indifference. From a wide experience we have reached the conclusion that the ideal time is the third month after primary amputation, when good granulation tissue exists, inflammation and oedema have disappeared, and dense scars are not present. In cases of gas infection re-amputation is delayed until the six to tenth month.

The bone, in re-amputation, is dealt with by the Bunge method. The bone canal is tamponed with a section of muscle, bleeding vessels are carefully tied, the nerve is cut at a fairly high level with a razor blade, and drainage tubes are inserted for one day. The use of the osteoplastic operations of Pirogov, Bier, Gritti-Stokes, and Kirschner is widely recommended.

Preparation of Stump for Prosthesis

From the very beginning of treatment very careful attention is given to the preparation of the stump for prosthesis. In the first stage of stump treatment binding scars, contractures, and limitation of motion must be prevented. In the second stage, after the wound has healed, physiotherapeutic methods of treatment are used ; these include massage of the extremities—omitting the stump itself—contrast baths, and electric stimulation. Stump exercises and gymnastics for the amputee, stump-wrapping, and training to accustom the stump to withstand pressure are started early, and therapeutic prostheses are extensively used. Stump preparation continues for two to three months.

Organization of Prosthesis Supply

In the Soviet Union a network of special hospitals have been established for the purpose of supplying prostheses. Each hospital includes a department of orthopaedics where the stump is treated, a department of physiotherapy where it is prepared for prosthesis, and a prosthesis department where the artificial limbs are completed and fitted. Our prostheses are made of wood, leather, or emolyten, and in the main our system of supply is divided into two sections—the manufacture of parts and the assembly of the finished limb. Several factories exist for the manufacture of unassembled metal and wooden limbs. Assembly of the prostheses is done by regional workshops distributed throughout the Soviet Union.

Special attention is given to supplying prostheses for wounded men with bilateral arm amputations. Either a Krukenberg operation or phalangization is performed, and the amputee is provided with an active artificial hand.

A healed amputation stump and a suitable prosthesis are essential for re-establishing the patient's working capacity and providing him with employment. Up to 90% of our amputees, after being treated and supplied with artificial limbs, return to the factories, plants, and other establishments where they were employed prior to the war. Only work can complete their rehabilitation ; only work can heal their severe psychic wounds and restore their shaken nerves.

OSTEOPLASTIC RE-AMPUTATION OF THE THIGH

BY

Dr. ALEXANDER KOTOV

Many surgeons in the U.S.S.R. and in other countries consider end-weight-bearing stumps preferable to other types from the prosthetic point of view. These permit an artificial limb to be lighter in weight and simple in construction, and in addition they guarantee stability in walking, due to the fact that the amputee in a way "feels the earth under his feet." Non-end-weight-bearing stumps in many cases involve permanent pressure on the tuber ischiadicum, which is difficult to support and which hampers walking.

The objections raised by critics of end-weight-bearing stumps lie not in their disagreement with what has just been stated but basically in that in course of time the supporting capacity of the stump lessens and even completely disappears. It seems to us, however, that this does not justify depriving the amputee of the possibility of using an end-weight-bearing stump, even if only for a limited period.

End-weight-bearing Stumps

We consider that below-knee amputations provide the best means of obtaining end-weight-bearing stumps by operative procedure. According to our observations in the Soviet Union, the Pirogov, Syme, Bier, and Kirschner operations all give excellent results. Because of this they are widely used in our hospitals in cases requiring below-knee re-amputations. It was possible, by use of the methods mentioned, to provide the majority of patients with prostheses that reached no higher than the level of the knee-joint.

In re-amputation of the thigh there is less possibility of securing end-weight-bearing stumps. The Gritti-Stokes osteoplastic amputation, in the opinion of various authorities and according to our own observations, gives a good end-weight-bearing stump in the region of the lower third of the thigh. Some writers claim that they get a stable end-weight-bearing stump in the middle third of the thigh by that method. Conditions of war, however, especially in amputation centres, limit the use of this operation, both for thigh and for below-knee amputations. It is first of all excluded when thigh stumps do not include the patella ; and, secondly, its use is seldom indicated on stumps of the upper third of the lower leg. Thus, in thigh re-amputations we do not regard the osteoplastic operation as an accepted method of securing an end-weight-bearing stump.

On the basis of data gathered from all hospitals under the control of the People's Commissariat of Health of the U.S.S.R., the number of thigh amputations following war trauma is approximately equal to the number of below-knee amputations. They constitute, however, a far more difficult group with respect to restoration of lost function.

Owing to the absence of two groups of major joints a thigh case finds walking much more difficult than a case with amputation of the lower leg. In addition, the surface that can be utilized to fasten the socket of the prosthesis is only one-half or one-third of that available in below-knee amputations. Finally, in non-end-weight-bearing stumps of the thigh the only anatomical point of pressure in walking with the prosthesis is the tuber ischiadicum. We are in agreement with those who, having observed the prostheses of patients with thigh amputations, point out that their adjustment to weight-bearing on the tuber ischii is often a lengthy and unpleasant procedure.

These factors forced us to seek a means of alleviating the condition of this group long before the outbreak of the present war. At the clinic of the Ukrainian Institute of Orthopaedics and Traumatology in Kharkov physiotherapeutic methods of accustoming the thigh to pressure after re-amputation were employed. Our observations showed that to secure an end-weight-bearing thigh stump by means of this method long and unwearying persistence was required, but the results completely justified the effort.

As a result of his training the patient with an end-weight-bearing thigh stump showed incomparably greater stability and ease in walking than when he had a non-weight-bearing stump. In addition the majority of amputees, after therapeutic treatment, began to walk with a mobile artificial knee-joint and refused to wear a lock, which they had previously insisted upon in order to prevent mobility. In some cases the end-weight-bearing stump enabled patients to abandon completely the use of the ischium for support.

During the war, which has made wide use of operative procedures for treatment of the stump possible, the idea arose of employing the osteoplastic method to increase the ability of the thigh stump to bear pressure. Our use of the Kirschner method for re-amputations of the lower leg in the amputee hospital at Seipolatinsk, Khazakstan, gave good results, and we decided to utilize the principle of this operation to obtain a pressure-bearing thigh stump. During ten months of work we performed 15 osteoplastic re-amputations of the thigh stump in the middle third. The post-operative wound healed very quickly in all these cases. We began educating the stump to weight-bearing on the twelfth to the fourteenth day after operation, exercising it a few times daily. At the beginning of the second month after operation the amputee was supplied with special crutches fitted with a platform for supporting the stump. The walking time was increased daily. Later this group of amputees were supplied with end-weight-bearing prostheses having free mobility of the knee-joint.

Technique

The technique we use in osteoplastic re-amputation is very simple. A flap of skin sufficient to cover the lower surface of the stump is cut out on the anterior aspect of the thigh. The skin on the posterior surface is divided almost perpendicularly to the bone of the extremity. After this the muscle layers are divided conoidally and the bones of the thigh are sawn through. We saw off a ring-shaped bone transplant, 0.5 to 0.75 cm. thick, from the proximal end of the amputated bone and divide it into several sections. After appropriate modification the transplant is introduced into the bone-marrow canal, closing it. The muscles are then stitched in layers and the skin sutured. In some cases the diameter of the bone transplant enables us to fit it into the bone-marrow canal without division into sections, thus facilitating the operative technique.

Our observations relate to only a small number of cases and are too recent for definite conclusions to be drawn. Nevertheless the results have been so satisfactory that we feel justified in giving them wider publicity.

TRAUMATIC URAEMIA

BY

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(From an E.M.S. Base Hospital)

Just as the original draft of this paper was completed there appeared an article by Darmady and his colleagues (1944), writing from the R.A.F. casualty clearing station which feeds this E.M.S. base hospital. They described 8 patients who developed uraemia a few days after being wounded by high-explosive missiles. Oliguria and vomiting were constant features in these cases, and six of the patients died. Reference was made to similar cases described during both the present and the last war, but no mention was made of a paper on the subject by Duval and Grigaut (1918).

In the hope that further light may be shed on the mechanism responsible for the azotaemia two further cases are here reported. Both these patients were healthy young soldiers whose wounds caused such extensive muscle and vascular damage as to necessitate amputation; shock was severe and was treated by transfusion of blood and plasma; infection was well controlled by early surgery and the administration of penicillin and sulphanilamide. Uraemia developed rapidly and was undoubtedly responsible for the death of one of the patients, whose wounds were not sufficient in themselves to cause a fatal outcome. Looking back through our case records, it seems probable that other unrecognized examples of the condition may have passed through our hands.

Case I

Soldier aged 19. Penetrating wounds of both knees and left arm on Aug. 15, 1944; right popliteal artery severed. No note of tourniquet. Wound toilet and amputation through right knee 17½ hours after injury; B.P. 130/65, "not shocked"; A.T.S. 3,000 units; A.G.G.S. 10 c.cm. intravenously; 2 pints blood and 5 pints plasma. 660,000 units penicillin intramuscularly by Aug. 22; sulphanilamide 2.5 g., and sulphathiazole administered in unknown quantity.

Blood Counts of Case I

Date	R.B.C. (mill.)	Hb % (Sahli)	W.B.C.	Differential Count (%)							
				Neut. Poly. Seg.	Non.-Seg.	Metamyelocytes	Eosinophils	Basophils	Lymphocytes	Monocytes	Reticulocytes
Aug. 18	2·45	54									
" 25	2·15	45	18,200								
" 29	2·39	48	20,000								
Sept. 5	2·04	35	1,000								
	1·50	26	500	50			2		18	30	5
" 6	3·36	64	1,620								
" 7	3·16	57	1,450	18		36			32	14	
" 8	3·46	61	3,600	12		38	2		24	24	
" 9	3·52	74	5,500	24	36	10			16	14	
" 12	2·68	54	9,800	59	20		1		12	8	
" 18	2·76	55	10,000	78					16	6	
" 27	3·14	52	14,200	71			1		22	6	
Oct. 12	2·66	38	15,000	79					12	9	
" 25	3·65	68	8,100	70					24	6	
Nov. 13	4·40	78	8,200	68					22	10	
Dec. 19	5·24	94	10,000	61			2	1	32	4	

Aug. 18.—Mental condition disturbed; R.B.C. 2,450,000, Hb 54%. Severe mental confusion continued; psychiatric examination advised.

Aug. 25.—Admitted to this hospital (Mr. A. B. Watson). Still in similar state; completely disorientated, uncooperative and unable to understand questions; general condition poor; large sacral bed-sore. Wounds dressed under anaesthesia—clean. Unable to pass urine before going to theatre; 30 oz. of *normal* urine withdrawn by catheter. Hb 45% (record of blood counts in accompanying Table); 2½ pints blood given. Particulars of fluid balance summarized in Chart; the figures for the first 5 days are inaccurate, as he was incontinent, some specimens being lost.

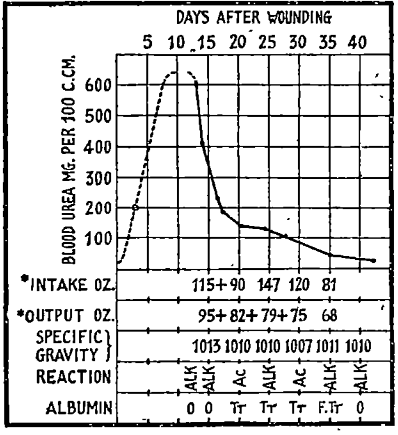

Chart showing details of fluid balance in Case 1.

* Average of previous five-days period.

Aug. 28.—Taking fluids well. Still drowsy, irrational, and incontinent. Respirations deep and slow; dry skin, fishy odour, and uraemic tongue. No oedema. Urine: Sp. G. 1013, alkaline, no albumin, no sugar, sulphanilamide crystals present. Blood urea over 600 mg. per 100 c.cm. (value approximate only at this level; subsequent determinations on Chart). It was discovered at this point that since admission the bed-sore had been dusted daily with sulphanilamide, and that sodium citrate 30 gr. t.d.s. had been given without instruction; both discontinued.

Aug. 31.—Rational and continent. B.P. 140/70. A few small haemorrhages and one white plaque seen in retinae; arteries of fundi a little prominent.

Sept. 1.—Urine: albumin and a few red cells; urea concentration normal. Running slight pyrexia due to low-grade infection of left knee-joint; amputation stump healthy.

Sept. 5.—Further course of penicillin started (650,000 units). Agranulocytosis noted; van den Bergh negative. Pentnucleotide 10 c.cm. 3-hourly and blood 4 pints, followed by rapid improvement in blood picture. The leucopenia was undoubtedly due to sulphanilamide absorbed from the bed-sore, for the blood sulphanilamide on Sept. 9 was 4 mg. per 100 c.cm.

Sept. 20.—Ocular fundi normal; B.P. 140/90; slight oedema of left leg, which subsided within 2 weeks.

Oct. 4.—Van Slyke's urea-clearance test, 94 and 108% of normal function; urea concentration normal.

Oct. 10.—Re-amputation of right femur and removal of foreign bodies from left knee. Considerably shocked; 2 pints blood given. Blood urea after transfusion, 27 mg. per 100 c.cm. Recovery rapid. Nocturia persisted until mid-October, but urine normal from Sept. 27. Subsequent course of illness uneventful.

Nov. 11.—Simple water dilution test revealed inadequate dilution and imperfect elimination of fluid. (50 oz. fluid given at 8 a.m. Total fluid passed between 9 a.m. and noon, 24 oz.; lowest Sp. G., 1010. Normal should exceed 50 oz., with dilution to 1002 or less.)

Nov. 13 and Dec. 5.—Simple water concentration tests showed defect. (Fluids restricted to 1 pint for 24 hours. Total output in the two tests, 12 oz. and 21½ oz.; highest Sp. G., 1024 and 1025. Normal less than 30 oz. and more than 1027.)

Nov. 15.—Excretion pyelography normal.

Case II

Soldier aged 25. On Nov. 4, 1944, sustained dirty wound of right arm, with extensive muscle damage, disorganization of elbow, and division of ulnar vessels and ulnar and median nerves. Tourniquet applied until arm was amputated at fracture site 5 hours later. Pulse 92; blood pressure unobtainable before operation. A.T.S. and

A.G.G.S. presumably given; 5 pints blood and 3 pints plasma. Penicillin administered locally and intramuscularly; total dose recorded 350,000 units, but was probably more. No record of sulphanilamide.

Nov. 8.—Stump satisfactory when dressed under anaesthetic; was unable to pass urine before operation.

Nov. 10.—Admitted to this hospital (Mr. Lionel E. Jones). General condition good; sutured amputation stump clean. Occasional hiccups. Intake 6 oz. Urine 14 oz., vomit 4 oz.

Nov. 11.—Still has hiccups; tongue dry; blood urea 500 mg. per 100 c.cm. R.B.C. 2,680,000, Hb 46%. Intake 77 oz. Urine 33 oz., vomit 28 oz.

Nov. 12.—Hiccups occurring with every inspiration; uraemic tongue; drowsy. Occasional twitching of left arm; C.N.S. normal, fundi normal. B.P. 170/70. Liver slightly enlarged. Stump clean; slight oedema of right shoulder. Considerable bruising and swelling left elbow region, probably due to leak from pentothal. Oedema of sacral region; no venous engorgement. Magnesium sulphate enema and morphine. Urine: neutral, Sp. G. 1012, albumin +, occasional R.B.C., no casts or crystals, spectroscopic examination normal, urea 1.8 g. per 100 c.cm., NaCl 0.12 g. per 100 c.cm., benzidine reaction negative. Intake 51 oz. by mouth, 20 oz. intravenous 5% glucose. Urine 70+ oz., vomit 3 oz. In evening developed pulmonary oedema. Retention of urine at 9.30 p.m.; catheterized. Died 11.15 p.m.

Necropsy 16 Hours After Death.—Amputation wound healthy; microscopical examination of muscle showed necrosis with recent haemorrhages and infiltration with polymorphs and lymphocytes, but no evidence of gas gangrene. Trachea contained frothy fluid; heavy waterlogging of lungs confirmed by microscopy; 1 pint clear fluid in right pleural cavity. Heart normal. Liver large and pale; the cells were separated by wide sinusoids and contained a few small fatty globules; some of the portal tracts contained phagocytic cells laden with brown pigment. Spleen, pancreas, suprarenals, and gut normal. Kidneys 8 and 8¾ oz., slightly oedematous, glistening and with well-defined markings; little fatty change seen microscopically; glomerular tuft congested but not grossly abnormal; some tubules were dilated and contained hyaline and granular casts staining orange with eosin, desquamated cells, wisps of hyaline material, occasional polymorphs, and phagocytic cells with ingested orange pigment. In addition a few crystals were seen in some of the tubules; they were grey in colour and spherical with radial striation; some were broken up into a mass of smaller crystals each resembling a small scalpel blade. Staining for free iron negative. In the interstitial tissue of the kidneys there were a few collections of lymphocytes, plasma cells, and eosinophils. Vessels normal. (Microscopical examination by Dr. J. L. Edwards.)

Discussion

It is obvious that in these patients the production of urea is more rapid than its elimination. In the great majority of recorded cases there has been severe damage to one or more limbs, often involving large vessels. Haemorrhage and shock have therefore been the rule and transfusion has invariably been necessary. Darmady and his colleagues (1944) have remarked that the condition is in some ways like the crush syndrome, and it should also be noted that it bears a resemblance to the azotaemia of haematemesis.

It was shown by Taylor and Lewis in 1915, and confirmed by many others since that time, that when bleeding reduces an animal's blood volume to about 50% of normal the blood urea rises. This increase may be considerably accentuated by repeated haemorrhage and by associated dehydration (Meyler, 1935). Wallace and Sharpey-Schafer (1941) were unable to demonstrate a significant rise of blood urea in blood donors unless there was a pre-existing renal defect.

Black (1942), in a full account of azotaemia in gastroduodenal haemorrhage, points out that the condition is due to a functional renal impairment associated with accelerated breakdown of tissue protein, as well, of course, as absorption of nitrogenous material from the blood in the bowel. He goes on to say: "For the most part extrarenal azotaemia from whatever cause can be traced back to a reduced blood volume or disturbed water and salt metabolism, or both. Either of these primary causes can produce both increased protein katabolism and functional renal failure, and it is probable that both these secondary changes must be present before azotaemia develops." In traumatic uraemia, at any rate during the period immediately after wounding, the dietetic protein, 80 g. of which will raise the blood urea by about 50 mg. per 100 c.cm., can play little or no part as a source of urea; it must therefore be derived from tissue breakdown. The rapid rise of blood urea is consequently suggestive of an accelerated protein katabolism, especially when considered in conjunction with the speed at which weight is lost by these patients. There is no doubt that they all suffer from dehydration and oxygen deprivation due to anaemia, vasoconstriction, and reduced blood volume—factors quoted by Black as increasing tissue-protein katabolism. It is therefore probable that the manufacture of urea from tissue proteins is abnormally rapid after severe traumatic haemorrhage.

It is remarkable that the livers of these patients carry out their task so efficiently, since often there is evidence of hepatic damage. Some of the patients are jaundiced and changes in the liver cells are usually demonstrable at necropsy. The azotaemia of acute necrosis of the liver chiefly concerns the non-protein nitrogen other than urea, and if the blood urea is high, as sometimes happens in cases of carbon tetrachloride poisoning, renal failure rather than liver damage is responsible (Forbes, 1944). Incidentally Forbes mentions a case in which recovery of kidney function was complete 46 days after the urea clearance had been reduced to less than 10%.

As a normal kidney can rapidly clear large amounts of urea from the blood stream, there can be no doubt that impairment of renal function is the major factor in the production of traumatic uraemia. Darmady and his colleagues state that oliguria is always present, and this is certainly to be expected during the phase of haemorrhagic shock, for it has been shown that this state causes an active constriction of the renal arteries with consequent reduction in urinary excretion (Lauson *et al.*, 1944). Unfortunately no information is available about the urinary output of either of our patients during the immediate post-traumatic period, but the second patient was passing only small quantities when he first came under our observation. It is improbable that complete anuria persisted for more than a few hours at most, for such an event could scarcely pass unnoticed in a general hospital. The state of shock which might have led to cessation of urinary excretion was rapidly corrected by transfusion, but it has been shown that diminution of renal blood flow may persist after haemorrhagic shock even when the systemic blood pressure has been restored to normal by emergency measures (Lauson *et al.*, 1944). There is no evidence that the transfused blood was incompatible. The other possible causes of renal impairment tend to produce their effects after a few days' delay and do not satisfactorily explain the onset of symptoms so shortly after wounding. Sulphonamides, for example, when given in therapeutic doses are unlikely to damage the kidney sufficiently to suppress formation of urine until almost a week has passed. Likewise, after a crushing injury anuria is commonly delayed for several days, although it has been shown that injections of myotoxin will cause instantaneous anuria in rats followed, in non-fatal cases, by oliguria and eventually by diuresis (Bielschowsky and Green, 1943).

The diuresis present in the first patient was a stumbling-block to diagnosis. When a man is passing daily over 100 oz. of urine, in which no albumin or abnormal cellular elements can be found, it is unnatural to suspect that his blood urea is over 600 mg. per 100 c.cm. It will be observed that the second patient also developed a diuresis in the later stages and that the urea concentration was good; but despite this he retained fluid in the subcutaneous tissues and pleural cavity, and eventually died of pulmonary oedema. The diuresis was no doubt stimulated as much by the high blood urea as by the high fluid intake; a similar phenomenon has often been observed during recovery from the azotaemia of haematemesis, and during this stage there is no apparent abnormality of renal function. Darmady and his colleagues (1944) found that the defective urea clearance occurring during the early phases of traumatic uraemia became normal as the patient improved.

The renal function of our surviving patient was normal when examined by the generally accepted tests, and there was certainly nothing to suggest pre-existing kidney damage. Although the concentration of urea in the urine was usually low, no doubt because of the diuresis, Fowweather's concentration test was normal. Urea clearance (van Slyke) and elimination of uroselectan were also normal. It is therefore interesting and important that simple water dilution and concentration tests proved more sensitive in demonstrating a renal defect which has persisted. When a large amount of fluid was drunk it was excreted too slowly and the specific gravity of the urine failed to fall as low as it should have done, indicating abnormal glomerular filtration. Neither did water deprivation raise the specific gravity to the levels which ought to have been reached —an indication of impaired tubular absorption.

The transient albuminuria in this case was almost certainly due to sulphanilamide poisoning: it coincided with the discovery of crystals and red cells in the urine and heralded the appearance of agranulocytosis. (Incidentally this emphasizes once again the danger of uncontrolled application of sulphanilamide powder to ulcers; the response of the severe leucopenia to massive doses of pentnucleotide is also worthy of notice.) If the albuminuria had been due to the effects of the original injury, as was presumably the case in the second patient, it should have been evident when the blood urea was at its maximum. During the post-traumatic period neither patient passed red cells in excess no casts were found, and spectroscopic examination for haemoglobin and muscle pigments was negative.

The kidneys of the second patient were examined post mortem and were similar to those already described (Darmady *et al.*, 1944), the pathological lesions being comparable to those of the crush syndrome and largely confined to the tubules. In addition a few sulphanilamide crystals were present. The changes were certainly insufficient to explain urea retention on the purely mechanical basis of tubular obstruction, and the glomeruli were comparatively healthy. The blood urea does not rise in nephrosis in which pathological changes are confined to the tubules. It therefore seems more likely that the cause of renal failure and of the damage to the tubules is anoxia resulting from vasoconstriction of the renal arteries during the stage of shock, aggravated by blood loss, a fall in blood pressure, and dehydration. This supposition is favoured by the demonstration of similar alterations in the tubules after temporary clamping of the renal vessels (McEnery *et al.*, 1927) and by the theory propounded by Maegraith and Findlay (1944) that peripheral vascular atony with redistribution of renal blood flow explains the suppression of urine in blackwater fever. The action of myotoxin may be accounted for in a similar manner. Oedema of the kidneys and rupture of some of the renal capillaries occur during the anoxic period, and may be responsible for the slow recovery of renal function after the systemic blood pressure has risen to normal.

It has not yet been decided how these cases should be treated. Arguing on purely theoretical grounds, which may be fallacious, the best hope of improvement should lie in the early restoration of an adequate blood flow to the kidneys. Caffeine is said to dilate the renal vessels, and although its effectiveness in these cases is doubtful it can certainly be administered in full doses without harm. Giving oxygen in high concentrations might also be of value, but there has been considerable disagreement about its success in the treatment of shock (*vide* annotation in the *British Medical Journal*, 1942). It would seem particularly important to raise the pressure, volume, and oxygen-carrying capacity of the blood to normal levels, and this can only be achieved by the continuous administration of carefully matched blood, and then with difficulty. Black and Smith (1941) have demonstrated that blood is much more effective than plasma in promoting the excretion of urea when azotaemia develops after haematemesis. Fluids should certainly be provided in abundance, but because these patients tend to develop subcutaneous and pulmonary oedema it should be given by mouth or by rectum and not intravenously.

Summary

Two further cases of traumatic uraemia are reported. It appears that the condition may be relatively common in modern warfare, especially when severe damage to a limb involves large blood vessels. Evidence is given that urea manufacture from tissue protein is increased in the early stages of the illness, and reasons are advanced in support of the view that urea retention is due to renal anoxia. It is suggested that blood transfusion should be the most important factor in treatment. During the recovery phase diuresis is pronounced and the usual renal function tests may show no abnormality. Simpler tests have revealed kidney impairment in one of the cases described.

One patient had severe leucopenia as a result of sulphanilamide poisoning, and responded rapidly to injections of pentnucleotide.

I am indebted to my surgical colleagues for permission to quote their cases, and to Dr. J. L. Edwards for the histological report.

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THE CEPHALIN-CHOLESTEROL FLOCCULATION REACTION AS A TEST OF HEPATIC FUNCTION

BY

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The cephalin-cholesterol flocculation reaction was first introduced by Hanger (1939) as a test of hepatic efficiency. It is recognized that many of the liver function tests in common use fail to detect early or mild liver damage; positive results are often found only in the advanced stages of the disease when clinical symptoms are already manifest. The cephalin-cholesterol flocculation test has been shown by several American workers (Hanger, 1939; Pohle and Stewart, 1941; Rosenberg, 1941; Nadler and Butler, 1942; Mateer *et al.*, 1942; Yardumian and Weisband, 1943) to be an extremely sensitive test in the early detection of hepatic insufficiency. The test was found to be of considerable value in prognosis in cases of acute infective hepatitis; the persistence of a strongly positive reaction indicates severe liver damage. A further important claim was its value in the differentiation of jaundice due to parenchymatous disease of the liver from that due to obstruction of the biliary passages. It therefore promises more diagnostic help than certain of the earlier tests, in which similar results are obtained in all types of liver disease.

The value of the cephalin-cholesterol flocculation test of hepatic function has not yet been conclusively established in this country. It falls into the category of empirical procedures rather than a definite test of any known hepatic function. The exact mechanism of the test is poorly understood (Hanger, 1939). It is relatively inexpensive to carry out; few reagents are required, and it is more easily performed than other tests in common use. The object of this paper is to present results of this test in hepatic and biliary disease; no attempt is made to explain the mechanism of the reaction.

Method

The method employed was that described by Hanger (1939). First, enough cephalin was obtained by extraction from sheep's brain to last for about one year. Sheep's brains (two or three) were dehydrated by three extractions with acetone, and the dry powdered tissue was three times extracted with ether. The ether extracts were concentrated and the crude cephalin was precipitated by the addition of four volumes of absolute alcohol. The resulting precipitate was dissolved in the minimum amount of ether; the accompanying cerebroside impurities were precipitated by chilling to 5° C. and removed by centrifugation. The supernatant ether solution was again precipitated with four volumes of absolute alcohol, chilled, and the precipitate filtered, washed with alcohol and acetone, and desiccated. The cephalin preparation is a brown powdery material. Hanger (1939) suggested that freshly prepared cephalin was too sensitive and that it should be ripened for some months before use.

A stock solution was then prepared by adding 300 mg. of cholesterol and 100 mg. of cephalin to 8 c.cm. of ether. This stock solution, well stoppered, was kept in a refrigerator at 0 to 5° C. In order to prepare the emulsion 35 c.cm. of distilled water was heated to 65–70° C., and 1 c.cm. of the stock solution was slowly added, with frequent stirring. The emulsion was heated to boiling-point and allowed to simmer until the volume was reduced to 30 c.cm. This was cooled to room temperature, and 1 c.cm. of the emulsion was added to a centrifuge tube containing 0.2 c.cm. of the patient's serum and 4 c.cm. of freshly prepared 0.85% sodium chloride. The centrifuge tube was stoppered, shaken, and left at room temperature. After 24 hours note was made of the presence of flocculation, which was designated "zero" to "4-plus." The serum should be used immediately or else kept in an ice-box for not longer than 6 hours. The final reading should be made in 24 hours, as normal sera may cause positive flocculation in 48 hours (Clay and Moore, 1942).

Previous workers (Pohle and Stewart, 1941; Clay and Moore, 1942) showed that the test was positive in a small percentage of normal individuals and in those suffering from various systemic disorders. It therefore appeared necessary, in assessing the value of this test, to examine the sera of such individuals as well as the sera of those with definite hepatic disease. Accordingly the test was applied to the sera of three different groups: (1) Healthy individuals attending as blood donors. (2) Patients suffering from a variety of systemic diseases without clinical evidence of hepatic disease. (3) Patients suffering from hepatic or biliary disease.

Results

(1) Sera of Normal Individuals

The test was applied to 100 individuals attending as blood donors who were regarded as healthy. Only one of the 100 sera examined gave a positive reaction (4-plus) after 24 hours. This patient had a history strongly suggestive of a mild attack of infective hepatitis a few weeks previously; the serum gave an indirect van den Bergh reaction of 0.9 mg. per 100 c.cm. This case can therefore be excluded from the controls because there was evidence of hepatic disease; in 99 normal persons the test was negative.

(2) Sera of Those Suffering from a Variety of Systemic Disorders

This group includes 164 patients; 123 were in the wards, and 41 attended as out-patients on account of rheumatoid arthritis. The results are shown in Table I.

Table I.—*The Cephalin-Cholesterol Flocculation Test in Various Non-hepatic Diseases*

System Involved	No. of Cases	No. with Flocculation
Cardiovascular	14	0
Haemopoietic	17	4
Respiratory	17	4
Alimentary	29	2
Renal	8	1
Nervous	8	0
Endocrine	13	0
Bones and joints	58	2
Total	164	13

Table I shows clearly that flocculation may occur in those suffering from conditions not primarily hepatic. Positive reactions were encountered in 13 patients (7.7%), and details of these are shown in Table II.

Table II.—*The Disease and Degree of Flocculation in Cases with a Positive Reaction*

Case	Disease	Degree of Flocculation
1	Pernicious anaemia	++
2	Iron-deficiency anaemia	++++
3	Malaria	++++
4	„	++++
5	Lung cancer	+
6	Pleurisy with effusion	++++
7	Diaphragmatic pleurisy	+
8	Asthma	++
9	Diabetic coma	+++
10	Cancer of stomach (liver not involved) ..	+
11	Nephritis and haemolytic anaemia due to sulphonamide therapy	++
12	Rheumatoid arthritis	++++
13	„ „	++++

Table II shows that the patients who had positive reactions suffered from very varied conditions; in 10 cases the reaction was strongly positive, whereas in 3 the degree of flocculation was slight. In most instances it is difficult to explain why positive reactions were obtained; in Cases 9 (diabetic coma) and 11 (nephritis with jaundice) it is not improbable that it should have been positive. Further liver function tests were carried out in many of the patients (Nos. 1, 2, 3, 4, 10, 11, 12, and 13), but revealed no evidence of hepatic inefficiency. Most patients were dismissed when the primary disease was cured without repetition of the test, but in Cases 1, 2, and 3 the reaction became negative before dismissal. In Cases 12 and 13 the test was carried out on numerous occasions and positive reactions were always obtained. Repeated biochemical investigations failed to show any evidence of hepatic disease in these two patients, and the cause for the positive flocculation could not be explained.

(3) Sera of Those with Hepatic or Biliary Disease

The majority of patients in this group were suffering from hepatitis—the test being performed either during the acute course of illness or in convalescence—or from biliary obstruction. A small number of patients suffering from cirrhosis or cancer of the liver are included because of the variable results of the test so far reported in these conditions. Lastly, the results obtained in 12 patients who developed jaundice during the course of arsenical treatment for syphilis are included in order that some light may be shed on the nature of the jaundice.

(*a*) *Infective Hepatitis.*—The sera of 38 patients suffering from infective hepatitis were studied. Twenty-six came under observation early in the course of the disease, and in several cases readings were obtained during the illness; in 12 other patients the test was performed after recovery from an acute attack, such patients reporting in convalescence.

Table III.—*Cephalin-Cholesterol Flocculation Test in Acute Infective Hepatitis*

Degree of flocculation ..	0	+	++	+++	++++
No. of cases	—	7	2	1	16

Table IV.—*Cephalin-Cholesterol Flocculation Test during the Course of Infective Hepatitis*

Case	Date	Degree of Flocculation	Case	Date	Degree of Flocculation
1	25/8/43	+++	15	18/2/44 15/3/44 27/3/44	++++ ++++ ++++
2	13/9/43 21/9/43 22/11/43	++++ ++++ —	16	29/3/44	++++
3	13/9/43 21/9/43	+ +	17	26/5/44	++++
4	21/9/43 24/9/43	++++ +	18	16/6/44 27/6/44 7/8/44	+ ++ ++++
5	22/9/43	+	19	14/6/44 16/6/44 19/6/44	++++ ++++ ++++
6	12/10/43 16/11/43	++ —	20	22/6/44 27/6/44	++++ ++++
7	11/12/43 12/12/43	++++ ++++	21	6/7/44 8/7/44 11/7/44	++ +++ +
8	25/2/44 28/2/44	++++ ++++	22	6/7/44 8/7/44 11/7/44 20/7/44 24/7/44 27/7/44 31/7/44	+ + — — — — —
9	2/3/44 4/3/44	++++ ++	23	17/7/44 24/7/44 27/7/44 31/7/44	++++ ++++ ++++ +++
10	8/3/44 10/3/44 23/3/44	+ + —	24	2/8/44 5/8/44 11/8/44 15/8/44 21/8/44	++++ ++++ ++++ +++ +++
11	15/3/44 21/3/44 19/4/44	++++ ++++ —	25	4/8/44 8/8/44 10/8/44 14/8/44 17/8/44 21/8/44	++++ ++++ +++ — — —
12	13/4/44 18/7/44	+ —	26	15/8/44 21/8/44	+++ ++++
13	2/5/44 5/5/44 9/5/44 15/5/44 30/5/44	++++ ++++ ++++ ++++ —			
14	26/8/43 21/4/44 7/6/44 6/7/44 24/7/44	+ ++ + + ++++			

In every case of acute infective hepatitis the test was positive; in all but 7 cases it was markedly positive. The test is therefore a sensitive one in the detection of parenchymatous liver disease, for in a few patients the symptoms were mild and the degree of jaundice was slight, yet positive results were obtained. A further important use of the test, previously stressed, is its value in prognosis. This is illustrated by Table IV, which shows the results obtained during the course of the illness in patients observed during the acute stage.

It was found that the results of the cephalin–cholesterol flocculation test run parallel with the clinical severity of the disease and with other tests of hepatic function (serum bilrubin, laevulose-tolerance test, and hippuric acid synthesis test); with severe hepatitis, flocculation was most pronounced. Patients Nos. 14, 15, 18, and 19 died. In Cases 15 and 19, 4-plus readings were present throughout the illness, while in Cases 14 and 18 the test remained positive for a considerable time, and before death 4-plus reactions were recorded. In the 12 patients who had recovered from jaundice the test was negative in 10 and positive in only 2. These two patients clinically had a fairly severe attack of hepatitis, and although other tests showed liver function to be within normal limits the cephalin–cholesterol flocculation test was still positive.

(*b*) *Obstructive Jaundice*.—Fifteen patients were included in this group; the nature of the obstruction, the reason for this diagnosis, and the results of the tests are shown in Table V. In several cases the test was repeated but no change in the degree of flocculation was noted, so only this is included

TABLE V.—*Cephalin–Cholesterol Flocculation Test in Obstructive Jaundice*

Case	Nature of Obstruction	Reason for Diagnosis	Degree of Flocculation
39	Cancer of bile duct	Operation	—
40	Gall-stones	”	—
41	Cancer of pancreas	Clinical	—
42	” ” ”	”	++++
43	” ” bile duct	Necropsy	—
44	” ” ” ”	”	—
45	” ” pancreas	Operation	—
46	” ” bile duct	Necropsy	—
47	” ” pancreas	Operation	—
48	Gall-stones	”	—
49	”	”	—
50	”	Clinical	—
51	Cancer of pancreas	Operation	—
52	Gall-stones	Clinical	—
53	Post-operative stricture of common bile duct	Operation	—

Only one of the 15 patients in this group gave a positive reaction; in this case, unfortunately, the diagnosis rested solely on clinical examination, which, however, was fairly conclusive. The jaundice was of long duration and there was undoubted damage to liver cells. This patient died in his own home soon after dismissal.

(*c*) *Cirrhosis of Liver; Cancer of Liver*.—It is often difficult to be sure of the diagnosis of hepatic cirrhosis, but in the 9 cases in this group the diagnosis seemed fairly certain clinically or was confirmed by biopsy; in all 9 patients other liver function tests had indicated hepatic inefficiency. In 3 of the cases the test was positive, in 2 strongly so. In 3 patients with secondary cancer of the liver (confirmed in two by necropsy) the test was negative. In 2 other patients, in whom the diagnosis of cancer of the liver was made on clinical grounds, a 2-plus reaction was obtained in one case and a negative result in the other. Both cases showed evidence of hepatic inefficiency as judged by other liver function tests.

(*d*) *Arsenical Hepatitis*.—The test was performed in 12 patients who developed jaundice during the arsenical treatment of syphilis. The present paper does not permit of a full analysis of these arsenical jaundice cases, such as the relationship of the jaundice to the course of arsenical, its duration, and the presence of other toxic manifestations of arsenic. Of the 12 sera examined 7 gave a positive result, 5 of them strongly positive; in the other 5 cases there was no flocculation.

Discussion

The results obtained agree very closely with those of American workers. In normal healthy individuals the test is always negative when read at 24 hours. The tests were also read at 48 hours, when 13% of normal healthy individuals gave a positive reaction (1-plus or 2-plus). In carrying out this test it is therefore necessary to read the degree of flocculation after 24 hours. With the same cephalin reagent the test was carried out in normal individuals at two different periods separated by 4 months, and there was no significant difference in the number of positive reactions obtained at these times. The degree of ripening of the cephalin appears to have no great influence on the sensitivity of the reagent.

In the patients who suffered from conditions not primarily hepatic the positive results are difficult to explain; such patients did not fall into any special category of illness. A fairly complete biochemical analysis of many of these cases was carried out (serum bilirubin, laevulose-tolerance test, hippuric acid test, plasma proteins, N.P.N., and cholesterol), yet no explanation of positive flocculation could be found. In such patients the liver involvement is an incident in the primary disease, and it is only in biliary obstruction that difficulties in the interpretation of the test are likely to arise, but these can usually be eliminated by other means.

In acute infective hepatitis the test was positive in 100% of the cases. The degree of flocculation bears a definite relation to the severity of the illness. In severe cases of hepatitis 4-plus reactions were always obtained; a lessening in the degree of flocculation was a good prognostic sign, while a continued 4-plus reaction was often associated with death. The speed at which flocculation occurred also paralleled the severity of the disease; in two patients who died flocculation was noted as early as two hours after setting up the test. In convalescence the disappearance of flocculation should be hoped for; a continued positive reaction in two fairly severe cases suggested that there was residual liver damage.

In contrast with the positive flocculation always obtained in infective hepatitis, only one case (6.6%) of obstructive jaundice gave a positive result, and in this patient the jaundice was of long duration. Obstructive jaundice which is likely to be relieved by operation is nearly always associated with negative flocculation. The cephalin–cholesterol flocculation test is therefore of considerable value in the differentiation of these two types of jaundice; it was much more helpful than the van den Bergh test, the laevulose-tolerance test, or the hippuric acid synthesis test.

The cephalin–cholesterol flocculation test seems to offer much less help in patients suffering from cirrhosis or cancer of the liver than in jaundice due to acute infective hepatitis or obstruction of the biliary passages. In cirrhosis the reaction was stated by Hanger (1939) to parallel the activity of the pathological process. If a negative result is obtained then residual scarring would appear to be the sole pathological lesion. In metastatic cancer negative flocculation is usually encountered unless the process is severe, while in primary cancer positive results are usually obtained.

The results of the test in cases of arsenical jaundice are interesting. They agree closely with those of Hanger and Gutman (1940), and suggest that the icterus which follows the administration of an arsenical is not always due to parenchymatous damage, but may be caused by an obstructive process within the biliary passages. It is clear that the jaundice which develops in such patients differs from that of infective hepatitis. The cephalin–cholesterol flocculation test would therefore be of no value as the routine test in the early detection of liver damage in patients receiving arsenical treatment for syphilis.

Summary

The cephalin–cholesterol flocculation test is an entirely empirical reaction, but is simply carried out and appears to be of value as a test of hepatic efficiency.

Positive flocculation occurs in the presence of parenchymatous disease of the liver, and the degree of flocculation runs parallel with the severity of the case. A persistently positive flocculation is an unfavourable sign.

The test is of value in the differentiation of jaundice due to infective hepatitis from that due to biliary obstruction.

It is useless as a test in the early detection of liver damage in arsenical jaundice.

The test is positive in a small number of patients whose illnesses are not known to affect the liver; in normal healthy individuals, however, it is always negative.

From my experience the test is of definite value, even although ts mechanism is not understood.

I wish to thank Prof. J. W. McNee for his helpful advice and riticism, and Dr. J. B. Rennie for the results of other liver-function ests in the cases under review.

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EMPLOYMENT OF THE POST-NATAL WOMAN

BY

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It seemed proper that, as a sequel to our article on "Employment of Pregnant Women in Industry" (*Journal*, 1944, **1**, 108), we should follow these cases up and show how the women return to work after their confinements. We have done this in the 90 cases of the original article, and 40 others, up to 17 months after delivery.

Return to Work after Confinement

In our last follow-up of the original patients, in Feb., 1944, only 61 of the 90 mothers could be communicated with owing to change of address, evacuation, etc. The striking fact was that only 14 out of the 61 had returned to work at all, and only 4 at the end of four months after delivery. Two returned one month after the baby was born: one of these, a multipara with several children, had to do so for financial reasons, and her own mother looked after the baby. The other had a stillborn child. Two returned at two months: one of these was a single girl whose baby had been adopted; the other had lost her baby at birth. Four returned at three months. One of these had a premature stillbirth, the second arranged for the baby to be looked after by a neighbour, the third had her baby cared for by her mother, and the fourth took her baby to a day nursery. One returned at four months, her baby being cared for at a day nursery. Two returned at five months, their babies being in the care of relatives. One returned at six months, but did not continue, as the baby fretted in her absence. Two returned at ten months, giving no reason.

Thirty-six mothers preferred to stay at home. Fifteen said that they found the housework plus caring for the baby as much as they could manage. Three stayed at home because their husbands wished them to do so. Two said they would not trust their babies to anyone else. Two mothers were evacuated because of the air raids. Two did not feel well enough to return to work. Nine mothers said they would return to work if they had somebody to care for the babies, who were all under 1 year and could not, as a rule, be accepted by local day nurseries. Eight women gave no reasons for not returning to work.

In addition to the original 90 cases we have attempted to follow up 40 other mothers who attended our clinic. Through the difficulties previously noted, we were not able to contact more than 22, and only 4 of these had returned to work. One of them lost her baby at two months and then started work; the second started work at six months, the third—a single girl—at four months, and the fourth at nine months. We analysed the reasons why patients did or did not return to work, and the following is a summary of their replies.

Fifteen stated that, with the care of the baby and housework, they had too much to do. Two said their housework and caring for the baby were as onerous as factory work. One mother stated that she found the housework and baby even more tiring than factory work when she was pregnant. Eight mothers visited the clinic only for post-natal examination. Of these six were normal, one had a relaxed outlet, and one fairly severe haemorrhoids.

The medical officers of health of five boroughs in which the patients lived gave the following rules as to the permitted age of entry of babies to their day nurseries:

A. Not under 6 months.
B. From birth to 5 years. Under 3 months only in very special circumstances.
C. One year and over.
D. No minimum age limit, but very young babies accepted only under special circumstances.
E. Not under 6 months except in special circumstances—i.e., unmarried mother, etc.

There appears to be no uniformity locally, and we infer that this may be general throughout the country, although the Ministry of Health issues general recommendations.

The Position in the United States

In a personal communication to one of us (L. B. B.) Dr. Barbara Hewell, Acting Director, Division of Research in Child Development, U.S. Department of Labor, made some interesting observations on the situation in America which are worth recording. Her Department has suggested that women be granted at least two months' leave ordinarily, and longer if parturition or a post-partum period has been in any way complicated (*Standards for Maternity Care and Employment of Mothers in Industry*, U.S. Department of Labor, July, 1942). As most American employers have little or no experience of female labour there is considerable variation in or complete absence of policies in different industries on the subject of maternity leave. There has been no development, on anything like the national scale we have in Great Britain, of nurseries to care for children under 2 years of age of mothers working in war industries. However, centres have been set up for the group care of children from 2 to 5 years of age and also of school age. Federal funds have been made available to communities up to approximately 60% of the cost. There has been some supervision of these by State, Health, Welfare, and Education Departments in the different States.

"The policy of the Children's Bureau is strongly against the development of group care for children under 2 years of age. They feel that the young infant needs the continuous affection and consistent care of his own mother for his best emotional, physical, and mental development. There is no adequate substitute for a mother's care or for the care of some one person who holds this relationship to the child. Regardless of how good a group centre may be as to plant, hygienic conditions, number and training of staff, there remain the danger of communicable diseases when young babies are in groups, and the strong probability that the care cannot be as individual in type, and may not meet the emotional and developmental needs of the young infant.

The man-power situation in this country has not been so urgent that mothers of young children under 2 are essential in industry. It is realized, of course, that some mothers of young babies must work. When substitute care is necessary, the Children's Bureau advises foster-home care for children under 2, as more likely to meet the needs of the individual child. This type of care—both full-time for dependent or neglected children and day-time for children of working mothers—has been considerably developed in this country. This programme is under the supervision of child-welfare agencies whose trained workers approve the homes and the qualifications of foster-parents to care for children, and who give continuing supervision of the child in the foster home, working with both the employed mother and foster-home mother for the best interests of the child. The foster home should be near the child's home, caring for only a few children, and should duplicate home life as much as possible. The working mother pays the foster mother for this care.

There are scattered day nurseries in local communities where young infants receive care under private agency auspices, but this is not an extensive development. Many mothers, of course, make their own arrangements as to care of the children."

The following quotation from an interesting paper by Dr. Charlotte Silverman (U.S. Department of Labor) gives an account of her investigation of the problem:

"*Post-natal Leave of Absence.*—Most of the establishments that did not actually discharge employees on account of pregnancy stipulated that those who were required to take leave of absence remain away from employment for a specified period. Most of the plants set 6 weeks or 2 months as the required post-natal leave; one set it at 4 weeks, one at 4 months, and one at 6 months. Eleven required the amount of post-natal leave to be decided by a physician (the plant physician or the woman's own physician).

Extent of Return to Work After Delivery.—It was very difficult to find out how many women returned to work after childbirth. Most firms did not keep records of this type. Companies that had been employing women for many years, although they did not keep records of the number of returns, frequently were able to offer estimates. The textile mills had a very high percentage of returns. Some electrical plants also had a high percentage.

Reinstatement and Seniority.—Among the establishments that had high percentages of returns to work the question of reinstatement and seniority was probably a factor in motivating an early return. In several of these plants reinstatement and seniority privileges were effective for only 2 to 3 months after childbirth. If the period in which these privileges were effective were lengthened, women might be inclined to take longer post-natal leave."

Some British Statistics

An investigation on employment of women in industry before and after childbirth in this country carried out during 1940–2 by the Industrial Welfare Society gives the following general information. Twenty-six firms were approached; they all permit a return to work, but the period after pregnancy varies as follows:

At a minimum of 4 weeks	2 firms
" " 5 "	3 "
" " 6 "	6 "
" " 8 "	7 "
" " 12 "	4 "
On application at any time	1 firm
At any time a vacancy occurs	1 "
When fit to return	1 "
Left to opinion of welfare officer	1 "

The statistics of 29 firms who keep records of their pregnant workers gave the following figures:

Firm	Pregnancies	Returned to Work
A	12	1
B	20	2
C	37	1
D	11	2
E	50	1
F	13	10
G	21	2
H	21	6
I	24	1
J	9	1
K	3	1
L	48	3
M	12	3
N	11	2
O	4	4
P	6	4
Q	122	8
R	13	3
S	25	4
T	57	2
U	17	3
V	17	3
W	57	7
X	17	3
Y	24	3
Z	1	1
AA	1	1
BA	4	1
CA	9	2
	666	85

One firm commented: "The great difficulty of mothers returning to work is the lack of day nurseries. The unmarried mothers, unless they have sympathetic parents, are forced to have their babies adopted, often against their will. Many married women would like to return to work if there were facilities for these very young babies." Another stated: "Two girls returned to work after one month—both through financial difficulties." None of the firms quoted had an antenatal clinic of their own.

Summary of Conclusions

Surprisingly few mothers return to work after confinement. In our own series only 18 out of 83 had returned to any work, excluding housewife duties, up to 17 months after confinement.

Death of the baby or financial matters were the main reasons given for the return to paid employment.

From our experience of the normal working mother we conclude that six months is a reasonable time after pregnancy for return to work to be considered.

We are grateful to Mr. R. R. Hyde of the Industrial Welfare Society, Dr. Katherine Bain, and Dr. Barbara Ann Hewell of the Children's Bureau, U.S. Department of Labor, for their co-operation, and to Sister Harwood of our own works antenatal clinic.

S. Solomon, M. Kaslik, and N. Kiven (*Ann. intern. Med.*, 1944, **21**, 639) record three cases of periarteritis nodosa in which the condition was diagnosed during life and confirmed at necropsy. The diagnosis should be considered in patients with prolonged fever of unknown origin who have irregular or baffling symptoms referable to many parts of the body. A biopsy will usually reveal characteristic changes in the smaller arteries. The disease is probably an allergic reaction to many different antigens. There is no specific treatment.

Medical Memoranda

A Diagnostic Problem: An Unusual Case of Hepatitis

The following case is interesting in view of the prevalence o hepatitis. A girl aged 13 months was admitted to the hospita on Sept. 6 as a case of notified cerebrospinal fever (post-basic). Except for occasional "snuffles" the history disclosed nothin abnormal until two weeks before admission. She was the said to have had an attack of bronchopneumonia, treated fo four days with 8 g. of sulphathiazole. Subsequently the chil had been fretful, and for two days before admission there ha been neck rigidity, head retraction, and persistent vomiting.

CLINICAL HISTORY

On examination the child's condition seemed satisfactory—T. 97°, P. 120, R. 26—but she was irritable and had a stiff neck wit head retraction; Kernig's sign and Brudzinski's reflexes were negative. The gums were inflamed owing to teething, and the liver wa palpable two fingerbreadths below the right costal margin, the uppe limit of superficial dullness being percussed at the fifth interspace Lumbar puncture was performed. The fluid was clear and unde normal pressure, and contained "2 leucocytes per c.mm., protei 10 mg., globulin 0, chlorides 770 mg., sugar rather in excess. W.R negative."

During the next three days the (presumable) meningism disappeared and vomiting ceased. The stools remained norma throughout the illness, while the urine contained a trace of albumin On Sept. 10 a swelling appeared in the right renal angle. It wa hard, deep-seated, immobile, but not attached to adjacent bon structures, and was associated with slight oedema of the overlyin skin. On Sept. 11 the lump was larger and softer, but its natur remained obscure. At 4.30 p.m. precisely that afternoon the chil screamed violently, became cyanosed, and appeared to be in pain On examination her colour was ghastly, her extremities cold, puls impalpable, temperature subnormal, and respirations about 80 pe minute. She was gravely ill, and the dramatic suddenness of th change suggested a catastrophe such as an internal haemorrhage o spontaneous pneumothorax. No thoracic signs were elicited, but th liver was over five fingerbreadths below the right costal margin while the upper limit of superficial dullness was level with the sixt rib on percussion.

Surgical advice was sought, and Mr. Kennedy of Plymouth kindl saw the child. Nevertheless, no diagnosis was made, and the onl course available was treatment for shock on the usual lines. B 8.30 p.m. her condition had improved slightly—T. 98.4°, P. ?160 R. 88—and the liver was only three fingerbreadths below the costa margin, but at 10.35 p.m. she collapsed and died, her malad undiagnosed.

POST-MORTEM EXAMINATION

The necropsy was performed by Dr. M. R. Thomas, with the kin permission of Dr. Wordley. Externally there were no distinctiv marks and the lumbar swelling noted during life had disappeared About half a pint of haemorrhagic fluid was found in the righ pleural cavity. Otherwise, apart from petechial haemorrhages o the serous surfaces and a small pericardial effusion, the heart an lungs seemed normal. In the abdomen half a pint of bile-staine ascites was found. The liver was tremendously enlarged an engorged, and the cut surface was yellow. The hepatic artery an biliary system appeared normal, as also the duodenum and othe viscera, though the right kidney was displaced backward into th loin by the enlarged liver, thus accounting for the mysterious lumba swelling.

Histologically, the liver showed generalized parenchymatou necrosis, particularly marked in the portal zones. There was neithe hyperplasia of liver cells nor bile-duct proliferation. The organ wa stained and examined for spirochaetes, but none was seen, nor wa evidence of syphilis found. Other organs showed no special change except scattered petechial haemorrhages.

DISCUSSION

It is unfortunate that investigations, including blood count and urine analysis, were not done, but precise indications wer wanting until too late. First, the cause of the meningism remains obscure. It might have been due to the hepatic lesio or even to "teething." It should be remembered that occasionally meningism is a marked feature of intolerance to su phonamide therapy, particularly in cerebrospinal fever—a highl improbable cause in this instance, however, eight days late Alternatively Weil's disease with a meningeal onset merits consideration, but it is unlikely that such a case would have bee apyrexial throughout, nor were any spirochaetes demonstrated

The puzzling lumbar swelling received satisfactory explanation at necropsy. More difficult of explanation was the sudde and catastrophic deterioration in the child's condition, wit apparent hepatic displacement and enlargement. The rapi accumulation of a haemorrhagic pleural effusion—singula indeed in respect of the complete absence of physical signs i the chest—was probably largely responsible. Sudden cardia ailure may also have aggravated the general condition and ncreased the size of the liver from acute passive congestion. No doubt the various effusions and petechial haemorrhages were direct consequences of hepatic failure.

In view of the extensive necrosis it is perhaps surprising that jaundice was completely absent. Either the liver destruction was too rapid or this was really an example of extreme atty degeneration of the organ following an acute infection —bronchopneumonia in this instance, as was stated in the hisory. The latter explanation, however, was not supported by the histological findings, but certainly the possibility of a fulminating virus hepatitis cannot be completely excluded.

Lastly, of drugs sulphathiazole alone was given, to a total of 8 g. two weeks before death. Fatal cases of hepatitis are nown to have followed sulphonamide therapy, and symptoms ave not always declared themselves until after the final withdrawal of the drug. Of all possible causes, this does seem he most feasible; but, unfortunately, the available evidence is nconclusive.

I am indebted to Dr. T. Peirson, medical officer of health for Plymouth, for ermission to publish this case; to Dr. D. F. Johnstone, medical superintendent f this hospital, for his interest in the preparation of the paper; and to r. M. R. Thomas for the post-mortem examination and preparation of stological material.

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Splenomegaly in Bacillary Dysentery

As we have not found a reference to splenomegaly in dysentery n the limited amount of medical literature which we have been ble to search we think the following account of a series of ases may be of interest.

A SERIES OF CASES IN THE MIDDLE EAST

Enlargement of the spleen was found in 50 (5.77%) out of a otal of 866 cases of bacillary dysentery admitted to a general ospital in the Middle East between Aug., 1943, and Jan., 1944. The cases had occurred regularly throughout this period. There was no evidence of the presence of any other disease which might have caused splenic enlargement. In none of the cases was there any lymphadenopathy or clinical evidence of anaemia. At least one blood slide was examined in each case, but no malaria parasites were discovered. Only four cases gave a istory of previous single attacks of malaria—10/12, 2, 3, and years previously. Three cases were not included in the series, as it was considered malaria might be the cause of the splenomegaly, two of the patients being Cingalese and the other a British "other rank" who gave a history of three attacks of malaria two years previously. Three other cases were excluded, n two of which the splenomegaly persisted for 21 and 28 days espectively, and in the third there was a history of two attacks f short-term fever in the previous two months. It seems nlikely that enteric fever could produce this almost constant icture of sudden onset of diarrhoea, associated with blood and mucus in the stools, fever for 2 to 3 days, absence of rose spots, and fitness for duty in 10 to 12 days.

Twenty of the patients had been in the Middle East for less han four months, and of these eight had been abroad for only our weeks or less. The cases were not confined to one partiular camp, but were admitted from various surrounding sites ver a wide area.

CLINICAL DETAILS

Except for the splenomegaly all the patients showed the sual clinical features of bacillary dysentery. They were of the mild or moderately severe type. The average duration of diarrhoea was 2.88 days (maximum 10 days; minimum 1 day— cases). The temperature on admission ranged from 99° to 02° in 38 cases, but in 12 there was no fever. Two cases were brile for 3 and 5 days respectively, but the remainder had normal temperature after 48 hours.

In 46 cases blood and mucus appeared in the stools; 23 ases on microscopy showed bacillary exudate and 27 cases definite exudate; 4 cases had liquid stools with mucus and howed indefinite exudate. Of 31 cases in which a culture was erformed 13 showed the Flexner bacillus (Flexner I, 3 cases; lexner II, 6 cases; undetermined, 4 cases) and 18 showed no athogens.

In 49 cases the spleen was palpable on the day of admission nd in one on the day after admission (3rd day of disease). n 37 cases the spleen on inspiration reached a point 1 fingerreadth below the costal margin, in 10 cases 2 fingerbreadths, nd in 3 cases 3 fingerbreadths. In 43 cases the spleen remained alpable for 2 to 6 days only, but in 7 cases the edge could st be felt on discharge from hospital on the 15th to 18th day disease. In one of these cases, which it was possible to review, the spleen was no longer palpable 3 months later. Total and differential white blood cell counts were carried out in 22 cases. No constant abnormality was present. The average total was 6,959 (maximum 15,300, minimum 3,200). The average proportion of polymorphonuclear leucocytes was 62%.

DISCUSSION

The cause of the splenic enlargement in these cases is not understood. As already stated, malaria, enteric group fevers, and other obvious causes of the splenomegaly were excluded. It is suggested that it is a non-specific phenomenon, and this is borne out by the fact that similar splenic enlargement was found to occur equally commonly in certain other infectious diseases in the Middle East (Illingworth, 1944, personal communication). Illingworth reported that splenic enlargement occurred in 6.3% of 221 cases of diphtheria seen by him, 5% of 81 cases of tonsillitis, 7.8% of 42 cases of scarlet fever, and 5.3% of 38 cases of measles. In only 4 of these cases was there a previous history of malaria and in no case was there any other discoverable cause for the splenomegaly. In all except one case the splenic enlargement had subsided within a fortnight of the onset of the infection. It is interesting that the frequency of splenomegaly in these infectious diseases was approximately the same as that of the cases of bacillary dysentery reported above.

We are indebted to Major R. S. Illingworth for his invaluable help and also to Lieut.-Col Bodley Scott for his criticism and advice. We should also like to thank Col. W. B. Stevenson, officer commanding a Middle East general hospital and Brig. W. K. Morrison, officiating D.M.S., M.E.F., for permission to publish this article.

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Jaundice during Arsenotherapy

In view of the general interest taken in the causation of jaundice during arsenotherapy, it may be of value to record some observations made at the neurological clinic, Metropolitan Hospital, on a consecutive unselected series of 12 cases. These patients were all suffering from neurosyphilis; their ages ranged from 13 to 64 years. Treatment has consisted of intramuscular or subcutaneous injections of 3 c.cm. of acetylarsan (May and Baker), together with 0.5 c.cm. of intramuscular bismostab in courses of 10 to 12 injections, with intervals of one month. Potassium iodide orally was also given. By the use of this preparation of arsenic given by these routes over a period of 2 to 4 years, possible transference of minute quantities of serum from patient to patient, as suggested by Major Salaman (1944) to be a potential cause of jaundice, is avoided.

These patients were carefully observed while undergoing treatment, and it is significant that not a single case of jaundice occurred. This suggests that where the intramuscular or subcutaneous rather than the intravenous route is used there is little likelihood of jaundice occurring. This seems to be supporting evidence for the belief that the hepatitis which is sometimes produced during arsenotherapy is not a direct toxic effect due to the arsenic but is rather of an infective origin, as is now thought to be the case in homologous serum jaundice or in the jaundice occurring after yellow-fever vaccination. Particulars of the cases are as follows:

Case	Sex and Age	Disease	W.R.	Commencement of Arsenotherapy	No. of Courses	No. of Inj.
1	M 55	Meningo-vasc. syph.	+	Mar., 1941	4	10
2	M 13	Cong. G.P.I.	+	" "	5	12
3	F 49	A.R. pupils ? Syph. died out	−	" "	2	12
4	F 36	Meningo-vasc. syph.	+	Nov., 1941	5	12
5	F 36	Cong. tabes dorsalis	+	Nov., 1942	5	12
6	M 57	Meningo-vasc. syph.	+	Feb., 1942	5	12
7	F 33	G.P.I.	+	Apr., 1942	4	12
8	F 49	Tabes dorsalis	+	June, 1942	4	12
9	M 56	Meningo-vasc. syph.	+	Aug., 1942	4	12
10	F 36	Cong. tabes dorsalis	+	Nov., 1942	3	12
11	M 55	Taboparesis	+	June, 1943	3	12
12	M 41	"	+	Aug., 1943	3	10

Cases 2 and 7 received malaria therapy previously. All the above cases now have a negative Wassermann reaction.

I wish to thank Dr. Worster Drought and Dr. N. G. Hulbert for access to the case records, and the latter also for his kind help and advice.

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Reviews

PARASITIC PROTOZOA OF MAN

Manual of Human Protozoa: With Special Reference to their Detection and Identification. By Richard R. Kudo, D.Sc. (Pp. 125; illustrated. $2.00 post paid or 11s.) Springfield and Baltimore: Charles C. Thomas; London: Baillière, Tindall and Cox. 1944.

This little book is likely to be of considerable value to those who are taking up for the first time the study of the parasitic protozoa of man. It gives clear and concise descriptions of the various protozoa, outlines of their life-histories, and the methods of their transmission, whether contaminative or inoculative. The illustrations, usually original, are for the most part excellent. That of *Trypanosoma gambiense* could be improved, for it does not depict the three forms which are characteristic of the group of polymorphic trypanosomes to which this type belongs. The same remark applies to the illustration of *T. rhodesiense,* though here the posterior nuclear forms are shown. On the subject of transmission of oriental sore the sandfly is rightly blamed, but the author appears not to be aware that there is equally strong evidence of the sandfly as a vector of kala-azar. In addition to the description noted above, chapters are devoted to the technique employed for detecting the protozoa of the digestive tract and those of the circulatory system. As culture methods are advocated for leishmania and trypanosomes, it would not have been out of place to refer to cultivation of the intestinal protozoa. There is a chapter on the coprozoic protozoa, which, developing in stale faeces, must not be confused with the forms parasitic in the intestine, while various extraneous objects which may occur in faeces and can lead to errors in diagnosis are noted. Similarly reference is made to objects which may contaminate blood films and be mistaken for malarial parasites or other organisms.

The book, which is beautifully got up, contains in a small space a great deal of useful information. Undoubtedly it will fulfil the author's hope that it will serve as a practical guide to those who contemplate the detection and identification of the human protozoa.

THE LIVING CELL

What is Life? The Physical Aspect of the Living Cell. By Erwin Schrödinger, Senior Professor at the Dublin Institute for Advanced Studies. (Pp. 91. 6s.) Cambridge: The University Press. 1944.

It is not long ago since the gulf between the living and the non-living was regarded as impassable, but now the increase of knowledge in the sciences of microbiology, chemistry, and physics makes it seem that the solution of the problem of making life in the laboratory only just eludes us. In these lectures, now presented in book form, a very distinguished physicist makes his contribution to that solution. First he points out that modern physics is largely statistical—that is, it deals with tendencies in very large numbers, though it is well known that individual units in these large groups behave very differently from the group as a whole. This may be illustrated by the random heat movements of units contrasted with the orderly movement of magnetism or the Brownian movements of an individual droplet in a uniformly sinking fog.

So far physical laws have applied to a periodic crystal, whereas the chromosome fibre, the most essential structure in a cell, may be of the nature of an aperiodic crystal, for which different laws must be invoked to explain its properties. The division of the chromosomes and the mutations on which heredity and evolution depend are next considered. The gene unit is probably a molecule—i.e., a relatively stable collection of a comparatively small number of atoms which only occasionally change their relationships (mutation). These changes may be compared to the quantum jump familiar in ordinary physics. Delbrech's model is discussed in relation to mutations, and it is suggested that the difference between living and non-living substances is that between negative and positive entropy, the living material absorbing orderliness (negative entropy) from the environment, thus delaying its decay with thermodynamical equilibrium (death). The power of absorbing orderliness seems to Dr. Schrödinger to depend on the presence of aperiodic solids, the chromosome molecules in living matter If this can be accepted it removes the pessimistic view of th physicist that the ultimate fate of the universe is to "ru down" into universal death.

To all who are philosophically inclined this little book wil prove fascinating, but the hard-boiled materialist will probabl be well advised to pass it by.

A RED INDIAN TRIBE

The Navaho Door. An Introduction to Navaho Life. By Alexander H. Leighton and Dorothea C. Leighton. Foreword by John Collier, Commissioner of Indian Affairs. (Pp. 149; illustrated. $4.00 or 22s. 6d.) Massachusetts: Harvard University Press; London: Oxford University Press. 1944.

There are some 370,000 Red Indians in the U.S.A., one hal full-blood and the other half mixed—chiefly with whites, som being negroid. There are 200 tribes speaking as man languages; but about 56,000 Indians know only their ow tongue. *The Navaho Door* deals with the tribe that occupie the Navaho Reservation—by far the largest of these settlements; it is in the south-west of the United States.

The authors of this book, Drs. A. and D. Leighton, under th aegis of the U.S. Indian Service, have studied this tribe fro social, cultural, medical, and psychiatric points of view Americans have made a world-wide specialty of cultura relationships, entailing much labour of concentrated though concerning the minds and bodies of the people they ar observing. They thereby gain experience in race tolerance an the source of future international peace. But with the purpos of bettering the faulty social characteristics of the Red Indian these people have been despoiled of all they had to offer—cheap labour and land.

The authors supply general information about the Navahos and, because they are both physicians, they devote a good dea of space to health problems, improvement of the ways th sick are handled in their homes, and the methods adopted t teach the benefits of early admission to hospital. Life-historie are given in detail in order to gain personal knowledge o how the Navahos view their lives in health and disease. Thoug the science of anthropology is dealt with in a rather cursor manner, the book is a close and interesting study of a nativ race living in an outpost of civilization. There are thirty-fou striking photographs to illustrate the text. The price ma however, lessen the wider circulation that this volume deserve

Notes on Books

One of the undertakings of the Charity Organization Society i the compilation of an *Annual Charities Register and Digest,* of whicl the 52nd edition, for 1945, has now been published by Longmans Green and Co. As in former years, this gives information abou the societies, associations, and other bodies that provide relief i affliction and distress of all kinds; it is in fact a classified registe of charities in or available for the Metropolis. There are 43 sections the last three dealing with special war organizations, hostels fo H.M. Forces, and refugees; there is also a full index. Copies (pric 10s. 6d.) may be had from the C.O.S., Denison House, Vauxha Bridge Road, S.W.1, or from the publishers.

For Childless Wives, by a doctor, is a simply and clearly writte pamphlet of 16 pages published for the Family Planning Associatio by H. K. Lewis and Co. Ltd. It is written for the benefit of steril couples so that they may know what the problem is and how it ca be tackled. Any practitioner who wants to give such informatio to his sterile patients will find this pamphlet the easiest way of doin it. As Lord Horder observes in a foreword, "There is a specia and a growing need to instruct husbands and wives as to the step they should take in respect of the wanted child which fails t arrive." An edition of this pamphlet for clinics and hospitals is t be sold at 6d.; the edition for the public is to be sold at 2s. Th work of the Family Planning Association depends on voluntar subscriptions, and presumably it is hoped that the sale of th pamphlet at the latter price will bring in money for the developme of clinics.

R. F. Watson, S. Rothbard, and H. F. Swift (*J. Amer. me Ass.,* 1944, **126,** 274) state that penicillin in doses ranging fro 1,975,000 to 3,470,000 Oxford units, given over a two-week perio to eight young adults with acute rheumatic fever, apparently faile to alter the course of the disease.

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WAR SURGERY IN THE U.S.S.R.

"The Russian soldier is safe in the hands of the Russian surgeon": with these words Sir Ernest Rock Carling summarized the impression formed by British surgeons after their visit to the Soviet Union eighteen months ago. One of the features which most impressed the visitors from this country was the organization of military surgical services in the Red Army. In forward areas, up to a depth of 50 to 100 miles, treatment of the wounded is the responsibility of the chief surgeon of the Red Army Medical Corps, Colonel-General Smirnov—an alert, forceful, and vigorous young man whose contribution in this week's *Journal* emphasizes the reality with which his task has been faced and the success with which it has been accomplished. The Red Army surgeon is a soldier as well as a doctor; he recognizes that organization is "determined more by the military situation than by purely medical consideration"; he knows that his first task is "to return the maximum number of wounded to the ranks"; and he directs lightly wounded not to the usual lines of evacuation but to a special local hospital so that rapid return to the front line is assured. For the more seriously wounded, specialist treatment is provided not only in base hospitals but in forward zones. Within a few miles of the front line there is segregation of cerebral, facio-maxillary, thoracic, and orthopaedic cases. Such a plan is ideal. But the difficulty is at once apparent. How is it possible to provide the necessary number of specialist surgeons? General Smirnov gives two answers to this question. The first may be unavoidable, but it nevertheless has drawbacks: "Success in this respect has only been possible in accordance with a simple doctrine based on the following principle . . . a single school of thought with uniformity n methods of prophylaxis and treatment." Such uniformity s characteristic of Soviet Medicine. On reflection it is difficult to conceive how it could have been otherwise. Thirty years ago there were thirteen medical faculties for the whole of the vast continent of Russia; to-day no fewer than 25,000 doctors qualify every year. Is it possible that o vast a problem could have been solved in so short a ime without standardization and uniformity? Is it posible that a similar demand, created by the exigencies of war, could have been met without "a single school of thought"? It is noteworthy that this solution has also been adopted by the medical services of the United States Army, so that, for example, every fracture of the shaft of the humerus sustained by an American soldier in Europe s treated, in accordance with directions from Washington, by skeletal traction from the olecranon. But let it be emembered that surgical standardization is a special solution of a special problem. As Watson-Jones recently maintained in discussing the orthopaedic service of the Royal Air Force: "Central dictation of technique is the easy method of assuring a uniformly high standard, but from the point of view of surgical progress it is the pernicious method." The second answer given by General Smirnov to the problem of rapid development of specialist services is one that might be expected from a young and virile organization which can appoint as its chief surgeon a man who has not yet reached the age of 40: "The whole Red Army Medical Corps, from general to private, is being systematically trained. It is studying the new experiences which have been gained. . . . The Red Army medical service does not stand still." This is the triumph of youth —a triumph which is engaged not so much in recording the successes of the past as in facing the problems of the present and the future.

After treatment in forward areas the wounded of the Red Army are evacuated to civilian hospitals in the rear under the direction of the Commissar of Health, assisted among others by Prof. Priorov, chief surgeon of the R.S.F.S.R. and director of the Moscow Institute of Traumatology and Orthopaedics, and Dr. Kotov, director of the Ukrainian Institute of Orthopaedics and Traumatology in Kharkov, both of whom contribute articles to this week's *Journal*. These two surgeons have honoured us by their visit to this country, and have commanded the respect and esteem of every British surgeon with whom they have come into contact. Our sympathy goes out to Prof. Priorov, whose knowledge of Britain has been amplified by long residence in a nursing home, recovering from a serious operation. We can wish no more for him than he claims for the victims of amputation: "Only work can complete their rehabilitation; only work can heal their severe psychic wounds and restore their shaken nerves." These are the ideals we also have set ourselves. Rehabilitation through work is the purpose of our Disabled Persons (Employment) Bill. The problems of treatment of the war disabled in the Soviet Union and in Britain are the same; we are dealing with them in the same way. We can learn from each other.

At this moment we may look with admiration at the way the medical organization of the Red Army is standing up to the immense strain imposed on it by the tremendous onslaught of the Russian Marshals on the Eastern Front. At such a time it is a privilege to be able to publish in these columns articles by Russian surgeons which afford the British reader a glimpse at their problems and at the way they set about solving them.

THE POWER OF THE PURSE

Medical men and women will read with interest a reply given by Mr. Willink in the House of Commons on Jan. 18 to a question on the Goodenough Report on Medical Education.[1] He said that the Government, recognizing the importance of medical education and research, had accepted the principle of increased grants for these purposes to be distributed by the University Grants Committee, through universities to medical schools, postgraduate schools, and institutions and hospitals used for teaching and research. The Government shared the views of the report "on the importance of affording to women equal opportunities to those enjoyed by men for medical training and for obtaining postgraduate experience." It has therefore decided that the payment of grants to medical schools will depend upon whether or not they adopt the principle of admitting a "reasonable proportion" of students of both sexes. There is logic in this situation which even the most hardened antifeminist must accept. If the country needs doctors, as it does, and needs women doctors also, as it does, then the Government can hardly be expected to make an exclusive subsidy for male students. All the same, educationists, looking at education from the wider standpoint, may wonder whether it is wise generally to enforce co-education by the threat of the purse.

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[1] *British Medical Journal*, Jan. 27, 1945, p. 136.

But when we read in the same reply that the Minister is using the same threat in what seems to be an attempt to arrogate to himself powers belonging constitutionally to another body we may well feel alarmed. "The Government," it is stated, "attach equal importance to the revision of the medical curriculum, and acceptance of the principle of increased grants for medical education and research is dependent on the early completion of this process." Having delivered this edict, Mr. Willink adds that the Government is "glad to learn that, as recommended by the [Goodenough] Committee, the G.M.C. has already taken the initiative in the matter." Unless we have misread this statement of Government policy it appears that, through its Ministry of Health, the Government is doing two things. It is first of all threatening to withhold money from medical schools, who are not responsible for revising the medical curriculum, unless the curriculum is revised by licensing bodies, who are responsible for any such revision (it insists on "early completion"). The Government is, in fact, using the power of the purse to coerce those responsible for teaching medical students. Secondly, it is abrogating the functions of the G.M.C. and, by implication, is questioning its efficiency in maintaining standards of medical education.

The Goodenough report is a significant, if rather verbose, contribution to the subject of medical education. The Royal College of Physicians recently published an equally authoritative and more succinct report on the same subject. The B.M.A., too, was early in the field, with a sane pronouncement on the eternal theme of medical education. From these and other sources those responsible for medical education will seek inspiration and will weigh in the balance the findings and recommendations of the Goodenough as of other committees. But is it the intention of the Ministry of Health to try to enforce revision of the curriculum on the strength of the conclusions reached by a committee of its own choosing? And is it to do this by the rather vulgar trick of withholding money meant for education and research? Has the Minister of Health forgotten that the responsibility for maintaining standards of medical education lies with the General Council of Medical Education and Registration, to give the G.M.C. its full title? The G.M.C. is a statutory body set up by the Medical Act of 1858. It maintains standards of medical education by indicating to licensing bodies in the form of recommendations what it will regard as an adequate minimum curriculum, and by satisfying itself, through inquiry, visitation, and inspection, that no particular curriculum is in this sense inadequate. If it is not so satisfied it may make representations to the Privy Council, which, on review of all the evidence, may suspend the right of a licensing body to qualify men to practise. This provides a check to hasty and ill-considered action. If the G.M.C. defaults in its duties the Privy Council may require it to mend its ways, and indeed may exercise the powers of the G.M.C. if it does not do so. There seems to be no call for this latest intervention of the Ministry of Health in a matter in which the constitutional responsibility of "the Government" has rested primarily, ever since a *Medical Register* was first compiled, with the Lord President of the Council as the Ministerial head of the Privy Council Office.

BAROTRAUMA

Experimental observations by Armstrong and Heim[1] on five healthy men are the foundation of accurate knowledge of the physiology of the Eustachian tube in aviation, though the work was published only seven years ago. These men were subjected to changing rates of pressure varying from 5.4 mm. to 27 mm. of mercury per minute, corresponding to 200 ft. to 1,000 ft. of altitude per minute, through ranges of pressure from 141 mm. to 760 mm. of mercury, corresponding to 0 ft. to 40,000 ft. in altitude. By decreasing the pressure from sea level (760 mm.) at a constant rate it was found that a change of 3 to 5 mm. of mercury, corresponding to 110 to 180 ft. in altitude, was required to produce any effect. The discomfort increased until at 15 mm. of mercury, or 500 ft. in altitude, an involuntary click was felt in the ears and the sensation of fullness was relieved. Succeeding clicks occurred at intervals of 11.45 mm. of mercury, or 435 ft. of altitude, the succeeding clicks during ascent corresponding rather to change in altitude than to identical differences in rarefaction: tha is to say, that during ascent the Eustachian tubes open involuntarily and equalize the pressure in the tympanum with that in the atmosphere outside. In descent, however the effect of changing pressure is different. The Eustachian tubes remained closed under all degrees of pressure, and finally the tympanic membrane ruptured unless the tube were opened by the act of swallowing, which become impossible when a negative pressure of 80 to 90 mm. o mercury is produced in the middle ear. Frequent voluntary acts of swallowing are necessary, therefore, to maintain pressure equilibrium. The effect on the middle ea was called acute aero-otitis media, and the discomfort and deafness from the retraction and stretching of the tympanic membrane caused by repeated exposure to this form o injury were symptoms of a chronic form. There is, however, no inflammatory change, unless it be a secondary effect of the injury, and therefore in the interests alike o accuracy and euphony the term otitic barotrauma has now taken its place and has been adopted by the R.A.F.

Since then barotrauma has played an important part i the problem of maintaining the fitness and efficiency o air crews, and the effects have been studied both clinicall and in a decompression chamber designed for the purpose. Pain, deafness, tinnitus, and occasionally vertig are the symptoms, naturally of varying degree, and are relieved as soon as the pressure equilibrium is restored by swallowing, by Valsalva's experiment, politzerization or even Eustachian catheterization, or by re-ascent. Objective physical signs may be scarcely seen, but varying degrees of congestion of the tympanic membrane and middle ear may be observed, as shown in some beautiful coloured plates from drawings by McGibbon.[2] Haemorrhages, effusion into the middle ear, and even rupture of the membrane may occur. Although the prognosis is good the condition is common and temporarily disabling, not only to the individual but, as R. M. S. Matthews[3] has emphasized in this *Journal*, also to the crew of which he is a member if he should be rendered unable to go into action even for one day. The cardinal factor in the production of barotrauma is obviously Eustachian obstruction, which may be of a degree sufficient to cause only trivial or negligible symptoms at ground level, but enough to prevent free ventilation at changing altitudes, especially rapid descent, and so cause barotrauma. Ordinary clinical examination and testing in the decompression chamber will suffice to eliminate a number of those particularly liable to develop acute barotrauma, estimated by Dickson[4] at 8.9%. Any measures which will lower the incidence of infectious coryza are important in eliminating acute Eustachian catarrh, and some responsibility must rest on the medical officer in making the decision whether a member of an air crew may or may not fly if he has a cold in the head. It may be added that similar considerations apply to the accessory sinuses of the nose, for, although they possess no such active mechanism as does the Eustachian tube, changes of pressure may cause acute and disabling pain if the ostium, particularly of the frontal sinus, becomes obstructed.

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[1] *J. Amer. med. Ass.*, 1937, **109**, 419.

THE B VITAMINS AND HARD WORK

It has often been stated that diets very deficient in vitamin B will cause serious physical and psychological deterioration after a few days' hard work. In their studies on induced vitamin B_1 deficiency in human volunteers R. D. Williams and his collaborators[5] reported a syndrome closely resembling that of neurasthenia: muscular atony and tenderness, nausea, vomiting, faint heart sounds, changes in the electrocardiogram, tachycardia, lowered blood pressure, apathy, photophobia, anorexia, abdominal distension, paraesthesiae, and fatigue. Psychological disturbances included depression, fear, irritability, inattention to details, confusion of thought and memory, headache, insomnia, tenseness, intolerance of noise, and increased sensitivity to painful stimuli. These manifestations, however, appeared only after prolonged vitamin B_1 deficiency, and the subjects of the test did not perform heavy work. Similar observations were reported by other workers.[6] [7] Jolliffe[6] reported deficiency symptoms—anorexia, dyspnoea on exertion, precordial pain, palpitation, and fatigue—as early as the third day in subjects on a diet poor in vitamin B_1. Johnson and his colleagues[8] subjected ten volunteers to hard physical work on diets deficient in the vitamin B complex and reported fatigue, deterioration in physical fitness, muscle pains, and poor appetite after a few days. Egaña and others[9] made similar observations on men doing manual labour. Barborka, Foltz, and Ivy[10] also noted that diets poor in vitamin B and riboflavin produced symptoms of easy fatigue, irritability, anorexia, and pains in the leg in men doing active physical work. More recently Archdeacon and Murlin[11] observed that muscular endurance is greatly decreased on a diet low in the vitamin B complex and providing only 0.27 mg. of vitamin B_1 daily.

These observations, which have been generally accepted, are now challenged by Keys and his co-workers,[12] who claim that they were not made under sufficiently controlled conditions. They kept eight men doing severe and exhausting physical work for 14 days on a diet providing only 0.16 mg. of vitamin B_1, 0.15 mg. of riboflavin, and 1.8 mg. of nicotinic acid per 1,000 calories daily—less than a third of the computed daily requirements of subjects performing heavy work. Comprehensive clinical examinations, psychological tests, and objective tests covering endurance, anaerobic work, speed, co-ordination, and muscle strength failed to show any significant changes in the subjects on the diet. The men were admittedly rather stiff and sore, but this was attributed to hard work on the treadmill. There were no significant changes in blood lactate and pyruvate, which are said to rise in subjects doing heavy work on diets deficient in vitamin B_1. Keys and his co-workers attribute the subjective symptoms described by Jolliffe, Johnson, and others to suggestion, as they are of the vague type commonly associated with the neurotic patient. They also criticize the conditions of experiment: a group of sedentary laboratory workers, conditioned to expect certain effects, were suddenly put to unaccustomed physical work and given a peculiar and monotonous diet. In other words, certain results were anticipated and obtained. In the test devised by Keys the subjects spent a control period of three weeks performing heavy physical work on a controlled standard diet. Then they were given the deficient diet while performing the same heavy work. Further investigation is plainly needed to reconcile these contradictory observations, particularly in view of the recent statements that biosynthesis of vitamin B_1, riboflavin, and nicotinic acid may occur in the human intestine,[13-15] and so complicate all human experimental work with these vitamins.

SHOCK THERAPY AND CONDITIONED REFLEXES

While the beneficial results of shock therapy in schizophrenia are widely accepted, the way that treatment works has remained a mystery. The hypothesis of von Meduna[16] was that, since epilepsy is rarely observed in patients with psychosis, the subjection of psychotic patients to epileptoid convulsions might improve the psychosis. But what do we know of the effect of convulsions on the nervous system? Some interesting results have lately been obtained by E. Gellhorn.[17] With Darrow[18] he first studied the action of leptazol on the systems of the cat which are innervated by the autonomic. They demonstrated that leptazol not only caused convulsions but had other effects which could be observed when the convulsions were prevented by curare. Thus leptazol caused a fall of blood pressure, a dilatation of the pupil, a contraction of the nictitating membrane, and increased sweating. More important than these immediate effects was that for some hours after convulsions had been induced sympathetic reflexes were elicited more readily than before; thus the dilatation of the pupil on stimulating the brachial plexus was increased. They therefore concluded that one effect of leptazol was to heighten the reflex excitability of sympathetic centres.

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[2] *J. Laryng. Otol.*, 1943, **58**, 474.

[3] *British Medical Journal*, 1944, **2**, 523.

[4] *J. Laryng. Otol.*, 1943, **58**, 465.

[5] *Proc. Mayo Clin.*, 1939, **14**, 787; *Arch. intern. Med.*, 1940, **66**, 785; 1942, **69**. 721; 1943, **71**, 38.

[6] *Amer. J. med. Sci.*, 1939, **198**, 198.

[7] *J. clin. Invest.*, 1930, **19**, 153; *Amer. J. med. Sci.*, 1940, **200**, 757.

[8] *J. Nutrit.*, 1942, **24**, 585.

[9] *Amer. J. Physiol.*, 1942, **137**, 731.

[10] *J. Amer. med. Ass.*, 1943, **122**, 717.

[11] *J. Nutrit.*, 1944, **28**, 241.

[12] Ibid., 1944, **27**, 485.

[13] *J. Amer. med. Ass.*, 1943, **123**, 683.

[14] Ibid., 1944, **126**, 357.

[15] *Nature*, 1944, **154**, 270.

[16] *Z. ges. Neurol. Psychiat.*, 1935, **152**, 235.

[17] *Journal-Lancet*, Minneapolis, 1943, **63**, 307.

[18] *Arch. internat. Pharmacodyn. Thérap.*, 1939, **62**, 114.

More impressive, however, is Gellhorn's[17] recent work on conditioned reflexes. He placed a rat in a cage divided into two parts by a low partition over which it could jump. An electric current was passed through the floor on which the rat stood, so that when it got a shock it jumped to the other side of the cage. The conditioned reflex was developed by ringing a bell for 2 seconds before applying the shock. By repeating the combination of the sound of the bell and the electric shock Gellhorn set up a conditioned reflex, so that the rat would jump from one side of the cage to the other when the bell was rung and no shock was applied. Having developed this conditioned reflex, he reinforced it for two or three days by applying both bell and shock, and then applied the conditioned stimulus alone, 10 times daily. After 4 or 5 days the rat no longer responded to the bell because, due to lack of reinforcement, the reflex faded. If now he subjected the rat to shock "therapy," either by causing convulsions electrically, or by injecting leptazol, or by injecting insulin and producing coma, then when this experience was over, the conditioned reflex was restored to a greater or less extent and for a longer or shorter time. Electrical convulsions were least effective in restoring the conditioned reflex, being inactive in some rats and only temporarily active in others. Leptazol was intermediate in efficiency, while best of all was insulin coma. Two or three periods of insulin coma, at suitable intervals, often fully restored the conditioned reflex, so that the rat responded every time the bell was rung and continued to do so for as long as 11 or 12 weeks. One other observation of importance was made. Some resistant rats in which insulin coma had little and transitory effect, so that the conditioned reflex was not restored, had injections of thyroxine. The conditioned reflex was then restored even by electrical convulsions, though these were quite ineffective before the thyroxine was given. Gellhorn believes that the action of thyroxine was central because the amount used did not potentiate any peripheral sympathetic effects.

The interest of these results for the clinician is obvious enough, for much good social behaviour depends on reflexes which are induced or conditioned. Gellhorn's work seems to be a fairly accurate experimental reproduction of what is probably happening in shock therapy, and throws quite new light upon it.

EPISIOTOMY

Laceration of the perineum is probably the commonest lesion of childbirth. This has been recognized from the earliest days, and Hippocrates advised the use of oil and hot douches to soften the parts and thus prevent rupture of the perineal tissues. The importance of preserving the perineum intact, if possible, is rightly emphasized in the teaching of medical students and pupil midwives. In a recent article in this *Journal*[1] J. D. S. Flew suggests, however, that the attempt to preserve an intact perineum may be made at too great a cost. Not only may the second stage of labour be prolonged, with harm to the mother and child, but overstretching of the vaginal walls and their supports may lead to prolapse, particularly to cystocele. The vaginal walls may also be lacerated, even though the perineum remains intact. Such lacerations may go unrecognized and thus be left unrepaired, with consequent risk of sepsis. Because of these dangers Flew recommends early episiotomy in all cases in which delay in the second stage of labour is caused by the resistance of the perineal tissues.

In spite of the best obstetrical skill, spontaneous laceration of the perineum is inevitable in many cases. The question then arises whether it is better to allow the perineum to tear or to anticipate this by a deliberate incision of the tissues. The difference between a minor laceration and an episiotomy is probably slight. It is rarely easy, however, to judge where a spontaneous laceration will end, and it may extend into the rectum. Such lacerations are often ragged and accompanied by much bruising of the tissues, which makes their repair difficult. Flew therefore advocates early episiotomy, and his view has been supported in a letter to these columns from T. N. A. Jeffcoate,[2] who, while he does not agree that episiotomy will prevent prolapse of the uterus in all cases, believes it to be particularly valuable in the prevention of cystocele. There are many indications for episiotomy. Flew has remarked on its value in cases of foetal distress, as when the head is on the perineum. He also quotes Berlind,[3] who advocated episiotomy in cases of premature delivery in order to prevent cerebral haemorrhage. Forceps cases and breech delivery, especially in primigravidae, are much eased by episiotomy. (Burns and Marshall[4] recommend the injection of 50 c.cm. of 0.5% procaine into the perineum as a preliminary to episiotomy in breech delivery in a primigravida.) Episiotomy is indicated in spontaneous delivery of an occipito-posterior position face to pubes in face presentation, in cases in which the pubic arch is narrow, and in any patient who has previously had a colpoperineorrhaphy or a severe laceration. Episiotomy may also prove of value when it is desirable to hasten delivery—for example, in cardiac or pulmonary disease which calls for a shortening of the second stage.

When should episiotomy be performed? Flew recommends that it should be done when bulging of the perineum is apparent, and points out that an episiotomy performed too early is preferable to one performed too late. Four possible sites for the incision have been described: lateral medio-lateral, median, and multiple small incisions around the vaginal orifice. Of these, most obstetricians prefer the medio-lateral, but Flew describes a J-shaped incision, beginning as a median incision and turning to one of other side to avoid the rectum. In any case it should begin at the midline at the fourchette. Bilateral episiotomy is mentioned only to be condemned, since the blood-supply to the perineum is cut and sloughing may result. The medio-lateral episiotomy can always be extended to give as much space for delivery as is required. After episiotomy the perineum and vaginal walls should be repaired in layers, and this should be done with care. If the incision is medio-lateral it must be remembered that it has been made obliquely and thus must be repaired obliquely Local analgesia should be induced except in cases of operative delivery under general anaesthesia. In the latte it is reasonable, provided the patient's general condition is satisfactory, to continue light anaesthesia while th necessary sutures are inserted into the perineum. In th great majority of cases the results of episiotomy are highl satisfactory, and the incision usually heals by the end o a week. The most usual cause of failure of healing i sepsis, and, when the perineal wound breaks down becaus of this, early secondary repair, as soon as the raw su faces are clean and granulating, should be performed—relatively simple procedure that may save the patien months of discomfort and often permanent disability.

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[1] *British Medical Journal*, 1944, **2**, 620.

[2] *British Medical Journal*, 1944, **2**, 734.

[3] *Med. J. Rec.*, 1932, **135**, 180.

[4] *British Medical Journal*, 1934, **1**, 820.

PERITENDINITIS, OR FOOT-SLOGGER'S NODULE

BY

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This condition is uncommon in peacetime and, to the best of my knowledge, has not hitherto been described, though it must be familiar to the medical officers of all hard-marching units. I have seen many cases in an airborne division in which the men are trained to march up to 50 miles in 24 hours. The lesion presents as a painful swelling over a tendon, and always corresponds to a point of pressure such as a fold in the leather of a boot. It occurs particularly on the tendo Achillis, the tendon of the tibialis anticus, and the flexor tendon of the hallux. Pain comes on during a march and causes alteration of gait and limping or clawing of the toes in an effort to relieve pressure on the tender area. There is characteristically no pain at rest, and this helps to distinguish the lesion from an infective one.

On examination of a recent case there is found to be some firm localized swelling over and round the tendon. The swelling is tender to firm pressure with the fingers, but not nearly so tender as an infective lesion. However, continued trauma by the hard boot-fold is very painful. If the condition is not treated and the offending boot continues to be worn, a hard thickening forms and there is crepitation on movement. Gradually it becomes a well-circumscribed elevated nodule, or often two nodules with a groove between, each about 3/4 in. wide and 1/4 to 1/2 in. thick. The nodule is closely adherent to the skin, but can be lifted off the tendon, and does not appear to be connected with the tendon sheath, when present. On account of the crepitus the early cases are often sent to the specialist with a diagnosis of "tenosynovitis." It might be noted, therefore, that crepitation is most common in the tendo Achillis variety in which there is no tendon sheath. Tendinitis is also becoming a popular diagnosis of unelucidated pathology, but there is no evidence for it here.

When there is a groove between two nodules it is in the groove that tenderness is most pronounced. The groove corresponds to the causative crease or lace. This I have seen most commonly over the tibialis anticus tendon, where it is produced by that cross-piece of the lace which is most nearly opposite to the ankle-joint and is most likely to cut in on dorsiflexion of the foot.

Aetiology

It is usually found either that the sufferer is a new recruit or that he has a new pair of boots or an old pair in which the stiffness of the leather has suddenly given way, forming a new crease. I have never seen the condition occur with really old well-softened boots. Boots which are too large are as likely to cause the condition as those which are tight. In fact, the hallux type occurs typically with boots that are too long and which form a deep crease just behind the toe-cap.

The commonest site for peritendinitis is over the Achilles tendon, as it is here that a fold always forms if the boots are laced to the leg above the ankle-joint. The crease projects forwards as shown in Fig. 1. Tightly strapped gaiters are an important factor in making this crease, and the lower strap of the gaiter should always be quite loose when the foot is plantar-flexed. It would seem that the lesion is caused not by friction on the skin, which produces a blister, nor by pressure, which makes a callosity, but by repeated indentation.

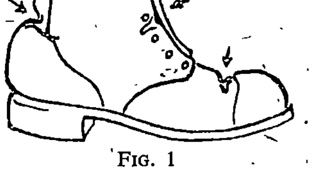


FIG. 1

Since it is only seen in its typical form over a tendon, it would appear to represent the special response of paratenon tissue to this type of trauma.

Pathology

The established nodule is seen, on section, to be a mass of simple avascular fibrous tissue with a very few inflammatory cells. No abnormality of tendon or tendon sheath could be found in the specimens available, but the paratenon fatty tissue was largely obliterated. The skin showed only a little keratinization—within normal limits for the areas concerned. The specimens were from chronic cases. In recent cases there are, clinically, hyperaemia and slight oedema.

Treatment

Removal of the cause is all that is necessary to effect a cure in most cases. If the trauma is discontinued the lumps get smaller and the redness and tenderness rapidly disappear. But there is a marked tendency to relapse, and recurrence is certain if the patient returns to the same boots without dealing adequately with their faults. The boots must be eliminated, softened, or stiffened, according to the indications.

If new boots are supplied the soldier should be warned against softening the back, which should remain stiff and creaseless. He should be told to leave the lower strap of his gaiter quite loose. He should avoid lacing the boots tightly above the ankle, in order that a fold shall not form at the back. If a crease has formed at the back of the boot, softening seldom helps, and it is best stiffened with a small tin splint such as that illustrated (Fig. 2). This functions by curving the leather from side to side and so making it more rigid. The splint may be quite thin, and is easily made with an old pair of scissors out of a cocoa tin. The edges are toothed and turned in as shown, so that the appliance will clip on to the back of an Army boot.

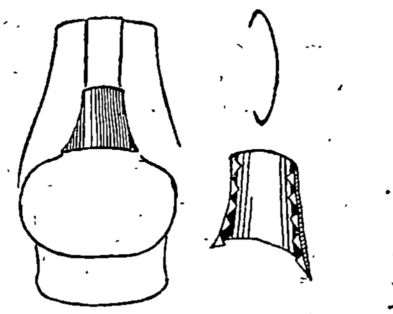


FIG. 2

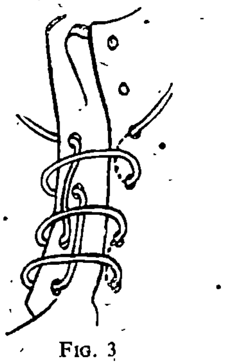


FIG. 3

If a crease has formed just behind the toe-cap and caused peritendinitis over the base of the hallux it is probable that the boots are too long. A crease is also liable to form here when the soles are becoming too pliable and the boots need resoling. Boot trees, or packing the boots with paper at night, help to prevent this crease. Once formed it can be treated by splinting with a patch of leather, or it may be made innocuous by thorough softening with oil. (Dubbin does not soften leather.) The best method, however, is to raise the crease off the foot by sticking a piece of chiropodist's felt about 3/16 in. thick inside the boot. This will often cause the leather to fold outwards instead of inwards.

When the lesion is over the tibialis anticus tendon and is caused by the lace, the soldier should be taught to lace his boots as in Fig. 3, so that the laces do not cross the tendon beneath the leather, but only in front of it. Soft laces should be substituted for leather ones. Lastly, a strip of chiropodist's adhesive felt should be stuck inside the tongue of both boots.

Patients should be excused boots altogether until the area is no longer red and tender, though marching may be allowed in any other footwear that does not cause pain. I am not convinced that any local treatment affects the rate at which the lesion settles, but various counter-irritants are sure to have supporters. Injection of novocain round the swelling is a good first-aid measure, and is invaluable if the symptoms come on during a long operational march, but it will not cure the condition. Injection *into* a developed nodule is impossible.

In a series of over 20 cases I have seen only one man who has been permanently unable to march in Army boots. He had strikingly prominent tibialis anticus tendons, and I could devise no method which gave him adequate protection short of leaving the boots completely unlaced. One other man was down-graded for this condition, as we could not get him up to the marching standards of the division. Both these men could march well in shoes, as can many others who are poor performers when their ankle-joints are splinted by boots.

I have on one occasion excised the nodules on a very chronic case, but it is difficult to get the scar out of harm's way, and the psychological effect of surgery was bad.

I am indebted to my A.D.M.S., Col. M. MacEwan, D.S.O., O.B.E., D.F.C., for permission to publish this article.

INDUSTRIAL MEDICINE

A COLLEGE OF PHYSICIANS REPORT

Nearly three years ago the Royal College of Physicians of London set up a Social and Preventive Medicine Committee with a wide reference. The committee began its work by considering social medicine from within the hospital, on which it published its first interim report. Then it began the task of investigating social medicine outside the hospital, taking, as the first and most obvious field, the role of medicine in industry. It is with this subject that a second interim report deals.

The demand is made by the committee which has drawn up the report that the industrial health service should be planned in a bold manner, without much regard for traditional arrangements. It should be part of the projected National Health Service, with the ultimate responsibility vested in the Minister of Health. In the regional organization of the service the universities should play an important part, and here the recent endowment by the Nuffield Foundation of three university departments in industrial medicine provides an excellent example.

The Present Unequal Provision

Medical services apply at present only to a small proportion of industrial workers at their place of work. Nearly all the whole-time medical officers are attached to organizations employing over 1,000 workers; yet—at all events before the war—more than half the workpeople in this country were employed in factories in which fewer than 250 operatives were working, and in only a few such industrial establishments was there medical supervision even by part-time officers.

A quarter of a million establishments are covered by the Factories Act, 1937. To-day there are nearly 200 whole-time and 700 part-time works doctors. Some of the part-time works doctors are also examining surgeons, of whom there are over 1,700, but most of these do not carry out personal medical treatment. The medical side of the factory inspectorate has developed slowly, and there are now only about sixteen medical inspectors, who act more or less as a small body of consultants in addition to their routine duties.

Beyond the territory of the ordinary provisions of the Factory Acts there are, for example, the workers employed in offices and business establishments, in hotels and catering organizations, in transport services, in temporary constructional works, and in a considerable section of agriculture, and all these occupations have their health risks. The report holds that the immediate requirement is for a comprehensive health service which will cover these "outside" industries and will apply to small concerns as well as large.

The family doctor has a vital part to play in such a service as a part-time industrial officer, and, says the committee, he must be trained for this function. There must also be a national service of medical officers of consultant rank who have specialized in the problems of occupational disease.

A National Industrial Health Service

The industrial health service will be concerned primarily with the working environment. Its duty will be to see that the individual is fitted into his setting; for this purpose a knowledge of his physical and mental capacity will be necessary. This will pertain not only to the people entering industry for the first time but to workers passing on from one occupation to another on account of recent or persistent illness. Another function will be the prevention of occupational disease, a task calling for the help of clinical consultants and scientific research workers. The prevention of injuries, the co-ordination of health and safety measures, the organization of a service of general health supervision and emergency treatment of illness and accident, and aid in rehabilitation, the final stages of which must be carried out at the place of employment, are all tasks which will fall to the service. To these must be added the resettlement of permanently handicapped workers, whose case calls for the same continuity of medical care and linking together of services as does the rehabilitation of those who return to full earning capacity.

The report also suggests joint management–labour committees to arrange for the health education of the workers, the dissemination of information, and the collection of problems requiring study. The service would provide instruction in and technical study of lighting, heating, ventilation, welfare organization, and the nutritional aspects of works canteens. Finally, the work done in the industrial field would need to be integrated with the other medical services of the area, provided by general practitioners, hospitals, and specialist units.

Finance and Appointments

The committee brushes aside any objection that industry cannot afford a health service; it cannot afford to be without one. The most obvious way of financing the service would be for industry to pay for it, but the workers would be suspicious of medical officers in the pay of the management; moreover, elaborate pooling arrangements would be necessary for small undertakings. If a close relation between the national and the industrial health service is maintained, payment might be part of the general health budget. Alternatively, the cost of the service might be met by a levy on output or profits. Some combination of two or more methods might be considered, and the possibility of sharing the costs between industry and central funds might offer a satisfactory solution.

One method of making appointments to the service would be through the Local Health Services Councils as outlined in the White Paper, provided industrial representatives were included among its members. The ultimate aim in training is a much better grounding in industrial medicine for medical students intending to take up general practice; meanwhile, with a view to part-time services, short courses should be arranged, lasting about six weeks, combined with refresher courses from time to time. For the man who wishes to make industrial health his career, it is considered that a special well-designed course lasting one year should be undertaken, to be preceded by at least two years' postgraduate experience in medicine, of which not less than one year should have been spent in general practice.

A diploma in industrial health would help to establish a minimum standard of training and qualification, but this must await a study of the general question of postgraduate diplomas. For consultants and specialists in industrial medicine there would be required a period of three years of specialist work including a junior post in a university department, some experience in research, and possibly some experience abroad. The committee holds that research in industrial health should be given every administrative encouragement. The Industrial Health Research Board must continue, and there should be departments of industrial health in university teaching centres, while in each local administrative area a division for field investigation, working in close touch with the Industrial Health Research Board and the local factories department on the one hand and the university and local industries on the other, would be desirable.

In the Government White Paper on a National Health Service industrial medicine is treated only in one short paragraph and to a rather greater extent in one of the appendices, but only in the form of a statement of the present position. The R.C.P. Committee has filled a very obvious gap.

Reports of Societies

DEVELOPMENT OF HEALTH IN ADOLESCENTS

The meeting of the Section of Medicine of the Royal Society of Medicine on Jan. 23, with Dr. GEOFFREY EVANS in the chair, was devoted to the subject of the physical training of adolescents. A film was shown of the methods and results of the physical development centres for substandard Army recruits.

Brig. FRANK HOWITT said it was curious that the medical profession, with its tendency to specialize and departmentalize in every direction, had paid so little attention to the problems of adolescence. Before the war anyone who came forward with a demand for attention to national physical fitness incurred the charge that he was preaching militarism. The adolescent had no political foster-parent, but lay in the no-man's-land between the Ministries of Health and of Education. Thus there developed a tendency on the part of the masses to spend their leisure in watching contests rather than taking part in them.

It was the good fortune of Army physical medicine, which looked upon itself as part of general medicine, to be entrusted with the selection of cases for the Army physical development centres, their medical control at the centres, and their final assessment. At the centres both preventive and corrective treatment were directed to meet the specific demands of the Army. The aim was to produce by exercises and supervision a correct habit of posture, locomotion, and performance of physical tasks, while the necessary mental stimulus was provided by games and competitions. Individual treatment was given where required, and the masseur, the chiropodist, and the dentist each had his function. Routine medical examinations were held at the beginning, middle, and end of the course. A centre had been established for substandard recruits of the A.T.S., and although no great muscular development was aimed at in their case it was remarkable what improvement was effected in stance, appearance, and general health.

One of the chief difficulties in the future under any scheme for the training of youth would be the question of compulsion. In peacetime persuasion would be required, and persuasion was dependent on motive. The appeal to youth must be pragmatic and practical, even selfish, based on self-advancement and increase of personal prestige. Finally, in teaching hospitals there should be a preventive as well as a curative department, to which should be referred all substandard conditions, fatigue states, anaemias, recurrent infections, and early structural deviations—conditions which were sometimes foolishly referred to as minor maladies.

Army Experience and Testimony

Major-Gen. Sir GUY DE C. GLOVER said that his Army experience of physical training exercises went back to the last war, when he was for a short time with a division made up of "bantams." Not only were disabilities improved as a result of physical exercises but there was a change in the entire mental attitude of the man. The War Office was so impressed with this that in due course the first physical training centre was started at Aldershot, and, at one time, of 2,300 men who had been through the course there, 2,000 had been upgraded and had become useful in the Army. During the present war several physical development centres were started. It was found preferable to make them actual Army units under a commandant, because then the men felt that they were really soldiers and not convalescents. There were, of course, also a large number of convalescent depots where similar exercises were carried out, but these were for men who had been wounded or sick, whereas the physical development centres were of a preventive character, and men went there immediately on joining the Army. Up to the present time 27,000 men had been put through the courses, and 20,000 had emerged as thoroughly efficient soldiers, benefiting not only in physique but in intelligence, and acquiring pride in themselves. In fully 50% of the cases there had been a gain in intelligence as well as in physical qualities, and the more intelligent the men to begin with the more strikingly the intelligence developed. "These centres," said Sir Guy Glover in conclusion, "are invaluable to the Army."

Effect of Competitive Exercise

Sir ADOLPHE ABRAHAMS spoke on the influence of competitive exercise. The familiar accompaniments of severe physical effort, he said, provided a prima facie case for its condemnation. The appearance of distress and suffering, the occurrence of exhaustion and collapse, all contributed to the conviction that injury to the vital structures could hardly be avoided. Admittedly the stress upon the circulation was severe. Nearly 40 years ago, in a letter to the public press, half a dozen eminent members of the profession condemned cross-country running for boys. Their opinion was warmly challenged, and the Association of School Medical Officers, after due investigation, came to the conclusion that there was no ground for alarm. At a later date Dr. L. R. Lempriere, medical officer at Haileybury, brought forward the collected experiences of himself and other school medical officers, covering 16,000 boys, showing that in 30 years, excluding a few genuine accidents, only one death on the football field could be recorded, and even in this there was no evidence of a lesion which might be attributed to exertion.

It was confidently maintained by leading cardiologists that the reserve of a healthy heart was so considerable that no effort, however great, could produce any harmful effect. When the call was excessive it was other, less important, factors which failed. The heart was not, as was frequently implied, an isolated organ working by itself. It represented the central fortress of the organism, the defending position and outposts being provided by the nervous system and its servants. When alleged cases of heart strain were examined it was found that some were examples of long-standing lesions, which, having given rise to no symptoms, had been unrecognized until the breakdown; some were merely instances of innocent natural peculiarities mistaken for pathological conditions; and some—the majority—were the symptoms of nervous instability, with special relation to the vasomotor system, particularly in respect to the lability of puberty, when so many demands upon energy were simultaneously made through the exigencies of growth, the integration of the endocrines, the mental pressure and anxiety over examinations, and the like.

The idea of adolescent strain to some conveyed the impression of a limited store of energy, specially inherent in the heart, which was provided for the whole of life for prudent expenditure and might be prematurely exhausted by spendthrift living. The failure of schoolboy prodigies to develop in accordance with their early promise was regarded as evidence in support of this idea, especially as it provided a convenient excuse for prophetical failures; while the "burnt-out athlete" was left with the reputation of martyrdom. The true explanation rested on the fallacy of regarding growth and development as subject to a universal law instead of as an individual problem. Often the "curve" of athleticism rose rapidly to its peak, and then, after remaining horizontal for a variable period, progressively declined.

Of the girl athlete Sir Adolphe Abrahams said that, with appropriate modifications, the same physiological and pathological considerations would apply. He refrained from any detailed consideration for three reasons: he had had very little personal experience; the cult of competitive exercise was, speaking generally, less applicable for girls; and the physical well-being of schoolgirls had for some time been organized on a scale that might well be followed in the case of boys. It might smack of Victorian narrow-mindedness to display solicitude for the preservation of those qualities which were traditionally associated with femininity, for the avoidance of the danger of over-development of certain masculine traits by indulgence in severe competition, not to mention the disadvantage of diverting energy from channels for which it was particularly required in preparation for the burdens of womanhood and possible motherhood. Special investigations had decided that there was no evidence to support the fear that muscular development prejudiced normal pregnancy and parturition, although some gynaecologists remained unconvinced. The nervous side, however, deserved paramount consideration. Highly competitive efforts such as first-class lawn-tennis tournaments, in which the leading players attained a wide publicity, had the disadvantage not only of creating a wrong sense of values but of producing an anxiety state and general ill-health which were not so much the direct consequence of exertion as of the concomitant circumstances.

The Public School System

Dr. G. E. **FRIEND** (medical officer of Christ's Hospital) said that the development of health in adolescence depended upon four main factors: (1) the provision of an adequate and well-balanced diet; (2) adequate sleep and rest; (3) properly balanced physical development, which in turn depended on a proper ratio between games, physical training, and education; and (4) avoidance of over-fatigue. The chief function of the school medical officer was preventive rather than curative. He agreed that the average youth required a motive to make the necessary effort for his physical development. He had himself conceived the idea that the Greek ideal of perfect physical development and fitness was the right motive to inculcate, provided it was suggested to him as development purely for its own sake. Boys hated to be thought altruists. The J.T.C. and A.T.C. and other semi-military pursuits in school at the present time were unpopular with the majority of the boys, not because the boy was not patriotic but because the duties of the course were compulsory and took time from games. Competitive games and sports were character-forming. Military activities would be much better if they could be amalgamated with something on the lines of the Boy Scouts—that is to say, there should be less marching and forming fours, and more physical training and week-end camping, also more first-aid and more field work such as engineering and signalling.

In some further discussion Sir **MORTON SMART** said he was pleased that at last there had been some co-ordinated effort for the training of the adolescent. In the Army and Air Force there were unquestionably great opportunities for this, which were not likely to continue when peace came and the majority of the men in the Services were released. If a start could be made at school and training be given in the pre-adolescent stage the whole matter would be more or less simplified. Dr. **ROBERT SUTHERLAND** spoke to the same effect. One of the most useful contributions which could be made would be to discover appropriate preventive measures to be applied to the pre-adolescent, so often the helpless victim of circumstances.

EFFECT OF DIET ON INDUSTRIAL POISONING

A number of foodstuffs have from time to time been supposed to ameliorate the effect of industrial poisoning. The principal favourite among these is milk. When, however, the scientific basis for the administration of specific foods as a protection against poisoning is considered, very little proven information can be found. At a meeting of the Nutrition Panel, Food Group, of the Society of Chemical Industry on January 16, Dr. H. Taylor of I.C.I. suggested that the best means to avoid industrial poisoning was to take steps to prevent work-people from being poisoned at all. This advice was confirmed by Dr. R. E. Lane, Dr. Merewether, and other speakers at the meeting. Dr. **TAYLOR**, who opened the discussion, mentioned a number of foodstuffs that were thought to be protective. The first, of course, was milk, but whether its alleged protective action lay in the calcium it contained, the methionine, or the riboflavin, could not be stated. Vitamin C was also a nutrient popularly supposed to protect the blood-forming organs against injury by toxic solvents; and German work, published, it need hardly be said, before the war, recommended a daily diet including 18 oranges and 18 lemons as suitable for workers exposed to such risks. Dr. **LANE** discussed some of the aspects of lead poisoning, and he emphasized that absorption through the lungs was probably ten times as dangerous as absorption by any other route. For example, lead passing into the alimentary tract might not be absorbed at all, and if it were absorbed it might be excreted in the bile before harm had been done. Even after absorption a portion of the lead might be re-excreted comparatively harmlessly and another portion might be tied up in the bones. In attempting to prevent lead poisoning a number of dietary factors have been suggested; one of these is pectin. Milk is advised sometimes merely to occupy the gastric juices, sometimes for its high calcium content. At other times low-calcium diets are recommended in an attempt to prevent the storage of lead in the bones. Copious amounts of water are also recommended to protect the kidney, and the diet should be designed to prevent constipation, and hence to assist the excretion of lead from the alimentary tract. Although Dr. Lane mentioned all these different dietary possibilities, the suggestion which he made, and in which one could gather he himself was best convinced, was that in order to prevent lead poisoning a good prescription was to pay high wages, employ intelligent work-people, provide them with a good supply of drink—whether it be tea or water—and, after all this, perhaps provide them with milk.

The increased resistance to industrial poisoning of people in this war as compared with those of the last was mentioned by a number of speakers. This could be attributed perhaps to better living conditions, perhaps to better diet, or perhaps to the fact that in this war fewer young people were employed in hazardous work than had been the case in the last Prof. **HIMSWORTH** mentioned the different susceptibility to liver damage of different strains of rats, and wondered whether this might, in part, also explain the different susceptibilities of work-people. He also pointed out the general similarity of the symptoms due to poisoning—for example, by selenium—and those due to certain types of nutritional deficiency. I was an attractive and plausible hypothesis that poisons interfered with one or other parts of an enzyme system, and perhaps the hope for future development of dietary treatment to prevent poisoning lay in discovering which these parts of the system were and providing high amounts of the substances involved in food. Mr. A. L. **BACHARACH**, from the chair, referred to work on selenium poisoning, in which, by means of labelled molecules, it had been shown that selenium took the place of sulphur in the methionine molecule, and hence caused what might almost be described as a conditioned protein deficiency.

From all this discussion and more it was made plain tha much could be hoped for in the future from a scientific study of the nutritional prevention of industrial poisoning. A present, however, many of the methods used and, in particular the wholesale prescription of milk, could not be justified on scientific grounds. All speakers, however, were agreed that to obtain the best chance of protection, work-people exposed to toxic substances should be given the best balanced diet possible

Nova et Vetera

MEDICAL EPONYMS

The medical student at the outset of his career is confronted by a number of diseases, symptoms, and treatments to which are attached the names of hitherto unfamiliar persons. Recently there has been a plea for the dropping of such labels, but many would regret this departure from tradition, though when four names are attached to the signs of exophthalmos one may well feel it is time to call a halt. It was a happy idea of Mr. **HAMILTON BAILEY** and Mr. W. J. **BISHOP**, in their *Notable Names in Medicine and Surgery* (H. K. Lewis; 15s.), to give a brief account of 83 persons, including two women, whose names are associated with some discovery. It is also an added advantage to have a portrait of each with an illustration or diagram elucidating their contribution to the subject. The authors lay no claim to completeness, but others besides students will glean many interesting facts from these pages Thus we are informed that Meckel's diverticulum was described by the grandson of the discoverer of Meckel's ganglion. Three general conclusions will be drawn by the reader: first, tha a man's name may be attached to quite an insignificant par of his general contribution to medicine—thus Heberden thought very little of the nodes by which he is generally remembered rather than by his rationalizing of pharmacology; secondly the enormous sterile interval between Galen and the 16th century; and, thirdly, the international character of medicine which recent political events have done so much to endanger

Correspondence

Neglected Children

Sir,—Your leading article on neglected children (Jan. 27, p. 124) is most gratifying. For over a year I have been trying to arouse interest in the problem of neglected children. Since I brought this problem before the local branch of the Council of Social Service they have been most helpful, and some progress has been made in the face of fearful difficulties. We have recently had letters published in most newspapers, although one or two—typical, perhaps, of the general apathy and official indifference—have not published our communications. It may be that they thought our descriptions of local cases of neglect and squalor too loathsome to publish. One M.P., indeed, asked us not to print some of the details because of the damage which might result to our national prestige!

In the two Doncaster courts since Dec. 2 last I have personally given evidence in 14 cases of gross neglect involving 68 children. There are many more cases in this district (and we do not think that ours is an unusually bad one) which ought to be brought to light, but magistrates and the N.S.P.C.C. are up against a tremendous difficulty. There is practically nowhere to put these children while their parents undergo any sentence for their gross neglect. Furthermore—and this is a great deal more important—when the parents are released the children have to be returned to the appalling homes from which they have been temporarily rescued, there to be "looked after" by now embittered parents. The children's homes are all full and have waiting-lists. One home has lost 2,000 beds to a Government Department. This lack of provision for neglected children is, apart from the humanitarian aspect, a great waste of the nation's most precious asset—healthy and fit children.

I cannot take up space explaining why foster parents are not the answer to this problem. Local authorities are, naturally, very prone to say they are. If they were, much expense and difficulty would be easily overcome. What is needed, and very urgently, is the provision of many more beds in well-run children's homes. There are many empty premises in the country to-day under the control of different Government Departments; there are many civil defence workers not required any longer for C.D. duties. If only the need could be realized the staffs and the homes could be provided. The Ministry of Health, the Board of Education, and the Home Office are all involved, and are all apt to blame one another.

There is shortly to be held a Parliamentary inquiry into the management of children's homes. If readers could persuade the Ministries concerned to hear evidence on the dire need for more homes they would have done a great service to the country. It is probably true to say that many thousands of children are at present being reared in conditions worse than in an average stable. Yes, this is literally true if unpalatable. Help in bringing this fact to notice is urgently needed. I can willingly give anybody asking for them exact reports of scores of almost unbelievably shocking cases.

Dr. A. E. Martin, according to your leader, stresses the need for adequate supervision of these cases by the local authorities. I wish I had space to emphasize the value of this observation. I must apologize for having taken up so much print already, but this problem concerns one of the most serious blemishes on our social services, and there is no room for any complacency. We are all busy, but not too busy to help in this matter.—I am, etc.,

Doncaster. Robt. W. L. Ward.

Nature of Injectable Liver Extracts

Sir,—The article by Messrs. W. B. Emery and W. J. Hurran on injectable liver extracts (Jan. 20, p. 75) is both interesting and timely. It is good that attention should be drawn to the advantages which would result from the establishment of an official unit of activity. The authors have mentioned some of these, but have omitted the very important fact that it would bring to an end the marketing of liver extracts possessing little or no potency. How frequently this occurs one can only guess, but from my own experience I should say that it is certainly not rare. Since I have seen several severe remissions of pernicious anaemia due to the use of such extracts, I think it quite likely that some deaths have resulted from the same cause. Great accuracy cannot yet be claimed for any method of assessing the potency of liver extracts, but even an approximate estimate is better than none at all.

If, as I earnestly hope, some official action is taken in this matter, the system of units to be adopted will have to be decided upon. It will be unfortunate, I think, if different countries adopt different standards. The U.S. have defined a unit of potency; Canada has followed suit with a slightly different definition; and now Emery and Hurran have proposed a third. Since the accuracy of any of the methods is probably not great, it would seem essential to use one system if the results are to be comparable.—I am, etc.,

University of Aberdeen. Harold W. Fullerton.

Management of Colitis

Sir,—In the *Journal* of Aug. 26 (p. 278) there appeared a review of my monograph, *The Modern Management of Colitis*, which contained some rather surprising statements. The reviewer apparently objected to our inclusion of cases of tuberculous colitis, amoebic colitis, and the colitis due to the venereal lymphogranuloma in a discussion of ulcerative colitis. This is most unusual, for are not all these conditions infections of the large intestine? He states that "about 250 cases of ulcerative colitis enter the Clinic each year." He has been considerably misinformed in this regard; for many years we have seen many more patients with ulcerative colitis than this annually, and in 1943 we saw 520 patients with ulcerative colitis of the Types 1, 2, and 3 alone. No attempt was made to completely cover the literature on ulcerative colitis, nor would I consider this indicated in a volume of this type. An attempt was made to select a few authors representing the various views concerning aetiology. I think the reviewer is correct in suggesting that there was little advance in the subject of ulcerative colitis between the early papers and the one by Dr. Logan published in 1919.—I am, etc.,

Mayo Clinic, Rochester, Minnesota. J. A. Bargen.

Nursing of Tuberculosis

Sir,—Your annotation (Oct. 28, p. 569) and the recent letters from distinguished authorities on tuberculosis show that, although there is no indifference to the problems connected with the nursing of tuberculosis, there is considerable divergence of opinion on the risks and dangers which that occupation involves. In fact, it would seem that the more that is written on the subject the greater the confusion becomes. This is not surprising in view of the paucity of accurate information on the fate of the primary lesion in young adults.

There is no doubt that tuberculosis is an infectious disease; nor will it be disputed that primary lesions are discovered in the frequently examined nurses during their course of training, but there is no proof as yet that as a profession they are more vulnerable than other selected classes of the population of the same age group. Neither is it certain that those nurses who develop active tuberculosis do so because they have been nursing tuberculous patients.

From the evidence of our village settlements for the tuberculous, where so far children brought up in tuberculous households have not developed active tuberculosis, we may assume that environment, mode of life, and medical supervision are the important factors that decide the future of the primary lesion. Would it not, therefore, be wiser to concentrate on the improvement of these factors in our hospitals and sanatoria rather than argue on the risks of infection?

With further development of the valuable work being done under the Prophit Bequest, we may, five or six years hence, be able to lay down with some degree of certainty the conditions of service in the nursing of tuberculosis. Until then let us see that no criticism can be made regarding the provisions for the general welfare, education, and medical supervision of our nurses, irrespective of the type of institution in which they may be working. By such action we shall do more to dispel the fear of infection and fill the depleted ranks of the profession than by advertising present inconsistencies of policy due to our incomplete knowledge of the dangers of nursing tuberculosis.—I am, etc.,

Public Health Department, County Hall, S.E.1. FREDERICK HEAF.

SIR,—In reply to the criticism of Drs. P. W. Edwards and A. Clark Penman (Jan. 20, p. 95) of my letter on tuberculous infection in nurses I should like briefly to make the following points:

I quoted the figures of Daniels (the numerical misprint was corrected in one of your subsequent issues) relating to tuberculous infection of nurses in general hospitals because the report of the Tuberculosis Association and Joint Tuberculosis Council was based on the impression—for there are no statistics in the matter—that tuberculous infection in sanatorium nurses was no higher than that in general hospital nurses. This is, to say the least, a negative attitude, and when it is proved by Daniels that Mantoux-negative nurses in general hospitals have a high tuberculosis morbidity the case for employing such nurses in a tuberculous environment falls to the ground.

There are ample further statistics available from America and Scandinavia on the subject supporting my contention, but I need quote only those of Hansen (1943); in a paper read before a meeting of the T.A., showing that 27 cases of tuberculous illness occurred among 625 cases of Mantoux-positive nurses, whereas 96 cases occurred among 280 Mantoux-negative at the Municipal Hospital, Oslo. No death occurred in the positive group, while 11 deaths occurred in the negative group of half its size; which does not support the view of Drs. Edwards and Penman on the benign nature of primary tuberculous infection in young nurses. The truth, clearly indicated in the last paragraph of their letter, is that the laudable desire to keep beds open has blinded the authors of this report to the statistical evidence. It is all the more unfortunate, therefore, that these views should receive favourable notice in your editorial, which, of course, has wide publicity and is likely to be considered authoritative.

The problem can, and probably should, be approached from another angle—namely, by B.C.G. inoculation of Mantoux-negative nurses. I believe that hundreds of thousands of persons have now been inoculated without a single case of progressive tuberculosis developing—the often-quoted Lübeck disaster of 20 years ago being due to mixing of cultures. In this connexion it is interesting to note that after hearing the paper by Hansen (already quoted) the T.A. were so impressed by the possibilities of B.C.G. vaccination that they passed the following resolution: "That the T.A. Council be instructed to approach the councils of the National Association for the Prevention of Tuberculosis and the Joint Tuberculosis Council with a view to a joint request to the Minister of Health to make B.C.G. available for trial in this country." It would be interesting to know what further has occurred as a result of this resolution.—I am, etc.,

Kinmel Hall Hospital, Abergele. W. E. SNELL.

SIR,—It should surely be possible to collect reliable figures as to the incidence of tuberculosis among nurses in general hospitals and in sanatoria. Any one of the big counties would have comparable institutions in which a statistically significant inquiry could be undertaken. All the evidence at present available points to a very considerable risk of infection, and most nurses certainly believe that there is great danger in this work. We know that Mantoux-positive reactors are less likely to acquire the disease, and it would be ideal if negative reactors could be excluded from tuberculosis nursing. I cannot, however, agree with Drs. Edwards and Penman (Jan. 20, p. 95) that "a sanatorium is as good a place as any other in which to acquire tuberculin sensitivity." Intermittent exposure in a general hospital ward, cinema, or public transport vehicle must on theoretical grounds offer a better chance of building up an immunity than does massive exposure.

At the present time I know of no compensation scheme for nurses—or doctors for that matter—who contract tuberculosis in the course of their work, and thus lose their careers and perhaps even their lives. If the risk is as small as some would have us believe, then adequate compensation would not be very expensive, but if the risk is genuinely great, then financial security should be offered at any cost. Routine *x*-ray and tuberculin control should mean that only healthy subjects are employed in the first instance, and that if they develop tuberculosis it has been acquired during the period of their service. The staff requirements of hospitals and sanatoria are well known, and I would not wish to see them aggravated in any way, but in fairness to the nurses the facts should be honestly faced.—I am, etc.,

London, W.1. ALEC WINGFIELD.

SIR,—The risks which face any girl who takes up the nursing of tuberculous patients are serious enough even under the best possible conditions and with the greatest possible care. Are we sure that all safeguards which can be used to protect nurses from contracting tuberculosis *are* being employed?

I have recently been consulted by two probationers from two separate sanatoria. One told me she had arrived at her hospital as a raw recruit at midday and by teatime was on duty in a tuberculosis ward without any instruction whatsoever in methods of protecting herself against infection. When I saw her she had an acute tuberculous bronchopneumonia. The other probationer told pretty much the same story—of emptying sputum mugs, etc., without any preliminary advice, not even to wash the hands after this necessary but odious duty.

These girls were not trained nurses who could be expected to think for themselves, but girls completely ignorant of such things as asepsis and antisepsis. Each was employed by a local authority in different parts of the country. If their stories are true—and I have no reason to doubt them—do they not call for drastic revision in the ideas of some medical superintendents? We cannot expect more girls to come forward as candidates for this hazardous branch of nursing until they and their parents are assured that proper safeguards will be taken against infection.—I am, etc.,

Leicester. T. F. BOSTOCK.

Necessities for Very Sick People

SIR,—There is a crying need for some body of experts who could, *without* delay, authorize and obtain necessities for very ill people when such necessities were properly vouched for by the medical man or men in attendance. At present there is none. Let me give you an example.

I have a patient suffering from carcinoma of the stomach with peritoneal metastases. Alcohol in some form, preferably whisky, alone sustains the patient and gives sleep. Though both I and the doctor in attendance have certified the necessity no spirits of any kind can be obtained in the town where the patient lives, and the case is dependent on kind friends who, out of their own small supply, give a small quantity at irregular intervals.

The patient suffers continual abdominal pain, which is relieved by a rubber hot-water bottle on the abdomen. The one rubber bottle in the house was worn out and leaked. I certified to the Ministry of Health the need for an authorization to get a new one via the firm which, having such bottles in stock, would supply it if allowed to do so. That was some 3 weeks ago, and by Jan. 22 the matter was still under consideration (or shelved, or pigeon-holed!), and I have had no further communication since. There is a certain callousness about these Government Departments which justifies the worst fears of those who oppose medicine becoming one of them.—I am, etc.,

London, W.1. VICTOR BONNEY.

The Etherington-Wilson Method

SIR,—I cannot let Mr. Thomas Moore's suggestion (Jan. 27, p. 129), that surgeons and anaesthetists who practise this method are careless and imprudent, pass unchallenged. Excluding the grosser errors due to ignorance and inexperience, the improper selection of cases for spinal analgesia is the decisive factor in producing fatalities. Babcock, in whose clinics spinal analgesia had, in 1938, been used upwards of 40,000 times, states: "If a writer reports fatalities, he also reports his personal incompetence."

I have used the Etherington-Wilson method for obtaining high blocks ever since its introduction, and lately his recent modification (*Proc. roy. Soc. Med.*, 1944, 37, No. 9, 545).

with great satisfaction in conjunction with no less eminent a surgeon than that brilliant technician, the late Mr. Cecil Joll. We had no immediate mortality attributable to spinal analgesia, nor did we ever encounter a case of respiratory paralysis due to involvement of the phrenics; this statement can be verified by our case records, which are available for inspection. Fatalities will be found to be associated with the abuse, not the use, of this simple and accurate method for obtaining a high spinal block.—I am, etc.,

Aylesbury. H. W. LOFTUS DALE.

Civilian Respirator as Anaesthetic Mask

SIR,—As one who, in common with Dr. J. Morland Smith (Dec. 23, p. 820), deplores the present-day desecration of Dr. Clausen's originally excellent harness, I was extremely interested to read Dr. F. S. Vaughan's account (Jan. 27, p. 131) of a civilian respirator converted for use as an anaesthetic face-piece. It would be interesting to know whether he finds the inevitable increase of dead space, occasioned by having the expiratory valve at a distance from the face-piece, any disadvantage. Also, if he uses it only for closed-circuit anaesthesia, and whether under these circumstances he finds there is a "build-up" of carbon dioxide in the extra piece of corrugated tubing.—I am, etc.,

MARGARET JOAD,
King George Hospital, Ilford. Resident Anaesthetist.

The Medical Film

SIR,—The Scientific Film Association welcomes the attention that was drawn in the leader of Jan. 20 (p. 87) to the present lack of suitable films for medical education. The association, while possibly not in agreement with all the criticisms therein, would point out that the correction of the deficiencies referred to is one of the main objectives of its work through its Medical Standing Committee.—We are, etc.,

W. MCADAM ECCLES,
Chairman
S. J. REYNOLDS,
Hon. Secretary,
Medical Standing Committee.

Scientific Film Association,
16, Princes Gate, S.W.7.

Aggressive Impulses in Progressive Society

SIR,—While fully endorsing Dr. A. C. Wilson's contention (Jan. 20, p. 96) of the fundamental role of exploitation in various forms in the creation of antisocial unhappiness, and while in complete agreement with him in the first and final paragraphs of his letter, I would like to point out that there is a growing body of psychiatric opinion of a predominantly environmental rather than biological orientation. Such psychiatrists consider that aggressive tendencies are not inherent and inevitable, but are the result of suppressed resentment and hostility in early childhood, and that there must be a "build-up" before there is a breakdown. What is normal and natural in human beings is self-assertion, the "standing up" for the right to live in as happy and reciprocal a conjunction with others as is possible. An important function of psychotherapy is not the discharge of aggression into thin air, so to speak, but the alteration of the force behind it through understanding and insight to a healthy self-assertion and a real self-esteem. Thus, for what Dr. F. E. Williams terms "normal aggression," the concept of adequate self-assertion and true self-evaluation could be more satisfactorily and usefully substituted. Nature indeed is red in tooth and claw, but humanity in the exercise of an evaluating and discriminating consciousness need not necessarily be so.—I am, etc.,

Morpeth. L. F. DONNAN.

Artificial Insemination

SIR,—The writers of the article on artificial insemination have caused an angry eruption on your fair pages, but they have at any rate been instrumental in ventilating a subject on which sooner or later some decision must be reached.

Is insemination with donated semen an ethical proceeding? Many doctors would appear to believe that in all cases and in all circumstances it is inherently immoral. Ethical decisions rest on feeling rather than on argument, and those who believe insemination to be wrong are entitled to their opinion. But to support such an ethical decision with arguments based on the imagined psychological consequences to the parties chiefly involved only weakens the case against insemination. In actual practice the emotional attitude of these parties to the proceeding is quite different from what many of your correspondents would expect it to be. It would be wiser, therefore, for the opponents of insemination to confine their attention to the ethical aspects of this subject.

I have always felt that in the age-long dispute between the vivisectionists and the anti-vivisectionists Mr. Bernard Shaw stood on the firmest ground when he stated simply that knowledge could be purchased at too great a cost, and that the knowledge gained from vivisection was an example of this. Those who have fallen back on the argument that the information to be obtained from animal experiment was misleading and of no value to medicine merely discredited the case against vivisection. So also does such a correspondent as Dr. F. M. R. Walshe obscure the issues when he writes: "It is difficult to argue with the advocates of this latest novelty in techniques offered to the community, for they seem to have no clear ethical principles, and, we may be sure, will be disdainful of those that have." Fortunately we live in a country in which the right is accorded to everybody to have and to express freely their ethical principles. Surely it should be possible for medical men to reach some understanding on this highly controversial subject without discrediting the motives of their fellows? Voltaire once said: "I entirely disagree with your opinion, but I would willingly die in defence of your right to express it."—I am, etc.,

London, W.1. KENNETH WALKER.

SIR,—Prof. L. G. Parsons (Jan. 20, p. 96) appears to be under some misapprehension with regard to the position of a child born as a result of artificial insemination. It is not an illegitimate child as he suggests, and quite clearly the doctor who performs the operation is in no way an accessory to any misdemeanour. Every child born of a married woman during the subsistence of the marriage is presumed to be legitimate, providing the husband and wife have had opportunities of access and neither the husband nor the wife can give evidence tending to disprove the fact of sexual intercourse between them. In those circumstances the child is quite properly registered as legitimate, though it is clear that there is a risk of a third party taking action to bastardize the child, but in that event it would be extremely difficult for that third party to bring the necessary evidence to the court.—I am, etc.,

Llanfairfechan. G. J. FINCH.

SIR,—I would be grateful if you would allow me to reply to the proposals published in the *Journal* on this subject: (1) Women not possessing a husband should be (I presume voluntarily) subjected to artificial insemination. (2) The intelligentsia should act as donors.

These proposals have filled me with horror and amazement. I am surprised that so little consideration has been paid in this controversy to the person most directly concerned—i.e., the offspring. Surely the strength of the nation lies not in its intelligence quotient *per se* but the spirit of its citizens—a spirit bred and fostered by home life and influences. An Englishman's home is his castle, and each home forms a unit which makes up the nation; but the children thus produced would have no home in the present sense of the word, since they would never know, and feel the influence of, their father. Admittedly, there are many children in the country to-day who have unfortunately never known their father if he died during their infancy; nevertheless his influence still pervades the household, since his life is held up to them as a model by their mother for them to emulate, and his memory is both revered and cherished.

Finally, one hears a great deal nowadays about "State control." Surely it is a degradation, and not a social advancement, to suggest that the population shall in future be organized into one vast stud farm?—I am, etc.,

Stoke-on-Trent. AUDREY ROBERTS.

Tapeworm in Freshwater Fish

SIR,—During 1944 two outbreaks of disease in trout, caused by infection with the plerocercoids of a species of *Diphyllobothrium*, were recorded. The first report (Duguid, J. B., and Sheppard, E. M., *J. Path. Bact.*, 1944, **56**, 73) gave details of an epidemic which occurred during 1942–3 in two reservoirs in South Wales, and the second (Hickey, M. D., and Harris, J. R., *British Medical Journal*, 1944, **2**, 310) dealt with the occurrence of the condition in trout in the Dublin area.

The purpose of this letter is to record a third, very mild, outbreak which came to my notice during the latter part of 1944. Diseased trout were first observed during the month of August in a reservoir in Northamptonshire, six dead trout being picked up between August 11 and 25. I was not able to examine any of these, and saw only a seventh trout caught on Sept. 24. Thirty-nine plerocercoids, showing morphological characters similar to those described by Duguid and Sheppard, were recovered from the peritoneal cavity of this trout, and these plerocercoids were fed to one guinea-pig and to three rats. No evidence of infection was observed in the guinea-pig, but all three rats passed eggs of *Diphyllobothrium* in the faeces for varying periods, and finally threw off the infection spontaneously. During the period when deaths were being observed in the trout fifty grebe also died, but it is not known whether or not the dead grebe were infected with *Diphyllobothrium*. Subsequently several lots of smaller fish, including species other than trout and totalling just over 100, were caught in the reservoir, and on examination 40% of them were found to harbour one or more plerocercoids of a smaller type than those recovered from the trout caught on Sept. 24. Attempts to infect rats by feeding these smaller plerocercoids have not, as yet, yielded positive results.—I am, etc.,

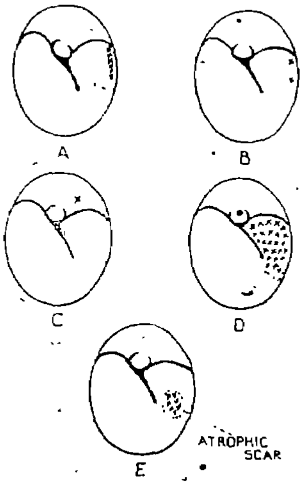
T. E. GIBSON.

Veterinary Laboratory, Ministry of
Agriculture and Fisheries, Weybridge.

Eustachian Obstruction and Barotrauma in Airmen

SIR,—The comprehensive article by Fl. Lieut. R. M S. Matthews on Eustachian obstruction and otitic barotrauma in air crews of heavy bombers, published in your issue of Oct. 21, 1944, is of such value that the following criticisms and comments are submitted with diffidence.

He states that to perform Valsalva's manœuvre "it is helpful to incline the head forward with the chin on the chest." Airmen almost invariably *do* incline their heads forward "with the chin on the chest" when asked to auto-inflate; but from observation of several thousand patients (including over 500 cases of acute otitic barotrauma) it has become apparent that the optimum position in which to achieve successful air entry is with the neck extended and the head slightly tilted backwards, so that the tip of the pinna is in the same horizontal plane as the ala of the nose. Although this "feels wrong" to the individuals, they are frequently surprised by their ability to "clear" the ears in this position after auto-inflation has been impossible in flexion. This is not an original observation. In 1866 Lucae pointed out that flexion of the head on the chest rendered ventilation more difficult, and Hartmann (1879) and Perlman (1939) have emphasized the importance of the effect of posture on tubal patency.



Your contributor's remarks on the importance of *visual* recognition of air entry into the middle ear should be stressed, as this is the most frequent and reliable present evidence of air flow into and out of a tympanum with an imperforate drumhead. Very slight outward movements of the drumhead become evident by the appearance of fresh light reflexes additional to the cone of light, and the usual situations of these are shown in the accompanying diagrams of a left tympanic membrane. Usually these light reflexes become visible close to the attached border of the postero-superior quadrant as linear (A) or pin-point (B) areas; less commonly the reflex becomes visible above and behind the short process of the malleus (C). Occasionally, and particularly if the lustre is poor, the whole posterior hemisphere may be seen to bulge outwards (D). This last movement may easily escape detection, and its occurrence may not be obvious until the subject swallows with the anterior nares occluded (Toynbee's manœuvre), when this segment of the tympanic membrane may be seen to move inwards. On scarred drumheads light reflexes may appear elsewhere, or an atrophic patch may be observed to bulge outwards (E).

The 2,000 ears mentioned by Fl. Lieut. Matthews, and in which air entry was visibly positive in 91.7% of cases, belonged to air cadets who had been fully instructed in Valsalva's manœuvre and one-half of whom had varying amounts of flying experience. In a series of *un*instructed ground-crew personnel air entry was visibly positive in only 83%, while in a series of experienced air-crew personnel movement of the tympanic membrane could be seen in 97.5%. These three percentages demonstrate not only the frequency of the positive visual findings but also the value of instruction in Valsalva's manœuvre. The importance of instruction has been emphasized by Fl. Lieut. Matthews, and the study of a considerable series of patients leaves no doubt that, excluding acute upper respiratory infections, ignorance of the correct methods of auto-inflation is the most frequent contributory factor in the causation of acute otitic barotrauma.—I am, etc.,

J. E. G. MCGIBBON.

Medical Reciprocity

SIR,—The letters of Dr. James Burnet (Jan. 6) and of Dr. S. Chaplin (Jan. 20) on the subject of medical reciprocity seem to beg the questions of supply and demand, among others. Dr. Chaplin questions the desirability of "*permitting* [*sic*] such a state between this country and foreigners," in view of the non-acceptance of English (does he mean British?) qualifications in certain parts of the British Empire or in certain Dominions.

It takes at least two to make a bargain, and it may fairly be asked if (to take a specific case) France would be likely to acclaim the project of medical reciprocity with this country, which would, the respective climates being what they are, almost certainly involve the flooding of the French Riviera with qualified refugees (the word is meant literally) from the less equable parts of these mist-wreathed islands. France wisely protected her native practitioners by decreeing that seasonal practices by foreigners (i.e., non-French) were not allowable. This inhibition will certainly be reintroduced, or continued, by the Government of the "Fourth Republic." The foreigner who wishes to practise medicine in France to-day must have a French qualification, and examinations are conducted in the French language. It is, as stated, a matter for the Privy Council at this end. In any case, as the Prime Minister has said in another connexion, there would be no harm in trying—but . . .—I am, etc.,

London, W.1. W. NUNAN.

R.M.B.F. Christmas Gifts

SIR,—It was with the utmost gratification that the late Sir Thomas Barlow received the news that his last "Christmas Gifts Appeal," made when he was in his 100th year, had once again eclipsed all previous records, and had reached the splendid total of £1,817. Had his life been spared Sir Thomas would be personally sending this letter of his most grateful thanks to the medical press, and thereby to the large number of subscribers up and down the country who, by their generosity, have contrived that each year the sum reached has beaten the previous year's record. In particular, the gracious donation of one hundred guineas by the Royal College of Physicians to memorize his entry into his 100th year and to mark the esteem in which his colleagues held him touched Sir Thomas very much and gave him keen pleasure.

On behalf of my committee I tender to one and all our sincerest thanks. We shall continue this annual "Christmas Gifts Appeal" as heretofore. They have been so generously supported and have evoked so much pleasure and gratitude that, although they will lack the inspiration of Sir Thomas Barlow's personality, we feel they have now become an integral part of our work. We are confident that this will be in accordance with the general wish.—I am, etc.,

ARNOLD LAWSON,
Chairman of the Committee of Management.

Royal Medical Benevolent Fund,
London, S.W.15.

Obituary

HAROLD COLLINSON, C.B., C.M.G., D.S.O., M.S., F.R.C.S.

We regret to announce that Mr. Harold Collinson, the eminent Leeds surgeon who held professorships of surgery there for nine years, died on Jan. 25 at Linton, Wetherby, after an illness of two or three months.

Born on Aug. 19, 1876, son of J. W. Collinson of Halifax, he was educated at the great Quaker schools at Ackworth and Bootham, and then studied at the Yorkshire College and the Leeds Medical School. A brilliant academic career culminated in Fellowship of the Royal College of Surgeons within four years of qualification, and the degree of M.S.Lond. in 1907. His first resident post in the General Infirmary at Leeds was that of house-surgeon; later he was for three years resident surgical officer and in 1907 he was elected honorary assistant surgeon, promotion to the full staff coming at the end of the last war. He had held a commission in the R.A.M.C.(T.F.) since 1905 and was mobilized with his unit, the 2nd West Riding Field Ambulance, on Aug. 4, 1914. His distinguished services in France from April, 1915, until the end of the war were recognized by the award of the D.S.O. in 1917, the C.M.G. in 1918, the C.B. in 1919; and he received from the President of the French Republic the honour of Chevalier of the Legion of Honour and the Médaille de la Reconnaissance Française. He rose to the rank of colonel, A.M.S., and was awarded the Territorial Decoration. During the present war he served as group officer, E.M.S., and regional adviser in surgery.

On the academic side at Leeds University Harold Collinson was in turn clinical lecturer in the Faculty of Medicine, professor of clinical surgery (1927–33), professor of surgery (1933–6), and finally dean for five years. Besides his valuable work at the General Infirmary he was also consulting surgeon to St. James's Hospital, Leeds, the Mirfield Memorial Hospital, the Clayton Hospital, the Wakefield and Skipton and District Hospital, and to the West Riding Mental Hospital, Wakefield. He represented the University of Leeds on the General Medical Council from 1936 to 1942. He was a Fellow of the Association of Surgeons of Great Britain and Ireland and a past president of the Leeds and West Riding Medico-Chirurgical Society. He joined the B.M.A. in 1907, was chairman of the Leeds Division in 1935–6, and served on the English and Welsh Consultants and Specialists Group Committee for three years. His published writings were almost wholly on abdominal surgery.

Of the man himself we may quote from an appreciation by "M. J. S." published in the *University of Leeds Medical Magazine* of October, 1941: "Harold Collinson's five-year tenure of the office of dean of the Faculty of Medicine terminated in September last. It was indeed a fortunate coincidence that Prof. Jamieson's departure to Trinity College, Dublin, in 1936 should coincide with Prof. Collinson's retirement from the chair of surgery. Here, immediately available, was the ideal man to be dean, a man infinitely younger than his 60 years, who enjoyed the confidence and respect of all, and who had built up an enviable reputation for straight dealing, integrity, and honesty of purpose. . . . His connexion with our School covers nearly half a century, and his record throughout, as surgeon and teacher, soldier and administrator, has been one of brilliant achievement, unspoilt by any slightest suggestion of self-seeking or hint of the Superior Person. It is not to be wondered at that this kind, generous, and courageous man has made for himself a unique place in the regard and affection of his colleagues and of many generations of students."

JAMES LIVINGSTONE LOUDON, M.D.

We regret to announce the death, in his 80th year, of this well-known Scottish member of the B.M.A. He was educated at the University of Glasgow, of which he was M.D. He was Fellow of the Royal Faculty of Physicians and Surgeons of Glasgow and a D.P.H. Among other medical appointments he had been medical officer of health of the Burgh of Hamilton. Dr. Loudon's interests were widely spread. He was an elder of the kirk, was a Justice of the Peace, a lieut.-colonel, R.A.M.C.(T.F.), with war service in France, and held the T.D. He was a well-read man with a gift for the apt quotation and a strong preference for accuracy in quotation. It was a source of pride to him that he was named after David Livingstone, the explorer, who was a great friend of his father's (also a doctor in Hamilton). Loudon had an interesting collection of mementoes and relics of his namesake. He joined the B.M.A. in 1902, and from then onwards took a very active part in its work. He was for many years secretary and chairman of the Lanarkshire Division and represented it on the Representative Body on several occasions, the last time being at Belfast in 1937. He was a member of the Central Council of the Association in 1912–18, again in 1927–9, and in 1931–6. He was a member of the Scottish Committee from 1927 to 1936, and a past-president of the Glasgow and South-Western Branch.

Dr. Loudon was a welcome figure in B.M.A. circles. Though not a frequent speaker, when he did speak it was obvious that he had something to say. He was conspicuous for his generosity, for his loyalty as a friend, and for the soundness of his judgment, and he will be greatly missed. His eldest daughter is a member of the medical profession and married the M.O.H. for Lanarkshire, Dr. J. M. Lang.

A. T. WILKINSON, M.D., F.R.C.P.

Arthur Thomas Wilkinson, who died at Poynton, Cheshire, on Jan. 21, was born in 1853, received his scientific education in the Owens College, Manchester, and had a much wider general foundation in it than was usual even then. He graduated B.A.Lond. in 1872, and B.Sc. two years later. In his medical education he had an exceptionally brilliant career, being one of those who can acquire knowledge and display it for examination requirements. In the preliminary scientific examination for the London M.B. he was awarded honours in chemistry, zoology, and botany, and in the First M.B. next year won the exhibition and gold medal in organic chemistry, materia medica, and pharmaceutical chemistry, and was third in honours in physiology (1875). He then took in his stride, so to speak, the L.S.A. diploma in 1876 and the M.R.C.S. next year. Having won honours in medicine and obstetrics in his Final M.B. he proceeded M.D. in 1880.

Before qualification Dr. Wilkinson had been physician-assistant at the Manchester Royal Infirmary, one of the last to hold this post, and subsequently was house-physician at the Infirmary and at Ancoats Hospital. General practice followed, and for many years he was one of the anaesthetists at the Royal Infirmary. While acting in this capacity one of his eyes became infected with some septic matter, causing the loss of it and the need for an artificial eye. In 1880 he was appointed assistant medical officer to the hospital, where he worked daily with the honorary staff in the out-patient department and took regular part in the elementary teaching of clinical medicine. With such a fine academical career it might be expected that he would be a good teacher, and though such promise is not always fulfilled it was in his case, and he became a popular and much-sought-after coach for the preliminary and qualifying examinations. His general-practice experience provided many useful hints on how to manage illnesses. One prescription of his had a curiously wide European reputation, for when some Manchester medical workers, including women, were assisting the Russian Army on the fatal Tannenberg front in the last war they found that scabies was treated with what the Russians called Wilkinson's ointment, the formula of which was equal parts of sulphur and ammoniated mercury ointments and of benzoated lard, the last having some special virtue additional to the other two.

He was appointed an honorary assistant physician to the Royal Infirmary in 1892, and remained in active work until his retirement on attaining the age of 60 in 1913. For many years of that time he filled the office of dean of clinical instruction, and his knowledge of the requirements of examining bodies enabled him to give useful advice to students. He lectured in the University on diseases of the kidney, and published some papers on the subject. He took a prominent part in the scientific life of the town, and was president of the medical, pathological, and clinical societies, the last-mentioned one being very popular for many years, until the clinical meetings of the Manchester Medical Society supplied the need for it. Dr. Wilkinson was elected a Fellow of the Royal College of Physicians of London in 1907, having taken the M.R.C.P. in 1888. At the Annual Meeting of the B.M.A. in 1902 he served as secretary of the Section of Medicine. He was a member of the Wesleyan religious body, in which his father had been a well-known minister; and he gave much time and thought to its administration and educational work. For many years he lectured regularly on divinity to students in the College, and was a frequent and welcome occupant of the pulpits of chapels in the district. He had been one of the leading members of a College Social Welfare Society in his student days and earlier years of general practice.

Sir HERBERT SMALLEY, M.D.

Formerly H.M. Commissioner of Prisons

Sir Herbert Smalley died at Hove on Jan. 25. He was the third son of the Rev. Cornwall Smalley, and was born in London on June 3, 1851, and was therefore one of the oldest members of the profession. Educated at St. Paul's School and King's College Hospital he qualified M.R.C.S., L.R.C.P. in 1875, and took the M.D. degree of Durham University in 1891. He was also an Associate of King's College. He joined the Prison Service in March, 1876, and was stationed at Chatham Prison, and served later at Millbank, Dartmoor, Pentonville, Dover, and Parkhurst Prisons. In 1897 he was appointed Medical Inspector of Prisons, and in 1913 was further promoted to the office of H.M. Commissioner of Prisons and a Director of Convict Prisons. His valuable services to the State were recognized when he was knighted in 1913. He retired in 1917. He had been a member of the B.M.A. for 68 years at the time of his death.

It is almost inevitable that a man who reaches his tenth decade will leave at his death no witness to record at first hand his earlier work and ambitions. The fact that Smalley passed the primary examination for the Fellowship of the Royal College of Surgeons and the written testimony of John Curnow, the dean of his medical school, show that he was an able and earnest student. The writer of this note served under Smalley from 1899 until his retirement in 1917, and later, as Commissioner, had special opportunities of estimating the constructive value of Smalley's official work.

It was particularly fortunate that Smalley entered upon his duties as Medical Inspector of Prisons with 20 years' experience behind him as a prison medical officer. In no other way could he have appreciated so fully the peculiar problems which arise in the daily work of a prison medical officer, and no other training could have made him so wise a counsellor in the management of difficult prisoners of either sex. As soon as he became inspector Smalley set to work quietly, unobtrusively, and determinedly to establish the status of the prison medical officers on a firm basis, and, while justly balancing the disciplinary and medical issues arising in the treatment of offenders, advanced the scientific approach to criminal problems. Under his wise guidance the conditions in the prison hospitals were brought into line as far as circumstances permitted with those outside, and he encouraged the medical officers to regard the criminal as a fitting subject for individual study. He prepared the tabulated forms which were used by Goring and other prison medical officers in the anthropometrical survey which Goring analysed in his well-known publication, on *The English Convict.*

As a prison medical officer Smalley had been impressed by the necessity for a special nursing service in prisons, and one of his first cares as inspector was to establish a separate hospital male and female staff. To further his purpose he wrote an excellent *Manual of Prison Hospital Nursing* in 1902. The book was an immediate success and was used far beyond the English Prison Service. Although chiefly interested in general medicine, Smalley was ever mindful of the mental aspects of offenders, and was an authoritative witness before the Royal Commission on the Care and Control of the Feeble-Minded in 1904. His statements in the annual reports of the Prison Commissioners were marked by progressive caution, sound judgment, and a humane and human outlook upon the different problems with which he dealt. His conscientious work, common sense, wise counsel, and sustained determination to conduct the administrative as well as the medical business of the department at a high level of efficiency and humanity were recognized and highly appreciated by his fellow commissioners.

Smalley avoided publicity, but he made the public service his life's work and was content quietly to lay sure foundations upon which those who followed him could build. Those who worked with him, particularly those who succeeded him at the Home Office, know the extent of his very real success. His interest in the prison service continued up to the last. The manner in which he endeared himself to the medical officers was shown by the visits they paid him from time to time in spite of the long passage of years. Indeed, to some of us these visits were a happy pilgrimage. He married in 1885 Rose Christina, daughter of the late G. F. Grammann. There were no children, but perhaps it is not too much to believe that their affection and solicitude one for another contributed to their longevity as well as to their mutual happiness.

W. N. E.

T. HARRISON BUTLER, D.M., F.R.C.S.

Mr. T. Harrison Butler, well known as an ophthalmic surgeon far beyond the Midlands, where he practised for many years, died suddenly at Hampton-in-Arden, Warwickshire, on Jan. 29. He was a past-president of the Ophthalmological Society of the United Kingdom, and gave the Doyne Memorial Lecture (1924), the Montgomery Lectures in Dublin (1926), and the Middlemore Lecture on three occasions.

Thomas Harrison Butler, son of the Rev. G. W. Butler, was born at Stanhope, Co. Durham, on March 18, 1871. From St. Paul's School he entered Corpus Christi College, Oxford, with a scholarship in 1889, and after graduating B.A. with first-class honours in natural science in 1893, went to St. Bartholomew's Hospital. He took his medical degrees at Oxford in 1895, proceeded M.A. and D.M. in 1902, and was elected F.R.C.S. in 1941. He served as house-surgeon at Bart's and house-physician at the Royal Free Hospital, was awarded the Radcliffe Travelling Fellowship of the University of Oxford in 1896, and attended eye clinics at Kiel, Berlin, Dresden, Vienna, and Zurich. For four years he worked as assistant surgeon to the British Ophthalmic Hospital in Jerusalem, and then as plague medical officer at Capetown. On returning to this country he was elected ophthalmic surgeon to the Coventry and Warwickshire Hospital in 1909, to the Warneford Hospital, Leamington, in 1910, and three years later joined the visiting staff of the Birmingham and Midland Eye Hospital: in 1918 he became consulting ophthalmic surgeon to the Hospital of St. Cross, Rugby, and afterwards honorary ophthalmic surgeon to the West Bromwich and District General Hospital. He was a prominent member of the Midland Ophthalmological Society, and active in the work of the Oxford Ophthalmological Congress from the time of its foundation.

The earliest papers by Harrison Butler were on refraction on ophthalmology in Palestine, on tuberculous disease of the uvea, and on the treatment of trichiasis, and he wrote much else on the surgery of the eye, but his name is best known to the profession as an authority on slit-lamp ophthalmoscopy His valuable and most complete *Illustrated Guide to the Slit-Lamp* appeared in 1927; it was a fine piece of work on the use of that instrument in eye disease, to the making of which there had gone much careful observation and accurate recording. The book was founded upon a series of lectures at the University of Oxford, together with the Doyne Memoria Lecture and the Montgomery Lectures. It is believed that the whole of the 158 illustrations in the text and the 21 additiona figures in the five coloured plates were the work of his own skilled hand as a draughtsman.

Harrison Butler joined the B.M.A. in 1897, was vice-president of the Section of Ophthalmology at the Annual Meeting o 1926, and did good work on a number of special subcommittee at headquarters, where his membership of the Ophthalmic Group Committee ran continuously from 1923. Outside hi profession he was an ardent yachtsman, a member of the Royal Cruising Club, and the author of several contributions to yachting journals. As an undergraduate he had rowed in th Corpus VIII, and in later life he became president of the Little Ship Club.

CECIL JOLL, M.Ch., F.R.C.S.

Dr. H. W. Loftus Dale writes from Aylesbury:

Mr. C. A. Joll's untimely death, while a great loss to surger as a whole, is particularly felt by his colleagues at the Royal Buck Hospital, with which he had been associated since 1920. It would be superfluous for me to touch on his brilliance as a surgeon Although it was one of his minor appointments, he had a great affection for the Royal Bucks and did much to raise and maintai its prestige as the county hospital. He always attended person ally and with unfailing punctuality. His own matchless efficienc inspired all those who worked with him to give of their best, with the result that we got through an amazing volume of work which was a constant source of wonder to succeeding generations of residents and theatre sisters; all fell under his spell. I acted as his anaesthetist for 21 years, and his death deprives me of a very great friend and valued colleague; his superb technique made my work for him a real pleasure. He was a mine of information on any subject and possessed a keen sense of humour. His axioms and aphorisms uttered during operations will long be remembered and with profit by all colleagues in Aylesbury, and by many generations of residents. In no circumstance of hazard or of exasperation have I seen him lose his head or his temper; he was only intolerant of inefficiency. He carried on his work here until very shortly before his death, which has deprived us of a surgeon difficult to replace. We have the memory of a loyal friend and colleague which time will not readily efface.

We regret to announce the death on Jan. 12 at his home in Dublin of Dr. **JOHN AGAR MATSON**, a former President of the Royal College of Physicians of Ireland and consulting physician to the Richmond and other Dublin hospitals. Dr. Matson studied at Trinity College, Dublin, graduated B.A. in 1886, M.B., B.Ch., B.A.O. in 1888, and M.D. in 1889; he also obtained a special certificate in gynaecology when taking the licence in midwifery at the Rotunda Hospital. After qualification he spent some time in England as clinical assistant to the Great Northern Central Hospital, London, and house-surgeon to the Royal Southern Hospital, Liverpool. On returning to Dublin he worked as resident at the Mater Misericordiae Hospital. Dr. Matson took the licence of the Royal College of Physicians of Ireland in 1901, the Membership in 1903, and was elected a Fellow in 1904. He served as censor in medicine, held office as Vice-President of the College in 1929, and was President in 1934; he also acted as censor in medicine for the Irish Royal College of Surgeons. He published clinical papers in the *Transactions of the Royal Academy of Medicine in Ireland* and in the *Dublin Journal of Medical Sciences.* Dr. Matson joined the British Medical Association as long ago as 1889.

We regret to record the death on Jan. 24 of **DAVID LIVINGSTON HAMILTON** at Cambridge. He was born on Jan. 27, 1864, and was educated at Ledwich and Carmichael College, Dublin, and Owens College, Manchester, qualifying L.R.C.P. and L.R.C.S.Ed. and L.R.F.P.S.Glas. in 1887 and L.M. Coombe Hospital in 1886. He obtained the F.R.C.S.Ed. in 1895. In 1902 he was elected honorary anaesthetist to the Southern Hospital, Manchester. Dr. Hamilton practised for many years at Great Missenden, Bucks, and later at Dover. On being evacuated from Dover in 1941 he purchased a practice at Cambridge and continued to work there until a few days before his death. He was a much-loved doctor, and his unfailing kindness caused his patients to look up to him not only as their physician but as their guide and friend. Though his practice was extensive he never failed to keep himself abreast of new advances. For many years he was a keen Volunteer and Territorial officer, and was promoted lieut.-col. in the R.A.M.C.(T.) in 1911. During the 1914–18 war he commanded No. 82 Field Ambulance in France and was later appointed D.A.D.M.S. to the 1st Army in England. He took a considerable interest in the St. John Ambulance Brigade and was awarded the honour of Serving Brother in 1934. He married in 1885 Miss Helen Ida Bagge, who died in 1903, and in 1922 he married Miss Gertrude Marshall, whose devoted care did much to enable him to carry on a busy practice to the advanced age of 80. His family consisted of three sons, all of whom are now serving in the Forces, and two daughters.

The Services

Lieut.-Gen. Sir James A. Hartigan, K.C.B., C.M.G., D.S.O., has been appointed Colonel Commandant of the R.A.M.C. for 1945, and Major-Gen. J. P. Helliwell, C.B.E., M.R.C.S., Colonel Commandant of the Army Dental Corps for 1945.

The name of Fl. Lieut. R. V. Robinson, R.A.F.V.R., was omitted from the list of Air Force medical officers mentioned in dispatches (*Journal*, Jan. 20, p. 98).

CASUALTIES IN THE MEDICAL SERVICES

Died from injuries.—Lieut.-Col. Martin Patrick Conroy, I.M.S.

Prisoner of war.—Capt. J. W. Logan, D.S.O., R.A.M.C.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a Congregation held on Jan. 26 the following medical degrees were conferred:

M.B., B.CHIR.—*J. D. Andrew, E. L. Arnold, D. V. Bates, *T. C. Beard, W. M. Bennett, J. H. E. Bergin, I. J. Carré, W. R. Cole, *C. H. de Boer, E. D. Dyson, T. P. S. Frew, S. A. M. Garibian, H. McC. Giles, P. F. Haggart, F. G. J. Hayhoe, P. R. Headley, J. G. Holmes, D. G. James, E. G. Jenner, E. D. Jones, J. D. S. Knight, A. G. Leatham, P. F. Lucas, E. T. G. Meade-Waldo, J. M. Morgan, M. W. L. Mutch, E. W. Nation, W. J. Naunton, G. A. Newsholme, D. A. Pond, P. K. Robinson, G. H. Searle, K W. Symons, *J. M. Thomas, W. E. W. Tilleke, *J. Upsdell, D. P. Wheatley, R. A. Womersley, K. A. A. Wray, M. F. T. Yealland.

B.CHIR.—R. O. Lee.

* In person.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At a meeting of Council held on Jan. 27, with the President, Mr Eardley Holland, in the chair, the following candidates were elected to the Membership:

Amelia E. Burch, J. P. O. Erskine, E. Garland-Collins, A. B. Hay, J. Karnicki, Gladys E. Keith, Dorothea M. Kerslake, Sybil G. Mocatta, Dorothy M. Shotton, B. G. G. Spiers, Dorothy J. Thompson.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

At a quarterly comitia of the Royal College of Physicians of London held on Jan. 25, with the President, Lord Moran, in the chair, it was announced that a committee was being set up to consider the problems arising out of demobilization. A memorandum was received on the future organization of the psychiatric services.

The following candidates, having satisfied the Censors' Board, were elected Members of the College:

J. F. Ackroyd, M.B.Brist.; *G. M. Barrett, M.B.Camb., Lieut., R.A.M.C.; *M. P. Bhagat, M.D.Bombay; Georgiana M. Bonser, M.D.Manch.; R. J Cairns, M.B.Lond.; *P. L. C. Carrier, M.D.Lond., Lieut.-Col., R.A.M.C.; *L. B. Carruthers, M.D.Kingston, Ontario; *P. K. Chattopadhyay, M.B.Calcutta; *N. S. Clark, M.B.Aberd., Major, R.A.M.C.; *A. M. Dawes, M.B.Lond., Capt., R.A.M.C.; D. P. Degenhardt, M.B.Ed.; C. E. Dent, M.B.Lond.; M. A. Floyer, M.B.Camb.; *R. H. Girdwood, M.B.Ed., Capt., R.A.M.C.; T. A. Grimson, M.B.Lond.; R. H. R. Hartley, L.R.C.P.; C. F Hawkins, M.B.Lond.; T. C. Highton, M.B.Liverp., Temp. Surg. Lieut., R.N.V.R.; *J. C. Houston, M.B.Lond., Capt., R.A.M.C.; E. A. Hunter, M.B.Lond.; M. R. Jeffrey, M.B.Camb.; A. T. Jones, M.D.Liverp.; *M. R. Joseph, Major, R.A.M.C.; *A. C. Kendall, M.B.Birm., Capt., R.A.M.C.; *H. S. Khandheria, M.B.Bombay; H. Levy, M.D.Berne; G. M. Little, M.B.Camb.; S. Locket, L.R.C.P.; *D. Macaulay, M.B.Glas., Capt., I.A.M.C.; *J. G. McGill, M.D.Belf., Capt., R.A.M.C.; W. A. Maclure, M.B.Glas., Surg. Lieut., R.N.V.R.; W. Mayer-Gross, M.D.Heidelberg; *J. K. Mehta, M.D.Bombay; *A. B. Mukerjee, M.B.Calcutta; J. M. Naish, M.B.Camb., Surg. Lieut., R.N.V.R.; *M. J. Parsonage, M.B.Manch., Capt., R.A.M.C.; *S. Renfrew, M.B.Glas., Capt., R.A.M.C.; *J. L. Reynolds, M.B.New Zeal., Capt., R.A.M.C.; *E. N. Rowlands, M.D.Manch., Major, R.A.M.C.; R. D. W. Schofield, M.B.Lond.; *S. M. Shah, M.B.Bombay; E. G. Sita, M.B.Camb., Surg. Lieut., R.N.V.R.; J. Sondheimer, M.B.Lond.; *R. Subramaniam, M.D.Madras; G. I. M. Swyer, B.M.Oxon.; Margaret D. Thompson, M.B.Birm.; R. D. Tonkin, M.B.Lond., Fl. Lieut., R.A.F.; *W. D. Wallace, M.B.Sheffield, Capt., R.A.M.C.; *M. Ware, M.B.Lond., Capt., R.A.M.C.; B. G. Wells, M.B.Lond.; J. R. F. Williams, M.B.Lond.; *A. W. Woodruff, M.D.Durham, Squad. Ldr., R.A.F.

* *In absentia.*

Licences to practise were granted to the following 125 candidates (including 19 women) who had passed the Final Examinations in Medicine, Surgery, and Midwifery of the Conjoint Board, and have complied with the necessary by-laws:

Hildegard C. Abraham, R. A. Allen, Alison H. C. Alwyn-Smith, R. Andrew, E. A. Balls, W. A. D. Barwise, M. A. Bernays, A. E. Bernstien, K. A. Bhagan, F. J. A. H. Blackwood, R. A. Boland, Daphne V. Bousfield, R. G. L. Brittain, B. H. Brock, A. S. V. Burgen, J. S. Campbell, R. J. F. Campbell, A. A. Cohen, D. H. P. Cope, H. J. P. Davies, Margaret E. Davies, R. De Vere, D. Dooley, E. J. Dowling, J. M. Drew, M. W. Eddings, K. A. Elliott, T. Ellis, Edith M. Evans, T. A. Evershed, R. C. Farrow, Ruth M. Fawcett, N. R. Fenton, W. N. Fitzpatrick, M. W. Fordham, W. P. Foster, A. T. H. Glanvill, F. J. Goodey, M. V. Guilmant, K. J. Gurling, J. Harding Cox, Mary L. Hare, J. E. Holgate, J. G. Holmes, E. H. Hopkinson, Dorothy I. Howes, Mary P. Hughes, M. F. Hunt, Flavia Z. L. B. James, R. M. Jenner, Moyra P. C. Johnsen, E. D. Jones, S. Jones, I. M. Kahan, A. P. Kalra, W. de M. Kellock, D. R. Laurence, S. Levine, D. O. Lloyd, H. R. Lomax, Margaret D. T. Lord, G. E. Luke, R. P. C. MacDonald, Kathleen M. M. McDougall, J. R. Macintyre, C. B. McKerrow, D. MacKinnon, Nora S. McRaith, H. B. Marsden, J. D. Martin, S. Mason, G. Mizbah, M. G Moore, A. V. Morse, E. W. Nation, G. F. Newbold, D. R. L. Newton, D. P. Nicholson, T. M. Nott-Bower, P. R. Ormrod, G. P. Oxborrow, G. Pollitt, Jean P. Popple, R. W. Povey, T. H. Powell, I. H. Pratt, J. M. Reed, A. P. Roberts, J. M. Roberts, J. H. Robinson, G. J. Romanes, G. A. Rundle, E. L. N. S. Sack, R. G. H. Salkeld, A. O. Sankey, H. Schwartz, M. G. Scott, Elizabeth M. Sefton, J. Sharp, A. F. Sheldon, D. W. S. Sheldon, C. B. Sherer, J. P. Shillingford, S. Shubsachs, D. B. Spanton, J. Stafford, G. W. Storey, H. D. Symon, S. D. Tejani, A. E. Thomas, Betty Thomas, J. L. Thomas, N. A. Thorne, C. Todd, G. Twynholm-Mason, Vivian M. N. Usborne, P. H. Vernon, P. Watson, P. Weinstein, D. P. Wheatley, P. J. Wilkinson, Olwen D. Williams, D. H. Woodhead, M. F. T. Yealland, G. Yerbury.

Diplomas in Child Health and in Anaesthetics were granted jointly with the Royal College of Surgeons of England to the candidates whose names were published in the report of the meeting of the Royal College of Surgeons of England in the *Journal* of Dec. 30, 1944 (p. 871) and Diplomas in Public Health, in Psychological

Medicine, and in Laryngology and Otology were granted jointly with the Royal College of Surgeons of England to the candidates whose names were published in the report of the meeting of the Royal College of Surgeons of England in the *Journal* of Jan. 27 (p. 135).

CONJOINT BOARD IN SCOTLAND

The following candidates, having passed the requisite examinations, have been admitted L.R.C.P.Ed., L.R.C.S.Ed., L.R.F.P.&S.Glas.:

W. C. Adam, J. H. Beckford, M. G. Blackwood, G. W. Blueglass, W. J. Connelly, A. W. Craig, B. Cutler, A. A. Donaldson, L. P. Eaton, J. Fegan, T. M. Glaister, S. M. Harris, Cacilla M. Hofer, Jean Hughes, J. D. Jack, S. Jesner, Helen T. Kilpatrick, S. J. MacKinnon, A. McKirdy, W. D. MacLennan, A. B. Marshall, A. L. Nowell, D. Peebles, D. R. L. Peill, F. C. Place, W. Roberts, J. Rubin, D. G. Scott, A. A. El Serougi, B. M. Steen.

SOCIETY OF APOTHECARIES OF LONDON

Mr. Eardley Holland, President of the Royal College of Obstetricians and Gynaecologists, will deliver a lecture on "The New Obstetrics and Gynaecology" at Apothecaries' Hall, Black Friars Lane, Queen Victoria Street, E.C., on Tuesday, Feb. 20, at 2.30 p.m. Members of the medical profession and senior students are invited to attend.

Medical Notes in Parliament

Relief for Channel Islands

In the House of Lords on Jan. 30 the EARL OF MUNSTER, replying to Lord Portsea, said that the Government was doing everything it could to supplement the basic rations of the civil population in the Channel Islands. Representatives of the International Red Cross, who had visited the islands, stated that the unloading and disposal of the supplies taken in her first voyage by the *Vega* had proceeded satisfactorily, and he took it that the supplies were now in the hands of the civil population. The *Vega* was damaged in harbour in Guernsey, and repairs had become necessary, but she would sail on her second trip on Feb. 1. When she sailed again she would carry as many as possible of the articles which were recommended by the Red Cross representative. The stores she would carry would include soap and salt, medical supplies and drugs, and more food parcels, and would do a great deal to alleviate the position. The question of evacuating seriously ill persons who could not receive proper medical attention in the islands was discussed by the Red Cross representatives, and the matter was being actively pursued by the Government.

Medical Care of Returned P.O.W.

On Jan. 30 Sir ERNEST GRAHAM-LITTLE asked the Minister of Health whether he would inquire into the medical accommodation supplied to prisoners of war on their return to this country with a view to its improvement; and if he was aware that the conditions provided for prisoners with tuberculosis were such as to disturb Service welfare workers. Mr. WILLINK: Returning prisoners of war have the benefit of all the resources of the Emergency Hospital Scheme, where the Service Department concerned requests that they be treated under that scheme. As regards those suffering from tuberculosis whose condition calls for sanatorium treatment, special measures are taken to secure their admission to a sanatorium, but in the present difficulties of limited accommodation it is not always possible to avoid a short waiting period at home, during which the patient is under the expert care of the tuberculosis officer. If Sir Ernest Graham-Little has in mind any particular case for which he considers that inadequate provision has been made I shall be glad to make inquiries.

Women Doctors in Government Departments

On Jan. 23 Capt. PRESCOTT asked the Chancellor of the Exchequer whether there was a general ban on the employment in Government Departments of married women doctors; and whether, in view of their special qualifications, especially for employment in the Ministry of Health, he would consider action to secure their employment in suitable cases. Sir JOHN ANDERSON: The normal rule is that married women are ineligible for appointment to established posts in the Civil Service, and that women holding such posts should be required to resign on marriage; but an exception may be made, upon application by the woman concerned, in any case where it is considered that the employment of a married woman is advisable in the light of her special qualifications, or special experience in relation to the duties required of her, or of the special requirements of the Department concerned. In view of the power to make exceptions in such cases, no special action seems to be needed in relation to women doctors.

Capt. PRESCOTT: In view of the shortage of doctors at the present time—a shortage which is likely to continue in the future—and of the special adaptability of women doctors for certain branches of the Service, ought not the general ban to be lifted? Sir JOHN ANDERSON: The case of doctors is certainly very special, and, as I have just explained, the general rule can be relaxed. I know of no case in which permission has been refused to a woman doctor. Capt. PRESCOTT asked why the ban should be retained, and if it was not redundant but Sir JOHN ANDERSON replied that that was a matter of debate

Nurses Bill

In the House of Lords on Jan. 23 the EARL OF LISTOWEL moved the second reading of the Nurses Bill, the object of which is to correct a drafting error in the Nurses Act and the Nurses (Scotland) Act. He explained that these Acts were intended to protect private patients or hospital authorities from unfair treatment—such as demands for excessive fees or the ministrations of unqualified nurses—on the part of nursing agencies to which they applied for assistance in cases of illness Certain conditions to which these agencies, or nurses' co-operations, had to conform were laid down in the two Acts, in order to prevent these abuses, but the expression "agency for the supply of nurses" was so drafted that it might be taken to cover innocuous organizations like county and district nursing associations. The only way to safeguard these associations and the district nurses, as well as to apply the necessary control to the nurses' co-operations, was to narrow down the meaning of "agency for the supply of nurses" and exclude from the regulations those excellent bodies with which no one had eve desired to interfere. This the Bill did. The Bill was read a second time.

Sale of T.T. Cattle.—Mr. TOM WILLIAMS on Jan. 25 told Gen Clifton Brown that cows which had passed a tuberculin test were being sold at markets as such, though they had not come from tuberculin-tested herds. The only markets subject to official regulation as to the classes of cattle that might be sold were thos authorized under the Tuberculosis (Attested Herds) Scheme. At such markets the only cattle that could now be sold were cattle from herds within this scheme, and cattle from herds licensed for th production of tuberculin-tested milk.

Notes in Brief

In 1943, 5,796 people were killed on the roads and 116,740 wer injured. In the first 11 months of 1944 the corresponding figure were 5,807 and 112,833.

A scheme is under consideration for the control of malaria in Mauritius involving capital expenditure estimated to amount to £1,500,000. Antimalarial work is being carried out in the island.

Medical News

Sir John Boyd Orr, M.D., F.R.S., has resigned the post o director of the Rowett Research Institute, Bucksburn, Aberdeenshire and the vacancy will be advertised at an early date. The pos carries with it the directorship of the Imperial Bureau of Nutrition and the editorship of *Nutrition Abstracts and Reviews.*

At the next meeting of the Royal Society of Tropical Medicine and Hygiene, to be held at 26, Portland Place, W., on Thursday Feb. 15, at 3 p.m., Prof. P. A. Buxton, F.R.S., will read a paper on the use of the new insecticide D.D.T. in relation to the problem of tropical medicine.

A meeting of the Middlesex County Medical Society will be hel at Staines County Hospital on Thursday, Feb. 22, at 3 p.m., whe papers will be read by Dr. A. Barham-Carter on "The Treatmen of Some Hysterical Manifestations," and Mr. N. M. Matheson o "The Diagnosis of Urinary Tuberculosis." A discussion wi follow.

The Chadwick Trust has arranged the following lectures: Tuesday Feb. 20, 2.30 p.m., at Royal Society of Tropical Medicine an Hygiene, 26, Portland Place, W., Dr. J. D. Rolleston, "The Wa and Infectious Disease." Tuesday, March 13, 2.30 p.m., at Londo School of Hygiene and Tropical Medicine, Keppel Street, W.C Dr. Albert Parker, "Atmospheric Pollution." Tuesday, April 1 2.30 p.m., at Royal Sanitary Institute, 90, Buckingham Palace Road S.W., Mr. A. Trystan Edwards, "Sunlight and Sanitation in Relation to the Planning of Buildings." Tuesday, May 8, 2.30 p.m., a Royal Society of Tropical Medicine and Hygiene, Mr. Eardle Holland, "On the Importance of a Maternity Service in the Life o the Nation." Thursday, June 14, 4 p.m., at Chelsea Physic Garden Swan Walk, S.W., Mr. C. J. Layton, "Health and Horticulture. Admission to all the lectures is free and tickets are not required.

Dr. Simon Wigoder has been elected alderman and returnin officer for the North Ward of the Borough of Morley.

The Royal Sanitary Institute announces the following sessional meetings: Feb. 24, at 10.30 a.m., at Radiant House, Bold Street, Liverpool; papers on "Public Health and the Social Services," by Dr. C. O. Stallybrass, and "Post-war Housing," by Mr. L. H. Keay. March 10, at 10.30 a.m., at Westover Senior School, Wembdon Road, Bridgwater; papers on "Water Supply Problems in Rural Districts," by Sir William Savage and Mr. A. J. Allen. March 14, at 2.30 p.m., at Royal Sanitary Institute, 90, Buckingham Palace Road, S.W.; paper on "Insect Pests in Food," by Mr. V. Wadsworth. March 17, at 10.30 a.m., at Norwich Guildhall; papers on "Rat Destruction Work in Norwich," by Mr. G. D. Kirby, and "Food Poisoning," by Dr. A. J. Macdonald. The Cheshunt sessional meeting arranged for March 2, announced in the *Journal* of Jan. 13 (p. 65), has been cancelled.

Dr. Norman Macfadyen, chairman of the Executive Committee of the Town and Country Planning Association from 1929 to 1944, was recently presented at the headquarters in London with the Howard Memorial Medal.

The Sir Robert Jones Gold Medal for 1944 has been awarded by the British Orthopaedic Association to Mr. F. G. St. Clair Strange, F.R.C.S., for his essay on "The Major Amputation Stump in Health and Disease," read at a recent meeting of the association.

The Minister of Fuel and Power has appointed Prof. J. M. Mackintosh, M.D., a member of the Fuel and Power Advisory Council.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* infectious diseases increased in prevalence, the rises over last week's totals being: measles 1,075, scarlet fever 234, whooping-cough 107, dysentery 75, diphtheria 59, cerebrospinal fever 24.

The rise in diphtheria was due to a serious local outbreak in Caernarvonshire, Bangor M.B., where 55 cases, a little more than one-tenth of the total of the whole country, were reported. There was a small increase in scarlet fever notifications in most areas; Lancashire reported 77 more cases than last week, and Yorks West Riding 32. The rise in whooping-cough was greatest in Wales, where notifications exceeded last week's total by 43. Increases in measles were as follows: Yorks West Riding 254, Derbyshire 147, Nottinghamshire 145, Staffordshire 129, Middlesex 109, Essex 98, Lancashire 94, London 80. In Warwickshire notifications dropped by 146, and in Durham by 52. Eight of the 11 cases of typhoid were reported from Lancashire (Manchester C.B. 6, Liverpool C.B. 1, Warrington R.D. 1). The total for cerebrospinal fever was the largest for nine months; the cases were widely spread throughout the country, involving twenty-eight counties, although half the cases were reported from four counties: Lancashire 14, Yorks West Riding 10, Warwickshire 8, Durham 7.

Ninety-two cases of dysentery were notified in Yorks West Riding—8 fewer than last week; the chief centres of infection were Wakefield C.B. 64, and Sheffield C.B. 18. In Buckinghamshire, Aylesbury R.D., the notifications rose from 14 to 62. The other large returns were London 45, Gloucestershire 20, Essex 19, Lancashire 18, Middlesex 10, Suffolk 10.

Almost 100 civilians who have been in contact with the smallpox case at an Army camp in Anglesey have been traced. These are being kept under observation in the absence of isolation facilities. Only a few persons have taken advantage of the free vaccination offer.

In *Scotland* scarlet fever notifications were 33 higher than last week, and those for acute primary pneumonia 25; there were 313 fewer cases of measles, 95 fewer of whooping-cough, and 21 fewer of diphtheria. Although dysentery notifications fell by 7 cases for the whole country, the western area showed an increase of 10, the chief returns being Glasgow 22, Falkirk 11, and Clackmannan County 9.

In *Eire* diphtheria notifications dropped by 16 cases to a total of 97, the lowest for recent months. Delayed returns in Waterford C.B. accounted for the apparently large rise in the incidence of dysentery.

In *Northern Ireland* measles notifications were at the lowest level since the beginning of November, 57 fewer cases being reported than last week.

Week Ending January 27

The returns of infectious diseases in England and Wales during the week included: scarlet fever 1,510, whooping-cough 1,625, diphtheria 450, measles 12,941, acute pneumonia 1,397, cerebrospinal fever 81, dysentery 295, paratyphoid 3, typhoid 3. Eighty-seven deaths were attributed to influenza in the great towns.

No. 3

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Jan. 20.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	77	5	25	3	1	70	4	19	3	1
Deaths		1	—				—	1		
Diphtheria	518	15	133	97	15	712	33	174	110	51
Deaths	12	—	1	2	2	10	—	9	1	—
Dysentery	377	45	75	23*	—	148	41	69	1	1
Deaths				—	—				—	—
Encephalitis lethargica, acute	—	—	—	—	—	1	—	—	—	—
Deaths		—					—			
Erysipelas			54	12	3			49	15	4
Deaths		1					—			
Infective enteritis or diarrhoea under 2 years				12					10	
Deaths	50	4	7	3	2	46	7	8	16	7
Measles†	12,054	290	576	25	182	661	118	138	212	1
Deaths	16	—	1	—	—	—	—	—	7	—
Ophthalmia neonatorum	51	2	18	—	1	65	5	22	—	1
Deaths										
Paratyphoid fever	1	1	1 (B)	—	—	2	1	4	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal‡	1,399	77	14	8	13	1,122	141	30	21	3
Deaths (from influenza)	56	6	3	—	—	143	16	4	6	—
Pneumonia, primary			344	32				300	30	
Deaths		92		21	23		85		19	17
Polio-encephalitis, acute	1	—				1	—			
Deaths		—					—			
Poliomyelitis, acute	9	1	—	1	1	5	—	—	1	—
Deaths		—					—			
Puerperal fever		1	9		1		5	14		—
Deaths										
Puerperal pyrexia§	137	9	21	—	1	181	11	16		5
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,564	73	245	15	42	2,110	157	186	31	99
Deaths	1	—	2	—	—	1	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	11	—	2	5	—	2	1	—	5	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough†	1,785	50	190	47	20	2,215	178	233	74	22
Deaths	12	1	1	1	—	15	—	1	2	—
Deaths (0–1 year)	494	48	59	33	27	453	59	80	69	28
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	6,864	1091	738	273	171	5,841	935	698	258	167
Annual death rate (per 1,000 persons living)			16·8	17·6	¶			16·0	16·8	¶
Live births	6,778	728	802	359	264	6,515	865	888	364	252
Annual rate per 1,000 persons living			16·0	23·2	¶			18·1	23·8	¶
Stillbirths	221	16	29			252	27	31		
Rate per 1,000 total births (including stillborn)			35					34		

* Includes cases since November, 1944.

† Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ Includes puerperal fever for England and Wales and Eire.

¶ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Seborrhoeic Patches

Q.—*What is the best treatment for the seborrhoeic patches often seen on the temples of old people?*

A.—Several different conditions are covered by the above question. Senile keratosis, especially met with in those who have lived in the Tropics, and often pre-malignant, usually requires radiotherapy; otherwise the CO_2 pencil applied for 30 seconds may be adequate. The simpler pigment patches clear up after light freezing with CO_2, and this also applies to the true seborrhoeic warts, which are, however, more common on the trunk than on the face. Painting with pure carbolic is also recommended for this condition.

Removing Blackheads

Q.—*What is the best method of getting rid of "blackheads" on the face? Is there any way to prevent their developing?*

A.—First steam the face, or apply a hot sponge for 5 to 10 minutes; then with a special instrument *gently* remove the blackheads, leaving those alone which offer any degree of resistance. A simple extractor can be made from a piece of laboratory glass tubing, 1 in. in length, the sharp edge rounded off in the Bunsen flame. This, with salicylic acid 3 or 4% in soft paraffin, provided it is tolerated, assists by its peeling action.

Tubercle-infected Fomites

Q.—*In many sanatoria patients do leather-work, make jewellery, toys, table-mats, knitted articles, etc. Is there any definite instance of infection following the selling of such articles to people outside? Theoretically all such things are infected, whether the maker is sputum-positive or not. Should not the clothes and belongings of a patient before discharge be put through some form of terminal disinfection? Is it wise for a patient to take home any books he may have acquired during his stay in a sanatorium?*

A.—The part which inanimate objects (fomites) play in the spread of tuberculous infection is probably small but is obviously difficult to assess. The greatest risk would be to young children, who instinctively put everything they handle into the mouth; and in a household where there is a tuberculous case (often undiagnosed) spread of infection to infants by fomites almost certainly occurs, for a fair proportion of abdominal and glandular tuberculosis is due to the human type of tubercle bacillus. Tubercle bacilli exposed to daylight, directly or even through glass, have a limited viability—a few hours to a few days—so that surface contamination of leather goods and hardware with infected droplets is unlikely to be a serious hazard to those who buy these goods. Besides, the mordants used in dyeing leather are probably bactericidal, and prudent people would wash any hardware articles brought from a sanatorium. Knitted and other woollen garments are usually sterilized before release. As for clothing, the patient who is up and wearing outdoor clothes has been trained to the use of his sputum flask, and is unlikely to contaminate his suit by expectoration. Coughing in a sanatorium is a remarkably rare phenomenon, and patients cover their coughs with the handkerchief issued daily and kept in a "special pocket."

Books are perhaps the greatest danger, especially if an infective patient "wet-thumbs" the pages. However, experiments have shown that tubercle bacilli can rarely be recovered after a month from books heavily contaminated with tuberculous sputum and kept in a cupboard (see *Publ. Hlth.*, 1940, **53**, 157). Thus the patient wishing to take home books acquired while in the sanatorium may safely do so if he puts them in quarantine for 3 to 4 weeks. Dry heat is the only form of active sterilization applicable to books, but even this cannot be considered harmless. Outside "airing" would reduce the period of infectivity.

Body Temperature Readings

Q.—*There seems to be a difference of opinion about when and how to take the correct temperature of the body, and I should be glad of an expert opinion. A Kew certificate clinical thermomete starting at 96.5° in my case (I am liable to T. 99° in the evenings from tracheitis) will hardly move in 2 minutes and will take 1 minutes to reach 99° (at the same time I have symptoms compatible with a rise of temperature). A colleague says that a 30-second thermometer should rise within a minute, and if kept in place will continue to do so, also that the temperature rises above normal in the ordinary way. Are the last two true? Is the temperature taken per rectum or by placing a thermometer in the stream of urine to be considered as correct, and how does such compare with the temperature taken in the mouth?*

A.—Although thermometers are described as 1/2-minute or 1½-minute, these are purely technical specifications and have little bearing on their use in practice. No clinical thermometer can be expected to come into equilibrium with the body in less than 2 minutes however it is used. Nurses are taught not to shake the mercury below 95°, to minimize delay. For accurate records the rectal temperature is preferred and the thermometer is left *in situ* for 5 minutes. In the mouth it is generally agreed that it may take up to 10 minutes for equilibrium to be obtained; nevertheless fo ordinary work it is usually sufficient to read the temperature at, say, 3 minutes and then at short intervals thereafter until the difference between successive readings approaches zero. Readings in the axilla and groin are the least satisfactory, particularly in thin people. The normal range of temperature was discussed in an answer on May 29, 1943 (p. 683). For the rectum it is 97.7° to 99.5°. Mouth temperatures are 1.0° lower than rectal temperatures, and axillary temperatures are 0.5° lower than mouth temperatures. The time of the maximum temperature is usually between 5 and 8 p.m., but in cases of suspected pyrexia it may be desirable to take the temperature 4-hourly or even 2-hourly so as not to miss the peak. The temperature may exceed the normal range after exertion though it should return to normal in 1/2 to 1 hour. Mouth temperatures are higher when there are local inflammatory lesion in the mouth, and lower when the nose is blocked and the mouth cannot be kept closed. The temperature in a stream of urine i 0.5° below the rectal. Urinary temperatures are of most value i cases of exposure, when the temperature may be too low to recor with a clinical thermometer and the temperature of the urine ma be recorded with a bath thermometer.

Infection of Urinary Tract

Q.—*A woman aged 55 had a deformed kidney removed man years ago. Blood urea is normal, and urine usually has man B. coli. Every few weeks she has a shivering attack and frequency in spite of taking prophylactic courses of mandelic acid and citrat alternately. Is a vaccine of use? The remaining kidney wa investigated at the time of the operation.*

A.—The efficacy of mandelic acid treatment is only detracted fron by alternating periods on potassium citrate: they simply serve t give the bacteria a congenial rest from acid assault. Has a adequate course of mandelic acid been given? That is to say, on lasting 10 days and reinforced by the administration of ammoniu chloride in such doses as demonstrably to reduce the *p*H of th urine to 5.0. If this fails, a course of sulphanilamide should b tried. The persistence of the infection and the history of th removal of a deformed kidney suggest that the condition may be pyelonephritis rather than a simple infection of the urinary trac (it would be of interest to know the blood pressure); if this is s sulphanilamide has a better chance than mandelic acid, since th latter acts only in the urinary tract itself. Opinion on the utilit of an autogenous vaccine in such conditions is divided; its likeli hood of success would presumably depend, at least in part, on whethe deficient resistance to infection is the sole cause, or whether ther is also some structural abnormality of the urinary tract predisposin to chronic infection.

Early Signs of Syphilis

Q.—*Are there any early pathognomonic signs or symptoms of developing primary syphilitic lesion of the penis during the perio of 1 to 2 weeks after intercourse? A patient who had intercours 17 days ago complains of soreness and increased redness of th prepuce and glans, and wishes to be assured. Is it too early to rel on a Wassermann test?*

A.—The only pathognomonic sign of early syphilis is a lesio usually a sore, in which *Spirochaeta pallida* can be demonstrate The shortest incubation period of syphilis is said to be 10 days, th average being about 25 days. The soreness and increased redne of the prepuce and glans may be due to balanitis, but if there any breach of surface it would be wise to examine scrapings f *Spirochaeta pallida* with the dark-ground microscope. This shoul be repeated at intervals. If possible the contact should b xamined for signs of syphilis. A Wassermann test is not likely to e positive till a sore has been present for some days—i.e., 4 to 5 weeks from the date of infection.

Cause and Treatment of "Stitch"

Q.—*An undergraduate of 18 who is a keen representative of his university in cross-country running develops while running a stitch" in his side. What are the latest theories as to causation, athology, and treatment of "stitch"?*

A.—The "latest theory" as to the causation of "stitch" on exertion may be found in an article by Capps (*Arch. intern. Med.*; 1941, **68**, 94). He attributes it to ischaemia of the diaphragm—an idea which is attractive through analogy with other ischaemic occurrences f pain or cramp, such as angina pectoris and intermittent claudication, and is with difficulty proved or discredited, especially as, up to the present, the genesis of this very familiar bugbear of athletes as not been satisfactorily settled. In the *Guy's Hospital Gazette* 1932, **46**, 165) some investigations are described which would appear to exonerate or exclude the diaphragm. Volunteers undertook iolent exercise shortly after a meal, with the consequent development of stitch, yet fluoroscopic examination while the pain was resent showed that diaphragmatic movements were full and nrestricted.

A plausible explanation advanced was that of a sort of physiological visceroptosis. In the erect attitude the heaviest viscera are partly supported by the musculature of the anterior abdominal wall. When the walls are unable to provide adequate support the vertical strain on the peritoneal ligaments is intensified. During running there are intervals of complete relaxation of the muscles that maintain intra-abdominal pressure; and if violent jolts coincide repeatedly with relaxation (during respiration) the result is an intermittent ugging on the ligaments. It is evident why an additional load in the stomach, through a meal having been taken a comparatively short time before exercising, will be a contributory factor; and also why the symptom is more likely in cross-country running—as opposed to a cinder track—since rough uneven surfaces are inevitably ncountered with jolting of the body, especially if the runner is of relatively asthenic build with a light springy action. It has been observed that riding on a camel with jerky action, or on a motor ycle over a rough road, often produces the same sort of pain. This explanation may apply to some cases, but it is equally likely that the pleura may be the sensitive structure implicated through tension from the diaphragm. Localization of the pain will be most ommonly over the costal cartilages which are least supported and have the maximum excursion—viz., the 10th and 11th, to which are ttached the longest fibres of the diaphragm. It may well be that a relatively poor blood supply to the diaphragm or intercostal muscles also enters into the aetiology. Furthermore, I am convinced that xposure to cold is of consequence—another feature which comes into line with Capps's opinion.

Since "treatment" is practically limited to cessation of the xercise, it may be presumed that the inquirer is really interested n possible prevention. I have been disappointed to find how little an be done. It appears as if the subject has a constitutional predisposition, whether for anatomical, physiological, or mechanical reasons. The obvious precaution of avoiding a heavy meal within two hours of the effort hardly needs mention, but I would again refer to the influence of cold as a factor. It is wise to warm up as much as possible before facing the outer air, and as the wrists ppear for some reason to be peculiarly vulnerable, I advise wearing long mittens. I have had reason to believe that this simple procedure has been helpful in some cases.

Life of Sperms

Q.—*It is stated in Eden's "Manual of Midwifery" that a living perm has been found in the Fallopian tubes 3½ weeks after the last intercourse. If this is so, does it not completely negative "safe" periods and contradict the general opinion of the life of the sperm in the female genital organs?*

A.—There are isolated reports of motile spermatozoa being found in the Fallopian tubes 2 and 3 weeks after coitus, the most requently quoted being the two cases of Nürnberger (*Mschr. Geburtsh. Gynäk.*, 1920, **53**, 87), where active spermatozoa were found in tubes excised 13 and 14 days after the last admitted act of oitus. Such reports, however, should be accepted with reserve because they depend for the most part on the patient's uncoroborated statement as to the date of the last coitus; and again most workers who have searched for motile spermatozoa, under similar conditions, have failed to find them. Nevertheless, there are also accounts, and perhaps better substantiated ones, of the finding of motile spermatozoa in the cervix and uterus 5 to 8 days after coitus, o it seems possible that under special conditions spermatozoa can, on rare occasions, survive in the female genital tract for a longer period than that usually stated. To explain such findings, it is postulated that a thick cervical plug of mucus may, by depriving embedded spermatozoa of oxygen and leaving them bathed in carbon dioxide of their own production, maintain them in a state of suspended animation, so that when liberated and placed in a more favourable medium they may become motile several days later.

The general opinion that the spermatozoa of animals with extra-abdominal testes (including man) do not survive, or at least do not retain their reproductive vigour, for longer than 48 hours after their entrance into the female genital tract is certainly not refuted by the findings mentioned above. Indeed, this opinion has been formulated in spite of them—or at any rate only after taking them into consideration. It is based on a large body of scientific evidence derived from all manner of studies on the viability of spermatozoa of lower animals, the higher apes, and man, in the male and female genital tracts, in various tissue fluids, and in media of all kinds under varying conditions. On such matters there is now an extensive literature. So those textbooks which, in presenting the problem fairly, quote the reports mentioned, mostly conclude that it is doubtful whether human spermatozoa retain their ability to fertilize the ovum for longer than 2 to 3 days after coitus—e.g., Eden and Holland, *Manual of Obstetrics*, 1937 edition. It would seem more reasonable to suggest that the general opinion as to sperm viability, well founded as it is, raises doubts as to the accuracy of the few observations to the contrary, or at least justifies their being regarded as "freaks"

The existence of a safe period is not affected by these observations, particularly as it is recognized that such periods are relatively, rather than absolutely, safe, and that they are generally, rather than universally, applicable. Fruitful coitus during the "safe period" is not very rare, but even then, according to present evidence, it is more likely to be the result of a variation in the time of ovulation than of the prolonged survival of the spermatozoa.

Oligospermia

Q.—*Is any treatment possible for a man, examined because of his wife's alleged sterility, who shows a low sperm count, decreased viability, and abnormal forms? What is the significance of semen which does not liquefy and become homogeneous? Are any of these defects more important than others?*

A.—In general the hormone treatment of oligospermia is unsatisfactory and does not yield encouraging results. Theoretically, and in animals, pituitary gonadotrophic extract or that obtained from pregnant mares' serum does stimulate the seminiferous tubules to activity—e.g., in a hypophysectomized animal. In man the results are poor, especially when the total sperm count is under 10 millions per c.cm. (normal count, 100 millions per c.cm.), but occasionally good results are recorded, which critical observers believe to be *post* rather than *propter*. Some have found that small doses of testosterone propionate, 5 mg. injected twice weekly, stimulate spermatogenesis, though it is well known that large doses inhibit spermatogenesis. Where biopsy of the testes shows a histological picture incapable of being influenced physiologically, hormone therapy will have no effect. The significance given both to the degrees of viability and to abnormal forms varies with different observers and different methods. Some consider that up to 20% of abnormal forms does not indicate lowered fertility. Semen which does not liquefy is generally thought to be characteristic of low fertility, but again the criteria are not absolute. In my opinion seminal fluid which contains more than 20 million spermatozoa per c.cm., and which shows active movement of the spermatozoa in a fresh specimen, is unlikely to be the cause of sterility, and these two criteria are perhaps the most important of those mentioned

Cardiac Failure after Convulsion Therapy

Q.—*In the acute cardiac or respiratory failure which occasionally follows chemical or electrical convulsive therapy in mental disorders, is nikethamide contraindicated? Is atropine the drug of choice, or should no drugs be administered?*

A.—There has been comparatively little experience of these states, and very few reports. Accordingly we do not know enough to say much. The evidence is that they are usually vagal in origin, from which it would follow that the drug of choice is atropine The condition usually passes off quite rapidly with artificial respiration. It is much more likely to occur when an insufficient dosage or voltage has caused, not an epileptic fit, but a "sub-shock." With the electrical method, attempts to obtain a fit should be abandoned for the day if as many as three sub-shocks have resulted. Some patients need much higher voltages than others.

Ptyalism and Lacrimation

Q.—*What is the cause of ptyalism and lacrimation in an elderly man, and what is the treatment for these conditions?*

A.—Unilateral ptyalism and lacrimation would suggest a lesion in the seventh cranial nerve root, the geniculate ganglion, or the great superficial petrosal nerve on the same side. An irritative lesion in the area served by the sensory route of the fifth nerve should also be considered; ptyalorrhoea has also been attributed to a functional disorder of the trigeminal nerve akin to tic douloureux, and it is possible that lacrimation might occur under the same circumstances. The phenomenon of "crocodile tears," in which the normal flow of saliva at meal times is accompanied by lacrimation, is due to injury to the chorda tympani branch of the seventh cranial nerve. Bilateral salivation and lacrimation in an elderly man would suggest either paralysis agitans or vascular degenerative changes in the cortical vessels. Presuming one of these two conditions was responsible, treatment should be by atropine or stramonium, pushed, if necessary, to the limit of tolerance as shown by disturbance of ocular accommodation.

Novocain Injections

Q.—*It is very easy to pierce a vein with the fine needle used by dentists. The anaesthetic solution usually contains 3% novocain and a variable amount of adrenaline (about 0.00002 gr. per c.cm. or more). What are the dangers of direct injection into the blood stream? How much is due to novocain and how much to the adrenaline content?*

A.—The dangers of direct injection of the anaesthetic solution into the vascular system are not great. It is unlikely that enough will enter the blood stream to produce noteworthy toxic effects unless the patient has a marked idiosyncrasy to one or other of the drugs. Intravenous administration of adrenaline is a dangerous procedure, and it is possible that the tachycardia and other systemic effects may be due to small amounts of adrenaline getting into the blood stream. It is more likely, however, that these unpleasant effects are the results of emotional disturbance causing an increase in the secretion of the adrenal medulla.

Labyrinthine Vertigo

Q.—*Is labyrinthine vertigo always associated with deafness, or can it be associated in mild early cases with hyperacusis? I find the latter vaguely referred to by Wheeler and Jack. In a case of recurrent vertigo with nausea and vomiting and slight nystagmus, does the presence of hyperacusis rather than deafness rule out labyrinthine disturbance?*

A.—Hyperacusis, or more properly dysacusis, occurs after head injuries, and also in functional conditions. Labyrinthine vertigo is always associated with some deafness of the affected ear, and it is possible that the case described is of a functional nature.

A Difficult Arthritic Case

Q.—*A man aged 59, with generalized rheumatoid arthritis, came to me last year with his right leg bent and the knee inflamed. I applied weight extension and have now put it at rest straight for 9 months. This knee now appears normal, but he has not been able to use his caliper because the other knee is inflamed. Is it safe for him to use—i.e., stand on—the right leg now, or will the disease become active again if he attempts to stand on it?*

A.—It is difficult to give an opinion on this case without further details, such as the sedimentation rate as an indication of the existence of an active infective process, and radiographs of the affected joints to show the actual condition of the articular surfaces and the density of the bones themselves. Assuming, however, that the sedimentation rate is normal or nearly so, it is likely that standing for short periods would not have any ill effects, or even walking for short distances in the house. The occurrence of inflammation, while suggestive of active disease, may be due only to the trauma of excessive use on damaged synovial tissues.

Arterial Disease

Q.—*Is the age of 38 too young to find a condition of arteriosclerosis, and can an arteriosclerosis occur in the mesenteric vessels without there necessarily being evidence of its presence in the peripheral superficial vessels?*

A.—Severe arterial disease, such as atheroma, may sometimes be found at a much earlier age, particularly in the coronary arteries. Atheroma would be the most likely form of arterial disease in the mesenteric artery. The peripheral superficial arteries give no indication of the presence of atheroma in the internal arteries. Polyarteritis nodosa may occur in such vessels as the mesenteric artery; and superficial arteries—e.g., the temporal—may suggest its presence.

INCOME TAX

Deduction of Tax from Salary

E. G. is in receipt of a pension, and also of remuneration from an appointment under a local authority. He is unable to reconcile the amounts of tax deducted with his circumstances.

⁂ The difficulty probably arises from the fact that while the total amount of tax to be paid depends on the total income and total allowances, as a matter of law each separate source of income requires to be dealt with separately. In the circumstances we suggest that a personal discussion at the office of the inspector of taxes, preferably by appointment, is most likely to clear up the matter.

LETTERS, NOTES, ETC.

Answers Supplemented

Dr. W. **ST. AUBYN HUBBARD** (Falmouth) writes: In the *B.M.J.* o Sept. 16 (p. 390) I was surprised to find no mention of liq. ferr perchlor. fort. as a paint for the palliative treatment of ingrowin toe-nail. Since seeing it recommended in the *Journal* some year ago I have often used it with gratifying results. The paint is applie to the painful sulcus at frequent intervals, the nail is allowed t grow until the whole width can be cut with a concave edge instea of the usual convex, and tight shoes or tight shrunken socks carefully avoided. Some, who dread the small radical operation, appea to carry on thus for years.

The answer given to the seasickness question (Sept. 16, p. 391 also interested me, as there was no mention of bandaging. I hav spent some years at sea and under severe weather conditions hav suffered myself occasionally. In treating cases I have seldom foun any need for drugs if only a wide belt is *properly* applied. I use to bind my abdomen from below upwards with a wide flanne bandage as tightly as possible, and, to increase the resulting suppor to the viscera, I used to pack down inside the bandage one of th monthly magazines sometimes. It was rather uncomfortable, perhaps but that was far better than feeling seasick. The whole tip is to fi the viscera and blow the discomfort. One lady to whom I recommended this, who had been very seriously ill whenever she had had to make her frequent transatlantic crossings, and had always spen the whole time in her berth, told me that she was able to enjoy he subsequent voyages. Seeing that so many of our people have t make sea voyages in the Services just now, this simple method o dealing with mal-de-mer may be well worth recommending to them

Prefrontal Leucotomy

Dr. **BRIAN KIRMAN** (St. Mary Cray, Kent) writes: The statemen on prefrontal leucotomy and its performance on non-institutiona patients (Nov. 11, p. 650) is, I think, liable to misinterpretation We are informed, "Leucotomy should not be recommended wher patients occupy professional or highly responsible executive post if there is a reasonable chance of recovery without operation.' Surely if any patient, whatever his occupation, has a reasonabl chance of recovery without this hit-or-miss operation then he shoul not be operated on. Surely, in particular, it is important tha holders of responsible operative, as distinct from executive, post —e.g., engine-drivers—should not be given the "more irresponsibl attitude to life" which may follow the operation of leucotomy I find it difficult to believe that any patient can suffer from a depression so mild that he can continue outside a mental hospital an yet so severe and intractable that the drastic step of leucotomy i justified. Further, it will be admitted that the final decision in an case of mental disorder must be based on the patient's conduc rather than on his thought content. Particularly must this be s where the irrevocable step of leucotomy is contemplated. Yet i there not a grave risk that if the patient be not admitted to properly staffed psychiatric unit inadequate and unreliable information as to conduct may lead to inaccurate assessment and prognosis Finally, no mention is made in the answers which you publish o the legal complications that may develop as a result of an operation performed on a patient (though it be with his consent) o account of mental disorder, a patient who has not been admitte to any properly organized and approved psychiatric establishment The value of this operation in non-institutional cases is no established. The harm which it can do if inexpertly advised i incalculable. Under these circumstances is it not desirable at least t limit its use to patients in recognized psychiatric establishment until some more definite assessments of its results have been made

Atmospheric Pressure and Rheumatism

Dr. J. S. **ARCHIBALD** (British Columbia) writes: I have been looking over some back copies, and in your "Any Questions?" colum for March 4, 1944 (p. 347) I see where you failed to give an answe for the variation in rheumatic pains under different weather conditions. I have read recently that the low atmospheric pressure jus before a storm causes a swelling of the bodily tissues which irritate the nerves around an abnormal joint, the site of an old fracture etc. When the rain comes the pressure rises, with disappearance o the pain.

The Ophthalmoscope in Examining the Tongue

Dr. R. D. **LAWRENCE** (London, W.1) writes: Lacking an ordina torch and magnifying lens I recently used my ophthalmoscope wit a + 15 D. lens to inspect the papillae of a sore tongue. The goo light and high magnification (×18) give a most informative an gratifying view. Since then I have used it to examine rashes an other skin lesions. Perhaps this suggestion may help others.

Corrigendum

There were two errors in the heading to the article on "Chroni Intracerebral Haematomata" by Mr. Rowbotham and Dr. Ogilvi published last week at page 146. The second entry in the title shoul read: A. G. **OGILVIE**, M.D., M.R.C.P., Honorary Physician, Roya Victoria Infirmary, Newcastle upon Tyne.

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INFLUENZA EPIDEMICS AND THE INFLUENZA VIRUSES*

BY

C. H. STUART-HARRIS, M.D., F.R.C.P.

Lieut.-Col., R.A.M.C.

LECTURE I

nfluenza virus A" is the name given by general consent orsfall *et al.*, 1940) to the virus originally discovered in 33 by Wilson Smith, Andrewes, and Laidlaw, who demon-ated that garglings from cases of human influenza would oduce a transmissible disease in the ferret. It has since en recovered in many different countries all over the world, d it is now known that there is a group of "A" viruses the ividual members of which differ in their antigenic structure t share certain characters; a serological relationship exists tween these viruses and the virus of swine influenza, dis-vered by Shope in 1931. Influenza virus B resembles virus A many of its properties, but is less pathogenic for the ferret d is absolutely distinct in antigenic make-up. The first us B strains (Lee and T.M.) were recovered almost simul-neously by Francis and Magill in 1940 in the United States, d, although only a few strains have yet been recovered, it already clear that a group of viruses exists as in the case of rus A, and that the individual members of the group are ore or less closely related to each other. No relation appar-ntly exists immunologically between the groups of A and B ruses.

Methods of Study of Human Influenza Virus Infection

The recovery of influenza viruses in the secretions from nose, roat, or lung, which succeeded well in the first few years after e discovery of virus A, has frequently failed in influenza out-eaks since then, and is not applicable to the majority of ses of virus B influenza. Nevertheless, methods based on covery of the virus are both convincing and essential to the udy of the antigenic make-up of the viruses concerned in fferent outbreaks, and ferret inoculation and observation main the classical method. Should inoculation fail to induce gns of infection in the ferret, the development of specific ntibodies may yet be observed and furnish useful confirma-ry evidence of infection in this animal (Horsfall *et al.*, 1940; uart-Harris, Glover, and Mills, 1943). Direct inoculation of ick embryos with filtered human garglings, though success-l in the U.S. and Australia, has largely failed in this country, ssibly owing to the effect on the embryos of wartime con-tions of poultry-raising. Indirect methods of demonstration f virus infection depend on the fact that a sharp increase in tre of antibodies occurs during the course of the illness as easured either by antibodies capable of neutralizing the athogenic effects of the virus or by complement fixation, or y antibodies capable of inhibiting red-cell agglutination by e virus in the test-tube. The latter method of Hirst (1942) now universally established as the most practicable means f examining large numbers of sera, and has given excellent sults even in the type of influenza most difficult to establish y direct methods—namely, influenza B (Stuart-Harris, Glover, nd Mills, 1943). The variable level of antibodies before the ccurrence of infection, and technical difficulties, make it essential that a simultaneous examination be made of two sera from each patient—one collected during the first few days of fever, and the second on the eighth to fourteenth day in convalescence. Most observers agree that if a fourfold or greater increase in titre of antibodies develops during the course of illness, influenza virus infection of the appropriate type may be presumed.

Influenza Epidemics in Great Britain from 1932 to 1944

The behaviour of influenza viruses in relation to human epidemics in this country has now been studied in varying degrees of detail over a period of 12 years, which included three years with major prevalences of influenza and four years of minor outbreaks. I shall refer to the Registrar-General's figures for notification of deaths from influenza in the 120-odd great towns of England and Wales with a population of over 50,000, partly because no figures are available for the incidence of simple influenza in the community, and partly because these statistics undoubtedly mirror the incidence of outbreaks in the population at large.

Chart I shows the weekly deaths throughout the year for the three seasons of 1933, 1937, and 1943 with major prevalences of influenza, and illustrates the remarkable similarity between them. These were the winters when influenza virus A was readily demonstrable in the throats of the victims by ferret inoculation and when strains of virus were subsequently established in the mouse with varying degrees of success. They were the winters when spreading epidemics of influenza occurred in all parts of the country and affected a considerable proportion of the population as well as the semi-isolated communities in which our studies were largely conducted. The British Institute of Public Opinion (1944) estimated that as many

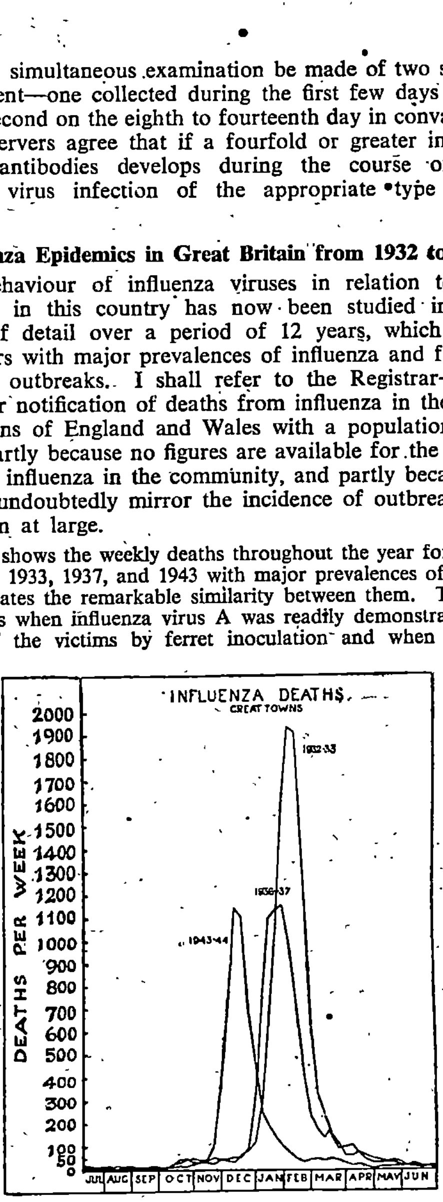

CHART I

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* An abridgment of the Goulstonian Lectures delivered to the oyal College of Physicians on Jan. 16 and 18, 1945.

as 27% of individuals were confined to bed during the period of prevalence of the epidemic in the winter of 1943. Hoyle (1944) estimated, on the basis of complement-fixation studies, that during the same epidemic about 25% of the population were infected with virus A. We do not know the exact time-relationship between the peak of the outbreaks of uncomplicated influenza and the curve for death rates, but it seems probable that the former preceded the latter by two to three weeks in view of the lag between the onset of infection and death and the fact that deaths also occurred from post-influenzal pneumonia. Such an interval was found by Stocks (1944) when he compared the morbidity statistics for Service personnel admitted to E.M.S. hospitals with the curve for deaths for the whole country. The serological tests carried out in the years 1937 and 1943 indicated that at least 80%, and probably more, of the cases of influenza were associated with virus A activity, and no considerable residue of cases unassociated with this virus therefore occurred.

Chart II shows the four years 1934, 1936, 1938, 1942, and early part of 1943, when the notifications gave no indication of influenza outbreaks. In these years either influenza did not break out at all or else local prevalences which were mild and ill defined occurred. A solitary family outbreak in 1934 yielded virus A in the ferret. Several Service outbreaks in the spring of 1936 yielded no evidence of virus A, and were labelled "febrile catarrh" because of the clinical differences from the 1937 virus A cases. No outbreaks were reported in 1938 or in 1942, and in the latter year sporadic cases of clinical influenza in an Army garrison gave no serological changes either to virus A or to virus B. In Jan. and Feb., 1943, months when influenza deaths exceeded 100 in one week, a small increase in sporadic cases of influenza was encountered in two Home Divisions, and one unit experienced a small but explosive outbreak. We found serological evidence of virus B infection in these cases but failed to recover virus (Stansfeld and Stuart-Harris, 1943). The existence of virus B infection was also established serologically in sporadic cases of influenza in London and elsewhere, and Himmelweit established one strain in ferrets from a case of fatal pneumonia (Himmelweit, 1943). However, in this year some 50% of cases, many typical clinically of influenza, yielded no serological response either to virus A or to virus B. Later, in April, 1943, a small outbreak of influenza occurred in an Air Force establishment (Donnelly *et al.*, 1944), and in several scattered outbreaks in summer and autumn. Virus A infection was encountered in tests made at Hampstead (Andrewes and Glover, 1944) on sera from various parts of the country. In this year, therefore, first sporadic cases, then localized outbreaks, and finally a widespread epidemic of influenza A were all encountered.

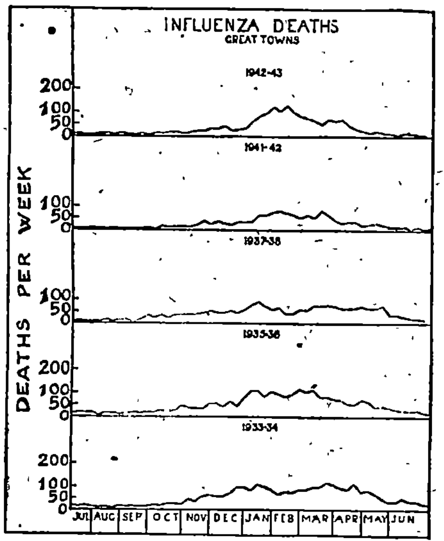

CHART II

Chart III shows the figures for the four intermediate years 1935, 1939, 1940, and 1941, when a sustained increase in incidence of deaths occurred between January and March each year yet no sharp peak developed. Localized outbreaks of influenza were recorded in each of these years, but the activity of the viruses was hard to understand. In 1935 two outbreaks in Army garrisons were investigated by Andrewes, Laidlaw, and Smith (1935). In January no virus A was detected in one barracks, yet it was readily recovered in the other in March. Some clinical differences between the cases in the two outbreaks were detected. In 1939 many outbreaks in schools and Service establishments were investigated. A few strains of virus A were recovered, but were difficult to establish in ferrets, and serum tests showed that only 30% of cases were infected with virus A (Stuart-Harris *et al.*, 1940). I could not distinguish cli ally between the virus A cases and the others in which infect by this virus was not demonstrable. Following the recovery virus B by Francis in 1940, the late Dora Lush retested some our 1939 sera against the virus B strain (Lush *et al.*, 1941) found several instances of undoubted virus B infection, yet forced to state that the majority of the sera yielded no bet evidence of virus B infection than they had of virus A. In year 1939, therefore, both virus A and B influenza had occurr

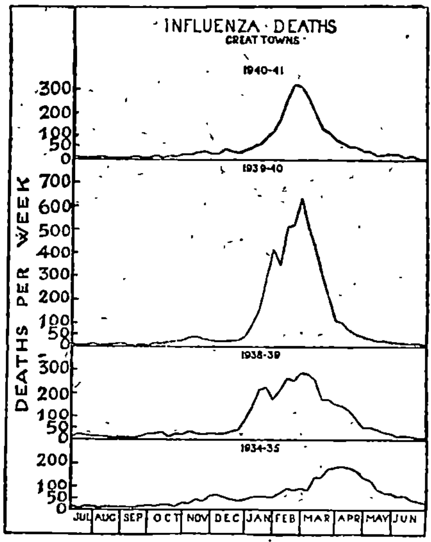

CHART III

but a large proportion of the cases were not demonstrably associa with either virus. Then in 1940, the spring following upon declaration of war, when mobilization for the Army and evacuati of children had occurred, an unexpected and relatively large w of influenza-like illnesses was encountered. Owing to the prev ing conditions, attempts to recover viruses directly were the o ones which were employed, and these all proved negative (Andre *et al.*, 1941). As no serological tests were made, the outbreaks this year remain of undetermined aetiology. The last year—t of 1941—will long be remembered by those of us who foolis imagined that we knew all about the causes of influenza epidem It was the winter of the aerial "blitz" on London and the la cities, and it was four years since the previous last widespr epidemic in 1937. When a group of cases in January in South England were found to be infected with virus A, and when the vi

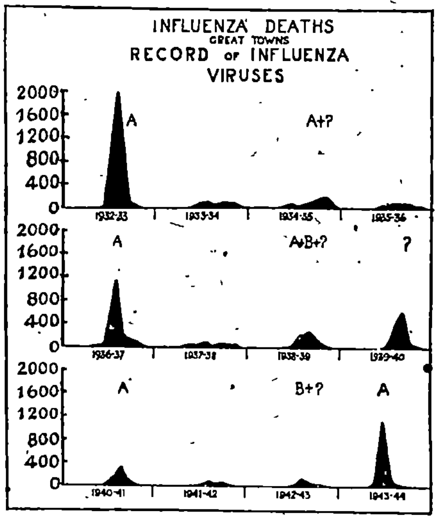

CHART IV

was recovered from garglings from a case of influenza in one of London shelters, it seemed probable that we were about to witn a serious epidemic. Our gloomy prophecy proved unjustified; spreading epidemic developed, and we were spared a disaster this most critical stage of our history. It is remarkable that chart for death rates showed clearly the small peak coinciding w the recovery of the virus in the laboratory. Nevertheless, the viru recovered in this year were characterized by their low pathogenic r the ferret, and, although no case yielded evidence of virus B ection, at least 20% of the sera tested this year had no evidence infection either by virus A or by virus B (Andrewes *et al.*, 1941). all four years, therefore, and in some of the years without peaks mortality, the minor influenza outbreaks were either A or B, or plus B, but, in any case, a proportion of cases, varying in number the different outbreaks, could not be typed. For these cases, ich appear to be neither A nor B, the name "influenza Y" has me into use (Rickard *et al.*, 1941). In these years the concatena- n of circumstances which is necessary for a spreading epidemic to velop—that is, the state of immunity of the population, the aracteristics of the viruses, and possibly other unknown factors— l not occur, and the virus outbreaks remained localized.

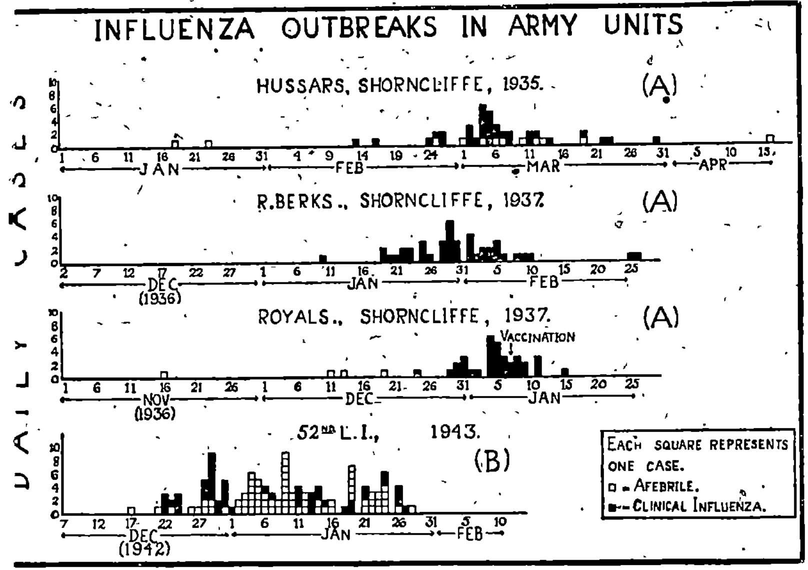

CHART V

Chart IV serves to recapitulate the experience with the viruses in ese 12 years and shows in semi-diagrammatic fashion the peaks of rtality from influenza. With the solitary exception of 1943, when ses of virus A influenza occurred in late spring and summer, the ords of virus detection in the laboratory which are indicated on chart represent the only direct evidence of virus activity in these ars in Great Britain. No evidence of virus activity or of the esence of virus has been found in between the winter seasons.

Epidemics in Other Countries

Comparison of the experience in Great itain with that in other countries where idies of influenza virus infection have been ade is essential in order to provide us th the proper perspective. Unfortunately, tailed studies have as yet been made in far o few countries for the picture to be anying like complete. Nevertheless, the fact clear that the majority of widespread idemics of influenza sweeping through tire countries or continents and causing a e in the death rate from pneumonia have en associated with virus A infection. Such ere the major American and Canadian idemics of 1937 and 1943, and the smaller evalences of 1935, 1939, and 1941. These idemics kept step remarkably with those corded in Great Britain, and Britain and e North American continent appear to form closely related epidemiological unit. The rus A outbreaks in Hungary in 1937 d 1939, though coinciding with outbreaks this country, varied in that much the ger wave occurred in 1939. Also, a widespread epidemic in ssia in 1936, when virus A was identified, occurred at a ne when there was no influenza A detectable here. Thus ere is some evidence that different parts of Europe expericed their major waves of virus A influenza at different times. gain, the Southern Hemisphere is completely out of step th the Northern Hemisphere. Melbourne experienced major waves of influenza in 1935, 1939, and 1942, and virus A infection was widespread in each of the latter two years. The Argentine had an outbreak of influenza A in 1940, and all these outbreaks in the Southern Hemisphere occurred at the coldest period of the year, between June and September.

Virus B appears to differ from virus A in that it is often not associated with large epidemics. Taylor and others (1942), in recording respiratory infection at a naval establishment in the Argentine, commented on the fact that influenza B occurred in 30% of cases in small waves scattered over several weeks. In Victoria sporadic cases of influenza B occurred in 1943 (Beveridge and Williams, 1944), and in Canada in 1943 was recorded a remarkably similar experience to that in this country, with evidence of 30% case incidence of influenza B in small prevalences in different parts of the Dominion (Hare, Stamatis, and Jackson, 1943). Nevertheless, the initial recovery of virus B was made in the Eastern United States in 1940 at a time when an influenza epidemic of some size was in progress, and outbreaks associated with virus B also affected California in 1936 and 1940 in widespread fashion. While virus B is thus more often than not associated with sporadic cases of influenza, it has at times been associated with large epidemics.

In addition to outbreaks when either virus A or virus B has been detected, various workers have recorded localized mixed outbreaks in which infection by either virus predominated but was accompanied by a variable proportion of sporadic cases due to the other virus. Such were the outbreaks in the United States and West Indies described by Lennette in 1940 and 1941. In these epidemics there were also some cases from which viruses were not recovered and which were unaccompanied by serological change to either virus. These remained in the unclassified group of influenza Y, whose percentage incidence varied widely. Even in the absence of an outbreak, sporadic cases of either influenza A or influenza B have been recorded from time to time. Workers in Australia (Beveridge and Williams, 1943) were particularly struck by the occurrence of sporadic cases of influenza A in 1943, when the incidence of total respiratory infections in various Army camps was too low to be described as epidemic. Sporadic A cases were also encountered in Canada (Hare, Hamilton, and Feasby, 1943) and in the United States (Salk, Menke, and Francis, 1944) in the spring of 1943. Such may merely have been the forerunners of a sequence of events preceding an actual epidemic, as in our own case in the same year, but it is clear that at

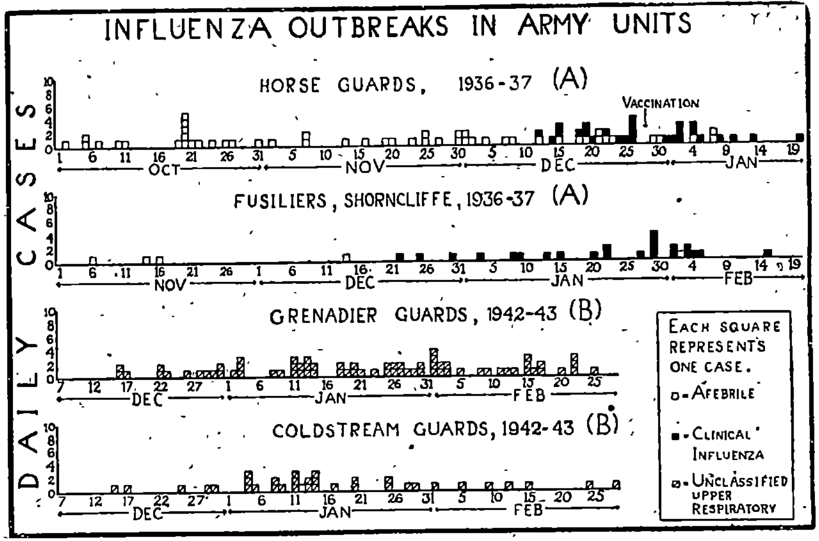

CHART VI

other times sporadic cases have not necessarily presaged an epidemic within a short period of time.

Form of the Influenza Outbreak

When the actual form of an outbreak of influenza in a semi-isolated community is studied, almost every conceivable variation is seen. Chart V shows the sharply peaked type of outbreak seen in regiments not subject to any considerable change of population. The first three of these outbreaks were due to virus A influenza in preponderance and affected 10 to 15% of those at risk, and a proportion of the cases in the fourth outbreak yielded virus B. The large number of afebrile cases in the latter epidemic was noteworthy, and altogether some 13% of the unit were affected. Both viruses have, however, been associated with straggling outbreaks even in the same years as those in which the sharply peaked outbreaks were encountered (Chart VI). The blame for such prolongation of the epidemic wave could not in these cases be laid upon considerable changes in the population at risk, but it is known from other studies that such changes do in fact exert a potent influence on the curve of the epidemic. Thus, in the Services, outbreaks of influenza provoke an unequal incidence of the disease upon the various members of the herd unit, those with lowest total service or shortest duration of residence in the herd being most affected. The accompanying Table shows the figures of incidence in Jan.–March, 1937, among men and boys at the Chatham Naval Barracks, when a high proportion of tests in the establishment and elsewhere showed virus A influenza. The recruits with less than 12 months' service suffered five times as heavily as the trained men with over 12 months' service. Similar results were seen at Shotley and Portsmouth Barracks, where trained men furnishing the ship's company had only one-fifth the amount of respiratory infection as had the boy seamen. It is tempting to relate the very high incidence in the boy seamen to the fact that in these establishments monthly intakes of raw recruits occurred and the boys spent only 9 months at each depot. Dudley (1926) has emphasized the paramount importance in droplet infection of the factor of rate of change of population, which is interlinked with the rate of addition of new members to the herd and the duration of residence of each member in the herd. Again, Topley (Greenwood *et al.*, 1936) showed in his experimental epidemics of mouse typhoid and pasteurellosis that without any change in virulence of the organism concerned, waves of renewed epidemic prevalence in the herd could be brought about merely by adding fresh uninfected susceptibles at a steady rate.

Table showing Incidence of Influenza during Epidemic of 1937 (January to March)

Establishment	Group	No. at Risk	Ages	Influenza (%)	Total Minor Resp. (%)
Chatham Naval Barracks	Recruits	1,440	18–20	12·7	28·2
	Trained men	5,731	18–20	3·8	5·6
Shotley, R.N.	Recruits (boys)	2,005	16	26·7	44·9
	Ship's company	471	—	7·9	10·1
Portsmouth, R.N.	Recruits (boys)	815	16	35·6	53·4
	Ship's company	277	—	6·5	11·9

It is in the Service training establishments that premonitory waves of the minor respiratory infections, which are always at a higher level than in the population at large, appear sometimes to lead up to actual epidemics of influenza. Possibly this is because the frequent population changes cause frequent interchange of respiratory pathogens and resultant increase in virulence of the agents concerned. Thus at Chatham, in 1936, a definite wave of some respiratory infection not associated with virus A preceded the January wave, when virus A was recovered. Also at the same barracks, in 1939, the January wave, which yielded neither virus A nor virus B, was succeeded after an interval of time by the occurrence of genuine cases of infection with both viruses. A Canadian camp near Toronto experienced three waves in the winter of 1942–3, of which the first was not associated with either A or B, the second consisted of some cases of B, and the third was of virus A influenza (Hare, Hamilton, and Feasby, 1943). Once, however, virus A has again become active, it does not follow that a general epidemic will result immediately, as shown by the recent experience last year. Although virus was then demonstrated in localized outbreaks in Canada, t U.S.A., and Great Britain in the spring of 1943, and in t last-named country a series of small outbreaks followed duri the summer, it was not until the autumn that conditions we ripe for the rapid wave of infection which characterizes a re epidemic of influenza, and this then occurred throughout t population.

This problem of the genesis of an influenza epidemic whi is linked with the mode of existence of the virus in betwe outbreaks has not been solved. There are four possible wa in which the virus could bridge the gap of its existence betwe epidemics.

First, it might exist by means of a continuous chain of outbrea so that always somewhere in the world there is an outbreak or series of sporadic cases which keeps the virus alive. The gene failure to demonstrate the virus in sporadic cases in non-epidem times must be taken into consideration here. Also, the remarka way in which over wide areas the viruses may suddenly beco active at almost exactly the same time, as happened in 1943, d not suggest that the epidemics in different countries arise by spre of infection from one country to the next. However, the study isolated communities, as at Spitsbergen or in Greenland, certai suggests that infection may at times be introduced from outside community and initiate an epidemic.

Secondly, the virus may live in the nose or throat of heal carriers in between outbreaks. It has certainly been demonstrated healthy carriers during an epidemic, and one outbreak of influenza in an isolated community in Alaska (Pettit, Mudd, and Pepp 1936) was traced to the arrival of three travellers, themsel unaffected, by 'plane from an area where an influenza epidem was in progress. Between outbreaks, however, the virus has n been found in healthy persons. Shortly before the war I began examine tonsils removed at operation from children. In this sm series of tests ferrets inoculated with emulsions of the glands fail to show evidence of virus infection. An enormous number of su tests would of course have to be made before negative results cou be considered significant.

Thirdly, the virus might transfer its activity to an animal h acting as a reservoir in between human epidemics. It is difficult know what animal might serve in this capacity, for ordina laboratory and domestic animals, with the exception of the pig, a not truly susceptible to the virus. In the pig, which has its o particular variety of influenza virus as parasite, the human influen virus A induces only a very mild disease (Shope and Francis, 193 The facts that cases of swine influenza in Great Britain have be found to yield strains of virus more closely related to virus A th to the American strain of swine virus (Glover and Andrewes, 194 and that Shope (1938) found serological evidence of natural inf tion of pigs with virus A during an outbreak of human influen may perhaps indicate that under certain conditions the hum influenza virus passes from man to the pig.

Fourthly, the virus might exist between epidemics in an unreco nizable form. Such a view was suggested by Andrewes (1942), w postulated the origin of influenza epidemics by the successive mu tion of grades of influenza virus. Andrewes thought that sporad human influenza might be due to a "basic" or rough form of vir devoid of its specific antigen, of animal pathogenicity, and of t power of producing the serological changes due to the norm antigen. This virus would certainly be undetectable by prese laboratory methods. Sudden mutation induced by frequent hum passages was thought to cause the transformation of basic vir into virus A or B, with characteristic antigen and animal path genicity.

Another unrecognizable form of influenza virus has in t analogous disease of swine been clearly demonstrated to the mode in which the virus persists between outbreaks. Sho (1941) has shown that in swine influenza the virus is alrea present in masked form in the pig's lung, attached to the lun worm which is such a frequent parasite of the pig. It appea that virus from pigs suffering from swine influenza passes the exterior via the ova of the lungworm, which are cough up, swallowed, and pass out in the faeces. The ova devel further into larvae in the earthworm, and when the latter a swallowed by pigs they develop by passing to the lung a are there established. They do not give rise to influenza once, but by some sort of trigger mechanism, such as chang meteorological conditions, or by artificial means such repeated intramuscular injection with *Haemophilus influenz suis*, the dormant virus is activated and the pig develo influenza. An analogous path to the tortuous progress fro pig to pig via the lungworm ova and the earthworm cou dly be conceivable in the case of human influenza, but the eral conception of a dormant phase of influenza virus mains as a possible explanation. Epidemics would then arise communities from virus already seeded but present in a eping phase, and would develop because of some changed nditions, perhaps of a meteorological nature, which released virus from its sleep and caused it to become active once ain. These, then, are the various possibilities, and more can- t be said as to which is nearest the truth. It must be mitted, however, not only that the solution of this problem a matter of academic interest but that it has important prac- al considerations.

Clinical Manifestations of Influenza Virus Infections

1. Influenza A

As a result of the correlated clinical and laboratory studies de in Britain during the 1937 epidemic (Stuart-Harris *et al.*, 38) it was thought that the infection produced by virus A ld vary from an extremely mild illness through increasing des of severity to a rapidly fatal pneumonia. It was also con- ered, as a result of observation of the sera of individuals in tact with cases of influenza but who did not themselves show nical signs of infection, that subclinical attacks were possible, d probably of frequent occurrence. The results of many dies by different observers all over the world since 1937 ve agreed with these views, though little fresh has been ded to the clinical data of infection during an epidemic embled in 1937. Study of the effects of deliberate infection human volunteers with virus A by Smorodintseff and others 37), by Burnet and Foley (1940), and by Henle, Henle, and kes (1942) has also strengthened the view that the virus is essential agent in the production of the clinical phenomena served during an epidemic. The cases which would be recog- ed by most clinicians as worthy of the diagnosis of influenza s appear to be merely infections of a particular degree of nical severity, and are almost certainly outnumbered during epidemic by subclinical infection and by other cases so mild to be clinically indistinguishable from endemic colds and minor maladies of the respiratory tract. Nevertheless, ups of uncomplicated cases of influenza due to virus A do nish a clinical picture whose recognition from one epidemic the next has been possible. The picture in the healthy dier with a typical attack of influenza is as follows:

The patient, usually in good health, is suddenly seized with a dache, and begins to feel shivery and ill. He sleeps poorly, king at intervals with a cough or with aching in the back or limbs, d in the morning is unfit for duty on account of weakness and er. He may feel dizzy on rising, may actually vomit or faint. e temperature is usually 100° at this time, and rises steadily to ° or 102° during the day, symptoms being at their height by the ning. Frontal headache, muscular pains, anorexia, drowsiness, and desire not to be disturbed are the chief symptoms, but a dry cough, cked nose, and perhaps sneezing indicate that the respiratory tract involved. The patient now has a rather characteristic appearance: face is flushed and slightly bloated, with circumoral pallor d slightly cyanosed lips; the eyes are glistening or slightly injected h excessive secretion and are in part concealed by the eyelids, ich droop a little. Apart from fever, and a normal or only slightly vated pulse rate, nothing much can be made out on physical mination. The tongue is coated with white fur; the nasopharynx dry, with dilated capillaries; and a rhonchus or group of rales may heard in the chest, particularly over the lung bases. The next y the temperature has fallen or has begun to fall, and the patient ls much improved. Cough, however, continues, perhaps with n in the region of the larynx or substernum. The throat may be e on swallowing and the nasopharyngeal adenoid tissue is swollen. the third morning there is often a renewal of fever and a return headache and muscular aching; cough continues, with production small pellets of mucoid or mucopurulent sputum; and the voice y be a little hoarse The lung bases may show patches of weak athing and fine rales, but percussion is not impaired, and a agram shows no abnormal shadows. Fever subsides after three five days, and the patient rapidly becomes convalescent, though h cough and slight sputum continuing, and perhaps a tendency instability of the temperature chart. The leucocyte count remains hin normal limits (4 to 14 thousand per c.mm.) throughout the ease, and the relative percentage of the various white cells is not normal. Post-influenzal debility and depression are not features convalescence in soldiers, who are usually fit for duty by the d of the week or the ninth day. Less fit subjects undoubtedly perience these sequelae, and the cough may also take longer to clear up than in fit men. Variations from this typical case, with onset following a premonitory cold, with frequent vomiting on the first day of illness, with more catarrhal symptoms such as acute coryza or a very sore throat, or aphonia, have been encountered, and the temperature chart varies widely. Afebrile cases and very trivial fevers are seen, and many of the 3–5-day fevers have diphasic curves. Prolonged cases of fever usually show persistent physical signs in the chest, and thus grade naturally into cases of influenza complicated by chest involvement. Such cases were divided by Scadding (1937) into three categories, and though his study was based on the civilian population, his findings agreed in the main with our own results on soldiers.

(i) The first group consisted of cases without clinical signs of lung involvement in which there was pharyngitis and tracheitis corresponding to the typical case just described.

(ii) The second group comprised cases with lung signs but without consolidation. These corresponded to cases with bronchitis and bronchiolitis which showed all the usual symptoms of influenza but in addition had areas of diminished movement, perhaps impaired percussion note, weak or suppressed breath sounds, and fine or medium rales scattered in patches usually at the lung bases. In spite of the abundance of physical signs in these patients, skiagrams of the chest showed only vague shadows, which were never as well defined as the clinician expected. It is presumably this type of case which is referred to by some as primary atypical pneumonia due to influenza virus. Apart from the fact that the majority of cases of atypical pneumonia as described in recent outbreaks (Dingle *et al.*, 1944) show *x*-ray abnormalities in excess of clinical expectations, most cases of influenza certainly do not exhibit abnormal *x*-ray appearances. The pathological lesion produced by influenza virus in experimental animals is essentially a necrosis of the epithelium of the finer bronchioles (Straub, 1937), and I would therefore suggest that the majority of the human cases of influenza belonging to this group probably have a bronchiolitis rather than a true involvement of the alveoli.

(iii) Cases with demonstrable consolidation furnished the most severe and also the most baffling of all the variations of the virus infection. The history was that either in continuity with the symptoms of influenza or more usually on the fourth or fifth day, or after a brief interval of a few days from the end of the attack of influenza, pain in the chest and increase in cough and expectoration heralded the development of a lung complication. The course of the pneumonia which followed was recognizably different from that of lobar pneumonia or, for that matter, from other forms of pneumococcal pneumonia. Though this is not the place to enter into detailed descriptions of resemblances and differences, it should be emphasized that the most fulminating cases seen in 1937 were essentially similar to the fulminating pneumonia of 1918 but occurred only rarely, and that a fatal pneumonia was chiefly limited in incidence to the very young and the very old.

The investigations which have thus so far been made on cases of influenza complicated by chest involvement have failed to elucidate the exact relationship of the virus to the pathological changes in the lung. The recovery of virus from cases of influenza with bronchiolitis proved consistent enough in 1937 to indicate that the virus infection coincided with the bronchiolar involvement. In cases of pneumonia, however, the virus was rarely recovered from garglings or sputum by the time that lung signs had developed, though it was recovered, in common with *Staphylococcus aureus*, from the lungs of three rapidly fatal cases (Stuart-Harris *et al.*, 1938). Also, some of the cases of pneumonia already had a high level of neutralizing antibodies in the serum by the time that pneumonia existed, which seemed to indicate that the virus infection often preceded the lung involvement. Hitherto, in this discussion, little attention has been paid to the role of bacteria in the production of disease during an epidemic. In swine influenza the virus alone produces only a mild disease, and simultaneous infection by the virus and the pig variety of *Haemophilus influenzae* is necessary for the full reproduction of the natural disease, which includes consolidation of the lungs. In human influenza the virus alone appears to be fully adequate to produce the uncomplicated disease, but the evidence favours the view that secondary bacterial invasion is necessary for pulmonary involvement, at any rate with the type of human virus known to us in the laboratory. The exact species of bacteria varies in different patients. The pneumococcus is far and away the commonest type to be found either in the pneumonia accompanying or in that which follows virus A influenza. The *Staphylococcus aureus* appears, however, to be particularly important in fulminating types of pneumonia, and a necrosing bronchiolitis and multiple abscess formation are found in such cases at necropsy (Scadding, 1938; Finland *et al.*, 1941). It may be that the rapidity with which patients with this type of pneumonia die favours recovery of virus from the lung, for fatal cases of pneumococcal pneumonia usually live longer than staphylococcal cases, and virus is not usually recovered from the lungs of pneumococcal cases at necropsy. Disappearance of virus from the lungs of ferrets also occurs at an early stage of infection, and by the sixth day, in spite of the presence of lung lesions, the virus may no longer be detectable by subinoculation to other ferrets. The haemolytic streptococcus has been extremely uncommon as a secondary invader of recent years, and the role of the *Haemophilus influenzae* in pulmonary cases has not been at all clear, although the organism has often been found in the sputum of all types of the disease. Thus it seems clear that the lung consolidations which have been encountered in recent epidemics have not been due to virus alone, although the virus is fully capable of producing lung lesions in the experimental animal and, in any case, may in some way destroy the defence mechanism against bacteria. The possible influence of bacterial infection on that due to the virus, by aiding spread of the virus in the lung, as suggested by Taylor (1941), must also be taken into account. It may be that the current strains of virus, as Burnet and Clark (1942) have suggested, limit their attack to the bronchioles of man, but that only a slight modification of their power of spread down the respiratory tract, with actual involvement of the alveoli, would be needed to enable them to produce a much more lethal type of disease. Meanwhile the remarkable way in which the curve of deaths from pneumonia follows the outbreak of the simple virus disease in the population must indicate an extremely close relationship between the virus and the pathological conditions in the lung, however these may be produced.

2. Influenza B

The only detailed studies of the clinical picture of influenza B which have been made agree in general in finding that there are few differences between the typical attacks of influenza B and those of A. Stansfeld and I in 1943 saw several groups of cases of influenza B and, both by the bedside and by retrospective analysis of symptoms and signs, were unable to differentiate the cases from those of influenza A seen in other years. The majority of the cases were febrile, and the same variation in duration of fever was seen as in influenza A. Cases complicated by lung involvement were not common, and skiagrams of the lungs of cases taken at an American Army laboratory were not abnormal. Other observers have reported a tendency for influenza B to be more insidious in onset than influenza A, often with a premonitory cold (Hare, Hamilton, and Feasby, 1943; Beveridge and Williams, 1944); and a greater tendency for the symptoms of an acute cold to accompany the fever was noted by Nigg and others (1942) in Minnesota and by Hare, Stamatis, and Jackson in 1943. Some afebrile cases with the same serological changes as febrile ones were encountered by Hare and co-workers in 1943. A number of cases seen by the latter were described as showing the *x*-ray findings of atypical pneumonia, but it seems possible that the high incidence of this syndrome may have been related to the occurrence of numbers of cases of atypical pneumonia in a respiratory wave preceding the occurrence of influenza B. In our own outbreak, cases of influenza B did not show the *x*-ray appearances of atypical pneumonia, and sporadic cases of the latter syndrome occurring at the same time of year as the influenza did not reveal serological changes of influenza virus infection. True consolidation of the lungs was not encountered by us during the prevalence of influenza B, but in the outbreak described by Nigg in 1942 a number of cases of pneumonia from which pneumococci were isolated occurred coincidently with the cases of influenza. Also, Himmelweit in 1943 recorded a fatal case of pneumonia in which the lung contained both virus B and enormous numbers of *Staph. aureus* at necropsy. It does seem probable, however, from the combined experience of influenza B in all parts of the world, that pneumonic complications occur less commonly than in influenza A. Evidence of subclinical infection during an outbreak of influenza B (Nigg *et al.*, 1942) has been obtained as in influenza A, and study of deliberate infection experiments in humans by Francis and others (1944) indicated that subclinical infection can indeed occur among the healthy contacts of individuals infected with the virus.

Differential Diagnosis of Virus Influenza, Sporadic Influen
and Influenza Y

It has been said that typical attacks of influenza A are rec
nizable clinically from one year to the next. Yet the variati
between the cases is so great that recognition of the disea
in the individual is impossible. Furthermore, if groups of cas
of sporadic influenza occurring in non-epidemic seasons at
times of the year and not demonstrably associated with eit
virus A or virus B are compared clinically with groups of vi
influenza, sharp distinction cannot be made (Rickard, Lennet
and Horsfall, 1940). Even during actual outbreaks many cas
are seen in which the diagnosis of influenza may be made
the bedside, yet no serological evidence of either virus A
virus B infection can be obtained and the viruses cannot
demonstrated in the human secretions. It is this group of cas
of clinical influenza referred to already as influenza Y whi
provides us with a still unsolved problem in aetiology. T
percentage of cases of influenza Y varies greatly in differe
outbreaks, being least in years of large-spreading outbreaks
influenza A and greatest in years of ill-defined outbreaks
influenza B or of mixed A and B infection. Stansfeld (19
attempted to differentiate the cases without serological chan
from the neighbouring cases of influenza B, and compared th
with the cases of influenza A which I had collected in vario
years. There were no sharp differences between the thi
groups, and this experience agrees with our own in 1939, w
the findings of Lennette (1941), of Taylor (1942), and of Ha
(1943). In 1943 influenza Y comprised some 43% of our cas
but 70% of influenza Y cases was found in outbreaks in Cana
(Hare, Stamatis, and Jackson, 1943) and in the Argenti
(Taylor *et al.*, 1942).

Although various observers have speculated on the aetiolo
of influenza Y, it is certain that we do not at present kn
the answer to this riddle. The various theories may be brie
mentioned. First, there is the obvious theory that these ca
are due to a third type of influenza virus so far undiscover
Secondly, influenza Y may be due to the basic form of influen
virus in its "rough" state without specific antigen, as pos
lated by Andrewes (1942). Thirdly, there is the theory t
these cases are really infections by either virus A or virus
but that for some reason there has been a failure of serologi
response, or that our methods are too crude to detect the ri
Evidence for this has been brought forward by Rickard a
others (1941), who found that cases of influenza Y possess
their sera in the acute stage of illness a higher content
neutralizing antibody to either virus A or virus B than cases
virus influenza in the same outbreak. It is known that
smallest proportional increase in antibody occurs among in
viduals with a high level of antibody before infection, a
therefore it is conceivable that such antibody increase as d
occur in the influenza Y cases is undetectable by our pres
crude methods. Francis (1944) also encountered cases of inf
tion following deliberate instillation of virus B in which,
spite of a good clinical reaction, serological change was tri
or absent and the virus was not recovered from garglin
Another possibility is that these cases are due to antigenica
different strains of the same A or B virus. Magill and S
(1944) have pointed out that if a large number of differ
strains, especially of viruses isolated during an outbreak,
employed in the tests of sera from the same outbreak m
cases will be found to show antibody response to at least o
strain than if only one strain is used in the test. My perso
view would incline me to the belief that another virus,
other viruses, as yet unknown, are the cause of at least so
of the influenza Y cases in an outbreak. It would seem lo
cal that if virus B differs from virus A in being much l
pathogenic for the ferret, other viruses capable of produci
influenza in man exist which are still less pathogenic for
ferret than virus B. The antibody estimations carried out
the cases of influenza Y by us (Stuart-Harris, Glover, and Mi
1943) showed these cases to occur slightly more often amo
the groups with high initial antibodies to virus B (Chart V
Cases did occur with all grades of B antibody, however. T
influenza Y cases were also distributed in time throughout
epidemic, though with less incidence in the first two weeks
January, when virus B infection was relatively common
Until some method is found of recovering virus from th

individuals, however, the aetiology of influenza Y must remain undecided.

Certain Other Respiratory Diseases Unrelated to Influenza Virus Infection

Francis, in an address in 1937, when discussing the differential diagnosis of influenza said it was easier to describe what influenza was not than to define what it was. This point of view certainly appeals to me, and one seems to be on reasonably certain ground in stating that influenza is not the endemic afebrile cold, is not streptococcal tonsillitis, and is not primary atypical pneumonia. Nor, in recent years at any rate, has it been a gastro-intestinal disease. However, it is certainly true that during an epidemic both influenza A and influenza B can mimic the common cold, and one feels that the common cold virus will eventually be found to be related to the group of influenza viruses and that at times it may cause attacks of clinical influenza. More cannot be said in the absence of knowledge of the antigenic make-up of the common cold virus or until some more reasonable way is found of working with the virus than by studying its effect in the chimpanzee (Dochez *et al.*, 1930). Streptococcal tonsillitis stands more clearly apart from influenza than any of the conditions previously discussed, but there are some cases of exudative tonsillitis in which the haemolytic streptococcus is not concerned that may occur side by side with other cases more clearly resembling clinical influenza. The febrile sore throat or pharyngitis of the medical inspection room does not seem to be influenza, and yet may at times be extremely difficult to distinguish from it. There is a greater tendency for pharyngitis to be accompanied by severe laryngitis and tracheitis, and the name, "febrile catarrh," though now discarded, may yet be found to be of use when our knowledge of the virus and bacterial infections of the upper respiratory tract is more complete. The group labelled 'primary atypical pneumonia" includes examples of infection by viruses of the psittacosis group (Meiklejohn *et al.*, 1944), but a majority of the cases are of undetermined aetiology.

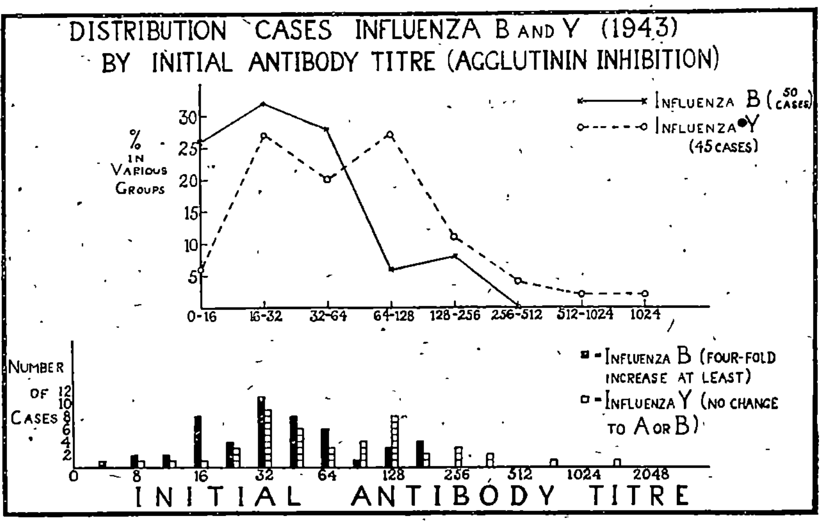

CHART VII

On purely clinical grounds, atypical pneumonia is readily confused with influenza in view of the occurrence of fever, constitutional symptoms, and signs of respiratory-tract infection in both conditions. The onset is more often insidious, the fever lasts longer on the average, and the cough is more often paroxysmal, irritating, and accompanied by substernal discomfort in the case of atypical pneumonia. The characteristic veiled shadows spreading out from the hilar regions which are seen in skiagrams of the chest in atypical pneumonia at once distinguish the condition from simple influenza. Also, the fact that there is more to see in the *x*-ray picture than one would expect from examination of the chest should help to differentiate atypical pneumonia from influenza with bronchiolitis. The discovery of the rise in titre of cold agglutinins for human red cells (Peterson, Ham, and Finland, 1943) which occurs in the serum of many cases of atypical pneumonia during convalescence may be of use when the serological tests for influenza cannot be applied. Further clarification and definition of the atypical pneumonia syndrome from influenza must, however, await, as in the common cold, exact knowledge of the aetiology of the condition. The studies of Eaton *et al.* (1944) on the pulmonary disease in cotton-rats and hamsters induced by sputum from cases of atypical pneumonia deserve special mention in this connexion. In the meantime, the careful studies in progress in the United States (Commission on Acute Respiratory Diseases, U.S. Army, 1944) have led to a recognition of the commonness of the disease, its high incidence in Army recruits, and its almost constant ratio of 10% of the total undifferentiated minor maladies of the respiratory tract in Service personnel.

The Possible Relation between Virus Influenza and Pandemic Influenza

I cannot conclude without a few remarks on the possible relationship between influenza epidemics such as those which I have described and the type of influenza responsible for the 1918 pandemic. Dwight O'Hara (1944) has recently suggested that we owe our present freedom from devastating influenza epidemics to the annual or biennial recurrence of fair-sized outbreaks. A mere glance at the incidence of influenza since the middle of last century is enough to give a bold negative to this theory. The freedom from influenza which prevailed for nearly 50 years after 1847 was, it is true, followed by the pandemic of 1890. But ever after this we have experienced a much greater prevalence of the disease than before 1890, and experience in distant parts of the world, such as Australia, has been much the same. The wartime years which preceded the 1918 wave, far from being years of low prevalence of influenza, were actually periods in which pneumonia mortality and respiratory infections in general increased steadily each year. In the present war, and in spite of unprecedented overcrowding and movement of population within this country, the epidemics have been, if anything, milder than in pre-war years, and there is no suggestion that we are likely to experience the return of a pandemic such as that of 1918. Abler workers than I have speculated upon the relationship between influenza viruses and pandemic influenza, and Burnet and Clark (1942) have given an admirable survey of the possibilities. Analogy between virus A influenza and the pandemic variety breaks down even if only the mild summer wave is considered. For though the three-day fever of June, 1918, was very similar clinically to virus A influenza, the occurrence of a much higher mortality in the young adult of 20 to 30 even in the first wave in 1918 indicates some fundamental difference. The later waves in 1918 not only showed the same trend in age mortality as did the first wave but suffered an incidence of pneumonia of a size entirely unlike present-day experience.

Three main explanations have been advanced to account for the different characteristics of the 1918 pandemic. First, it may have been due to a virus of entirely novel antigenic type which, meeting a wartime and susceptible population, behaved as, for instance, measles behaves in a virgin population not previously exposed to it (Fiji, Faröe, and St. Helena epidemics). The suggestion made by Laidlaw and supported by Shope was that the swine influenza virus now prevalent in the pigs of the Middle West of the United States represents the survival in an animal host of the pandemic human virus (Shope, 1943). Evidence for this is simply that swine influenza first occurred in the United States in 1918, and Koen suggested at that time that it was acquired from human cases. The occurrence of antibodies to swine virus in the sera of adult humans but not of children was at one time thought to favour this view, but it is now known that such antibodies develop in response to infection by human virus A influenza. Secondly, pandemic influenza may have been due to a peculiarly high rate of secondary bacterial invasion. Evidence both for and against this can be assembled, but perhaps the weight of argument is against this theory, because no one type of bacterial species occurred more frequently than any other. The third view, is that the virus of 1918 influenza was of the same antigenic character as, for instance, virus A, but possessed unique biological properties (Burnet and Clark, 1942). Andrewes (1942) conceived of pandemic virus as being merely a more advanced grade from the virus of present experience with the added property of attacking the lung, but felt that antigenic mutation would alone explain the lethal effect of the viruses on the young adult. Burnet and Clark explain the latter phenomenon on the basis of excessive reaction of the inflammatory response to a strain of virus capable of spreading down into the alveoli.

Comparison of the properties of the various influenza A viruses encountered in the epidemics of different years certainly supports the view that virus strains of almost the same antigenic constitution can vary considerably in their virulence for experimental animals. It is a striking fact that whenever a considerable epidemic is under way no one seems to find it difficult to establish strains of virus A in the ferret, the clinical responses in the ferret are clear-cut, and passage is successful in a high proportion of instances. The viruses obtained from localized outbreaks of years such as 1939 and 1941 were by contrast difficult to transmit to ferrets, caused poor clinical reactions, and tended to die out on passage unless "nursed" along. We also know something of the variations which can be induced in the virus by simple transfer from one animal to another, so that the virus appears to be biologically plastic and capable of very considerable modification. The studies of Burnet and Bull (1943) on the changes which occur in the influenza virus immediately after isolation from human cases indicate the relative instability of the human virus and the considerable ease with which mutation can be induced. Should a strain of virus arise in nature, as a result, perhaps, of a particular combination of circumstances, which possessed both heightened power of spread and changed antigenicity, then a pandemic with particular mortality in the younger age groups might result. When all is said, however, our theories must remain unproved in the absence of opportunity of putting them to the test, and everyone must agree that ignorance is a more blessed state than knowledge born only of bitter experience of a new pandemic.

To summarize: I have tried to show how the knowledge of the virus agents active in the causation of influenza has begun to illuminate the problem of one of man's most implacable enemies. Whenever the influenza epidemics of recent years in Great Britain have been intense and widely spread they have been associated with that virus designated influenza A. Intervening epidemics have been associated both with virus A and with virus B, but a varying proportion of cases clinically similar to those associated with these viruses have remained of unknown aetiology. The clinical features of infection by the two known groups of influenza viruses have been described, and an attempt has been made to interpret the role of the virus in the pathogenesis of the human disease. The manner in which knowledge of the influenza viruses may help us to interpret pandemic influenza of the type experienced in 1918 has been briefly described, and emphasis has been placed on the variable biological properties of the different virus strains and on their power of rapid modification.

(*A full list of references will be given at the end of Lecture II.*)

We have received from the librarian of the U.S. Office of War Information, American Embassy (1, Grosvenor Square, W.) the printed report of a discussion on "Putting the Disabled Veteran back to Work." Those who took part included Dr. C. D. Selby, medical consultant, General Motors Corporation, and Dr. Harley L. Krieger, medical director, Ford Motor Company. The debate was held in the Mellon Institute on the occasion of the eighth annual meeting of the Industrial Hygiene Foundation, and the report is published by that body from 4400, Fifth Avenue, Pittsburgh, Pennsylvania. It forms Bulletin No. 2 of the Foundation's special series of publications.

DRYING PENICILLIN BY SUBLIMATION I THE UNITED STATES AND CANADA

BY

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Desiccation from the frozen state has now become well know as the result of its very wide and extensive application to th drying of blood plasma. The art itself is old, and dates bac to Shackell in 1909. The subsequent history of the development of desiccation from the frozen state during the preser century has been recorded in previous publications (Flosdor and Mudd, 1935; Strumia *et al.*, 1941; Flosdorf *et al.*, 1945 and these include also reference to the work of Shackell (1909 Harris and Shackell (1911), Hammer (1911), Rogers (1914 Swift (1921), Sawyer *et al.* (1929), Elser *et al.* (1935), Reiche Masucci, McAlpine, and Boyer (unpublished; see Flosdorf an Mudd, 1935), Reichel (1939), Greaves and Adair (1939), an Greaves (1942, 1944).

By 1935, as a result of the development made by thes various workers and of our own contributions (Flosdorf an Mudd, 1935), desiccation from the frozen state was availabl for general production of various biological products. Henc when the war came the art had been developed and was read for use with blood plasma; of course, under the stimulatio of a project like this, the process was soon applied on grander scale than ever before.

Earlier efforts to evaluate the possible clinical usefulness o penicillin were abandoned because its liability seemed to mak it unsuited as a therapeutic agent (Clutterbuck *et al.*, 1932 However, when later research had resulted in demonstration o the effectiveness of penicillin (Chain *et al.*, 1940; Abrahar *et al.*, 1941), it was natural that desiccation from the froze state should be called upon to stabilize it; meanwhile, dryin this way had undergone the necessary development. In man respects the problems with plasma and penicillin were simila and parts of equipment even identical. On the other han certain peculiarities in the nature of penicillin introduced problems quite different from any encountered earlier.

Actually, solutions of penicillin are not so labile that the cannot be evaporated at about room temperature without los in potency, but they foam badly. Desiccation from the froze state avoided this problem. This also allowed a more highl soluble product to be obtained.

On the other hand, if penicillin is to be dried while froze it is necessary to hold the temperature lower even than tha which is required for many other biological products, includin blood plasma. This is not because of the biological labilit but because of physical characteristics. Penicillin does no remain in a completely unsoftened condition unless the temperature is below about −20° C., and preferably below −25° C The exact temperature varies somewhat with the degree o purification and with the concentration of the product; nevertheless, even the least exacting of preparations require a lowe temperature than plasma. If penicillin is not kept at suc low temperature, because of softening there is bubbling an frothing to a partial extent, and this is sufficient to introduc problems of practical control which are difficult to overcome Consequently, it is simpler to maintain a lower temperature.

Drying in Bulk or in Ampoules and Bottles

Drying of a biological product intended for parenteral injection may be carried out either in bulk or in the final containe in which the product is to be stored and distributed. However, drying in bulk has not met with general favour becaus of the obvious problems of maintenance of sterility in subdividing dry powder into ampoules for distribution. The problem is made more difficult because of the hygroscopic natur of dry penicillin, the size of doses requiring accurate weighin of small quantities. In spite of this, attempts were made t dry penicillin in bulk for transfer of dried powder to fina ampoules, and these represent the first time this has ever bee tried in routine large *production* of a biological produc To-day, however, the trend has returned to one of drying i the final container as proposed in 1935 (Flosdorf and Mudd, 935). In some cases preconcentration in bulk by partial dryng from the frozen state is used with transfer of concentrated liquid to ampoules for final drying. This reduces the size of the final ampoule required, particularly where the original peniillin solution is very dilute. Concentrating in bulk in this way oes not offer the same problems of sterility as are encountered y complete drying in bulk, inasmuch as a representative sample f the concentrated liquid is readily enough obtained for baceriological culturing. If it is found sterile, then there is reasonble assurance that the entire batch is sterile, in contrast with he ineffectiveness of proper bacteriological sampling of dry owders. Improvements in the process of extraction now permit production of concentrated solutions without evaporative oncentration.

If final containers such as ampoules or bottles are used for rying, close attention must be given to the necks selected, so hat they are adequate in size for the escape of the vapours. hese conditions have been fully described (Flosdorf and Mudd, 935).

Freezing Conditions

There are no particular limitations with regard to the temperatures for freezing other than that they be low enough to nsure complete solidification and fast enough to avoid partial eparation of concentrated penicillin. As indicated above, temperatures of −20° and −25° C. represent the maximum which an be used if an unsoftened product is to be dried.

There is a further complication involved in large-scale production of penicillin in contrast with plasma. Because of the larger bulk of material in a single bottle in the case of plasma, he contents will not thaw quite so quickly when removed om the freezing-bath. With penicillin the amounts are so nall in the individual containers that this is not the case. Unless special precautions are taken there is considerable hazard of partial thawing after removal from the freezing-bath or om the frozen storage vaults. This is during the loading of he drying chambers and during evacuation to pressures that nable the frozen state to be maintained by evaporative coolng. For that reason, drying chambers of the type used widely or blood plasma (Flosdorf *et al.*, 1945) have been modified to he extent that they can be chilled to sub-freezing temperatures. he product, after being loaded into the chambers, is held in a ozen condition in this way until the proper degree of vacuum obtained. Then the chilling medium is removed from the ckets of the chambers and the heating medium circulated at proper temperature.

A still simpler procedure has now been introduced which greatly reduces the labour of handling the bottles. The bottles ontaining the penicillin as liquid are introduced into the chilled rying chambers. As soon as the penicillin has been frozen, hich may be within as little as half an hour, the chamber is vacuated and then heated in the usual fashion.

Vacuum Conditions for Drying

It is necessary to set up conditions of vacuum whereby most of the air is removed from the system; otherwise the drying ould take an impossibly long time. Under these conditions he ice in the product evaporates directly to the vapour phase.

The water vapour which evaporates from the frozen product may be removed by a number of means, but, in large prouction, only two basically different methods are being used. ither the water vapour is pumped directly by means of large eam ejector pumps (Flosdorf *et al.*, 1945; Flosdorf and Stokes, 941) or, alternatively, large refrigerated condensers are used combination with mechanical vacuum pumps. In the latter case the condenser removes the water vapour and the mechanil pumps serve principally to keep the air out of the system. hemical desiccants or adsorbents may also be used in place of he refrigerated condensers, but these have not been employed n a production scale for penicillin except in certain combinaons with other equipment which will be discussed below.

In any event it is necessary by means of the direct pumping stem or the refrigerated condenser to set up a partial presure of water vapour below that of the penicillin at the temerature at which it is being dried. For temperatures of 20° to −25° C. this means a vapour pressure of the order of 500 to 750 μ. Consequently, the steam ejector or condenser must produce pressures below this, and, on the surface of things, one might expect that the lower the temperature produced by the condenser or the higher the degree of vacuum produced by the steam ejector the more rapidly drying would proceed. However, this is not the case. As drying proceeds the receding surface of the layer of ice within the penicillin becomes covered with a porous outer layer of dried material, which means that the vapours must escape through orifices. According to the laws of adiabatic gaseous flow through orifices—the Napier equation—a pressure of water vapour produced by the condenser or by the steam ejector which is 55% of the vapour pressure of the penicillin will result in as rapid drying as can be obtained (Flosdorf *et al.*, 1945). This we have confirmed by experiment, and it means in effect that a degree of vacuum of the order of 250 to 400 μ is adequate. This applies only to the first stage of drying from the frozen state, which is in reality a process of sublimation of the ice contained in the product. Nevertheless, this does cover the removal of most of the moisture.

However, after all of the ice has been removed from the penicillin we have the second stage of drying, which is one of removing the final traces of moisture from the dry product. The hygroscopicity or the vapour pressure of the dry penicillin varies widely with the preparation in question and depends, among other things, on the degree of purification and concentration. This vapour pressure of the final dry product determines the final degree of vacuum which is required; generally it has been found that from 50 to 100 μ is sufficient.

One procedure which has met with some favour is to use steam ejectors or refrigerated condensers in the first stage of drying for removal of the bulk of the water vapour from the frozen penicillin solution. This affords the most economical way of carrying out the process, since a vacuum of no better than 250 μ is required. To complete the drying, a chemical desiccant is used. By choice of the proper one, partial pressures of water vapour as low as a fraction of a micron are readily obtainable, and make it possible to reduce the final content of moisture in penicillin to as low a level as needed (Flosdorf *et al.*, 1945). Inasmuch as the amount of actual water to be taken up by the desiccant in this second stage is small, weights of desiccant which are reasonable will last for a long time before replacement or regeneration is necessary.

As an aid in reduction to proper final content of moisture the temperature of the penicillin may be raised towards the end of drying to increase the vapour pressure. This in turn raises the pressure which it is possible to use for obtaining final dryness. Although originally it had not been considered safe to take the final dry penicillin to above 40° C., there seems now to be evidence that the final product may be taken to considerably higher temperatures—even as high as 110° C. This, of course, simplifies the problem of obtaining low final moisture.

Final Degree of Moisture and Stability

Although exhaustive data are not yet available which relate the stability of penicillin at various temperatures to the actual content of moisture in the dry product (among other things, it varies with the degree of purification), it is generally agreed that the lower the content of moisture the greater the stability. There is considerable difference of opinion as to just what is the critical level, in some quarters this being placed as high as 7%. In the United States it is required by regulation that the product be reduced to below 2.5%, and there is some evidence that a final content of moisture of 0.5% is necessary for *maximal* stability.

Sealing of the Final Container

Obviously, if it is important to bring the content of moisture in the penicillin to a low point in the first place, it should be maintained low. A glass-sealed ampoule is always of first choice for a hermetically sealed container, but it does offer some difficulty in the clinical use of the material. For this reason bottles sealed with rubber stoppers have met with favour. When rubber-sealed bottles are used, however, it is necessary to relate the length of time the penicillin remains fully potent to the effectiveness of means of protection of the rubber stopper. Rubber and synthetic products are permeable to moisture. In the case of products like plasma this is not significant, but with others which have a low content of solids it is highly important to give consideration to the amount of moisture going through the stopper.

For example, compare a 10-ml. amount of serum with a 300-ml. amount of plasma. If, under certain conditions of long storage, the 10 ml. of serum will be taken up to 8% moisture content, the 300-ml. amount of plasma will have its moisture content increased only by one-thirtieth of this—by about 0.27%. The reason is that there are 30 times as much solid matter by weight in the plasma container as in the small serum container, yet the amount of moisture permeating the stopper is the same. With penicillin, where the amount of solids may be only one-fifth as great as even in the 10-ml. quantity of serum, the moisture content could go as high as 40% (Flosdorf *et al.*, 1945).

Other Methods of Drying

As indicated above, the stability of penicillin is such that it may be evaporated as a liquid at room temperature without undue loss of potency. Recently, preconcentrating dilute penicillin solution in bulk by means of dielectric heating in low-vacuum apparatus has been carried out successfully. This reduces appreciably the load on the equipment for final desiccation from the frozen state, particularly if the original penicillin solutions are quite dilute. After preconcentrating in bulk in this fashion, the liquid product is distributed to phials in which the concentrated penicillin is frozen and then dried by sublimation.

It may be that before long it will be possible to dry the concentrated solutions of penicillin as a second step by means of dielectric heating on a practicable basis in the final ampoules. The reduction to a final moisture content of 0.5% must be accomplished as a third step in which a warm bath is used to heat, since the dielectric means become ineffective on the dry penicillin. The final product is less attractive in appearance. Solubility is slower, but fast enough for the purpose. The matter will then resolve itself simply into one of economy in handling a large number of ampoules in the second and third steps required with dielectric heating as compared with drying by sublimation.

Summary

Problems met in drying penicillin in contrast with those with blood plasma and other products are discussed. Procedures used in large production are described. Final moisture requirements and types of containers suitable for penicillin are discussed. Use of dielectric heating of penicillin is considered.

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The Research Board for the Correlation of Medical Science and Physical Education, which was formed in 1943 under the chairmanship of Brig. F. Howitt, has issued a first interim report. The material is arranged in four chapters, on maternity and child welfare, education and recreation, the Services (the normal recruit, the substandard recruit, and the sick, injured, and disabled), and a note on the work of the Industry Subcommittee by Brig. F. A. E. Crew. There is a foreword by the chairman, and the report concludes with some recommendations. Copies may be obtained from the Ling Physical Education Association, Hamilton House, Bidborough Street, W.C.1, price 2s. (postage 3d.).

GAS GANGRENE AFTER SECONDARY SUTURE OF SHELL WOUND OF THIGH

BY

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I am led to report this case for two reasons: (1) the fact tha the gas gangrene followed secondary suture of the shell woun of the thigh; and (2) the fact that the patient recovered afte apparently being moribund.

The former occurrence was most disconcerting, as the patier was very fit before the operation and, clinically, the woun looked healthy and suitable for suture and the swab was steril Many cases of gunshot wounds had been submitted to secondar suture, and this was the only one which caused any anxiety- all the others were successful. But it is important t record failures or accidents as well as successes. And, a Sir Ernest Rock Carling, with whom I have been in communica tion, remarks, "one accident does not vitiate the principle, an secondary suture is extremely important." It emphasizes th necessity for taking swabs not only from the surface bu from the recesses of the wound. Apparently the organism had been lurking just beneath the surface.

With regard to the latter occurrence, I have never i all my experience seen a patient so ill recover. I aske Prof. F. C. Pybus to see him with me, and we both agree there was no chance of recovery. It shows that "where ther is life there is hope."

Case History

On June 23, 1944, Capt. X., aged 30, and the crews of two tan were resting beside their vehicles when a German shell burst ne them, wounding seven men, including the captain. Assisted b another officer, he dragged the wounded men into slit-trenches, whic were dug in the well-cultivated orchard of a French peasan Capt. X. forgot to apply his field dressing to his wound, whic became contaminated with soil. An hour after the bursting of th shell he was admitted to the regimental aid post with a lacerat wound of the skin and muscles of the right thigh, on its anteri aspect, the wound being about 4½ in. long by 2 in. wide. At No. Casualty Clearing Station later that day the wound was found be widely open but not suitable for surgical treatment, so it w dressed with sulphanilamide powder and vaselined gauze, and a ba splint was applied. Two days later, in hospital, the splint w removed, as it was causing pain, and the wound was re-dresse The patient's general condition was very good. Between the 23 and 29th he received 3 c.cm. of A.T.S. and 20 g. of sulphanilamid

On the 29th he was admitted to the Royal Victoria Infirmar Newcastle-upon-Tyne, under my care. His general condition w still good. The wound of the thigh was rather dirty and poutin and of a greenish colour. A swab was taken from the wound, ar this produced cultures of mixed penicillin-sensitive organisms. Tw days later another swab showed streptococci suitable for penicill treatment. The patient complained of pain on micturition ar frequency but no discharge.

On July 6 the wound was cleaner, and not everted so muc There was a very scanty colourless exudate. Dressing was done wi penicillin powder and tulle gras, and the wound became cleaner ar healthy-looking. A swab showed it to be sterile, so it was decid to carry out secondary suture. This was done on July 14, the edg being undermined and the skin approximated with silkworm-g sutures. Proflavine and sulphanilamide powder were dusted in the wound. Next day there was a slight amount of serum oozi from the lower part of the wound.

On the 16th there was slight tenderness round the wound; sor blood-clot was oozing, and this reappeared when cleared away. H pulse was 120, his temperature normal, and he was fairly comfo able. Some sutures were removed. By the next day a large amou of clot was escaping from the wound. The remaining sutures we removed and masses of foul-smelling clot evacuated. There w oedema over the knee and thigh, and the leg was very tender. H pulse was 108 and temperature 99° F. He was in pain and look ill. A few bubbles of gas escaped from the wound. An intr muscular penicillin drip was set up in the left thigh. Sulphathiaz was given, together with 12,000 units of anti-*Cl.-welchii* seru intravenously. That evening 22,500 units of polyvalent serum we administered. A blood drip was started at 09.30 hours, but 10.30 hours a severe reaction to the A.G.G.S. took place, characte ized by respiratory distress, vomiting, and urticaria. The blood di was stopped as a precaution. The patient was gravely ill the who day. A swab showed the presence of clostridia other than *welch* with sensitive *Staph. albus* and resistant faecal streptococci.

The next day (the 18th) he was still very gravely ill, his tempera- e being down to 95° F. and his pulse up to 150, thready and ely palpable He vomited altered blood, the vomiting being ortless. A duodenal tube was passed and was left *in situ*. The tput of urine fell almost to zero, and he was pale, grey, and ating, and looked like dying. The oedema had spread up from thigh on to the abdomen, back, and lower part of chest. In evening, as a last resort, multiple incisions were made in the gh, back, and abdominal and chest walls. Considerable quanti- s of serum and a little gas escaped. A saline-sulphathiazole drip s started—3/4 pint in four hours. On the 20th he was still ill, t his pulse had fallen from 140 to 108 and its volume was better. s temperature had risen from 95° to 98° F. and the amount of ne excreted had increased. In addition to getting whole blood was having intravenous saline and dextrose most of the time. swab taken on the 22nd was sterile and the patient continued to prove, his chest being clear and free from pulmonary oedema. e next day he developed a mild phlebitis of the left leg. The p was discontinued.

During the following week he received two pints of fresh blood d polyvalent A.G.G.S. The penicillin drip was continued. On the h his haemoglobin content was 59%. All this time there was a oious serous discharge from the wounds, and precautions were en to give plenty of fluids by mouth or intravenously. The serum otein was investigated, and showed total protein 5.40%—albumin 2%, globulin 2.28% (by difference). An area of redness and elling developed on the inner side of the right thigh, so on July 30 re multiple incisions were made, but only blood and serum ded. This process was repeated a few days later. The swelling the thigh and leg gradually subsided. On the 31st his haemo- bin had fallen to 52%, so more fresh blood was given, and it e to 58% by the next day. A swab showed scanty *Staph. aureus,* erococci, coliforms, and Gram-positive bacilli. A swab taken ee days later revealed Gram-positive cocci, scanty Gram-positive cilli—probably anthracoids—and some resistant staphylococci and erococci.

By Aug. 6 his haemoglobin was 65% and he continued to improve. e serous discharge from the wounds diminished—in fact, most the wounds were now healed; but there was a discharge of pus ntaining bubbles of gas from a few of the wounds above and below original shell wound and the thigh was distinctly resonant on rcussion in these situations. It was decided to operate again, and Aug. 25 the wounds were opened up and from each site, above d below the original wound, a large grey-black spongy slough s removed. The pathological report on these specimens was: The material consists of two masses of soft friable tissue 5 × 2.5 × m. and 9 × 5 × 1.5 cm. The material is necrotic, and muscle is t recognized. Microscopically this is completely necrotic. Adipose sue is the only recognizable one in the section." The patient proved rapidly after this; the wounds (operation and shell) healed mpletely and he was allowed up. He was discharged to his home Sept. 28. All the movements of the limb were complete, but re was, of course, wasting of the muscles and he walked with a p. His general condition was good.

During the course of his illness more than three dozen incisions re made in the thigh, back, abdomen, and chest. He had been en nine pints (900,000 units) of penicillin solution intramuscularly d about 150,000 units of anti-gas-gangrene serum as well as a ond full course of sulphonamides. In addition he had large antities of blood, plasma, saline, and dextrose intravenously.

I acknowledge my indebtedness to the resident medical officer of Royal Victoria Infirmary, Dr. J. H. Craig, who was responsible the intravenous therapy and whose interest in the case contri- ted largely to the happy ending.

The latest report of Dr. H. P. Newsholme as medical officer of alth for the City of Birmingham shows that the year 1943 gave ise for satisfaction in a number of aspects of the public health. w records were reached in an unusually large number of direc- ns. The year saw the lowest infant death rate ever recorded in city; and, with this, the lowest illegitimate infant mortality, ing actually below the particularly low general infant mortality. e city recorded its lowest neonatal death rate for infants under month of age, and its lowest stillbirth rate. The year showed o the lowest notification rate of non-pulmonary tuberculosis so recorded in Birmingham; last, but not least, the lowest maternal ath rate ever recorded in the city was reached in 1943. Against ese pleasant facts Dr. Newsholme notes that, largely as a result of widespread epidemic of influenza, the death rate did not drop ite to the low level of 1942; that there was a 35% increase in number of new cases of syphilis coming up for clinic treatment; d that there was some increase, though not a large one, in new ses of tuberculosis of the lungs in 1943. No substantial change curred during the year in the housing position, and the problem overcrowding as well as that of families housed in dilapidated operty remains very serious.

TWO CASES OF TETANUS

BY

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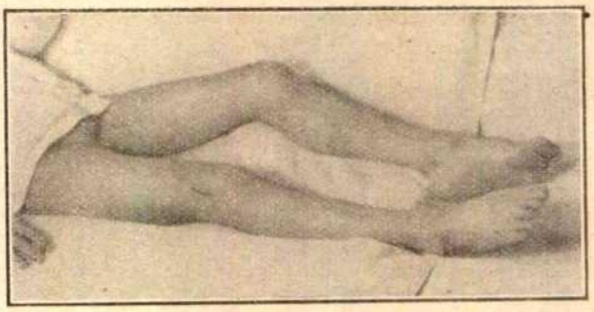
The first of these cases of tetanus is described because it is an interesting example of severe local tetanus developing during the course of a mild generalized attack; and the second —a straightforward example of severe tetanus—because it illustrates certain special points in treatment.

Case I

On Aug. 8, 1944, the patient, a boy aged 5½, trod on a rusty nail, injuring the left foot. No special treatment was given, and the wound appeared to heal satisfactorily. On the evening of Aug. 11 he seemed generally out of sorts and complained of abdominal pain, which woke him up every hour throughout the night. In the morning he had difficulty in opening his mouth. He was admitted to Addenbrooke's Hospital on Aug. 12, about 16 hours after the onset, and then showed the characteristic signs of tetanus: trismus, risus sardonicus, stiffness, opisthotonos, and abdominal rigidity. The foot and leg on the injured side were slightly stiffer than on the other. On the ball of the left big toe was an almost healed wound with no sign of sepsis. There were no other wounds.

Treatment and Prognosis.—200,000 units of antitoxin were given at once, mainly by the intravenous route, and during the next few days trismus and rigidity of the trunk increased. On the 13th reflex excitability increased, and on the 14th he had some slight generalized spasms. Synchronously with the development of these general signs, the rigidity of the left leg became steadily more severe, and by the 14th the whole leg, in contrast to the other limbs, was in continuous muscular spasm and so stiff and rigid that to produce even slight movement at the knee- and ankle-joints required the exercise of considerable force. The leg was slightly flexed at the knee, with the foot plantar-flexed and inverted (see Fig.). Very slight reflex spasms occurred several times daily until the 17th, and tonic rigidity of the trunk and trismus until the 31st. A severe degree of stiffness of the left leg remained throughout the whole illness, and the left foot was still rather stiff on Sept. 9, when the patient was able to walk about. All stiffness, both local and general, had passed off when he was discharged on Sept. 25.



CASE I.—Local tetanus, left leg and foot.

At no stage of the illness were the spasms severe, and 10 gr. of potassium bromide four-hourly and 1½ dr. of paraldehyde per rectum once nightly for the first five days were sufficient to promote sleep.

Case II

On Sept. 17 a boy aged 8 fell off his bicycle, grazing the dorsum of his right foot. This was treated with dettol and bound up, but the wound was not kept very clean. On the evening before admission he felt generally out of sorts and complained of severe backache and difficulty in opening his mouth. These symptoms became rapidly more severe, and he was admitted to hospital on Sept. 27. On admission risus sardonicus and trismus were pronounced, and he could only separate the teeth a quarter of an inch. There was also severe rigidity of the whole trunk with slight opisthotonos. There were a partly healed septic abrasion on the right external malleolus and other scabs on the right heel.

Treatment and Prognosis.—On admission 100,000 units of antitoxin were given intravenously, and the wound was subsequently cleaned and scabs were removed. The signs increased rapidly in severity, and 24 hours after the onset reflex excitability was becoming extremely marked, and, 36 hours after, generalized convulsions were occurring regularly every half-hour, with very severe trismus. Other ominous signs were a rising pulse rate and temperature and inability to take food because of the severity of the trismus. There was also considerable difficulty with micturition.

Both rectal paraldehyde and avertin in basal anaesthetic doses were first tried to control the spasms, but were unsatisfactory because they were not retained. Pentothal, in doses of 0.25 g. intravenously, was then used as a temporary expedient, but was not very successful. Intramuscular paraldehyde in doses of 3 c.cm. was now tried, and as it proved extremely effective it was continued as required for the control of spasms until Oct. 6. For the first few days a dose of 2 or 3 c.cm. was given twice every 24 hours, and later once. To combat the increasing dehydration, an intravenous drip was started on Sept. 28 and was continued for 48 hours, the needle being kept in the vein by a plaster-of-Paris splint to the forearm.

On Sept. 29 the temperature rose to 103°, the pulse to 160, and the respirations to 45. The chest was very bubbly, cyanosis was present, and it was clear that pneumonia would be likely to supervene. Sulphathiazole was therefore given, first by drip and afterwards by mouth, until Oct. 5, to a total of 26 g. The child's condition, which was critical, showed slight improvement on Oct. 2, reflex convulsions became easier to control, and he was able to take fluids by the mouth. His condition then gradually improved, reflex spasms having ceased by Oct. 8 and the tonic rigidity by Oct. 25. He was discharged well on Oct. 30.

Comment

Local tetanus occurs in mild cases most commonly after prophylactic antitoxin has been given. Usually the local signs occur in the injured limb before any generalized symptoms appear. In head wounds, paralysis or spasm of cranial nerves, particularly the 7th and sometimes the 3rd, 6th, and 9th, is another manifestation of local tetanus. It is an important warning that generalized tetanus will almost certainly develop and an indication for giving antitoxin with the utmost dispatch without waiting for trismus or other generalized signs to appear. The work of Abel *et al.* (1938) suggests that local tetanus is caused by toxin absorbed from the wound affecting the motor nerve endings locally before toxin carried round in the blood stream has had time to produce its effect on the motor nerves generally or to involve the synapses in the brain and spinal cord.

In Case I the signs of local tetanus in the wounded limb were very slight when the signs of generalized tetanus were marked, and it was only after antitoxin had been given that the local tetanus developed to an intense degree, persisting throughout the whole illness and even longer than the signs of tetanus in other parts of the body. It is perhaps worth noting that local tetanus of the type described in this case probably occurs without any detectable signs or symptoms of generalized tetanus later. The following is an example of such a case.

An agricultural labourer aged 55 attended the out-patient department complaining of stiffness and rigidity of the left arm from fingers to shoulder. There was very little pain. Over his hand and forearm were numerous small scabs, which appeared to be some weeks old. The condition had come on gradually over a period of about a fortnight and passed off in the same time. There is a strong probability that this was an example of local tetanus in which the absorption of toxin from very slight wounds had been too small in amount to produce any generalized symptoms. The diagnosis in this case could not be confirmed because the scabs had dried up by the time the patient was seen.

Case II is an example of severe tetanus with a period of onset of not more than 36 hours. The whole march of the disease in its early stages suggested a very bad prognosis. The case is described to illustrate the use of three measures which proved particularly helpful in treatment—namely, (1) intramuscular paraldehyde to control reflex convulsions and promote sleep; (2) a plaster-of-Paris bandage to keep the needle of the intravenous drip in the vein during the period when convulsions were frequent and severe; (3) the early administration of sulphathiazole when the possibility of lung infection was threatening. For the first two suggestions I am indebted to my house-physician, Dr. E. Counsell.

REFERENCE

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The Therapeutic Research Corporation of Great Britain has elected the following officers for the year 1945: Chairman, Board of Directors, Lord Trent (Boots Pure Drug Co. Ltd.); Deputy Chairman, Dr. F. H. Carr (British Drug Houses Ltd.). Chairman, Research Panel, Mr. F. A. Robinson (Glaxo Laboratories Ltd.); Deputy Chairman, Dr. C. H. Kellaway (Wellcome Foundation Ltd.).

TIBIAL BONE-MARROW TRANSFUSIONS IN INFANTS

BY

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AND

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This paper records our experience with transfusions into marrow cavity of the tibia in small children, using the appara described by Janet Gimson (1944). We have employed t method of administering fluids as an alternative to intraven therapy during the past 9 months, and are now setting details of 35 consecutive transfusions. The total number patients was smaller, as more than one transfusion was given the same child in several instances. Nearly all the patie were suffering from dehydration due to gastro-enteritis.

Notes on Technique

In this series we have used the technique described Gimson, and it will be sufficient merely to enumerate so points in which we have deviated from her technique.

The legs are most satisfactorily held by firmly bandag the soles of the feet to a padded splint so that they are ab 9 in. apart, the ends of the splint being tied to the sides the cot. This allows some movement of the legs but preve the needle from being dislodged, and nursing is made eas because the splint is well away from the napkin area. F surgical precautions—mask, sterile gown, and gloves—are tak against sepsis, and the skin is cleaned several times w spirit, then covered with sterile gauze until the needle inserted. The choice of needle is not always easy, beca of the difficulty of judging the thickness of the subcutane tissues and of the tibia itself. The most common mist is to use too large, not too small a needle.

The site chosen is on the flat subcutaneous surface of tibia, at least 1 in. below the level of the tibial tuberos Repeated post-mortem examination showed that even in smallest infants there is a wide marrow cavity extend almost half-way down the tibial shaft, and it is reasonable avoid the epiphysial region by a wide margin. No lo anaesthetic is used for the insertion of the transfusion need The trauma inflicted by the needle seems to be very little m than that occasioned by an injection of novocain, and the p is purely momentary.

The adapter connecting the needle to the giving set is entirely satisfactory. It would seem to need redesigning, as its present form the junction with the needle is easily loose and will sometimes leak in an annoying way. We have us several adapters which we made from cork and rubber tubi and have found them quite satisfactory. A heat-cradle is use in at least two ways: it keeps the bedclothes from touchi the needle and its tubing, and can be used to warm up leg if the drip runs slowly.

The Transfusion

Saline, glucose-saline, Hartmann's solution, and half-streng serum have been given with good results. The rate of fl is usually fast enough to meet the child's total fluid nee but we have used transfusions more often merely to supp ment fluid taken by mouth. The amounts given are sho in the accompanying Table. It was soon found that the d usually needed slowing to prevent the development of lo oedema. The unrestricted rate of flow bears a fairly dir relation to the weight of the child and to the degree dehydration, the fluid running faster with the heavier ch and the greater dehydration, and slowing down automatica as body fluids become replenished. This is in contrast intravenous transfusion, in which the rate tends to be predictable. The cause for this difference seems to be th whereas in intravenous transfusions the rate of flow is det mined by the height of the hydrostatic pressure and the s of the lumen of the vein, the ease of absorption of transfused fluid through capillary walls plays an important part in determining the speed of a bone-marrow transfusion.

If the needle becomes blocked it can be freed by sucking through it a very small amount of fluid with a 2-ml. syringe.

Summary of Cases

Case No.	Age	Length of Needle (in.)	Time of Running (hours)	Quantity Given (fl. oz.)	Reason for Abandoning Drip	Remarks
1	5/12	3/8	5	15	Death	Child moribund on admission. Drip delivered 10 fl. oz. in 2 hours though slowed
2	6/12	3/8	30	40	,,	Drip started at 30 drops per minute and speeded up
3	8/52	3/8	4	15	Oedema	Needle too big for child
4	8/52	1/4	9		,,	Needle loose after 9 hours; ? reason
5	9/52	1/4	26	30	,,	Oedema after 24 hours. Drip stopped. Oedema subsided in 6 hours; returned 2 hours after restarting
6	5/12	1/4	10	47	,,	Very small baby for age. Drip probably too rapid
7	5/12	1/4	12	60	Needle blocked	Completely satisfactory
8	5/12	1/4	24	16	,,	Ran very slowly all the time and was inclined to stop
9	2/12	3/8	24	30	,,	—
10	5/12	1/4	60	50	Death	Needle cleared 4 times
11	6/12	1/2	36	40	Improvement	—
12	6/12	1/2	60	50	Needle blocked	—
13	6/52	1/4	60	60	Death	—
14	8/52	1/4	—	—	Drip unsuccessful from start. Needle probably not in medullary cavity	
15	8/52	1/4	62	70	Oedema	Case of pyloric stenosis. Child taken to and from operating theatre with drip *in situ*. Developed osteomyelitis of tibia
16	9/52	1/4	36	35	,,	—
17	4/52	1/4	16	20	Needle blocked	Case of pyloric stenosis. Taken to and from operating theatre with drip *in situ*
18	3/52	1/4	72	60	Oedema	Very satisfactory
19	4/52	1/4	72	60	—	,, ,,
20	5/52	1/4	48	40	Oedema	Slight oedema after 12 hours. Drip stopped for 4 hours, then continued satisfactorily
21	5/52	1/4	36	20	,,	Ran slowly all the time
22	8/12	3/8	36	40	Death	Necropsy showed localized infection of needle track but not of bone
23	6/12	3/8	22	18	Oedema	Very restless child. Needle loose after 22 hours
24	6/12	3/8	48	40	,,	—
25	6/12	3/8	18	10	Persistent leaking at adapter	Same baby as Case 23; left leg used for both drips. Second drip started 42 hours after discontinuation of first
26	8/52	1/4	72	40	Oedema	Ran slowly throughout
27	7/52	3/8	—	—	—	Very small baby. Needle too long. Drip did not run
28	7/52	1/4	108	80	Stopped deliberately	Same baby as Case 27
29	2/12	3/8	72	Not recorded	Slowness of drip	Fat child. Needle apparently not at right angles to bone
30	2/12	3/8	72	,,	Oedema	—
31	3/52	1/4	132	,,	Death	—
32	3/12	1/4	30	50	Oedema	Drip given too fast; 15 fl. oz. in first 3 hours. Early oedema caused by rapid rate
33	5/52	1/4	48	50	,,	—
34	9/12	1/4	60	40	,,	Ran slowly throughout
35	8/52	1/4	40	40	Death	Ran well

This may cause less damage than the opposite manœuvre—syringing through into the marrow cavity. Oedema is occasionally troublesome, and seems not to depend only on the tightness of the needle in the bone. It sometimes occurs much higher up the leg than the site of insertion of the needle, the region just above the knee being commonly affected. As previously mentioned, leaking at the junction of needle and adapter is another trouble, and even tight and carefully planned strapping does not eliminate it. Leaking due to the needle working loose occurs less often in the early stages, but is a common reason for discontinuing the transfusion after several days.

There is no doubt that osteomyelitis is to be feared. In the one case in our series of saline transfusions in which it developed the operator had not used gloves. Whether or not this led to the infection cannot be decided, but it is considered likely. In no other case was any harmful effect noted, and the relief of dehydration by the intramedullary route appeared to be fully as effective as by any other method.

Use of Blood

The first time this technique was used 2 fl. oz. of whole blood was run in 8 hours into the tibia of a child 2 weeks old who had acute anaemia. The drip then stopped of its own accord and no attempt was made to restart it. No ill effects followed the transfusion. Two other patients were given blood: one was a child 18 months old who had empyema, the other an infant of 11 days with erythroblastosis foetalis. The first received only 4 fl. oz. of blood in 12 hours, although the pressure was raised by suspending the bottle 7 ft. above the leg (Gimson, 1944; Behr, 1944); the second received a negligible amount. In both cases repeated attempts were made to accelerate the rate of flow; both patients developed osteomyelitis, and surgery was needed.

No further attempts at giving blood by this route were made. It is worthy of note that dilution of the blood did not facilitate transfusion. The use of Officer's mixing chamber (Bailey, 1944) was attempted without success.

Comment

There is no doubt that in practised hands the intramedullary drip is valuable in the treatment of small children needing fluids. It is very quickly set up: the insertion of the needle takes only a few seconds, as compared with the 10 minutes or so needed for tying a needle into the internal saphenous vein. But a certain degree of skill is required, and this is borne out by the fact that nearly all the unsatisfactory transfusions in this series were set up—under our supervision—by house officers who had had little experience of the method.

Nursing needs particular care because of the tendency of the drip to run too fast and to speed up after an initial slowness, and because of the ease with which local oedema can develop. We have not been impressed with the regularity of flow mentioned by Gimson. Restarting immediately after the oedema has subsided is not usually satisfactory. The leg may, however, be used for an intravenous drip provided that no oedema is present. The double method was employed several times very effectively.

If precautions against sepsis are adequate there seems to be little risk of infection. A very small hole is left when the needle is withdrawn, and this heals quickly and completely. Two transfusions were given into the same tibia with an interval of 42 hours, which is considered to be the minimum.

Summary

Details of our experience with intramedullary tibial transfusions are given, with a commentary. The conclusion is reached that the method is a valuable alternative to intravenous therapy, but that it is not suitable for the giving of blood.

We desire to thank the honorary staff of Addenbrooke's Hospital for allowing access to their patients.

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Gimson, Janet D. (1944). *British Medical Journal*, **1**, 748.

New Zealand vital statistics are often quoted, and for obvious reasons. The report for 1943–4 of the Director-General of Health, Dr. M. H. Watt, records that the death rate in the Dominion in 1943 was 10.04 per 1,000 mean population. The infant mortality was 31.37 per 1,000 live births, and the stillbirth rate was 26.25 per 1,000 live births. The maternal mortality, including death from septic abortion, was 2.21 per 1,000 live births; when deaths from septic abortion were deducted the maternal death rate was 1.71. Notifications of scarlet fever rose steeply from 457 in the previous year to 1,196 in 1943—the highest number since 1931. The relative immunity of the Maori to scarlet fever is shown by the fact that in 1943 only one case of this disease was reported in the Maori population. The outbreak of influenza in the Northern Hemisphere was watched with some anxiety, but did not reach the shores of New Zealand. In order to minimize the risk of importation of mosquitoes not present in the Dominion a Mosquito Control Committee was set up to collect specimens and carry out surveys in Wellington and Auckland and in the neighbourhood of aerodromes and elsewhere, and on its advice steps have been taken to eliminate all potential breeding-grounds for mosquitoes in and about the ports and aerodromes.

Medical Memoranda

A Clinical Sign of Vagotonia

One of the most difficult decisions a physician has to make is in the small hours of the morning at the bedside of an elderly patient who is in or who has just recovered from an attack of orthopnoea. There is little clinical evidence of disease to help; indeed, extensive clinical examination is too distressing to be employed, and one must be content with a rapid and superficial search for abnormality. Frequently in such a case the chest is emphysematous, there are no accessory breath sounds, and expiration is prolonged and the heart sounds are distant. Temporarily the heart muscle is indicted, and the case is labelled one of cardiac dyspnoea, with all its attendant fears, until a more detailed examination is possible.

Some 10 years ago I noticed in many of these cases the following physical sign, which I have found most helpful in making an immediate diagnosis. When present it is, I claim, an unmistakable sign of vagotonia, producing the symptoms of a paroxysm of bronchial asthma in its initial, waxing, or waning stages. It is often the only indicator of the true cause of the breathlessness complained of by middle-aged or elderly patients. Listening close to the patient's mouth, one hears, without the use of the stethoscope, a fine effervescing bubbling sound during expiration, and in marked cases to some extent in early inspiration. The sound resembles that heard at the neck of a full bottle of soda-water from which the cork has recently been withdrawn. So similar are the two sounds that I have come to call it "the soda-water sign" when speaking of it to others. It cannot be heard through the stethoscope, but its audibility can be increased by folding the morning newspaper for use as a megaphone by the patient or as an ear-trumpet by the physician.

The sign can be banished by the subcutaneous injection of an adrenaline salt, and with it will go the dyspnoea. Further, those cases which have not already developed frank bronchial asthma will do so to a greater or less extent before long: it may be a slight bronchial catarrh with dyspnoea, it may be only dyspnoea on exertion, or it may be a characteristic attack. I have seen it so in many cases, but two stand out in my memory. In the first the sign preceded the asthma by two years, and in the second by five years.

The sign is clearly due to the contraction of the bronchial muscles gradually allowing the inspired air to escape through tubes the lumen of which is narrowed by the spasm and by turgescent mucous membrane covered by a liquid exudate. The rales thus formed are at this stage too delicate to transmit vibrations through the chest wall, but they are conducted up the trachea and amplified by it and the buccal cavity. The recognition of the sign clinically will quickly bring a full realization of its value.

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Penicillin in Ophthalmic Therapeutics

The following investigation was carried out in conjunction with Major S. T. Cowan, R.A.M.C., officer in charge of a military laboratory. Its object was to find out what, if any, was the effect on the activity of penicillin of the drugs most commonly employed in clinical ophthalmology.

The drugs tested were: (1) atropine, (2) eserine, (3) adrenaline, (4) cocaine hydrochloride, (5) decicain (amethocaine hydrochloride), (6) argyrol (argent. prot. mite), (7) fluorescein. With the exception of adrenaline, which was used as liq. adrenalin. hydrochlor. 1/1000, the drugs were employed and tested in double the customary strength, so that when diluted with penicillin solution the resultant strength was as desired. Our endeavour was to stimulate as nearly as possible the conditions maintaining in the conjunctival sac.

Procedure.—Penicillin (2 units per ml.) and the drug under test were mixed in equal volumes, and were kept at 37° C. for three hours. The controls were: (1) penicillin (2 units per ml.) + water; (2) each drug + water. After incubation the mixtures were pipetted into porcelain cylinders on plates sown with the Oxford staphylococcus H. The plates were incubated overnight, and the diameter of the zone of inhibition was measured.

Findings.—Argyrol + water diffused into the agar and inhibited the growth of the test organism almost as much as did argyrol + penicillin. Of the other drugs tested none had any inhibitory action on the staphylococcus; only one—adrenaline—inactivated the penicillin in the mixtures.

Additional experiments were made with two solutions of adrenaline hydrochloride. Equal volumes were mixed with penicillin (10 units per ml.) to give a final concentration of 5 units per ml. in the mixture. After incubation at 37° C for one hour the activity of the penicillin was determined as before. With one solution, said to be several years old, the penicillin in the mixture was reduced to about 0.5 unit per ml. With a more recent sample of adrenaline the penicillin was *completed* inactivated.

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Susceptibility to Acute Nephritis

The following case history may be of some interest as illustrating a familial susceptibility to acute nephritis.

Three girls of the same family, aged 10, 7, and 6 years, were admitted to hospital on Oct. 9, 1944. On attending a child welfare clinic three weeks before admission all three children were found to be infested with *Pediculus capitis*. A nit comb was supplied to the mother, and a week later the children's faces became puffy and swollen. This was more marked in the morning on waking up. It was not until a week later when they attended the child welfare clinic again that their heads were seen to be covered with crusts. Castor-oil and zinc ointment was applied to their heads, and bread poultices to their faces. Three days later the children lost their appetites and their urine was noticed to be red in colour. Of the two younger children, one developed oedema of the legs and back and the other of the legs alone. There was no history of scarlatina or sore throat. The mother gave a history of having had nephritis at the age of 18, and a sister of the father had died of "kidney trouble."

On admission all three showed a considerable degree of impetigo, involving the scalp and limbs. There were still many nits present. The two younger children showed oedema of the face, legs, and back. The blood pressure in all three was raised, being 172/120, 152/115, and 160/110. The urine in all three was smoky, loaded with albumin, and contained many epithelial cells, pus cells, and red cells, with a few hyalogranular casts. There was no oliguria, and during their stay in hospital the oedema and blood pressure subsided, and the impetigo rapidly cleared up with dressings of gentian violet. Examination of swabs taken from one of the impetiginous lesions showed *Staphylococcus albus* and a non-haemolytic streptococcus.

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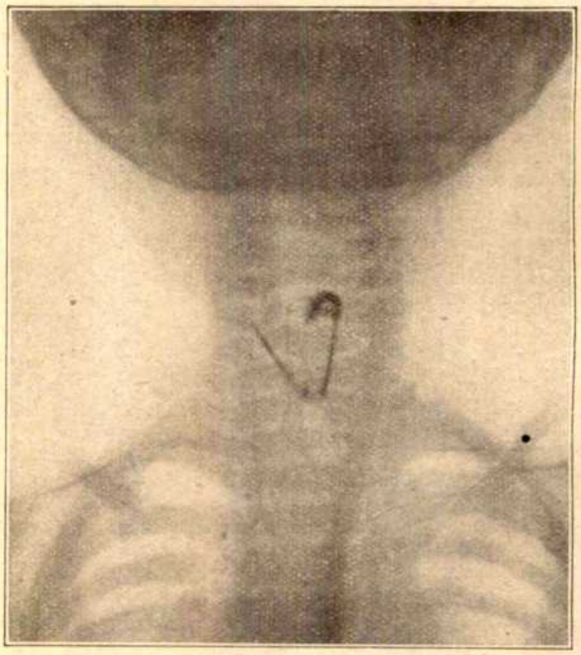
Open Safety-pin in an Infant's Gullet

I beg to report a case of impacted open safety-pin in the gullet of an infant aged 7 months, and enclose an *x*-ray negative showing the pin *in situ*. [The illustration is reproduced from part of a print.] On account of the tender age of the patient and consequent smallness of the throat, the smallest endoscope had to be used in such a way that its beak kept the soft tissues away from the sharp point. The forceps devised by the late Dr. D. R. Paterson were passed down the throat outside the lumen of the endoscope in order to grasp the sharp point. General anaesthesia was necessary. The infant was able to leave hospital (Southern General, Glasgow) apparently unscathed after a few days' observation to rule out hidden trauma.



Glasgow. D. RITCHIE PATERSON, F.R.C.S.ED., D.L.O.

A Case of Adder Bite

Dr. Batt's communication in the *Journal* for Aug. 5, 1944 (p. 181), prompts us to report a case of adder bite which recently came under our care. About 8 p.m. on the evening of June 29 one of us (E. R. W.) was called urgently to see a rather delicate little girl aged 11 years at a farm about seven miles out in the hills. On arrival it was found that the child, while picking wild strawberries in a railway cutting, had been bitten on the tip of the right forefinger by an adder about an hour previously. She had managed to make her way home, about half a mile uphill. She was very collapsed, was of greyish-white appearance, and vomited incessantly. On the tip of the finger was an indolent-looking wound like a 3- to 4-day-old laceration from barbed-wire injury, surrounded by a blackened area. She made no complaint of pain then or subsequently. A thin rubber band was applied to the base of the affected finger; the wound was incised, but could not be induced to bleed more than a drop or two, and some gelatinous-looking material—presumably the snake toxin—was wiped out. Potassium permanganate was placed in the wound and an injection of nikethamide (coramine) was given. The finger was dressed with a saturated magnesium sulphate solution.

In spite of her shocked condition it was decided to transfer the child to Pembroke County War Memorial Hospital, Haverfordwest, 12 miles away. She was very collapsed during the journey by car, and nikethamide was given. She was admitted to the hospital: notes of her progress are reported below.

It is of interest to record the attempts made to obtain antivenene serum. The station commander of a near-by airfield was telephoned and gave the prompt assurance that he would arrange for any supply of serum to be flown to the hospital without delay. The hunt for antivenene then started. A call was first put through to the London Zoo authorities, who replied that their instructions were to refer all such inquiries to the Ministry of Health. The Ministry was contacted, and they replied that although they held no stock of serum they would communicate with the Zoo. It was explained that the Zoo had already been approached. The Ministry then undertook that if any serum could be found in London it would be rushed to the specified airfield in the morning. This was midnight.

A little later the R.A.F. station commander rang up to say he had been informed that there might be some serum at the Royal Hamadryad Hospital, Cardiff. The latter hospital was rung up, and referred us to the Royal Infirmary, Cardiff, but they had none. The R.A.F. commander again rang up in the small hours of the morning to say he had communicated with a large American hospital in the Midlands and had been referred by them to a vaccine-manufacturing firm in the West Country. Negative results were again obtained. The Ministry of Health, however, was as good as its word, and about midday on the 30th ampoules of antivenene prepared by the Pasteur Institute, Algiers, arrived at the hospital by plane from London.

CASE HISTORY

A girl aged 11 was admitted to the Pembroke County War Memorial Hospital at 9 p.m. on June 29, 1944, with a history of being bitten by an adder on the pulp of the index finger of the right hand.

On admission the patient's general condition was poor. She was very shocked and cyanosed. The pulse was imperceptible and she vomited copiously a bile-stained fluid. A black discoloured wound was present in the pulp of the index finger. She was treated for shock. Half an ampoule of nikethamide was given 2-hourly for three doses and rectal salines 4-hourly. There was no swelling of hand or arm on admission. At 12 midnight the back of the right hand started to swell, vomiting ceased, and pulse quality and rate improved.

On the morning of June 30 the right hand was very swollen and slightly discoloured. There was no swelling of the arm. At 9.30 a.m. the finger tourniquet was removed and this was immediately followed by much swelling and lymphangitis of the whole arm, extending to the axilla. Hypertonic saline compresses were applied 2-hourly, with saturated magnesium sulphate compresses to the wound. Rectal salines were continued, with fluid freely by mouth. At 2.30 p.m. 5 c.cm. of serum was given intramuscularly. This was repeated at 5.30 p.m., and there was immediate improvement, general and local.

July 1: General condition improved. Hand and arm still swollen, with marked lymphangitis of arm and much greenish-yellow discoloration on the inside of arm. Large purple bullae around nail of affected finger. Nail snipped, with liberation of much dark-brown serous fluid. July 2: Swelling decreasing; lymphangitis subsiding; discoloration of arm still marked. July 3: Slight further improvement; finger-tip and nail very discoloured. July 4: Improvement; discoloration of finger and arm continues. July 6: Yellowish discoloration of forearm very marked; fair amount of purulent discharge from finger. July 7: Urticarial rash appeared, of a generalized distribution. Improvement continued, and patient was discharged on July 26.

COMMENTARY

In our belief the condition of the child was critical and dangerous for 24 hours immediately after the bite. The local and general condition improved markedly after injection of antivenene. Points to be noted are: the great difficulty of obtaining serum and the apparent lack of available supplies; and the not infrequent occurrence of adder bite: several cases have come to the care of one of us (E. R. W.). We suggest that antivenene should be available to practitioners of every rural county, through the M.O.H. or local hospital.

E. R. WILLIAMS, M.R.C.S.
Haverfordwest. A. B. DAVIES, F.R.C.S.Ed.

Gold Nephritis and Dermatitis in Pulmonary Tuberculosis

Gold is used mainly in the treatment of rheumatoid arthritis and pulmonary tuberculosis. Toxic reactions are not very common, but among them skin rashes are greatly feared owing to the long time they take to clear up. Nephritis with oedema is a rare complication which usually takes some time to resolve. Douthwaite (1944) recently said that he has seen one case which recovered after three months. The following case is of interest as the woman developed nephritis and dermatitis at the same time, both of which had cleared completely in five weeks.

CASE HISTORY

Mrs. X., aged 26, has bilateral pulmonary tuberculosis. General condition good. Weight steady; temperature range 98–99°; pulse 82–96. Physical examination showed diminished respiratory movement in the right upper zone, with increased tactile fremitus, dullness on percussion, bronchial breathing, and fine rales anteriorly. Posteriorly there were fine rales in the right suprascapular region and on the left side at the medial end of the scapular spine. Radiographs showed: (R.) Medium shading in upper zone with a cavity 1 in. in diameter; (L.) a small area of fine shading in the first interspace. The patient's sputum contained acid-fast bacilli on direct smear; and the E.S.R. (Westergren) was 26. She was kept on bed rest, but the temperature did not settle and serial radiographs showed progression of both lesions. It was therefore decided to induce a right artificial pneumothorax; and also to give gold therapy because of the involvement of the left side. Myocrisin intramuscularly was started on May 9, 1944, and given weekly. The dosage was 0.01, 0.02, 0.05, 0.1, and 0.15 g.—a total of 0.33 g. having been given before toxic symptoms arose. The urine was tested for albumin on the day of administration and on the day after. An R.A.P. was successfully induced on May 22, and adhesions requiring section were later found.

Seven weeks after the start of the gold course, and six days after the last injection, a rash appeared. This was a generalized red maculopapular rash, most marked on the legs. The submandibular and inguinal glands were enlarged, and the urine contained no albumin. On the third day the rash was confluent and pruritus marked; stomatitis was present and there was puffiness of the eyelids and face. The temperature had also started to rise, reaching its maximum on the ninth day of illness with an evening reading of 101.4° F.

On the fourth day there were generalized pitting oedema and oliguria. Weight was increased 6 lb.; B.P. 130/80. The urine contained a trace of albumin. The diet was restricted to one pint of glucose orangeade a day, and an intake and output chart was kept. Lotio calaminae was prescribed for the pruritus. Fifth day:—Peeling of face, chest, and limbs started; urine clear and remained so afterwards. Seventh day:—Weight up 9 lb. Eleventh day:—Oedema was still present, with a daily average output of 18 oz. The face was now covered with a weeping eczema, and the rest of the body had the appearance of a typical exfoliative dermatitis. Lotio calaminae oleosa *B.P.C.* was applied to the face, and the rest of the body was covered with a paste made of

℞	Pulv. zinci ..	dr. 2
	Pulv. amyli ..	dr. 2
	Paraffin. molle ..	oz. 1
	Ol. ric.	q.s.

Fifteenth day:—Dermatitis on legs started to improve. Vasomotor paralysis present in legs—blanched on raising and becoming purple on hanging down. Sixteenth day:—Temperature started dropping by lysis. Diuresis began with an output of 41 oz.

On the twenty-eighth day only the face was affected with a scaly eczema. Paste was applied. The weight returned to normal and the diet was increased; the temperature was normal. By the thirty-fifth day the face had cleared.

This patient therefore had a gold nephritis, which cleared in three weeks, and simultaneously a dermatitis, of which there was no sign whatsoever after five weeks.

I wish to thank Dr. Dennison Pickering, medical superintendent, Pendyffryn Hall Sanatorium, for permission to publish these notes.

R. GRENVILLE MATHERS, M.B., Ph.D.,
Physician, Pendyffryn Hall Sanatorium.

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Reviews

STUDY OF CANCER IN ARGENTINA

Memoria del Instituto de Medicina Experimental para el Estudio y Tratamiento del Cancer, 1940-43. By Prof. A. H. Roffo. Buenos Aires. 1943.

There could be no stronger evidence of the noteworthy contribution of Latin America to the progress of medicine than this comprehensive report of the Institute for the Study and Treatment of Cancer. The Institute began its work at Buenos Aires in 1922 on a small scale, and has increased steadily in size and influence until it is now one of the largest and best-equipped institutions of its kind in the world. Since its commencement 120,000 patients have come under supervision, representing more than a million and a half consultations and treatments. Within the scope of the Institute are included not only the care and treatment of patients at dispensaries for early diagnosis, out-patient clinics, and hospitals, but also the training of nurses, the spreading of information to the general public and to the medical profession, and the experimental investigation on a large scale of all aspects of the cancer problem.

The report now issued, a large volume of 700 pages, includes a mass of statistical data in tabular form. Taken alone such tables are apt to prove dull reading, and they have therefore been supplemented by anatomical and other diagrams which show at a glance the incidence of the various forms of cancer and the results of treatment. Much has been achieved by early diagnosis, and it is a striking comment on the value of the work to note that in 1924 81% of the patients did not apply for treatment until the disease had been present for six months or more, whereas in 1943 70% came under observation during the first three months of illness, and 48% in the first month. Naturally enough, cancers of the skin, the larynx, and the breast were seen at an earlier date than, for example, cancer of the uterus, which is so apt to escape recognition.

Eight thousand persons attended the dispensaries for early diagnosis and treatment in 1943. In the provision of hospital accommodation it has been found that cancer patients can be more effectively treated in small rooms containing only a few beds than in a large ward, in which the surroundings are apt to be disturbing to a mental outlook already greatly upset. In the new pavilions of the Institute each room accommodates only one or two patients. Statistics show that town and country each contributes an equal number of patients, and that there is a similar equality between the two sexes, and also between Argentines and foreigners. A series of maps illustrate the locations in the Republic from which the patients are derived.

A study of the site of cancer in a large series of cases reveals some interesting facts. The skin is the tissue most frequently involved, and this frequency appears to be increasing—from 10% of total cases in 1926 to 24% in 1943. The great majority of skin-cancers affect the neighbourhood of the face, especially the lips and nose. Another region in which cancer is met with in mounting frequency is the lungs. There were 98 cases in 1942—3% of the total. The increase of motor traffic and of the use of oil as fuel may partly account for this rise in incidence. Next in frequency to skin cancer are cancers of the uterus (15%) and the breast (12%). Tongue, oesophagus, and stomach each contributed 4%, rectum and larynx 3% each.

Another section of the report deals with the information derived from histological investigations. There were 7,000 biopsies in four years. Carcinomas (5,000) far outnumbered other forms of tumour, which included 1,500 benign tumours and 200 sarcomata. The remarkable effect of deep *x*-ray therapy upon some of those cases of sarcoma is illustrated by a series of photographs; and the equally striking results of what is termed "proximoroentgenterapia" in skin cancer are also illustrated. A full account is given of the *x*-ray and radium treatment of uterine cancer, including the technique and dosage. Modern apparatus is described, and there is a brief account of the physical basis of radiotherapy. Next comes a description of deep *x*-ray therapy and of its effect upon normal and diseased tissues. While this remains the method of choice in the majority of cases, many cancers of the ski were treated by radium and radon. Surgical treatment wa adopted in only 10% of the total cases, the organs mos frequently involved being the stomach, the breast, and th larynx. The diathermy knife or needle was the instrumen preferred. The efficiency of the "follow-up" method whic has been adopted is shown by the completeness of the statistica information which concerns the results of treatment.

One of the most interesting sections of the report consist of a series of 97 abstracts of papers on various aspects of th cancer problem which had already been published in th Bulletin of the Institute. To those pages—502 to 553—man experts may turn with profit. No less important is th synopsis of lectures and demonstrations given during the perio under review, not only to students and practitioners but als to nurses, for whom special training in "cancerologia" i provided. The volume concludes with copies of the clear an concise directions which are issued to patients, to visitors and to nurses, and with an account of the antitobacco campaig which the Institute has promoted among Argentine students.

The report is richly illustrated with excellent photograph of the Institute and its equipment. It is a publication whic reflects great credit upon Dr. Angel H. Roffo, Professor o Cancerology and Director of the Institute.

DOUGLAS GUTHRIE.

GENERAL MEDICINE IN 1944

The 1944 Year Book of General Medicine. Edited by George F. Dick, M.D., J. Burns Amberson, M.D., George R. Minot, M.D., William B. Castle, M.D., William D. Stroud, M.D., and George Eusterman, M.D. Pp. 768; illustrated. 18s. 6d.) Chicago: Year Book Publishers; London: H. K. Lewis and Co.

The Year Book of General Medicine for 1944 continues it useful systematic record of steady progress, though there i nothing startlingly novel to report. It is noteworthy that eve in America there are signs of a revolt against excessiv dependence on laboratory tests. There is an interesting revie by Moscheowitz of what he terms the hyperkinetic group o diseases, characterized by exaggerations of normal bodily functions with morbid structural changes as a s quel. Example are: (i) hypertension of the greater circulation, which represent an exaggeration of normal arterial pressure, leading to arteriosclerosis and its consequences; (ii) Graves's disease, in whic there is an exaggeration of the normal basal metabolic rate (iii) peptic ulcer, in which one of the dominant features i exaggerated gastric secretion of acid; (iv) cardiospasm, spasti colon, and other instances of an exaggeration of normal tonicit and peristalsis; (v) manic-depressive psychosis, representing a exaggeration of a normal rhythm; (vi) paranoia, an exaggeration of the affective functions. These maladies have a commo denominator in a maladjustment between the psyche and th environment, and are mostly products of civilization.

Choosing almost at random from the articles which hav interested us, we would mention the study of infective hepatiti (p. 35) and the proof that complete structural recovery of th liver cells can occur (p. 675); also the evidence that in anterio poliomyelitis (p. 67) and in pernicious anaemia the nervou lesions are by no means confined to the spinal cord. It ha often been supposed that conditions characterized by marke asthenia might be due to a functional inadequacy of the adrena cortex; this is substantiated by the discovery (p. 740) that suc individuals are unable to conserve their chlorides, just as ar sufferers from Addison's disease.

HEALTH PROBLEMS FOR EVERYMAN

Battle for Health. A Primer of Social Medicine. By Stephen Taylor, M.D., M.R.C.P. (Pp. 128. 5s.) London: Nicholson and Watson.

Since Dr. Stephen Taylor wrote his brilliant description o "the suburban neurosis" he has been well known as a vigorou exponent of the social aspects of medicine. His latest contribution, *Battle for Health*, forms one of a rather militan series—*The New Democracy*. In it he points the path for th wayfaring man, aided by vivid isotype diagrams which ma be a help to the comprehension of some people. The boo is well illustrated, though surely the picture of a graveyar is unnecessary. Interesting portraits of medical pioneers ar added, though in one instance there must be a mistake: unde Sir Charles Sherrington's portrait the date of his birth is give as 1875, which would mean that he took his Tripos at the age of 6. But such things do not interfere with the general merit of the book, which attains its purpose of informing the ordinary reader of the main facts in the history of the fight against disease, and the factors involved in the maintenance of health. Nor will the medical man fail to find interesting information therein. Knowledge is, in the author's opinion, a necessary key to health for everyone, for "this is not a job for doctors alone. It is a job for all of us. . . . Health is not to be found in the medicine cupboard nor yet in the pages of 'keep fit' magazines; both breed rather hypochondriasis." Rather must we look to scientific analysis of the problem and a logical synthesis of the results. Dr. Taylor is careful to point out that there are aspects of the problem outside the ambit of the doctor: housing, compulsory pasteurizing of milk, no more ribbon development or suburban sprawl, for instance. To pretend that a national health service by itself can remedy such causes of ill-health is a fraud on the public. One cannot but admire the sincerity and generous sympathy of the author.

Notes on Books

The publishers and editors of the *Year Book of the Eye, Ear, Nose and Throat* have continued faithfully to discharge their annual task with obviously no slackening of standards or diminished zeal. A peculiar mixing of the paper is explained as a device to maintain the same bulk with papers which have to conform to certain wartime standards of production. This, however, has been arranged so that the quality of the illustrations is maintained. There has perhaps been a general scarcity of the best class of medical literature in recent years owing to preoccupation with military work, diversion of effort into other spheres, and general lack of leisure for research and literary work. There can, however, be found much worth attention in all the sections of the book, even if some of it seems to be rather repetitive, and the specialists concerned still lie under a deep obligation to the accuracy and discrimination of the editorial control. The 1944 edition is published in this country by H. K. Lewis and Co. at 18s. 6d.

A Textbook of Physiology, by Profs. William D. Zoethout and W. W. Tuttle, is now in its eighth edition (London: Henry Kimpton; 25s.). As we said when noticing an earlier edition, this American work is meant to fill the gap between the larger textbooks and books of an elementary character, and should be useful to students working for the Conjoint or for examinations in pharmacy, domestic science, etc. The first chapter, dealing with protoplasm and its environment, has been almost entirely rewritten, and in other respects there is evidence of careful revision. Much of the advanced chemistry and the more detailed anatomy are now set in smaller type so that the student may pass them over without losing his main thread.

A fifth edition has now appeared of *Notes on Clinical Laboratory Methods*, sponsored by a standing committee set up by the Faculty of Medicine of the University of Glasgow to secure uniformity in the laboratory technique employed in clinical teaching at Glasgow. The field covered is equivalent to side-room testing as usually carried out by students of medicine, with some further tests which they may conduct in the clinical laboratory. The booklet is published by John Smith and Son (Glasgow) Ltd., Gibson Street, Hillhead, Glasgow, at 3s. 6d. There are blank pages at the end for the student's own notes.

The Discovery of the Uses of Colouring Agents in Biological Micro-Technique, by John R. Baker, D.Sc., is now published as a monograph of the Quekett Microscopical Club, at whose 743rd meeting in London on July 13, 1943, the author read it. Dr. Baker hopes that his essay may be of interest not only to historians of science but also to biologists and biochemists in general, and we think it will. It is concerned with the use of colouring agents in microscopical studies and does not deal with macroscopical reactions except incidentally. The publishers are Williams and Norgate, Ltd., 36, Great Russell Street, W.C.1, and the price is 1s. 6d.

Dr. Raphael E. G. Armattoe, now of Londonderry, has written a short account of *The Swiss Contribution to Western Civilization*, published at 5s. (post free 5s. 2d.) by W. Tempest: Dundalgan Press, Dundalk. Dr. Julian Huxley commends the pamphlet in a brief foreword, and recalls that Swiss freedom has been prolific of benefits to the world at large. "It is also encouraging to reflect that Switzerland is the one real centre of science, learning, and culture in Europe which has been able to remain out of the war." D . Armattoe disclaims any pretension to have given a comprehensive survey of Swiss men of science and letters. His criterion for listing men in his work is that they made a definite contribution to knowledge or left the world a happier, a better, or a more beautiful place than they found it.

Lieut.-Col. F. A. Barker, I.M.S.(ret.), has written a valuable report, *The Modern Prison System of India*, in which he outlines the progress of prison reform in that country during the twenty years following the publication of the report of the 1919–20 Indian Jails Committee. The author has taken a prominent part in Indian penal administration for nearly 30 years and is thus well qualified to appraise the work so far accomplished. The volume is published at 10s. 6d. by Macmillan and Co., under the auspices of the Department of Criminal Science of the Faculty of Law in the University of Cambridge. Lord Hailey contributes a foreword; and Prof. P. H. Winfield, in a preface, remarks that Col. Barker's book not only clearly describes the prison system in India but also gives a vivid account of the many factors that make the problems connected with the system infinitely more complicated than those with which we have to grapple here.

Preparations and Appliances

APPLIANCE FOR A NEW METHOD OF MASSAGE

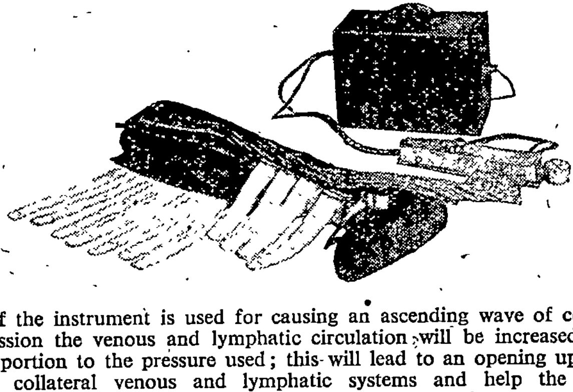
Dr. W. T. Hunt (Acton, W.3) writes:

By means of an instrument consisting of a series of cuffs, similar to that in a sphygmomanometer, which are repeatedly inflated in rotation to any desired pressure and then simultaneously deflated by means of a motor pump, operating through a controlling mechanism, waves of constriction can be sent up a limb, hastening the return flow in the lymphatics and veins or causing a passive congestion if directed distally.

The cuffs are incorporated into sheaths made for the upper or lower limbs, which can be quickly applied, and the pressure in the cuffs readily controlled by turning one knob; there is a pressure gauge contained in the apparatus, and the motor works from an ordinary lamp socket or wall plug. The instrument is easily transportable in two small hand cases.

Ascending compression is employed with this instrument in the following conditions: Milroy's disease (hereditary oedema of the legs), lymphoedema, callous oedema after fracture or injury or phlebitis, and oedema due to varicose veins, erythrocyanosis, "white leg," cardiac and renal conditions, intermittent claudication, and in treating unsightly oedema from an unknown cause in women. This treatment can also be employed to free a limb of oedema before Kondoleon's operation is performed, being used as near as possible up to the time of operation and afterwards to establish connexions between the skin flaps and underlying muscles.

Descending compression can be employed to tide over an arterial crisis—e.g., embolism—to break up a clot, or to restore circulation, and also for Buerger's and Raynaud's diseases, chilblains, frost-bite, and crush syndrome.



If the instrument is used for causing an ascending wave of compression the venous and lymphatic circulation will be increased in proportion to the pressure used; this will lead to an opening up of the collateral venous and lymphatic systems and help the recanalization of blocked veins. If used in the opposite manner the arterial circulation will be increased, causing an intermittent passive congestion. If there is a wound, ulcer, or other painful area on a limb the instrument can be so adjusted that compression is exerted up to and away from the area so that no pain is experienced by the patient.

It has been found that the best results are achieved if the instrument is applied for one hour twice a day; if less time is given the course of treatment must be of longer duration. The patients can apply and control the instrument themselves, so that in suitable cases a stay in hospital or nursing home is not necessary.

This instrument, under the name of "pneumassage," is manufactured by Messrs. Allen and Hanburys Ltd., Wigmore Street, W.1.

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TREATMENT OF BURNS

In 1942 the Medical Research Council initiated a scheme of research into the treatment of burns and scalds and invited Dr. Leonard Colebrook to organize suitable arrangements at the Royal Infirmary, Glasgow. The impressive volume of studies now issued[1] gives evidence of the success of the venture and encourages the hope that the plan will be extended in the peaceful days to come. Two themes stand out from the many inquiries set in motion by the Glasgow team. The first is that infection must be prevented or reduced if burns are to be healed expeditiously and with minimal disability and death from sepsis eliminated; the second emphasizes the tremendous value of plasma transfusion, so-called "replacement therapy," in the early critical period when fluid is draining away from the circulation, thereby adding serious embarrassment to a patient whose vital reserves are impaired.

The main object of first-aid treatment of burns should be the prevention of streptococcal infection. Haemolytic streptococci are widely distributed in all communities, being recruited from septic sores, sore throats, and "running ears," as well as dispersed in the nasopharynx of many healthy carriers, variously estimated as 5 to 30% of the population. They lurk, too, in the noses of "nasal carriers," whence they continually seep on to handkerchiefs, clothes, hands, finding their way into the air and dust of public places and private houses, where they remain viable for long periods in dust, bedding, and the like. A fresh burn, like any other kind of injury, is thus liable to early contamination unless strict precautions against infection are taken at once. The injured skin should be protected with a recently laundered clean towel or a sterile cloth, and the patient removed to hospital if the burn is severe, where an elaborate attack on what is essentially a major surgical problem can be attempted. If the burn is quite superficial, or in the case of more severe burns when considerable delay in getting into hospital is anticipated, the Glasgow "No. 9" cream should be freely smeared on the affected region. Here, again, contact with infected sources such as blankets is to be avoided, and interference with blisters is not advised. The operator's hands should be thoroughly washed and dried and a gauze mask or clean handkerchief worn over the mouth and nose. The cream—whose chief constituents, cetyl trimethyl ammonium bromide and sulphanilamide, have been the subjects of intensive bacteriological studies by the Glasgow team—should not be left on the burn for more than two days, since there is a slight risk of dermatitis arising if it is left longer.

With the more severe cases a serious strain is placed upon the judgment of the surgeon, for he has to decide whether his treatment shall be directed towards "cleaning up" of the burn or resuscitatory measures against the circulatory collapse which threatens. Experience shows more and more that the prime necessity is the treatment of "shock" rather than infection at this stage, and there may be time only for some slight extension of the correct first-aid measures. When the patient's condition has been restored to a state in which thorough attention to the burn can be given, then an elaborate ritual is instituted. This calls for the elimination of every possible source of infection, whether it be the dust-carrying air of operating rooms and wards, the blanket and bedding and dressings, or possibility of cross-infection from personnel concerned in the treatment. The full discussion of the innumerable sidelines of this complicated business makes fascinating reading in the Glasgow team's report. No aspect of hospital life escapes attention. The difficulties in supply of nurses under the rigours of wartime, troubles over sterilization of blankets and gowns, influence of black-out restrictions and blast walls on ventilation and fumigation, vagaries of the seasons and their disturbance of insect population—all these afford a record of obstacles encountered and overcome against a background of life in a busy institution. And success of encouraging proportions has been achieved, for acute septic infection became rare and fatalities few. Nevertheless, the members of the team feel that further improvement can be achieved in controlling or preventing certain types of infection, especially those arising in the later stages of the sloughing period of deep burns and due to coliform and diphtheroid bacilli, *Proteus*, staphylococci, and at times *Ps. pyocyanea*. The acquisition of infection during the stay in hospital is still a matter for concern, especially in the case of haemolytic streptococci, while there is room for improvement in methods of preventing local fluid loss from burns. Bactericidal agents, too, demand more study. Suggestions for further progress include the institution of centres specially staffed and equipped for the treatment of burns, where there will be close collaboration at all times between the surgical and nursing staff and the investigator; where, in other words, the burns problem will be thought of with due regard to its sociological, therapeutical, and investigational implications. The high incidence of disability from burning is not confined to wartime conditions only, but is a problem of considerable national importance at all times and deserves serious consideration in schemes for improving the nation's health.

The second theme of the Glasgow team's report is the value of replacement therapy in the treatment of burn shock. Fluid loss from a burnt area may go on for 24 to 30 hours, leading to serious haemoconcentration and, if untreated, precipitating a circulatory crisis which too often proves fatal. Since the primary consideration in these grim cases must be the preservation of life, it is very important that guiding principles be laid down for variable conditions of injury. These the Glasgow workers have been able to formulate. With fluid replacement, for instance, there is no short way out through calculation by means of formulae. Careful study of each individual is necessary, preferably using serial determinations of the haemoglobin value and the blood pressure. Adults with burns of over 15% of the body surface, and children with burns of over 5 to 10%, require generous transfusions which will make good the fluid loss and prevent haemoconcentration. Complete cleansing and dressing of the burns should be postponed, even until the second or third day, while the problem of fluid wastage exists. No time must be lost in instituting adequate replacement therapy; even a short delay may be followed by the most serious outcome. The absence of striking changes in the blood picture and blood pressure is no reason for complacency, and the surgeon must concentrate on maintaining a circulatory blood volume as nearly unchanged as possible in order to safeguard against "shock" and its complications. Even when the initial difficulties are safely overcome there remain a number of problems, many of which are still being investigated. Anaemia often enough develops, nitrogen equilibrium is disturbed, while plasma protein loss has to be made good through the regenerative powers of the individual. Progress in these complex matters can be made only by the co-operation of highly trained members of a team. The Medical Research Council workers have shown what can be done in this way, but a great deal still remains to be tackled.

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[1] *Studies of Burns and Scalds—Reports of the Burns Unit, Royal Infirmary Glasgow, 1942-3.* Med. Res. Cncl. Sp. Rep. Ser. No. 249, H.M. Stationery Office, 1944. (4s.)

NUTRITION AT HOME AND ABROAD

It is now more than two years since the *Times* advocated the formation of a Nutrition Council in a leading article which stressed the importance both of keeping in touch with nutritional trends at home during the war and of providing machinery for the rapid assessment of malnutrition in reoccupied Europe in order to obtain the most rapid and efficient administration of food relief.[1] Letters to the *Times* and leading articles in this *Journal*[2] continued the debate; and, although they differed about the best way to set up a Nutrition Council, they agreed that such a body should be formed. A year ago an analysis of the situation, based on a report to the Parliamentary and Scientific Committee, was made by Dr. John Yudkin,[3] who pointed out that a comprehensive food policy must include, first food production, secondly food distribution, and thirdly nutritional surveys, with a view to determining whether the object of production and distribution—adequate nutrition—was being achieved.

It is opportune now to look at the more immediate problems of wartime nutritional trends at home and to the relief of malnutrition in Europe. A quick glance shows that the picture is confused. The Ministry of Food has made its own surveys and has a fairly clear idea of what ordinary working-class families are eating. Comprehensive investigations have been made by the Oxford Nutritional Survey. But none of this work has been published, and so we are left with the impression that systematic, repeated nutritional surveys at home have been few. Davidson and his colleagues[4] have reported on a large number of haemoglobin estimations, which indicate a fall in the earlier years of the war and a slight rise during the last two years. Yudkin[5] [6] found an increase in the heights and weights of Cambridge school-children between 1942 and 1943 and in the weights of factory workers between 1941 and 1943. There have been other *ad hoc* clinical investigations. But certainly there is not enough published evidence to justify the statement often made that the nutrition of this or that group, or of the country as a whole, is satisfactory.

On the basis of a report by Magee[7] the *Times*[8] concluded that "the nutritional condition of the population is well maintained and may even be improving." The report is based on three nutritional surveys, carried out in 1942 by Sydenstricker, in 1943 by Hawes and Stannus, and in 1944 by Adcock and Fitzgerald. According to their figures the proportions of subjects who were of "good" nutrition were 77% in 1942, 82% in 1943, and 94% in 1944. But are these valid data for demonstrating a supposed improvement in nutritional state between 1942 and 1944? First, the methods of assessment were clinical, and anyone experienced in this type of work will agree that observations from three sets of observers, however well versed in each other's ways, cannot be compared except with the greatest of reservations. Secondly, the places where the surveys were carried out differed appreciably in economic status. The survey of 1942 was made in areas "selected with one exception because of their bad economic history"; the survey of 1943 was in areas many of which had suffered from the depression; and the survey of 1944 included many areas in which the economic situation was good, and few in which it was bad. It therefore does not seem possible to accept the figures—as the *Times* has done—as an index of "well-maintained" or even "improving" nutritional state. The figures quoted by Magee cannot be taken to show anything other than that nutritional state is dependent on economic state—a common enough observation, which was nevertheless well worth repeating.

The question of the relief of Europe is critical, and even if there is a grave lack of transport there does not seem to be a clear-cut plan for the supply of food to liberated areas. Have the military authorities organized the rapid, mobile nutritional teams suggested in the *Times* two years ago? Or are they leaving it to U.N.R.R.A., and, if so, where are *its* teams? The need for emergency relief foods is urgent, and the means to distribute them quickly and widely must be found.

NEW WAYS OF GIVING PENICILLIN

The great drawback to systemic penicillin treatment is the necessity for either continuous or frequent administration. The drug is rapidly absorbed and excreted in the urine, so that intramuscular injection must be repeated regularly every three hours if an adequate level is to be maintained in the blood, unless a continuous drip, either intravenous or intramuscular, can be established. One way of overcoming this difficulty would be to secure delayed absorption from the site of injection, so that less frequent doses would be necessary. Two methods of doing this have been devised, and both have been applied so far, not to relieving the seriously ill patient from his dreaded nocturnal awakenings by the needle but only to reducing the number of injections required for curing gonorrhoea from the usual five or six to only one. M. J. Romansky and G. E. Rittman[1] [2] have made a suspension of calcium penicillin powder in a mixture of beeswax and peanut oil; a single intramuscular injection of 100,000 units or less of this preparation will maintain an adequate blood level for 7 hours or more, and cured 11 out of 12 cases of gonorrhoea. An alternative method used for the same purpose by M. Trumper and A. M. Hutton[3] was to strap an ice-bag to the arm for 2 hours before and up to 12 hours after injecting a watery solution of penicillin into the deltoid. Chilling caused diminished circulation and hence slow absorption. A single dose of 50,000 units maintained an adequate blood level in most cases for as long as the ice-bag was kept in position, and sufficed for the cure of 17 cases of gonorrhoea, the only failure being in a man who received a smaller dose.

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[1] *Times*, Sept. 28, 1942.
[2] *British Medical Journal*, 1942, **2**, 640.
[3] *Food Manufacture*, 1943.
[4] *British Medical Journal*, 1942, **2**, 505; 1943, **2**, 95; 1944, **1**, 76.
[5] Ibid., 1944, **2**, 201.
[6] *Publ. Hlth.*, 1944, **57**, 109.
[7] *Monthly Bull. Min. Hlth.*, 1944 **3**, 146.
[8] *Times*, Sept. 25, 1944.

An alternative method of maintaining the blood level is to obstruct renal excretion. The capacity for retaining penicillin is probably the only advantage to be gained from having nephritis. Patients with damaged kidneys in whom a high blood level persisted for 8 hours or more after their last dose have been reported by several writers, but the two patients described by J. H. Humphrey[4] are so far unique. A single dose kept their blood bacteriostatic for nearly five days. This was the consequence of an extreme oliguria, and since the urine passed had the composition of almost pure glomerular filtrate, and contained no detectable penicillin, it is suggested that the drug is normally eliminated by the tubules. This excretory mechanism has previously been surmised on the ground that the excretion of other substances by the tubules will delay that of penicillin. Diodrast was shown to have this action by C. H. Rammelkamp and S. E. Bradley,[5] and it is now reported by K. H. Beyer *et al.*[6] that the same effect can be obtained with para-aminohippuric acid. In the experiments described this substance was given by continuous intravenous infusion. If no simpler method of administration will serve, this proceeding is unlikely to become popular in clinical practice.

With supplies of penicillin rapidly increasing, the time may come when less attention need be given to economy and a greater consideration will be the patient's comfort. This happy prospect has led A. H. Free *et al.*[7] to reconsider the possibility of giving penicillin by the mouth. This route has hitherto been firmly ignored because the drug is destroyed by acid, and even administration by duodenal tube has resulted in poor absorption. With a much larger dose the result might be different, and these authors therefore caused four normal subjects to swallow a single dose of 100,000 units. Blood titrations were not done, but the amount excreted in the urine was determined, and varied from 8,800 to 33,600 units: presumably gastric secretory activity was the main factor in this variation, and it would be interesting to be able to compare these figures with the results of test meals. The sufferer from achlorhydria should be at a great advantage when penicillin is given by this route, and diminished gastric secretion is said to be a common accompaniment of severe febrile illness. Oddly enough, when sodium bicarbonate was given at the same time the output of penicillin was much less. Renal excretion, though greatest in the first hour, was substantial up to the fourth hour; action may therefore be more prolonged than that after intramuscular injection. It need scarcely be said that this wasteful method of administration is quite unjustified at the present stage, but it may repay further exploration in the coming age of plenty.

NON-MAGNETIC INTRAOCULAR FOREIGN BODIES

Intraocular foreign bodies present a series of related problems: the injury induced by the entry of the foreign body, the liability to infection, and the irritant action of the foreign body. The matter is rendered still more complex by the danger of sympathetic ophthalmia arising from any perforating wound of the eye. The one relieving feature in this picture is the success that has attended magnet extraction of foreign bodies since the procedure was first introduced by Dixon in 1859. In peacetime industrial accidents are responsible for most of the eye injuries with retained foreign body, and two out of three such foreign bodies are magnetic. The proportion of non-magnetic to magnetic foreign bodies was much higher in the injuries seen in the last war than in industrial accidents, and this unfavourable disproportion has become still more accentuated during the present war. This has come about because of the increasing use of aluminium in the manufacture of projectiles, and except for shell and bomb fragments most missiles may now be regarded as non-magnetic. The position thus created was the subject of a Hunterian Lecture by Mr. L. H. Savin two years ago, who brought the subject up to date in a paper at the Royal Society of Medicine last week. In his Service patients with retained intraocular foreign body the proportion of magnetic to non-magnetic foreign bodies was one in six, and it was still more unfavourable in air-raid casualties, who showed a proportion of one in nine. The use of the sulphonamides is an innovation that materially helps to combat the attendant infections, but the gravity of the problem of these retained foreign bodies is made more real by our ignorance of the reaction of the eye to aluminium. Leber had shown that intraocular foreign bodies could be classified chemically as inert, weakly active, and violently active. Chemically stable foreign bodies were not acted upon by blood or tissues, and might remain in the eye for years without causing inflammation. In contrast to gold and glass, which were thus inert, iron and steel gradually became oxidized, were taken up by the ocular tissues, and induced degenerative changes, while mercury—and to some extent copper—led to suppuration.

In a series of carefully planned experiments on the rabbit Savin studied the reaction of the eye to aluminium. Fragments of pure aluminium and various alloys were implanted into the anterior chamber, vitreous, or on to the retina, and in every case changes took place in the fragments. Pure aluminium may be absorbed completely, but more often the fragment becomes coated with a white deposit of aluminium hydroxide, or with fibrin and gelatinous material. In many cases the metal crumbled and pieces became scattered. Lens and vitreous changes were late results in almost all cases, and there was evidence of retinal damage. These experimental results were supported to some extent by clinical observations in a patient he had under observation. It is thus clear that aluminium is not inert, and its removal from the eye presents a formidable surgical problem. Accurate location of these non-

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[1] *Science*, 1944, **100**, 196.
[2] *Bull. U.S. Army med. Dept.*, 1944, No. 81, 43.
[3] *Science*, 1944, **100**, 432.
[4] *Nature*, 1944, **154**, 765.
[5] *Proc. Soc. exp. Biol.*, N.Y., 1943, **53**, 30.
[6] *Science*, 1944, **100**, 107.
[7] Ibid., p. 431.

magnetic foreign bodies is essential, as a successful forceps extraction is more likely in the anterior segment of the eye than in the posterior segment. Stressing that in the vitreous and retina the odds are against the surgeon, Savin dvises, pending improvement in technique, that the surgeon should attempt removal only in those cases in hich clinical observations show the foreign body to be deleterious. This is sound but depressing advice.

THE PSYCHIATRIST AND THE PSYCHOLOGIST

sychiatry has made big strides during the war and is now being applied to other than strictly medical problems. For instance, psychiatrists are now employed by the Army to advise upon the likelihood of a given cadet becoming useful officer. This tendency is to be welcomed. Such work provides an excellent education for the psychiatrist; nd temperamental factors, on which the psychiatrist is entitled to speak with some authority, have a clear bearing on the problems of personal selection. The psychiatrist as thus begun to tread on the territory of occupational sychology, and the common field of activity has become Tom Tiddler's ground disputed by both.[1-4] It is clearly desirable to find a compromise satisfactory to psychiatrists nd psychologists alike. Though the psychiatrist and the psychologist are at times concerned with the same problems, they approach them from different standpoints and with types of experience that are complementary. Clearly, what is required is the closest and most friendly collaboration. When a psychiatrist says that because of certain temperamental qualities a healthy man is unsuited to become an officer he is working by a rule-of-thumb method which has not been fully proved. He does not know how many men who have proved themselves satisfactory officers in the hard school of experience have been possessed of these same temperamental qualities. On the other hand, actual neurotic symptoms, which may be concealed until enquired into, are the peculiar province of the doctor and are known to be incapacitating. Where the psychiatrist approaches the problem from the point of view of the morbid the psychologist approaches it from the point of view of normal variation. His training has proceeded along very different lines. In order to solve the problem of which men are most suitable for certain jobs, and what jobs are most suitable for certain men, he has been taught to examine the requirements of the job, to devise tests or these requirements, and to try out these tests on an adequate scale before putting them extensively into operation. His training has provided him with knowledge of a number of different classes of occupation, and with a familiarity with an armoury of scientific and statistical techniques which are and must remain beyond the reach of any but a few medical men. To the bystander it would seem that both types of experience are needed for a solution of the problem, and that while the psychiatrist should claim final judgment about the handling of the man who through neurosis or other cause has fallen below his usual level of efficiency, he should admit the greater appropriateness of the psychological techniques of vocational guidance and personal selection for the placing of men who are medically healthy and well. The problem of placement may, however, in the individual case have an unmistakably therapeutic aspect, and where this is so the doctor should be consulted. Although the psychologist may have suggestions to offer on the subject of treatment—e.g., in the neuroses or in disorders of behaviour—the final decision must lie in the hands of the doctor. In recent years, particularly in the field of child psychiatry, psychologists have sometimes embarked on the treatment of individual patients without adequate medical supervision. It is to be hoped that the unsuitability of this arrangement will be recognized by psychologists themselves.

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[1] Gregg, A., *British Medical Journal*, 1944, 1, 550.
[2] Rodger, A., *Occupational Psychology*, 1943, 17, 194.
[3] Gillespie, R. D., ibid., 1944, 18, 112.
[4] Rodger, A. ibid., p. 115.

INTRATHORACIC NERVE TUMOURS

Tumours originating from nervous tissue are not uncommonly found in the chest; they are usually termed benign new growths, but their pathology receives little attention in standard textbooks. Such tumours are often symptomless, or very nearly so; they are often discovered by accident, when the chest is radiographed for some other reason. Mass miniature radiography will therefore probably reveal quite a number of these growths; in fact, Brooks[1] reported finding 4 intrathoracic neurofibromata in a series of nearly 2,000 healthy men examined by this method, and these amounted to one-third of all the tumours discovered in this group. An authoritative account of intrathoracic nerve tumours by Kent, Blades, Valle, and Evarts Graham[2] is therefore particularly welcome. These authors attack the prevailing misconception that these tumours are benign. In their small series of 18 examples no fewer than 7 showed definite malignant change. They have also collected 105 cases from the literature, 39 of which were considered to be malignant, and they point out that this proportion of malignancy corresponds to that found among nerve tumours elsewhere in the body.

Neurofibroma is the commonest tumour of the posterior mediastinum and posterior part of the superior mediastinum, and almost invariably favours these sites. The origin of the growth is still doubtful; it probably arises in a nerve sheath, either from the connective tissue or from the cells of the sheath of Schwann. The type most usually encountered in the chest consists of fibrous tissue with some nuclear clumping and palisade formation, as seen in a Schwannoma; this tumour grows from the intercostal nerves. A less common variety, which contains numerous multipolar ganglion cells, is usually termed a ganglioneuroma and may arise from the sympathetic system. Some neurofibromata show both types of structure. It is not uncommon for the tumour to originate within an intervertebral foramen, in which case it often extends into the spinal canal. The symptoms may be very few: pain is not uncommon, and other effects occur as the result of pressure or nerve involvement. *X*-ray examination shows that the tumour is usually single, rounded, homogeneously opaque, and situated in the paravertebral region; pressure may cause erosion of neighbouring ribs. A lobulated appearance may be due to rapid growth and indicate malignancy; but the presence of an effusion does not necessarily mean that the tumour is malignant.

The best treatment for an intrathoracic neurofibroma is surgical removal; usually this is not difficult, though an extension into the spinal canal may occasionally give trouble. These tumours are not sensitive to irradiation, and the proved high incidence of malignant change does not justify the policy of waiting for pressure effects to appear before advising operation. Kent and his co-workers conclude their account of these tumours with an illustrated record of all their cases, which will be most instructive to those interested in the subject.

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[1] *Proc. roy. Soc. Med.*, 1942, 38, 155.
[2] *J. thorac. Surg.*, 1944, 13, 116.

The Joint Tuberculosis Council and the National Association for the Prevention of Tuberculosis have arranged a refresher course for tuberculosis officers and medical practitioners, to be held in Manchester at the University, Oxford Road, from April 23 to 26. The fee of £4 4s. is payable in advance to Dr. Harley Williams, Tavistock House North, Tavistock Square, London, W.C.1.

A YEAR'S WORK AT A WARTIME NURSERY

BY

J. L. BLONSTEIN, M.R.C.S., L.R.C.P.

The following is an account of a year's work at a wartime day nursery (Battersea Central Mission) established in a much-bombed area in London. The nursery is open to children between the ages of 2 and 5 whose mothers are doing war work. The mothers pay a shilling daily, while the Ministry of Health contributes a shilling a day per child.

The nursery is housed in seven rooms each 20 ft. by 15 ft. on one floor, and there are three rest rooms, one dining-room, one isolation room, one schoolroom, and one playroom. In addition there are two bathrooms and two lavatories. There are two women cleaners who work full time.

The average number of children attending daily (except Sundays and bank holidays) from April 1, 1943, to March 31, 1944, was 50. There were twenty boys and thirty girls. They spent on the average eleven and a half hours (7 a.m. to 6.30 p.m.) daily at the nursery. A matron (State-registered nurse and registered fever nurse) is in charge, and there are one State-registered nurse, one teacher, and four junior nursery assistants. The medical officer attends on one set afternoon weekly. He examines new entrants and re-examines at regular intervals children already admitted. Children are immunized against diphtheria (one injection 1/2 c.cm. A.P.T.) and given prophylactic inoculations of whooping-cough vaccine with the consent of their parents. The medical officer is on call at any time during the day to attend to emergencies, and children who need treatment at home are referred to their own doctors.

Daily Diet

There is one special cook and one help in a kitchen on the premises. The average daily diet is as follows: *Breakfast.*—Bread, butter, cereals, bacon, jam, marmalade, hot milk. *Lunch.*—Meat, two vegetables (in season), potatoes, gravy, steamed pudding, custard, milk puddings, stewed fruit when available, orange juice. *Tea.*—Bread-and-butter, jam, honey, marmite, grated cheese, green salad (in season), home-made cakes, milky tea. Concentrated orange juice and cod-liver or halibut-liver oil are given daily.

Children up to the age of 3 play with toys and enjoy simple singing games such as "Farmer's in his den" (in the open air, weather permitting). They have regular meal- and washing-times, and spend one and a half hours sleeping in centrally heated rooms, well ventilated, from 12.30 to 2 p.m. Children from 3 to 5 years also enjoy toys and games in the open air and attend a nursery school from 9.30 a.m. to 11.30 a.m. During the two hours' instruction the occupation is changed every ten minutes so that their interest does not flag. They enjoy singing, recitation, percussion band, short stories connected with animal life, fairy tales, and Bible stories. They also sing and clap nursery rhymes and enjoy elementary education, including the alphabet and number activities. They also have physical exercises accompanied by the piano, and often enjoy playing with constructive toys such as building bricks, jigsaw puzzles, and posting boxes.

The average number of days lost through sickness was 7. There were the following cases of infectious diseases: Rubella 4, scarlet fever 2, diphtheria 2, chickenpox 6, and measles 1. Among other illnesses were tonsillitis 6, mastoiditis 1, bronchitis 5, abscess of neck 2, pneumonia 1. The fact that there were no cases of whooping-cough speaks highly for the prophylactic vaccine. Schick tests were performed on all children attending the nursery, and despite the fact that they had all been immunized 23 were positive and re-immunized. Out of the 23 positive reactors 21 came in with a history of having been inoculated at "clinics." It seems, therefore, unwise to rely on the mothers' statements; all new entrants should be Schick-tested.

The average gains in height and weight during the year were as follows: *Height.*—2 to 3 years, 1 to 1½ in.; 3 to 5 years, 1½ to 2 in. *Weight.*—2 to 3 years, 5½ to 6 lb.; 3 to 5 years, 6 to 7 lb.

The above notes are given in the hope that they may be some assistance to medical officers in charge of nurseries or those contemplating their organization.

The January–February issue of *Industrial Welfare and Personnel Management,* the journal of the Industrial Welfare Society, includes an article on the employment of the blind in industry by Major E. Wittkower and Patricia Elton Mayo. This reports six weeks' research work at a factory employing a group of blinded persons. The authors point out in conclusion that the blind are only a section of the severely war disabled, and experience gained from employment of the blind points to the need for an association analogous to St. Dunstan's for the after-care of other severely disabled men.

A PLAN FOR BATH

The "Plan for Bath," prepared by Prof. Patrick Abercrombi Mr. John Owens, the City Engineer, and Mr. Anthony Mealan Town Planning Officer, was opened by the Minister of Tow and Country Planning, Mr. W. S. Morrison, on Feb. 1, with th Mayor of Bath, Councillor Edgar Clements, presiding.

The Exhibition fills the whole of the Victoria Art Gallery an consists of general and detailed plans, perspectives of many o the principal proposals, maps showing the open spaces, the agr cultural belt, and the use of land over the area covered by th proposals. Indeed, one merit of the scheme is that it include a wide area around the City of Bath. The planners were tol by the Bath and District Joint Planning Committee—whic under the chairmanship of Sir Arthur Hobhouse, chairman o the Somerset County Council, was responsible for the prc posals—to ignore boundaries. The Exhibition includes dia grams showing the water, drainage, and communications i relation to the surrounding district, and among other things th area served by the Bath Royal United Hospital. There is als an extremely interesting series of plans showing the conditio of the Georgian houses and buildings, and how these would b affected under the new plans. Provision has been made fo the extension of the bathing establishment, a large concei hall, and recreational facilities. In close relation to the bathin establishment is a site for the new Royal National Hospit for Rheumatic Diseases (Mineral Water Hospital) and a Healt Centre comprising facilities for research laboratories and othe medical purposes. There is also provision for a rehabilitatio centre and hostels for industrial workers who do not need t go into hospital. Furthermore, accommodation is provided fo the health department of the city. The Health Centre i almost equal in size to the area of the ancient Roman town o Aquae Sulis.

SUFFERINGS OF OCCUPIED HOLLAND

PROTEST BY DUTCH PHYSICIANS

A strong protest by members of the Dutch medical professio has been made to the German commissary in Holland, Seys Inquart, concerning the conditions in the occupied country The protest is unsigned, but it is said to represent the feeling of thousands of doctors. In the first place the complaint i made that the Dutch Red Cross has been placed under th administration of an individual who does not enjoy the cor fidence of the Dutch people. The institution, says the lette has now become a German instrument, with which Dutch doc tors can no longer co-operate.

The principal charges made in the letter, however, have t do with the conditions under which the people in the occupie Netherlands now have to live. The German administratio is blamed for the increasing shortage of foodstuffs. The ration have a value of 600–800 calories a day, which is less tha one-third of what the working adult requires. Milk for smal children is insufficient, and special feeding for the weak an ill has been stopped entirely. Tuberculosis, dysentery, disease of the alimentary canal, and infantile paralysis are declared t be rapidly increasing, while epidemics of diphtheria and scarle fever have reached proportions hitherto unknown in the Nethe lands. The German administration is cited as responsible fo this state of affairs, first, because, in contravention of inte national law, the Germans took away the reserve stocks whic were available in 1940, and, secondly, because the Dutch peopl are now prevented, owing to confiscation of transport, fro distributing evenly such food as remains. The Germans blam the Dutch railway strike as the reason for the famine condi tions, but it is pointed out that in normal times the railway transported only a small proportion of the supplies.

Still worse are the conditions under which Dutchmen hav been rounded up for labour drives. It is stated that these me have been harried until they have fallen from sheer exhaustio and have been crowded together without the elementary necessi ties of life. One instance is given of a number of civilians i November last who were marched from Rotterdam to Del in pouring rain and then locked up in trucks without strav fifty or sixty men to each truck. They had no sanitary co veniences, and they had no food other than what their loc compatriots could spare from their own meagre rations. Th hygienic conditions in the camps where these labourers are housed are described as appalling. There is hardly any medical care, and it is difficult to get sick persons taken to hospital. It has even been demanded of the doctors that they should provide a healthy man for every sick one taken away.

If, as a number of highly placed German officers declare, this is not a labour drive but a prisoner-of-war camp, it is pointed out that the conventions relating to prisoners of war are flagrantly contravened.

The letter concludes with a declaration which must have caused the medical profession in the Netherlands, with its great traditions, much heart-searching before it was made—namely, that in view of all these happenings it is becoming increasingly difficult for Dutch doctors to maintain the humanitarian attitude of giving the same attention to both friend and foe.

"You will have to realize that if you wish to make use of the services of the Dutch doctors in the future, such aid will only be given because of professional duty, and because they would not like to be considered as being upon the same level as their opponents. On account of this professional duty, however, the Dutch doctors send you this letter, now that the distress of the people requires them to speak their mind."

Reports of Societies

MALARIA IN BRITAIN

At a meeting of the Fever Group of the Society of Medical Officers of Health on Jan. 12, with Dr. M. Mitman in the chair, a discussion on malaria in this country was opened by Mr. P. G. Shute, Malaria Officer to the Ministry of Health.

Malaria, he said, was endemic in England as late as the 19th century and reached epidemic proportions in certain areas. In 1917–18 a number of cases of indigenous malaria arose from infection of the anopheles by soldiers returning from abroad; in 1917 there were 330, but from 1920 onwards there were very few. In England the only species of anopheles likely to be important in malaria transmission was *A. maculipennis,* which was most densely distributed in low-lying marshy districts. He estimated that possibly hundreds of thousands of malaria-infected troops would return to this country at the end of the war, and the spread of malaria to the civil population was a foregone conclusion. But this prospect was less formidable than it appeared. Infection with *Plasmodium ovale* was readily cured, showed no tendency to relapse, and should not trouble us in post-war years. *Plasmodium malariae,* although it survived in man longer than any other species, was not easily transmitted, since gametocytes (sexual parasites) were rare. European strains of parasites causing malignant tertian malaria readily infected English anophelines, but usually died out in the mosquito before the cycle was completed, unless the atmospheric temperature was 75° F. or higher. Also the attack in man was fairly readily cured, and often tended to burn itself out completely within six months. Only one indigenous case of malignant tertian malaria was reported in this country after the last war, and spread to the civilian population appeared equally unlikely after this one.

In benign tertian infection relapses were common and parasites were available to the mosquito in the peripheral blood for some days before clinical relapses occurred. The parasitic cycle could be completed even at low temperature, and heavily infected mosquitoes could remain infective after they had fed as often as on 30 separate occasions. Infected varieties normally living in close association with man could therefore give rise to many cases of malaria. Benign tertian was the form of malaria most likely to arise as an indigenous infection in this country. With high atmospheric temperatures a few cases of malignant tertian might occur from European strains, but returning troops should not be infective to mosquitoes for more than a single summer. Nevertheless, rapid diagnosis and prompt treatment of indigenous cases were of the utmost importance in view of the known virulence of this species, particularly in a non-immune population.

Prophylactic Measures

In benign tertian infections prophylactic mepacrine offered transient protection only. Returning troops so protected might experience their first attack of malaria many months after arriving in this country, and frequent relapses would follow. Latency was a normal feature of benign tertian infections, but where mepacrine prophylaxis was practised it might be seen in the majority. Neither quinine nor mepacrine possessed gametocidal properties, which were important so far as infectivity to the mosquito was concerned. Pamaquin in small doses of 0.02 or 0.03 g. would destroy gametocytes in 24 hours and could be given on the first and second days of relapse. Mepacrine should not be administered at the same time, but quinine could be used. The value of the mosquito net should be borne in mind, especially in districts where *Anopheles maculipennis* was abundant. The destruction of a few mosquitoes in a house where there was a case of malaria would probably do more to prevent the disease spreading than the destruction of hundreds of thousands of mosquito larvae in their breeding-grounds. Antilarval operations as a general precautionary measure did not appear to be justified, especially where breeding-grounds were extensive. Measures against adult insects would prove the most efficient way of reducing their numbers in any locality. The insecticide used should kill instantly and leave no smell. A number of new insecticides were available, including D.D.T., which promised well, but final judgment on its effectiveness against mosquitoes should be reserved.

Mr. Shute pleaded for early diagnosis in indigenous cases and for a blood film in suspected cases before antimalarial drugs were given. One thin and one thick film should be taken; the first spread so that the red cells almost touched without overlapping; a thick film should be spread over an area the size of a sixpence, and just so thick that print could be seen through the drop of blood when the slide was lying flat on it.

Dr. R. McCallum described 48 cases of benign tertian and 1 case of malignant tertian malaria in soldiers returned from the Middle East. All were mild, with typical clinical courses. Twelve of the men had no history of a previous attack while in the malarious area. In the diagnosis of a primary attack relative monocytosis was suggestive. Treatment was on standard lines with quinine, mepacrine, and pamaquin, and could be completed within three weeks in most cases. As the hospital was in an area potentially malarious owing to the presence of *Anopheles maculipennis atroparvus* with suitable breeding-grounds, precautionary measures included the use of mosquito nets, pyrethrum spraying, and the administration of a dose of pamaquin to the patient. No case of indigenous malaria had occurred in the surrounding population.

The Blood Film in Diagnosis

Major J. W. Howie, R.A.M.C., said that some aspects of the laboratory diagnosis of malaria required emphasis. Thin films must really be no more than one cell thick or the stain would not penetrate properly. Thick films were often made too thick; one or two drops of blood were enough, and the blood should be spread gently and evenly so that the hands of a watch could be seen through the dried specimen. He preferred Leishman's stain for thin films and Field's or Giemsa's for thick films. The distilled water must be adjusted to a reaction near neutrality, otherwise malaria pigment and stippling would be missed and differentiation of species would be more difficult. This was important, because relapses in malignant tertian malaria could best be prevented by mepacrine, whereas in benign tertian malaria quinine and pamaquin would give better results.

From each case of suspected malaria a thick and thin film should be made: the thick film was essential when parasites were few, the thin film was needed to determine species. It was sometimes mistakenly supposed that blood films should be taken when the patient's temperature was rising; the chances of detecting parasites were highest if films were made when the temperature was falling, and the absence of pyrexia was by no means a reason for not taking a blood film. Several films should be taken at intervals of 3 to 4 hours; 5 minutes' examination of four films made at these intervals was far more useful than the prolonged scrutiny of a single film. There should be no half-measures about the interpretation. A properly stained film showed unequivocal red and blue staining in the structure of parasites; unless an object in the film showed this, it was not a parasite.

The laboratory worker could help in controlling treatment by estimating the concentration of antimalarial drugs in blood and urine. Some of this work involved complex procedures, but there was one useful and simple test that any laboratory could perform—the Tanret test for quinine in the urine (*Lancet*, 1943, **2**, 317). If this was not positive during quinine administration the disease would not respond: the patient was evading the drug, or his absorption was defective, or his tissues were destroying it with undue rapidity. A persistently positive Tanret test in successive urines would soon be followed by a good clinical response; but if the Tanret test was negative or irregularly positive, quinine or mepacrine must be given parenterally.

It was dangerous to wait too long in serious malignant tertian infections before administering parenteral quinine, which was still the best treatment for cerebral malaria. Quinine should not be given in blackwater fever, but if there was any difficulty in controlling severe malignant tertian infections there must be no delay in giving intravenous or intramuscular quinine. The improvement was usually dramatic, and a patient who had previously vomited the drug could often take and absorb later doses given by the mouth.

A patient whose malaria had rendered him anaemic (red cell count below 2,500,000) would show a reticulocytosis of 10 to 20% over three days or so when his infection was fully controlled. If this reticulocytosis failed to appear in an anaemic patient or a submaximal response—about 4%—was noted, it might be assumed that the infection had not yet been fully controlled.

Dr. C. A. Bentley thought the Romanowsky stain was more stable in tropical conditions with high humidity than Leishman's. The persistence of malaria in a locality depended on the ratio of mosquitoes per head of population. Thus the disease would be most unlikely to spread in big towns but might do so in sparsely populated areas in this country. Dr. E. H. R. Harries said that the precipitating factor in an attack was often a change of environment or conditions, and the possibility of cerebral malaria in troops returning from abroad must be borne in mind.

Correspondence

Penicillin in Bacterial Endocarditis: Investigation

Sir,—The place of penicillin in the treatment of subacute bacterial endocarditis has not yet been established, although encouraging results have been reported in America, and these suggest that prolonged treatment with large doses may be effective in some cases. It is apparent that more information is required on the effective dosage in relation to the sensitivity of the organism to penicillin, and the Penicillin Clinical Trials Committee of the Medical Research Council has therefore established ten centres in which patients will be treated according to a prepared plan, and with full laboratory control. Physicians are invited to refer patients suffering from subacute bacterial endocarditis to any of the following:

London.—(*a*) Sir Alexander Fleming, St. Mary's Hospital, London, W.2. (*b*) Resident Medical Officer, Middlesex Hospital, London, W.1. (*c*) Prof. R. V. Christie, Hill End Hospital (St. Bartholomew's), St. Albans.

Liverpool.—Prof. Henry Cohen, Department of Medicine, the University, Liverpool, 3.

Sheffield.—Prof. E. J. Wayne, Royal Hospital, Sheffield, 1.

Leeds.—Dr. J. R. H. Towers, 42, Park Square, Leeds, 1.

Manchester.—The Resident Medical Officer, Manchester Royal Infirmary, Manchester, 13.

Bristol.—Prof. C. Bruce Perry, Department of Medicine, Canynge Hall, Whatley Road, Bristol, 8.

Edinburgh.—Dr. A. R. Gilchrist, Royal Infirmary, Edinburgh.

Belfast.—The Secretary, Belfast Penicillin Clinical Trials Committee, Queen's University Institute of Pathology, Grosvenor Road, Belfast.

—I am, etc.,

Ronald V. Christie,
Secretary, Penicillin Clinical Trials Committee.

Penicillin

Sir,—I was very much interested in the excellent series of articles that you have published on penicillin in your issue of Jan. 27. Those of us not yet privileged to have a supply other than what we can make for ourselves will have to possess our souls in patience till such supplies are available.

In company with many other people I was greatly surprised at an article in the daily press of a week or two ago quoting a case that had had about 900,000 units of penicillin, and stating that the cost of this was £400. This agrees with the cost alleged to have been incurred in treating another case, so there would seem to be some foundation for the rumour, though it is a little difficult to see how the information can have leaked out, seeing that the stuff is not on the open market as yet. If this is indeed the price that the "penicillin ring" is demanding the firms involved should surely be called upon to justify such an inordinate charge. I have myself taken a hand in making penicillin (though the peculiar state of the law only permitted it to be given away), and am quite sure that there is no valid excuse for the cost to be as much as a tenth of that amount.

I note further that each ampoule is marked with an expiry date. It would be interesting to know what happens to these ampoules in hospitals carrying a large supply. If kept in a refrigerator the worst that happens is surely only a fall in titre, and there must be hundreds of people who would give their eyes for the use of these ampoules, even if their titre is diminished, rather than they should suffer the fate of being merely discarded.

There was one other point of interest in the article by Dr. G. H. Tee (p. 118) on a case of meningococcal meningitis treated with penicillin. He states that penicillin was given with good results, but that a change to sulphamezathine allowed a relapse to occur with temperature up to 104°. This is so strikingly at variance with the remarkable effect of sulphamezathine given *ab initio* that it would seem necessary to consider the possibility that the penicillin may have some influence in spoiling the effect of the sulphamezathine in much the same way that the converse is supposed to occur.—I am, etc.,

Haywards Heath. J. W. Shackle.

The Action of Penicillin

Sir,—With reference to your recent articles and leader on the action of penicillin (Jan. 27, p. 123), it is interesting to recall the work of Louis Pasteur, our greatest benefactor, who, as far back as 1865, established the fact that *Penicillium glaucum* was endowed with chemical properties of a highly selective nature.

All students of chemistry are familiar with the history of the tartrates, and how the laevotartaric acid can be separated from paratartaric acid by the action of the mould, which destroys the dextro-acid. *Penicillium notatum* is now known to have an even more astonishing selective action—that of destroying micro-organisms without damaging tissue cells. Is it possible that penicillin has the power of breaking down some chemical body present in the organism and/or essential to its existence, and which may exist in some of their offspring in an isomeric combination, and thus account for the "persisters"? Possibly those who have studied the chemical action of penicillin could throw some light on the matter and produce evidence to disprove any such theory. In the meantime we are faced with the fact that two members of this family are endowed with selective powers, which should be an additional stimulus to research among the lower forms of vegetation in the hope that we may find a further ally capable of penetrating the hide of the tubercle bacillus.—I am, etc.,

Uley, Glos. J. G. Fayrer Hosken.

Treatment of Trachoma with Penicillin

Sir,—A number of Russian nationals have been treated for trachoma in this hospital. These cases have been seen by Mr. G. W. Black and diagnosis confirmed. Every case showed a well-marked vascularization of the cornea and pannus formation, especially of the upper tarsal conjunctiva.

Case 1.—Admitted with a chronic ulcer of right side of neck, proved later to be tuberculous, secondary to a tuberculous adenitis. Intramuscular penicillin (384,000 units) was given, the secondary infection resolving, and the ulcer at last showing evidence of healing. At the end of the course he was noticed to have a conjunctivitis, diagnosed on examination to be trachoma. Penicillin drops (16,000 units per c.cm.) given 3-hourly. The inflammation subsided rapidly; reduction in pannus noticeable. No evidence of recurrence yet.

Case 2.—Diagnosis of trachoma. Penicillin 16,000 units per c.cm. given; 3-hourly drops in both eyes for 3 days.

Cases 3 and 4.—Both had bilateral trachoma. These cases were given the standard treatment—a 25-g. course of sulphathiazole followed by mercuric oxychloride 1/1000 drops, and copper sulphate 1/1000 4-hourly, treated at the same time as Case 2, and used as controls.

In Case 2 the inflammation of the conjunctiva resolved rapidly, and photophobia diminished quickly; the eye was practically clear in 3 days. In Cases 3 and 4, at the end of the standard treatment (3 days) the conjunctiva was still inflamed and the photophobia undiminished. These cases were given the above course of penicillin and resolved rapidly.

These four specimen cases of trachoma resolved rapidly under penicillin treatment. It still remains to be proved that it has a specific effect on the "virus" causing the disease, or whether the effect is only transitory, clearing up the secondary infection present in all these cases. I am unfortunately unable to follow up these cases to see whether the condition recurs.

My thanks are due to the medical superintendent, Dr. J. N. Hill, for permission to publish these cases, and to Dr. J. Heggie for the supply of penicillin.—I am, etc.,

County Hospital, Otley. G. H. GILFORD.

Immediate Repair of the Cervix

SIR,—I agree with Mr. Mortimer Reddington's plea for attention to the cervix after delivery (Jan. 13, p. 60) and his reference to the unfortunate results if such care is not given, but would like to make the following observations based on a considerable number of post-natal examinations carried out about six weeks after delivery.

1. Satisfactory results are obtained by application of coagulation diathermy to superficially damaged cervices at about the sixth week post partum or even later.

2. Deep tearing of the cervix rarely occurs when relaxation and dilatation are encouraged by the use of chloral hydrate or possibly pethidine, with avoidance of mechanical dilatation or attempted delivery by forceps before full dilatation, or by Caesarean section in certain selected cases.

3. Difficulty is experienced in obtaining a satisfactory and permanent result by primary cervical suture, even under good conditions in hospital. I have twice found the external os almost completely occluded by sutures.

For the arrest of haemorrhage immediate suture may be necessary, but I submit that the majority of patients whose cervices are torn may be saved from any of the future complications enumerated by Mr. Reddington by coagulation diathermy or, in a very few instances, by trachelorrhaphy at a later date. In spite of the fact that immediate repair of the cervix is advised in many standard works on obstetrics, there seems to be a wide discrepancy between theory and practice, for, on inquiry, I find that such a step is rarely deemed necessary in some of the largest maternity hospitals, and for similar reasons to those I have given.—I am, etc.,

Liverpool. S. B. HERD.

Episiotomy and Perineal Repair

SIR,—It is gratifying to see so much correspondence in the *Journal* these days on the important subjects of episiotomy and perineal repair. Dealing with the perineum, Mr. Mortimer Reddington summed up the matter well when he wrote recently, "In a few well-applied and knowledgeable stitches you may secure the whole of a woman's happiness" (*Clin. J.*, 1944).

I heartily endorse Mr. Reddington's letter (Jan. 13, p. 60) on the subject of immediate repair of the torn cervix. In my experience, however, perineal and cervical repair can be carried out just as efficiently in a country cottage as in a hospital, provided one has taken the trouble to draw up a well-prepared plan in advance to deal with the condition. Mr. F. Neon Reynolds's letter (Jan. 27, p. 128) is excellent and contains many points worthy of close attention. I, too, am opposed to midwives doing episiotomy, and agree that Dr. Flew's indications are rather wide.

The idea that the stretched perineum is anaesthetic to any appreciable degree is pure myth. Few other subjects abound with such myths as does obstetrics. In few other subjects is the truth more obvious. To perform episiotomy, or to repair a torn perineum, without adequate anaesthesia is in all circumstances inexcusable. In a hospital pentothal is admirable for episiotomy. Local analgesia, however, is excellent when kindly used, and is undoubtedly the ideal for perineal repair. Nupercaine 1 in 1,000 in normal saline, with adrenaline 0.001%, and without the addition of irritating preservatives, is the best solution to use. Both in quality of anaesthesia and freedom from tissue irritation this local anaesthetic surpasses all others.

Regarding the technique of perineal repair, may I stress one or two points?

(1) In infiltrating the tissues with local analgesic the needle should be passed under the skin edge, not through the sensitive perineal skin. I use a 2-c.c. syringe fitted with a No. 17 needle for infiltration, and have found this size most convenient.

(2) Before suturing it is a good idea to bathe the wound with proflavine 1 in 1,000 in normal saline, buffered to a *p*H of 6.3.

(3) Surgeons in this war have realized that the smaller the amount of catgut used in wounds the better the healing and the less the chance of infection. Mr. Herbert Haxton (Jan. 13, p. 61) has given an excellent account of the disadvantages of catgut. It has to be used for cervix, vaginal wall, and, sometimes, deep in the perineum. However, it is a good idea to bear in mind that the less catgut employed the better.

(4) For the perineum itself I have found Coats's black cotton thread, No. 10, to be the ideal suture material from every point of view. It should be wrapped loosely on a gauze swab and boiled along with the instruments.

(5) If it is apparent that a perineal repair will take considerable time, the value of premedication should not be forgotten. The mental atmosphere throughout labour should be one of tranquillity and calm, not one of fear and terror. It is the bounden duty of everyone attending women in labour to do their utmost to attain to this end.—I am, etc.,

Edinburgh. JAMES ROSS, M.B., CH.B.

The Harvard System

SIR,—On behalf of many readers like myself who must perforce spend a considerable time in perusing original medical articles and in looking up the references contained therein, I should like to protest against the retention of the so-called "Harvard" system of annotation. Of all possible systems of reference this is surely the worst.

An article is meant primarily to be read as a whole, and only those specially interested will look up the references it contains. From the normal reader's point of view, the "Harvard" system may completely destroy any interest he may have felt on seeing the title of the article. The many authors' names are interspersed in the text like the stones in a cherry pie, and produce mental indigestion unless discarded. I have picked one paragraph at random from the *Journal* of Jan. 27 (p. 116) to illustrate my meaning. I trust that Dr. Berger will not think that I am criticizing his style in any way whatever, but I am only calling attention to the reference system, for which he is in no way responsible.

> Methods for extraction and purification of penicillin are all based on the observation that this substance can be extracted from strongly acidified aqueous solutions into ether, amyl acetate, or chloroform, and re-extracted from the organic solvent into water at *p*H 7 (Clutterbuck *et al.*, 1932; Abraham *et al.*, 1941; Meyer *et al.*, 1942). Further purification is achieved by chromatographic methods (Abraham and Chain, 1942; Catch *et al.*, 1942).

Small superior numerals, thus [3], obviate all distraction from the main theme and serve the same purpose with economy of space, as the "Harvard" system duplicates all the names in an alphabetical list at the end of the article.

Now for the point of view of the "looker-upper." What could be more annoying than trying to find *Brit. med. J.*, 1945, **1**, 116, without the date from a pile of these journals in a box? The date "Jan. 27" solves the problem at once. The volume number sounds simple enough, but in practice is often the reverse. In the first place, it may not be printed on the periodical cover at all, as in the case of the *British Medical Journal*. In other cases several numbers are printed. The current *Lancet* has on the front page "No. IV of Vol. 1, 1945. No. 6335, Vol. CCXLVIII." Why not call it "Jan. 27" and have done?—I am, etc.,

St. Albans, Herts. C. LANGTON HEWER.

⁂ In 1936 the Royal Society held a conference of editors of scientific journals with a view to persuading them to adopt a uniform system of giving bibliographical references to scientific articles. It favoured what it called the "Harvard system," to which Dr. Langton Hewer objects. The following points are thought to be in favour of this system: (1) In the text it gives the reader two relevant pieces of information—the name of the author of a statement, observation, or theory, and the date on which these were published. (2) It makes it easy to assemble the references in alphabetical order at the end of the paper. (3) Additional references can be inserted at the last minute without having to waste time and money in renumbering and in resetting numerous lines of text and references. The example quoted by Dr. Hewer illustrates the one weakness of the system, and in such an article there is something to be said for using superior numerals as indices. Periodicals are eventually bound in numbered volumes and are thus stacked on library shelves—a seemingly good reason for giving the volume number and not the date. We might add here that the origin of the term "Harvard system" is obscure. It was at all events not introduced by Harvard University. It is believed that an English visitor to the library of Harvard University was impressed by the system of bibliographical reference in use there, and dubbed it the "Harvard system" on return to England.—ED., *B.M.J.*

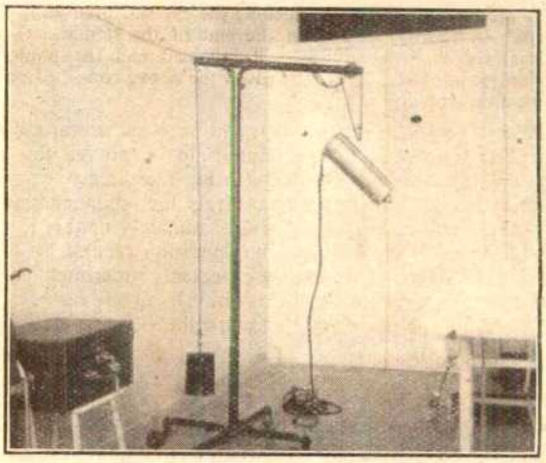
The Giant Magnet in Ophthalmic Battle Casualties

SIR,—In your issue of Nov. 18, 1944, R. E. Wright and H. A. G. Duncan draw timely attention to their experiences with the giant magnet for metallic intraocular foreign bodies in recent battle casualties. The ophthalmologists of the Central Mediterranean Force have had unrivalled experiences during the past two years in the treatment of such cases, and it may possibly be of value at this time to add their conclusions to those of the above commentators.

Magnet Tests.—(*a*) Direct Ophthalmoscopy: It is frequently possible to carry out a giant-magnet test under direct ophthalmoscopy. Thus an impacted foreign body may be seen to rotate in its bed or to rise on the end of a filamentous pedicle to the attraction of the magnetic flux, only to fall back again into position when the current is switched off. This test is the best of all. (*b*) Subjective Response: The negative reaction of the patient to the application of the giant magnet either in the non-anaesthetized or anaesthetized eye is of no value whatsoever. A positive response is of value, but should only be obtained with great caution and with the slow approach of the magnet to the eye; retinal disturbances may be caused or aggravated by repeated magnet applications. (*c*) Direct Vision: Sometimes strong oblique illumination from the head of the ophthalmoscope will show the movement of a foreign body behind the lens in a murky vitreous when the active magnet is applied.

Operation Technique.—(*a*) Since intraocular foreign bodies received in battle are relatively large and ragged the posterior route of extraction is our method of choice. There is no resemblance between these foreign bodies and the smooth flake-like chips received in civil life, which can frequently be wheedled into the anterior chamber prior to extraction. (*b*) As Wright and Duncan point out, the shortest route to the exterior is generally the best. Particularly so is this the case when a foreign body is enmeshed in a pedicle: extraction should then always be through the base of that pedicle and not against it. (*c*) The value of diathermy is still a matter of opinion. Some surgeons say that it causes the scleral wound to gape and may entangle the foreign body in exudate. There is no convincing evidence that retinal detachment is prevented by it or is more frequent without it. Other surgeons say that the risk of haemorrhage is less and that detachment is prevented by the coagulation. There has been no case to date of retinal detachment following uncomplicated posterior sclerotomy in this Force so far as I am aware, but the haemostatic value is considerable. Posterior sclerotomy is considered to be justified in every case of intraocular foreign body, and it is interesting to note that Stallard in his classical article (*Brit. J. Ophthal.*, March, 1944) reports 3 cases in which the foreign body was easily removed by the magnet when there had been no apparent movement ophthalmoscopically to magnetic attraction: these might well have been considered as non-magnetizable foreign bodies had operation not proved otherwise. Nor does every surgeon here use scleral stitches: some claim a simple incision without diathermy heals quickly and gives the best results. (*d*) The composition of a foreign body found in the skin of the face bears no relationship to a foreign body which may be in the eye. Indeed, cases have been reported which had two different kinds of metal, or stone and metal, or different inert foreign bodies in the same eye.

Localization.—In military practice it is not possible or necessary to employ the elaborate methods of peacetime localization technique. In this Force two methods are popular: (i) By the 26-mm. equatorial ring. Skeoch popularized this method, and it has proved of great value. No claim for extreme accuracy is made, but it serves most purposes under war conditions. (ii) By the limbal ring, which we borrowed from our colleagues in the Middle East, where it was introduced by Brigadier Graham. Two lateral shifts and one antero-posterior petrous-free views are taken in each instance.



Magnet Stands.—In the early days many weird and wonderful devices were constructed to carry the Army portable giant magnet; and perhaps the only criticism which could be made, since they all worked, was that they were not sufficiently portable. Now, however, the R.E.M.E. have constructed a simple standard C.M.F. giant magnet stand on the gallows principle, whereby the magnet is suspended on an adjustable wire cable and counterpoise, as shown in the photograph. In this manner the magnet is easily manœuvred to all positions whether the patient is sitting or recumbent. This model is based on a similar pattern designed by Lieut.-Col. Dansey Browning in the Western Desert.

Anaesthesia.—The anaesthesia which has been found to be most suitable for magnet extraction cases is: forward areas, induction by 5% pentothal with continuous 1/2% pentothal drip and oxygen. (It is to be remembered that major surgical procedures may be simultaneous under these conditions); base areas, local analgesia with 4% cocaine drops and subtenon 2% novocain infiltration.

May I conclude, Sir, with the statement that any "follow-up" cards on ophthalmic cases which are returned to this theatre of war will be most gratefully appreciated.—I am, etc.,

B. W. RYCROFT,
A.F.H.Q., C.M.F. Lieut.-Col.; Adviser in Ophthalmology.

Civilian Respirator as Anaesthetic Mask

SIR,—We noted with interest Dr. F. S. Vaughan's adaptation of the gas mask for inhalation anaesthesia (Jan. 27, p. 131). While we do not doubt that as a substitute for Clausen's harness it is all that he claims, we should like to point out that the dead space in the apparatus as illustrated is far too large to permit of adequate CO_2 elimination.

The leakage which Dr. Vaughan advances as a potential criticism of his device is, in our opinion, an essential in preventing the accumulation of CO_2.—We are, etc.,

F. G. ETHERIDGE.
Botleys Park, Chertsey. F. M. SANDFORD.

Nicotinamide Deficiency and Gingivitis

SIR,—I have just read with interest the article by Drs. R. A. Coulson and P. Ellinger and Squad. Ldr. G. A. Smart on urinary elimination of nicotinamide methochloride in subjects with healthy and diseased gums (Jan. 6, p. 6). My interest is accentuated by the fact that in the early summer of 1942 I was asked to make the mouth examinations for the R.A.F. investigation which was then being considered. Indeed, a number of preliminary examinations were made according to plans formulated by Dr. Platt, Dr. Ellinger, Wing Cmdr. Macrae, and myself. A few comments may not, therefore, be out of place here regarding the authors' conclusion that "nicotinamide deficiency probably did not play any part in the development of gingivitis of any type among the subjects examined."

It is difficult, from this paper and from the previous one by Squad. Ldr. Smart, to know what method was used for recording and summarizing the clinical data. On one occasion, I was present when Squad. Ldr. Smart was examining a group of R.A.F. subjects. The condition of the gum surrounding each tooth in the mouth or, in the absence of one or more teeth, the region where the teeth had been was recorded separately. How, then, was the amount of disease estimated per subject? And how were the subjects allotted to the various disease categories described? Was the condition of a mouth assessed as that of the region showing the most severe lesion of a given type, or was some other method adopted?

In the present paper the authors have shown that the amount of physical energy expended is one of the factors which affects the "F_2" content of the urine (Table V). In one of the articles to which they referred (but not in relation to this energy factor) it was stated (King, 1943) that physical exertion seemed to be associated with the onset and progress of ulcerative lesions of the gum. Incidentally, too, no mention is made of the report on acceleration of co-ordinated muscular effort (Frankau, 1943) by nicotinamide. Again, referring to Table V of the present paper, it appears that the higher "F_2" urinary contents occurred in those groups tested during the winter (March), when so-called trench mouth is much more prevalent, and the lower "F_2" values were found in the summer tests (May–June), when the ulcerative disease is relatively rare.

Has any consideration been given to the possible significance of these apparently coincidental observations? In the absence of further investigation, and in view of the admitted lack of knowledge of other factors which may influence urinary elimination of nicotinamide methochloride, are the authors ustified in coming to the conclusion quoted earlier in this etter?—I am, etc.,

J. D. KING, Ph.D., L.D.S.

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Psychosomatic Factors in Disease

SIR,—I read with great interest Sir Walter Langdon-Brown's remarks (Jan. 13, p. 35) on the growing importance attached o psychosomatic aspects in modern medicine. Conditions as varied as migraine, angina pectoris, cardiac and bronchial asthma, gastric ulcer, cyclical vomiting, sterility, enuresis, urticaria, and many others are to-day clearly recognized as manifestations of physical, psychological, hereditary, and environmental factors.

But in these days of acute shortage of medical men and women in hospitals and general practice it seems to me that he profession should proceed with great caution. As usual, he truth lies somewhere in the middle. It is just as dangerous o label as neurotic a patient with a real complaint as vice versa. And it should not be forgotten that some chronic onditions of slow and insidious onset—e.g., pulmonary tuberulosis and pernicious anaemia—may present with irritability nd other neurotic symptoms long before any definite clinical igns can be elicited. A careful taking of the family history an be of great help in cases of this sort.

In conclusion I might suggest that we could alter the well-nown Latin proverb to *Mens insana in corpore insano* as a imely reminder and warning.—I am, etc.,

Fazakerley Sanatorium, Liverpool. VICTOR LEITNER.

Psychology's Opportunity

SIR,—The letters of Dr. A. C. Wilson (Jan. 20, p. 96) and Dr. A. Tandy Cannon (Feb. 3, p. 163) give us an astonishingly ptimistic forecast of a world led by psychologists. One is reminded of Auguste Comte's scientific high priests. Their etters, however, raise certain doubts in the mind of the reader.

First, do the therapeutic results achieved by psychologists n actual clinical practice justify the expectation that, however ngenious they may be in describing the aetiological factors in isease, either of the individual or of the body politic, they will rove to be reliable guides in the difficult matter of directing whole communities?

Secondly, is it certain that the social results achieved in Russia *are* due to the guidance of psychologists? There were two very powerful forces shaping society in Russia. One was the fact that ever since the revolution the U.S.S.R. has been faced with the hostility of the world, and, "standing alone" as we did in 1940, neighbourliness was fostered among them, as it was among us at that time. A psychologist should not forget all the fantasy, the projection, and the identification which result from dividing the world into "we" and "they." The real test of the Russian experiment will come when Russia has had ten years of peace and prosperity. And, as international alignments may be quite different by then, it is just conceivable that our views about her aggressiveness may have undergone a subtle change. Another factor in shaping Russian society was the Utopianism which is native to the Russian character, but which finds no justification whatever in the prevailing psychological theory—behaviourism. For the behaviourist all motivation is *a tergo*; for the Utopian it is *a fronte*. You cannot have it both ways.

But apart from these forces there was a very good reason for falling into line with accepted social practice—a reason which had nothing to do with psychologists. We are all Russophile now, of course, and it seems rather ungrateful to recall that like-mindedness in Russia was considerably helped by the "liquidation" of those who were not like-minded. Do the advocates of emulation of Russia suggest similar methods of ensuring social solidarity and conformity in this country?

In the third place, may one ask which school of psychology is going to supply the guides to the new social order—Freudians, Jungians, Adlerians, or Watsonians? Some of these at least are mutually exclusive, even when they are not self-destructive. And, please, Dr. Cannon, is it really true that all psychologists have *ipso facto* no selfish motives?

Fourthly, is it really correct to say that all Western nations are labouring "under the yoke of an archaic ecclesiastical rule"? I should have thought that at no time in the history of the world, except perhaps in Greece in the fifth and fourth centuries B.C., has the Church had less influence on the thought and practice of the masses as at present. Most people pay far more attention to the quite unjustifiably pontifical utterances of scientists or the bletherings of astrologers than they do to the Church leaders. Perhaps that is what is wrong. Who knows?—I am, etc.,

Liverpool. F. B. JULIAN.

Prisoner-of-War Mentality

SIR,—Major P. H. Newman's letter (Feb. 3, p. 163) was of particular interest to me as I read the article quoted while still a P.O.W., and have since experienced the "release phenomena" which he describes.

One has to be very careful in passing comment on this subject in order to avoid the degree of one's "Stalag happiness" being assessed. I should, however, ask Major Newman to consider this question in the light of his experience in contact with: (*a*) psychoneurotics in static units at home; (*b*) repatriates from the West Coast of Africa, Palestine, Iraq, and India; (*c*) civilians outside the "blitzed" areas—i.e., three groups who have seen less action than the majority of P.O.W.s. I think with comparative numbers he will find that the P.O.W. mentality will show up very favourably.

The three enumerated symptoms are as applicable to these groups as they are to P.O.W.s, and surely there is more "lack of respect for authority, actively encouraged disrespect, and sabotage against authority" exhibited among civilian workers than by ex-P.O.W.s or other Servicemen. This is clearly seen by strikes, threats, wilful absenteeism, dictation to national leaders, and so on.

I should also like Major Newman to review the last eight months, and remember the days before D-day: the impatience expressed by everyone, the wave of optimism with the invasion, and the return of the impatience at the Caen delay. This was followed by more rapid progress with fantastic references to the short duration of the war so freely expressed by all except ex-P.O.W.s. Lastly, the attitude adopted by so many of our politicians, press agents, and general public over the Greek question. These are a few of the facts which give me the impression that there is too much fuss made over the mentality of P.O.W.s, and that, with few exceptions, they will not require any more post-war rehabilitation than any other section of the community.

I thoroughly agree with the final paragraph. The "square deal," or lack of it, is, of course, the excuse given for all discontent throughout the country, and unfortunately many ex-P.O.W.s harbour a legitimate grouse.—I am, etc.,

C. DONALD,
Capt., R.A.M.C.

Sulphamerazine

SIR,—I was surprised to read in your leading article on sulphamerazine that this compound is not yet available in this country. It was first supplied to me early in December last, and in 5 cases of lobar pneumonia in which I have used it I have found its clinical effectiveness comparable with that of sulphapyridine. I have had no experience of sulphadiazine, but with sulphamerazine there has been a complete absence of nausea and vomiting and that feeling of malaise which I have found to be almost a constant feature with sulphapyridine and to a slightly lesser degree with sulphathiazole. This absence of toxic symptoms may have been partly due to the fact that I have split the initial dose of 3 g. into two doses of 1½ g., the second dose given 2 hours after the first. Thereafter I have given 1 g. every 8 hours, maintaining this dosage for 72 hours after the temperature and pulse rate had been normal for 24 hours. In this very limited number of cases the temperature has reached normal by the morning of the fourth day, and there has been no subsequent rise. The compound was supplied to me by Messrs. Sharpe and Dohme, Mulford Biological Laboratories, Hoddesdon, Herts.—I am, etc.,

Thrapston, Kettering. E. I. H. WHITE.

Artificial Insemination

SIR,—What are the advantages of artificial (donor) insemination? That the wife probably or possibly produces an offspring and develops a full maternal instinct towards her offspring.

What are the disadvantages? (*a*) The legal aspect, which has already been mentioned in several letters. (*b*) That the procedure requires the donor to masturbate. Although one may accept masturbation as a common occurrence and not the bogy which it was held to be by a previous generation, does the end justify asking a normal healthy man to masturbate, and is there not some risk of it having a psychological effect on the man and disturbing his relationship with his own wife?

The alternative to artificial (donor) insemination is adoption, and in my experience of work in a welfare centre there has been no less maternal instinct aroused in the mother with an adopted baby than in a mother with her own baby, and, in fact, because it has been a baby which has been wanted they have practically without exception been well-cared-for babies.

Approaching sterility from another point of view, is everything being done to prevent women from becoming sterile? Is it not likely, for example, that *x*-ray work over a certain period renders a woman sterile? Three cases are known to me where this has almost certainly been the case—two were radiologists and the third a sister in an *x*-ray department. Should this not be fully investigated, and, if necessary, legislation introduced, either not allowing women to do *x*-ray work without at least warning them of the possible consequences or, if it can be prevented by extra protection, making this compulsory?—I am, etc.,

Dorking, Surrey. MARY C. JEFFRIES.

SIR,—The emotional reaction of most of your correspondents to this subject is rather alarming. In particular, I am amazed at the outlook of Dr. F. M. R. Walshe, who in the past has advocated a medical curriculum designed to attempt to lead the student to think *clearly*. Apparently he would have the student reserve one most important aspect of life—everything pertaining to sex—for emotional consideration only.

Surely, if any body of opinion might be expected to face the physiological-sociological problems of a world intent on permanent peace it is that of the medical profession. Our aim should be to aid the establishment of stable, healthy populations in all the countries of the world, and to this end the possible use of artificial insemination no less than that of birth control should be judged not on grounds of narrow-minded puritanism or bigoted catholicism, or as affecting a patriarchal property-owning society, but with a view to the greater security and happiness of the ordinary man—I am, etc.

London, W.1. M. GRACE EGGLETON.

SIR,—Whatever may be one's personal views on the above subject, it is right and proper that the opinions of the profession should be ventilated as widely as possible in the columns of the *Journal*. That the opinions are diverse is evident, and those who support the operation do so largely for two reasons: (1) to satisfy the parental longings of the childless but otherwise happily married couple; and (2) to increase the number of children born, and thereby rescue the nation from steady progressive extinction in the role of world man-power.

I agree with Dr. Leonard G. Parsons (Jan. 20, p. 96) that the first of these is adequately provided for in the adoption of children. This has the advantage that the child can be selected by husband and wife after searching inquiry on the part of the Adoption Society, and that the existence of congenital disease or inherent weakness in the child can be almost completely eliminated by competent examination of the child and evidence of the sound health of its parents. Dr. C. O. Carter (Jan. 27, p. 130) urges the advisability of artificial insemination in cases where "a woman is unable to find a husband"—surplus of women over men of reproductive age after the war. This, it is presumed, includes all spinsters and widows of reproductive age. Does Dr. Carter believe that legalized artificial insemination for this purpose would be followed by the picture of queues of eligible spinsters and young widows at the consulting-rooms of obstetricians and gynaecologists? Surely not! Rather than pretend that artificial insemination is the answer to this problem, would it not be at least as ethical to legalize polygamy for the virile husband and sterile wife, and abolish the Seventh Commandment in favour of the woman so unfortunately mated to an impotent husband?

Why has the profession not the considered opinion and guidance of the Royal College of Obstetricians and Gynaecologists and why the silence of the Christian Church? None the less important in influencing the practice of this revolutionary operation would be the views of the Law Lords on its legality.

The whole idea must be so repellent to the average individual that to its advocates the great mass may exclaim in amazement "What sort of people do they think we are?"—I am, etc.,

London, S.W.1. A. S. HANNAY.

SIR,—Having read some letters in your *Journal* on this subject with disgust, I was more than pleased to read those of Dr. Leonard Parsons (Jan. 20, p. 96) and Dr. F. M. R. Walshe and others (Feb. 3, p. 165). It is to be hoped that those who advocate this practice will consider whether or not they are accessories before the act to pseudo-adulterous practices, and that these result in illegitimate babies for all time. This practice, with its results, cannot be defended on religious, moral or even eugenic grounds. It may well be that the General Medical Council will come to regard this as "unprofessional conduct," and it would be well if it did.—I am, etc.,

London, W.1. C. GORDON-WATSON.

SIR,—Your recent correspondents have shown much indignation against the practice of human artificial insemination. The legal position, the Christian ethic, the social consequences and even natural delicacy have all been invoked as strong reasons against that practice. Without challenging the legal argument or entering into a discussion of the social precedent involved, I think it would be fair to suggest that your correspondents have, in the full flush of their righteousness, somewhat lost their sense of proportion. Facts need re-emphasis. Artificial insemination is proposed only for that comparatively small but very unfortunate minority of couples who are sterile due to some fault in the husband's sperm or to incompatibility between otherwise normal gametes, and who also ardently desire a fruitful marriage. Lurid pictures of vast stud farms and the imaginary scenes within are the product of a prurient rather than a reasonable mind.

Those who cry for a greater awareness of Christian principle should remember that human compassion is a Christian recept, perhaps the greatest of them, and there is almost no agedy so great as that of a childless marriage between those ho love children. Our compassion, not our indignation, should e aroused by these people who want children at least half-kin themselves. Further, it should be remembered that in olden mes, and still in many of the great agricultural areas of urope, the hollow mockery of a childless marriage is avoided y society's tacit sanction of pregnancy before marriage. Modern civilization would not tolerate that; no more will it olerate marriage at a reasonably early age; it is in fact so far rom Nature in its social laws that human attempts at compensation are inevitable. The doctor's attitude in the face of is conflict is indeed difficult, but surely a pharisaical attitude hould be avoided. As in the case of many other medical thical problems the best plan is to avoid pronouncements, ut to keep one's own counsel and a clear conscience.—am, etc.,

"SERVICE DOCTOR."

Deaf Aids

SIR,—I have during the past ten or so years had some experience of the various types of deaf aids in an attempt to find uitable apparatus for the individual use of deaf children for ducational work, and for various adults who have enlisted y help in the matter. I can only conclude that the circumances of wartime plus a patch of bad luck are the reasons or the excessive maintenance costs of Mrs. Barlow's various eaf aids (Jan. 27, p. 130), as I can find no one among my cquaintance who has had anything like the amount of trouble, hen using pre-war apparatus, now from six to nine or more ears old. The quality of accumulators and batteries has ndeniably gone down, as some of the essential ingredients are short supply, but the failures of valves can only be put own to faulty inspection or constructional weaknesses, which re the responsibility of the valve-making firm and not of the akers or assemblers of deaf aids.

The greatest trouble with the deaf aid of any type is the perennial tempt to get a quart into a pint pot, so as to render the apparatus small and compact as possible. Thus the sizes of components e reduced to the minimum, and so the margin of material strength d insulation, etc., is reduced beyond that required for real urability and longevity. In the specific cases of the H.T. battery d L.T. accumulator, the reduction in size and weight inevitably eans a reduction in metal and chemicals needed to produce or ore electrical energy, so that a good current capacity is impossible. he relationship between life and weight is roughly a geometrical ogression, so that the tiny batteries in use are obviously not meant last more than a short time in constant activity.

The need to return apparatus to London for repair is also parently a wartime necessity, for in peacetime most of the reputble dealers had provincial depots to relieve the user of the delays far as possible. It is, however, possible that the makers wish handle their own apparatus, not merely from the business point view, but in order to secure that the repairs are done properly r the sake of the repute of their products. In post-war days when dio servicing returns to its previous high level, there will be ample cilities in every town of any size for the instant repair of any ad aid, provided that the parts needed are such as are reasonably andard in the trade. There is no difference between the inside a deaf aid and the low-frequency end of a wireless set, and it n as easily be tested and repaired.

The other points mentioned by Mrs. Barlow may be briefly swered thus: (1) A standard or utility deaf-aid set, battery only, n be built now at home by anyone used to simple tools, on the sis of the design by Dr. Littler, published some time ago in the *ireless World*, with lists of parts and full instructions. (2) Directns for the conversion of an all-electric "midget" receiver into a od-quality deaf aid were given in an American periodical early the present war, and the job is fairly straightforward. (3) The rections for the making up of a miniature three-valve pocketable af aid are available from U.S. sources, and if any doctor would e a copy I can supply one if given the necessary time for reproction. (I have recently supplied one gratis to an assistant M.O.H.) A good all-mains deaf aid can be adapted from a mains amplifier the incorporation of a crystal microphone and suitable ear-piece, the use of the gramophone amplified end of a modern wireless , using the extra loudspeaker wiring to carry the ear-piece wiring, bject to the usual safety precautions for electricity.

Economy can be made in running costs in the following ways, all which have been practically tested over a period of years.

Non-valve Aids.—Use that battery which is heaviest, for it gives ngest service, and use three or four in series to recuperate. Switch the current whenever the aid is out of use, for the current pits" the granules or balls of carbon in the usual microphone, necessitating replacements. Treat the connecting cords very carefully, keeping them away from perspiration so far as possible, and remember that a kink in the cord may be a break later. If batteries are expensive or hard to get, secure some U.2 size cells and make a small container to take the required number in series to make 3, 4½, or 6 volts' supply.

Valve Aids.—If the aid is to be used at any time in a stationary position for hours at a time, it is a great economy to use a heavy-duty high-tension battery of 120 volts and a large 2-volt accumulator, external to the aid by means of short wires and clips. The first 60 volts are used one day and the second 60 the next day and so on. Six to nine months' use can be expected from a good battery, and a box can be designed as a base for the deaf aid to stand on and contain the batteries when so used. Finally the use of a hydrometer and a trickle charger with two accumulators, kept properly charged and used in turn, will extend the life of the usual small accumulator by a considerable amount.—I am, etc.,

EDWARD T. JORDAN,
Honours Diploma, College of
Teachers of the Deaf.

935, Great Cambridge Road, Enfield.

The Younger Men

SIR,—Mr. A. Basil Rooke's letter (Jan. 20, p. 97) calls for comment on several grounds. My letter did not refer to E.M.S. officers but to A.M.O.s of permanent institutions, nor did it refer only to younger men. We are not asking for amenities but for an opportunity to live normal lives despite the fact that we have taken up hospital work. Many of us, working in hospitals where there is a gross shortage of medical and nursing staff, have not been able to "continue our studies." The authorities, however willing, have been unable to give us facilities. In many cases serving officers have had varied experience which will be invaluable not only in practice but in obtaining higher diplomas.

He fails, apparently, to realize that if the advances urged in my letter are made, serving officers who come into hospital practice will benefit thereby. It is not unknown for an A.M.O., who has married while on service, to be threatened with the loss of his reinstatement rights. Many of the younger men on service, who will wish to study further, are already married and deserve "at least as good a chance as their contemporaries" of continuing (beginning might be more accurate) a normal married life. In the majority of hospitals this is an utter impossibility. I would refer him to the *Journal* of Nov. 4 (p. 610) for a medical superintendent's views on this.

His unfortunate references to "those who enlisted" and "those who obtained further deferment" are to be deprecated. Apart from those rejected by the Services on medical grounds, there are many who have made repeated attempts to volunteer and who have been refused permission to leave their posts or whose call-up has been successfully opposed by the Departments controlling their hospitals. With the probable increase in resident posts after the war there should be room for all who have served loyally at home or over-seas—in uniform or out. Nothing has been written which invalidates the arguments for, or lessens the urgency of, providing proper quarters for A.M.O.s. "Both the future of medicine and eugenic considerations" urge "the need for such a step."—I am, etc.,

"B1."

Neurone, Mind, and Crime

SIR,—Without here discussing other controversial points raised in your annotation on Prof. R. J. A. Berry's address (Feb. 3, p. 157) I should like to suggest that his observations on the brains and skulls of criminals be accepted with considerable reserve. In his original article Prof. Berry states that, with regard to the size and weight of the brain, "50% of the habitual criminal classes approximate more nearly to mentally defective levels than to the normal—that is, they have underdeveloped supragranular brains of control." Further, with regard to skull capacities, he states that these are largest in "university teachers," "followed on a downward scale by such different mental types as . . . criminals, 20-year-old reformatory boys, 13-year-old mentally defective boys," etc.

Since the days of Lombroso a vast amount of scientific evidence has been accumulated tending to disprove the validity of alleged physical anthropological characteristics by which the so-called "criminal" and the "reformatory boy" could be differentiated as specific types from the "rest" of the population. Prof. Berry's findings, based on statistical studies of isolated groups of so-called "criminals," should therefore be considered extremely critically, particularly with regard to such points as selection of cases and "controls," their intelligence, physical history, etc. C. Goring, as early as 1913, wrote: "There is no such thing as a physical criminal type"; and many other authorities, including the eminent anthropologist Hrdlicka, are in complete agreement with this statement.

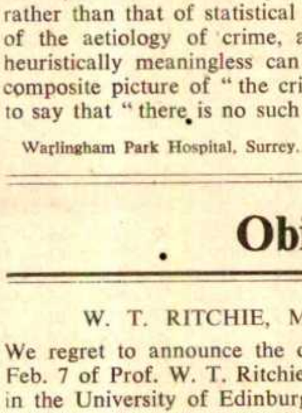
Although it would no doubt be a conveniently simple explanation of criminality to regard it, with Prof. Berry, as being due to an underdeveloped supragranular cortical level and, therefore, to uninhibited infragranular activity, there is as yet insufficient evidence to justify this conclusion. Indeed, recent research in psychopathology has shown how near to overt criminal activity we all may be—"university teachers" no less than the feeble-minded, and probably more so, for intelligence, however misdirected, is often necessary to commit a crime. Criminal psychopathology in particular, as represented by the work of Healy, Alexander, Aichhorn, Karpman, and others, has stressed the importance of a study of the *individual*, rather than that of statistical generalities, in the understanding of the aetiology of crime, and has gone far to show how heuristically meaningless can be the study of an average or composite picture of "the criminal." One might go so far as to say that "there is no such animal."—I am, etc.,

Warlingham Park Hospital, Surrey. R. H. AHRENFELDT.

Obituary

W. T. RITCHIE, M.D., LL.D., F.R.C.P.ED.

We regret to announce the death at Colinton, Edinburgh, on Feb. 7 of Prof. W. T. Ritchie, who held the chair of medicine in the University of Edinburgh for ten years, and was elected President of the Royal College of Physicians of Edinburgh in 1935. He was well known for his work in cardiology, published a monograph on auricular flutter in 1914, and delivered the St. Cyres Lecture in London in 1939; his book on *Diseases of the Heart*, written jointly with Dr. John Cowan, of Glasgow, reached a third edition.


[Photo by Young, Edinburgh

William Thomas Ritchie, son of R. B. Ritchie, was born on Nov. 3, 1873, and studied medicine at the University of Edinburgh, taking the degrees of M.B., C.M. in 1896, and the M.D. in 1899, and was elected F.R.C.P.Ed. in 1903. After graduation he studied in Vienna clinics, and returning to Edinburgh practised there for over 40 years. He became physician, and later consulting physician, to the Royal Infirmary and to the Deaconess Hospital, and physician consultant to the Edinburgh municipal hospitals. During the last war he was at first medical officer to the 1/3 Scottish Horse and later in charge of the medical division of No. 27 General Hospital in Egypt. His war services were recognized by mention in dispatches and the award of the O.B.E. In the present war he acted as physician at the Emergency Medical Service Hospital at Bangour, and he had been honorary consultant in cardiovascular cases for the Ministry of Pensions.

When W. T. Ritchie succeeded Prof. Lovell Gulland in the chair of medicine at Edinburgh in 1928 he took a large part in remodelling the arrangements for teaching in the Faculty of Medicine by co-ordination of the courses given by the professors of pathology, materia medica, medicine, and surgery. He was a Fellow of the Association of Physicians of Great Britain and Ireland and of the Royal Society of Edinburgh, and gave the Gibson Memorial Lectures in 1923. His services as an examiner in medicine were called upon by the Universities of St. Andrews, Aberdeen, and Durham. In the British Medical Association he held office as secretary of the Section of Medicine at Newcastle in 1921 and as vice-president during the Edinburgh Annual Meeting of 1927. Last year he receiv from his own university the honorary degree of LL.D. Besid his writings on diseases of the heart Prof. Ritchie was joi author with Dr. J. J. Graham Brown of a book on *Medic Diagnosis*, which passed into a fifth edition and was deservec popular as a handbook of clinical methods for practitione and students.

KATHLEEN KITCHIN, M.B., M.Sc.

We announce with much regret the death after a short illn of Dr. Kathleen Kitchin on Feb. 5 at Aldbourne, Wiltshi For some years she took an active part in B.M.A. work representative of her Division, and her literary gift found outlet in the service of medical and legal journals and authors of many papers and books.

Mary Kathleen Forsaith Lander was born at Bournemou on May 21, 1897, and from Wimbledon High School went study for our profession at the London School of Medici for Women and St. Mary's Hospital. Before qualifying M. B.S.Lond. in 1921 she had been demonstrator of anato at the London School of Medicine for Women and honor acting prosector for the Zoological Society. She was the fi woman to take the B.Sc.Lond. degree in human anatomy morphology, following it in 1919 with the M.Sc. She awarded a Beit Fellowship in 1921, but had to resign it account of ill-health. After acting as assistant curator of Wellcome Historical Medical Museum she had five years general practice in London, including infant welfare and ar natal clinics. She was a member of the Representative Bc of the B.M.A. from 1923 to 1928 and vice-chairman of St. Pancras Division in 1926. She began psychological stu in 1923, working with Jung in Zurich, and was on the st of the Tavistock Clinic for some time, working also at Bethlem and the Maudsley Hospitals. In 1925 Dr. Lan married Mr. D. Harcourt Kitchin, barrister-at-law and frequent contributor to these columns, and she herself called to the Bar in 1936. Together and separately they a great deal of legal and medical journalism, and transla and edited a number of books for medical authors.

During the last few years Dr. Kathleen Kitchin worl chiefly as a psychologist, and took special interest in the Gu of Pastoral Therapy. Her enterprise and thoroughness varied directions did not seem to exhaust the fund of nat energy or the zest for life, and her passing at the age of leaves a gap in a wide circle of friends and colleagues.

CECIL A. JOLL, F.R.C.S.

Surg. Rear-Adml. G. GORDON-TAYLOR writes: Perhaps a b space may be permitted to one who, though not a hosp colleague of Cecil Joll, greatly admired his surgery and courage. Reference has already been made to his colo industry and energy, but no one has affirmed the truth no other operating surgeon within our British Isles can h completed so vast a number of major surgical operations a lifetime of scarcely 60 years.

Joll drove the chariot of his professional life with incredible sp with ceaseless wheels, and without rein or bridle. The obitu notice in your columns has remarked on the astronomic numbe hospitals to which he was attached and the legendary list of op tions performed at each séance; and Joll's attachment to hospital was not a mere nominal affixation but involved a wh hearted participation in the surgical work of the institution. surgical life was one of deeds rather than words, and it is a consummate surgical artist that he himself would have desired tc remembered. There are a few operating theatres in London to w a surgical visit becomes an inevitability; in Joll's theatre there an assurance of a goodly surgical company—not the surg wanderer on a busman's holiday, but busy surgeons anxious improve their own art.

The fortitude and courage wherewith he continued his opera work under a sentence of death until a fortnight of his demise c manded the respect and admiration of all; the carefully corre and signed letter the day before his death recalls the story of Venerable Bede, and the words used by the great Marquis Montrose three hundred years ago keep recurring to one's li "I am resolved to carry on with honour and fidelity to the gra

He was not the only member of our profession to interest him in ornithology, and on the few occasions when he tore himself a from his ceaseless surgical life he would transport himself to s bird sanctuary or island off the shore, where he could observe avian friends. It seemed not unfitting that a great concourse of birds which the duress of the weather had driven inland and which gathered in flocks in the neighbourhood of his domicile should be present at the passing of one who had loved them so devotedly in the noontide of his eager, ardent life.

Mr. Robert V. Cooke, Ch.M., F.R.C.S., writes:

For many of us in the Provinces the untimely death of this great surgeon is a cruel blow. We have with so much profit spent wonderful afternoons with him, even though we may have been humbled by the experience. We shall always feel very much gratitude for surgical instruction and inspiration, and some of us for much personal kindliness and hospitality, so that there is a special poignancy attached to his passing. These remarks would be reiterated by vast numbers of surgeons from other countries—and particularly by our American colleagues. (I shall never forget the eulogies of both Mr. Willie and Mr. Charlie Mayo.) Joll would discourse so well to a crowd of visiting surgeons, though operating all the time at incredible speed with such enviable precision and accuracy. One must speak of his team work, particularly as it was seen on those Monday afternoons at the Royal Free Hospital. The fineness of his work, his drive and tirelessness, were only matched by the loyal, unsparing energies of the anaesthetists and his many assistants—by no means forgetting the sisters and nurses in the theatres and in the wards. He was always ready to give generous praise to those who had contributed to his success. Others have tried to emphasize his phenomenal capacity for sustained work of the highest order which must undoubtedly become legendary. He was truly a magnificent surgeon. In our ranks few, if any, can have accomplished so much so well.

We regret to announce the death on Jan. 16 in a nursing home, after a short illness, of Dr. R. W. H. Meredith, formerly of Wellington, Somerset, aged 70. He studied medicine at the Middlesex Hospital, and after qualifying M.R.C.S., L.R.C.P. in 1900 was house-surgeon to the Seamen's Hospital, Greenwich. During the last war he served as captain, R.A.M.C., with the 121st Indian Combined Field Ambulance, B.E.F. Dr. Meredith was for many years medical officer to Wellington School and surgeon to the local cottage hospital. He joined the B.M.A. in 1906 and held office as president of the West Somerset Branch in 1919–20. Latterly he had lived in retirement at Bournemouth.

Dr. Thomas Rowland Charles Whipham, who died at Exeter on Jan. 20, was the son of Thomas T. Whipham, M.D., and was born in London on Jan. 4, 1871. He was educated at Rugby School and New College, Oxford, and at St. George's Hospital, where his father was physician. He graduated M.B., B.Ch.Oxon in 1898, took the M.R.C.P. in 1900, and proceeded M.A. and M.D. in 1905. At St. George's he served as demonstrator in materia medica, assistant curator of the museum, and medical registrar; later he became physician to the Evelina Hospital for Children, and assistant physician and physician-in-charge of the children's department of the Prince of Wales's Hospital, Tottenham. In 1918 he gave up work in London and went to South Devon, where, though nominally in retirement, he acted as assistant physician to the Royal Devon and Exeter Hospital, and consulting physician to the Exeter Dispensary and the Children's Convalescent Home at Exmouth. His manual on *Medical Diseases of Children* was published in 1912, and about that time he wrote a number of papers which appeared in this and other journals.

The death of Leonard West of Hoddesdon, Herts, at the age of 65, on Jan. 27 has taken away a notable medical landmark from East Herts. Born at Leeds, he was educated at Carglefield, Fettes, and Edinburgh University, where he graduated in 1903. He came to Hoddesdon in 1907, first as assistant and later for many years as head of a large town and country practice, where he was widely known and greatly liked. He held a number of appointments—as medical officer to the police, railway, and post office—and for over 20 years was honorary physician to the Hertford County Hospital. Later, he was made a J.P. and also a local councillor. He was also chairman or president of practically every club or association in the district. In all branches of work he showed the same buoyant energy, wise counsel, and ready understanding. He was a big man with a big heart, and will long be affectionately remembered by his many patients and friends —the terms are synonymous—for the outstanding feature of his life's work was his deep humanity. He had indeed a real flair for friendship. With old and young, rich and poor, he was always the personal friend as well as the doctor. His carefulness combined with his geniality and sense of humour, the twinkle in his eye, the jolly laugh, all inspired confidence, hope, and a feeling of security, and made him a welcome visitor to every house. As a physician he belonged perhaps to the older school of practitioners, who never forgot the patient in the case, and who placed clinical examination and diagnosis first, with laboratory methods an essential and invaluable adjunct. In midwifery his long experience had made him a first-rate accoucheur, and many families of two generations are indebted to him for his skilful and patient help. During the 1914–18 war he served as captain, R.A.M.C., in Egypt, Palestine, and Gallipoli; in this war he was head of the local first-aid post, which owed so much to him in its foundation and development, as well as to the enthusiastic support he aroused in those under him. In spite of his manifold activities he was a modest man, rarely spoke in public, and never advertised. He may not be remembered for original research work or surgical technique, but he will be long cherished in the hearts of all those who knew him for his strong and persuasive personality. In private life he was a splendid companion, and was always the life and soul of any gathering. He took a keen and active interest in all forms of outdoor pursuits: in his early days a famous rugger forward (he played for Scotland for three years, and was captain in 1906), a good shot and fisherman, and a good gardener (especially in rock plants). Indeed all sports appealed to him, though in later years recurrent illnesses limited these activities, but his interests were maintained, and he never complained. He lived greatly, he died bravely. Our deep sympathy goes to his wife, daughter, and two sons, both serving now in India.—L. R. L.

Dr. Edward Stanley Robinson, who died at Stourport-on-Severn on Feb. 2, aged 79, was born at Leicester, son of George and Sarah Robinson. On the death of his father the small family removed to Stourport and lived for many years in Lombard Street in what is now the Workman's Club, and from there he went to the London Hospital, qualifying M.R.C.S., L.R.C.P. in 1888. For some years he voyaged round the world before settling down to what was to be his life's work—a family doctor—until his retirement in 1939. He joined the B.M.A. in 1899 and had been president of the Midland Branch of the Society of Medical Officers of Health. A correspondent writes: Dr. Robinson's was a long life and a full life. It was, above all, an unselfish life, and, as he always averred, a happy one. It was sufficient that he could serve his fellow men, and his reward was abundant in the boundless trust and affection given him not only by his patients but by all those among whom his lot was cast.

Dr. Thomas Torrens McKendry died on Feb. 3 at the age of 82 after an illness lasting seven years. Born at Clough, County Antrim, he was educated at Coleraine Academy, Ballymena; at Queen's College, Cork, where he took his B.A. in science; and at Queen's College, Belfast, where he studied medicine, graduating M.B., B.Ch., and B.A.O. in 1894. Having worked as an assistant in Dulwich and Ilford he had his own practice in Goodmayes for some 19 years. At the end of 1918 he suffered a breakdown in health and relinquished his practice, but until 1927 he helped several of his medical friends in Buckinghamshire during the summer periods. Dr. McKendry was an ardent devotee of all kinds of outdoor sport, and performed many charitable acts in an unassuming way; one of his last gifts was £500 to the Old Boys' Association of Coleraine Academy for the prize fund.

Dr. John Robert Walker died at Hove on Feb. 3 in his 100th year. The son of a doctor, he went from Kensington School to Epsom College as its first pupil. He studied medicine at St. Mary's Hospital, and after qualifying in 1868 served as house-surgeon and resident obstetrical officer there; his next appointment was as resident surgeon at Jarrow Infirmary. After that he took up practice in North-West London and was honorary surgeon to St. Peter's Home, Kilburn, and to the N.W. Division of the Metropolitan Police. Dr. Walker was the oldest Red Cross surgeon, and recently had a letter of congratulation from H.R.H. the Duke of Gloucester. The French Sisters of Mercy presented him with a Bible after the siege of Metz for his devotion to the wounded, and he held the German medal of the war of 1870–1. He joined the B.M.A. in 1873 and remained a member until his final retirement from practice. Dr. Walker's hopeful outlook on life helped him to maintain good health and reach his great age. He was a keen sportsman and noted for his love of Nature. He will be much missed by all who knew him.

Mr. A. R. Jordan writes: With great regret I read in your issue of Jan. 27 the obituary notice of Mr. Ferrier Walters of Bristol. The statement that in 1916 he was in charge of the abdominal centre at Aveluy is not correct. His centre was at Warloy-Baillon, behind Albert, where I had the pleasure of being one of the surgeons under him. We published the then largest series of abdominal wound cases, and here Walters had the honour of taking King George V round his hospital.

The Services

The Institute of Aeronautical Sciences of the United States has presented to Air Marshal Sir Harold Whittingham, Director-General of the R.A.F. Medical Services, its John Jeffries award for 1944.

Temp. Surg. Lieut. G. J. Potts, R.N.V.R., has been mentioned in dispatches for gallantry, determination, and devotion to duty in the assault on and capture of the island of Walcheren.

Lieut. K. C. Stephenson, R.A.M.C., and Jamadar R. D. Chowdhury, I.A.M.C., have been awarded the M.C. in recognition of gallant and distinguished services in Italy.

Capt. J. R. O. Thompson, R.A.M.C., has been posthumously awarded the George Cross in recognition of most conspicuous gallantry in carrying out hazardous work. The citation reads:

> The award is for conspicuous gallantry and devotion to duty on board hospital ships since the start of the war, notably on the *Paris* at Dunkirk in May, 1940, and on the *St. David* at Sicily, Salerno, and at Anzio, when in each instance, in spite of repeated dive-bombing attacks and enemy shell-fire, he showed indifference to danger and physical exhaustion in the care of his patients. At Anzio on the night of Jan. 24, 1944, when the *St. David* was sinking rapidly as the result of a direct bomb-hit, he organized parties to carry the seriously wounded to safety in the boats and was thus instrumental in saving many lives. When the ship was obviously about to founder and all were ordered to save themselves, he returned alone in a last effort to save the one remaining helpless patient still lying trapped below. It is presumed that Capt. Thompson went down with the ship.

The *London Gazette* has announced the following appointments, awards, and mentions in recognition of gallant and distinguished services in North-West Europe:

C.B.E. (Military Division).—Brigs. (Temp.) H. L. G. Hughes, D.S.O., M.C., R.A.M.C., Reserve of Officers, A. E. Porritt, O.B.E., and Q. V. B. Wallace, O.B.E., M.C., R.A.M.C.

O.B.E. (Military Division).—Cols. (Temp.) R. D. Cameron, M.C., and K. A. MacD. Tomory, R.A.M.C., and C. Helm, D.S.O., M.C., R.A.M.C., Reserve of Officers; Majors (Temp. Lieut.-Cols.) E. Catford, W. M. Evans, M.C., L. R. H. Keatinge, S. C. H. Lane, A. MacLennan, P. R. Mitchell, and I am M. Paton, R.A.M.C., Col. B. C. Leech, and Lieut.-Col. (Acting Col.) C. D. Gossage, R.C.A.M.C.

M.B.E. (Military Division).—Major (Temp. Lieut.-Col.) W. S. Harvey; Capts. (Temp. Majors) F. J. S. Bowman, N. R. Butcher, F. O'K. Craven, H. Kennedy, R. L. MacPherson, and H. K. Meller; Capt. F. R. B. H. Kennedy, R.A.M.C.; Majors J. G. Jose, J. C. Luke, and R. A. Mustard, R.C.A.M.C.

D.S.O.—Major (Temp. Lieut.-Col.) A. McC. Campbell, R.A.M.C.

Bar to the M.C.—Capt. F. W. Hayter, M.C., R.C.A.M.C.

M.C.—Capts. P. W. Henderson, J. Johnston, and J. M. Murphy, R.A.M.C. Capts. H. L. Handford and W. S. Huckvale, R.C.A.M.C.

Mentioned in Dispatches.—Col. (Temp.) C. E. Eccles, O.B.E., and Major (Temp. Lieut.-Col.) C. D. Evans, O.B.E., R.A.M.C.

The *London Gazette* has announced the following appointments, awards, and mentions in recognition of gallant and distinguished services in Italy:

O.B.E. (Military Division).—Col. C. S. Thompson; Lieut.-Cols. J. P. Laplante and J. A. Noble, R.C.A.M.C.

M.B.E. (Military Division).—Majors J. L. M. Anderson, A. M. Doyle, and P. A. Scott, R.C.A.M.C.

D.S.O.—Col. H. M. Elder, R.C.A.M.C.

Mentioned in Dispatches.—Col. G. A. Sinclair, Lieut.-Col. J. H. Palmer, Majors G. M. Bastedo, J. K. Bell, J. A. Bradshaw, D. R. E. MacLeod, E. A. MacNaughton, P. J. Maloney, J. A. Melanson, E. Quehl, L. J. Quinn, J. G. Shannon, F. L. Shipp, P. M. Spence, A. R. Tanner, and P. K. Tisdale, Capts. G. C. Bowes, J. A. Gow and T. Statten, R.C.A.M.C.

The *London Gazette* has announced the following appointments and awards in recognition of gallant and distinguished services in Burma and on the Eastern Frontier of India:

O.B.E. (Military Division).—Cols. (Temp.) R. A. Anderson and W. J. Officer; Majors (Temp. Lieut.-Cols.) J. A. Baty, J. G. M. A. Brunet, A. D. Davidson, M. H.-P. Sayers; Capt. (Temp. Major) A. E. Jowett, R.A.M.C.

M.B.E. (Military Division).—Capts. H. M. Jamison and K. McCaul, R.A.M.C.; Capt. L. N. B. Raja and Subadars D. Mohd and L. Ram, I.A.M.C.

M.C.—Capt. (Temp. Major) (Acting Lieut.-Col.) A. Burns, and Capts. J. W. R. Battram and D. Mitchell, R.A.M.C.; Capt. (Temp. Major) U. S. Sidhu, Capts. K. C. D. Gupta and P. C. Sarkar, Lieut. (Acting Capt.) B. G. Kiddle, and Subadar S. Singh, I.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Killed in action in Burma.—Capt. John Ravenhill Sweeting, R.A.M.C.

Killed as the result of an accident, while on active service.—War Subs. Capt. Gerald Arthur Richards, R.A.M.C.

Wounded.—War Subs. Capt. S. D. Stock, O.B.E., R.A.M.C.

Universities and Colleges

UNIVERSITY OF OXFORD

In Congregation on Feb. 6 the University accepted gratefully from the Rockefeller Foundation £1,200 for biochemical investigations of penicillin during the year beginning March 1, under the direction of the professor of pathology, Sir Howard Florey.

In a Congregation held on Jan. 25 the following medical degrees were conferred:

D.M.—*W. A. Young.

B.M., B.Ch.—N. D. Ashe, M. J. T. Hewetson, *A. G. Beckett, *M. R. Williams, *J. T. Wright, *B. A. Ellenberg.

* In absence.

UNIVERSITY OF LONDON

The following have been recognized as teachers of the University in the subjects indicated in parenthesis: *Lister Institute of Preventive Medicine:* Dr. A. N. Drury, F.R.S. (Pathology). *University College:* Dr. R. A. Gregory (Physiology); Dr. H. O. Schild (Pharmacology). *St. Thomas's Hospital Medical School:* Dr. C. C. N. Vass (Physiology). *St. George's Hospital Medical School:* Mr. J. R. Peacock, F.R.C.S. (Oto-rhino-laryngology). *London Hospital Medical College:* Mr. R. W. Watson-Jones, F.R.C.S. (Orthopaedics); Dr. H. L. Wilson, F.R.C.P. (Mental Diseases). *Royal Veterinary College:* Dr. E. C. Amoroso (Histology and Embryology).

In and after 1945 the first examination for medical degrees held in December will be normally open only to the following: (1) Candidates who have been "referred" in one subject at a previous examination. (2) Candidates exempted from one or two subjects of the examination. (3) Candidates who produce a medical certificate that they were prevented by ill-health from sitting for the examination in the previous July.

UNIVERSITY OF MANCHESTER

Brian Schofield, M.B., B.Chir., has been appointed demonstrator in human physiology, and N. J. Caldwell, L.M.S.S.A., demonstrator in pathology.

UNIVERSITY OF SHEFFIELD

The Council of the University has accepted, with great regret, the resignation of Mr. George Wilkinson, M.B., F.R.C.S., of his post of Lecturer in the History of Medicine, and has thanked him for his valuable services to the University and its forerunners over a period of 51 years.

The Council has made the following appointments: Honorary Lecturer in the History of Medicine, Prof. E. F. Finch, M.D., F.R.C.S.; Temporary Demonstrator in Anatomy, W. J. W. Sharrard, M.B., Ch.B.; Honorary Lecturer in Psychology in the Faculty of Medicine, J. Carson, M.B., Ch.B.; Tutor for Diseases of Children, C. H. Rosenberg, M.B., Ch.B.

QUEEN'S UNIVERSITY, BELFAST

The following candidates have been approved at the examination indicated:

M.B., B.Ch., B.A.O.—*H. F. W. Fry, †J. H. Bruce, †T. T. Fulton, †W. McG. Lowry, †W. H. McDaniel, †J. K. Morrison, †M. W. Wilkin, J. T. Boyd, H. E. Busby, M. Byrne, R. S. Casement, W. F. Colburn, Sheelah B. Cosgrove, F. C. McC. Coyne, Eileen M. Craven, T. H. G. Dick, W. J. Elwood, T. P. Fearis, D. T. Gilchrist, C. J. Gilligan, W. A. Gilmore, G. T. C. Hamilton, F. E. Henderson, F. D. Honneyman, J. C. S. Houston, J. K. Hunter, Lucy M. Hunter, D. B. Kenny, Sophia E. Kernohan, Kathleen M. King, A. Kirkpatrick, Mary A. H. Lawson, Patricia M. Leitch, C. G. Lowry, H. D. C. McCaldin, S. G. McComb, J. A. McHugh, O. K. B. Moreland, Claire E. Morris, B. Mullally, R. A. Nelly, W. J. Patterson, T. W. Roddie, Gladys G. Seymour, M. McK. Shaw, J. T. Shepherd, Elizabeth Sherrard, Jessie H. Sloan, B. T. Smyth, J. Stewart, D. H. Tweedie, A. L. Wells, Mary Williams, P. J. K. Wilson, R. D. Wright.

* With first-class honours. † With second-class honours.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Professional lectures on applied physiology, by Prof. John Beattie, at 2.30 p.m., and on anatomy, by Prof. A. J. E. Cave, at 4 p.m., will be delivered at the College, Lincoln's Inn Fields, W.C., on Mondays, Wednesdays, and Fridays, from Feb. 19 to March 16 inclusive. Details will be published in the diary column of the *Supplement* week by week.

At an ordinary meeting of the Council on Feb. 8, with Sir Alfred Webb-Johnson, President, in the chair, resolutions of condolence were passed on the death of Sir Buckston Browne and Mr. Cecil A. Joll. Prof. Ernest Finch of Sheffield was elected a member of the Court of Examiners for a period of three years. The Association of Municipal Specialists was admitted to the joint secretariat under the auspices of the College at 45, Lincoln's Inn Fields. Mr. McAdam Eccles was reappointed a representative of the College on the British Social Hygiene Council for the year 1945. The Council received from Mrs. Braithwaite a portrait by Frank O. Salisbury of the late Leonard Ralph Braithwaite, F.R.C.S., formerly Vice-President of the College.

Diplomas of membership were granted to Diana M. Beyts, R. McK. Laslett, and W. D. G. Tellam, and to the 125 candidates whose names were printed in the report of the meeting of the Royal College of Physicians of London in the *Journal* of Feb. 10 (p. 203).

ROYAL COLLEGE OF PHYSICIANS OF LONDON

B. H. C. Matthews, C.B., ScD., will deliver the Oliver-Sharpey Lectures at the College on Tuesday, March 13, and Thursday, March 15, at 4 p.m. His subjects are "The Effects of High Altitude on Man," and "The Effects of Mechanical Stresses on Man," respectively.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

At a meeting of the College held on Feb. 6, with the President, Dr. A. Fergus Hewat, in the chair, Dr. W. F. T. Haultain was ntroduced and took his seat as a Fellow of the College, and Dr. D. R. Maitland and Dr. I. Douglas-Wilson were elected Fellows.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

At the monthly meeting of the College, held on Feb. 2, Dr. Robert Henry Micks, F.R.C.P.I., was elected King's Professor of Materia Medica and Pharmacy.

The following were admitted Licentiates and Members of the College: J. D. Kennedy, Anne McMahon, W. E. O'C. C. Powell, R. Wilson.

WESTMINSTER HOSPITAL MEDICAL SCHOOL

An examination for two entrance scholarships in anatomy and physiology will be held on March 6 and 7. Applications for further particulars should reach the secretary, Westminster Hospital Medical School, 17, Horseferry Road, S.W.1, not later than Feb. 26.

Medical Notes in Parliament

National Health Service

Dr. SUMMERSKILL inquired on Feb. 1 whether the Minister of Health could make a statement on the implementation of the recommendations contained in the White Paper on the Health Services. Mr. WILLINK said he was engaged in discussion of these proposals with representatives of the medical profession and others concerned, and was not yet in a position o make any statement.

Industrial Dermatitis

Mr. IVOR THOMAS asserted on Feb. 1 that medical referees now described by other names conditions which were formerly diagnosed as industrial dermatitis. He said patients were thus deprived of their rights under the Workmen's Compensation Acts. It was a common practice, he said, to describe as eczema or pustular pompholyx what had formerly been described as ndustrial dermatitis. Mr. HERBERT MORRISON said he was not aware there had been such a change. The statutory definition was "dermatitis produced by dust or liquids." He did not hink there was a widespread feeling that this was "an insurance company ramp." He would look into any case which Mr. Thomas had in mind.

Research on Artificial Limbs

Major BRAITHWAITE asked the Minister of Pensions on Feb. 1 whether he had yet received any recommendations rom the Departmental Committee on Artificial Limbs.

Sir WALTER WOMERSLEY: Yes, Sir. I have received an nterim report which I will circulate with the official report. t recommends: (1) the appointment forthwith of an officer o undertake research and development work; and (2) the seting up of a standing advisory committee. I have accepted both recommendations, and Dr. A. W. J. Craft, whom I have elected for the research post, will shortly take up his new duties.

Medical Care during Sick Leave

Sir GEORGE JEFFREYS asked the Secretary of State for War whether he was aware that wounded officers and other ranks on sick leave were ordered to attend before medical boards at the hospital in which they were treated on their first return o this country, regardless of the distance from their homes or places of residence; and whether he would arrange in future for uch officers and men to attend both for any necessary treatment nd for medical boards at the nearest suitable hospital to the ddress at which they were residing while on sick leave. Sir JAMES GRIGG said that whenever possible medical boards on wounded officers and other ranks returning to this country were held before they were sent on leave, whether it was disembarkation leave, normal privilege leave, or, in the case of officers, sick leave. If at any time, owing to the numbers involved, this was not possible, the rule was that the patient should have his medical board at the hospital to which he was assigned for treatment. This should be as near to his home as possible, except in cases where he required special treatment and must be sent to a hospital with the appropriate facilities. He was aware that in a few cases this procedure had not been properly carried out, and that some men had been returned unnecessarily to the hospital where they were first treated on return to this country. Steps were being taken to prevent this.

Water Bill

The Water Bill, 1945, which was introduced in the House of Commons on Feb. 2, for the first time places on the Minister of Health the statutory duty of providing adequate water supplies and conserving of water resources throughout England and Wales. Among the main proposals of the Bill are the following: The Government's Central Advisory Water Committee is to be reconstituted as a statutory body. Surveys of bulk needs of large areas are to be continued where necessary in England and Wales by Joint Advisory Water Committees The Minister of Health is to have power to call for information and statistics from all water authorities and other users of water. Existing local organization is to be retained, but the Minister's powers of direction and powers in cases of default are to be strengthened; amalgamation of undertakings and joint action are to be encouraged and, if necessary. enforced to secure efficiency and economy. Special steps are to be taken to protect water resources, especially underground ones, against misuse, waste, and pollution. In some instances a licence will be necessary in future before new wells can be made or existing ones enlarged. There will be penalties for pollution of water used for human consumption. Statutory undertakers are to be permitted, subject to proper safeguards. to take water from rivers and streams on reasonable conditions, and to acquire land by agreement or compulsorily. Local authorities are required to see that mains are brought wherever practicable to a suitable point which will enable a house to be connected at a reasonable cost, and that a *piped* supply is brought into the house.

Refresher Courses for Service Doctors

On Feb. 6 Sir E. GRAHAM-LITTLE asked the Minister of Health whether he would include in his scheme to provide refresher courses for serving medical officers, qualified and registered practitioners now serving in His Majesty's Forces not as medical officers. Mr. WILLINK: Yes, Sir.

Medical Officers of Health for Europe

On Feb. 6 Sir H. MORRIS-JONES asked the Minister of Health how many medical officers of health for counties. county boroughs, or urban district councils were at present being enrolled for work in the freed countries of Europe: how many had agreed to take up this work; and what arrangements were being made to look after the public health of this country in view of the present scarcity of medical personnel in civilian life. Mr. WILLINK said that 40 local authorities had been invited to consider the temporary release of medical officers for service with the civil affairs organizations in the liberated countries of Europe. So far 14 authorities had signified their consent. When a medical officer was being seconded in this way, arrangements for carrying on his public health duties in the area concerned were made by reorganization of the authority's medical staff or, in some instances, by transferring or sharing the services of a medical officer of another authority.

Fatal Smallpox Cases in Scotland

On Feb. 6 Mr. LEACH asked the Secretary of State for Scotland whether his Department made any inquiry into the deaths from vaccination or associated with vaccination performed during the smallpox outbreak in 1942; how many of such deaths were eventually discovered; the areas in which they occurred; and where the 10 deaths from vaccination or post-vaccinial encephalitis mentioned in the report on the Edinburgh smallpox outbreak occurred. Mr. JOHNSTON said that medical officers of his Department were in close and constant touch with medical officers of health during the period of this outbreak, and paid special attention to deaths associated with vaccination. During the period 21 such deaths were reported. Of these 10 were in Edinburgh, 5 in Fife, 4 in Glasgow, 1 in Lanarkshire, and 1 in Midlothian. The 10 deaths mentioned in the recently published report by the Edinburgh public health department all occurred in Edinburgh.

War Gratuities

Sir JOHN ANDERSON on Feb. 6 announced that the Government had decided to make provision for war gratuities to Service men and women after the war. The gratuity would depend on length of war service as well as on rank. Regular and ex-regular officers and men were included in the scheme. The basic rate for ratings and other ranks would be 10s. for each complete month of service and for the lowest rank of officer 25s. Women members of the Forces and nursing officers would, in general, receive two-thirds of the rate for corresponding male ranks.

Allocation of Doctors

On Feb. 7 Sir HENRY MORRIS-JONES asked what body or committee determined the priority between the three Services in regard to medical personnel; and whether it had recently had its attention directed to the danger of calling up any further medical men and women from civilian life, especially in rural areas. Mr. WILLINK said the allocation of doctors between the three Services and between those Services and the civil population was determined by the Government with the advice of the Medical Personnel (Priority) Committee presided over, by Sir Geoffrey Shakespeare. This committee, which contains representatives of various branches of the medical profession as well as of the Services, had the subject under continuous review since it was constituted in 1941. The Government was alive to the aspect of the matter referred to in the second part of the question and to other relevant considerations.

Red Cross Visits to Japanese Camps

Mr. RICHARD LAW reported on Feb. 7 that the International Red Cross Committee had communicated a proposal from the Japanese Ministry of Foreign Affairs agreeing under conditions to visits by representatives of the International Red Cross to a prisoner-of-war hospital in Siam and a prisoner-of-war camp at Singapore. This did not cover more than a fraction of the camps in the southern areas, but the Japanese said they regarded it as a first step. The offer was conditional on representatives of the International Red Cross being permitted to visit Japanese subjects held in Allied countries. The British Government had replied that neutral representatives were permitted to visit all Japanese held in the British Empire.

Committee on Handicapped Children

Mr. R. A. BUTLER announced on Feb. 8 that he had appointed the following as an advisory committee on such matters relating to children requiring special educational treatment as he submitted to them or as they considered require investigation: Mr. Frederick Messer, M.P. (chairman), Prof. J. M. Mackintosh, Dr. A. A. E. Newth, and Mr. E. W. Woodhead (Director of Education, Kent). Mr. Butler added that to assist the committee in their consideration of any specific question under review he would from time to time appoint as additional members persons possessing special knowledge and experience of the particular category of handicapped children concerned.

Prevention and Treatment of Blindness

Mr. BEATTIE inquired on Feb. 8 whether the Secretary of State for Scotland had in view any extension of facilities for the prevention and treatment of blindness among the civilian population by amendment of the Prevention and Treatment of Blindness (Scotland) Act, 1938, or otherwise. Mr. JOHNSTON replied that provision for prevention and treatment of blindness had hitherto been made by Scottish local authorities, in varying measures, as part of their maternity and child welfare, school health, tuberculosis, and other services. A few authorities exercised their powers under the Act of 1938 to extend such provision to persons outside the scope of these special services. In certain areas also voluntary hospitals provided valuable facilities, and voluntary societies for the blind had done most useful work. As part of the National Health Service, it was contemplated that every person would have access, either through his general practitioner or through an appropriate local clinic service or otherwise, to all necessary specialist and hospital facilities required for all purposes, including those for the prevention and treatment of blindness.

Veterinary Education

Mr. R. S. HUDSON, replying on Feb. 8 to Col. Ropner, said improvement of veterinary education was regarded by the Government as a matter of national concern. A committee under the chairmanship of Dr. Loveday appointed by Mr. Johnston and himself had made recommendations for the improvement of veterinary education. These were unde consideration by the Government and the various bodies concerned. The Government's financial contributions to medica and veterinary education were on different bases. Grant made to the two veterinary schools in England during the las four years amount to nearly £100,000. The Loveday Committee's recommendations envisaged substantially larger grant for the veterinary educational facilities they proposed. Th Government did not contribute financially to the Veterinar Educational Trust, which was intended to supplement othe resources.

Certificates of Incapacity

Mr. BEVIN on Feb. 8 said he had no power to prohibi employers from asking for medical certificates in support o absence. Special arrangements had been agreed with employers organizations, trade unions, and the medical profession whereb a certificate in standard form could be obtained for 1s Mr. TOM BROWN asserted that some employers, beside demanding the certificate, asked that the first bottle of medicine shoul be taken at the works after it had been received from th doctor. Dr. SUMMERSKILL asked why employers did not recognize National Health Insurance certificates as evidence of capacity. Mr. BEVIN replied that in some cases these certificate were not conclusive evidence.

Health in the Army.—On Jan. 30 Mr. VIANT asked the Secretar of State for War whether he was aware that a report on the healt of the armed Services had been published in America, in whic information on the amount of sickness in the American Army i 1942 and part of 1943 was given, based on official information and whether his Department was in possession of statistics relatin to disease in the Army in every theatre of war. Sir JAMES GRIG said that he had not yet seen a copy of the report referred to. Th answer to the second part of the question was in the affirmative Owing to the shortage of staff it was unlikely that statistics abou the health of the Army would be published until the war was ove

Accidents in Mines.—On Jan. 30 Major LLOYD GEORGE, replyin to Mr. Bowles, said that 4,363 persons were killed at mines an 15,240 seriously injured from the beginning of the war to the en of 1944. Figures of minor injuries were not available for period shorter than a year. During the five years ended December, 1943, th latest period for which figures were available, the total number o injuries involving absences from work of more than three day was 779,260. The number of fatal accidents last year was the lowes on record.

Calcium in Bread.—Col. LLEWELLIN, in reply on Jan. 31 t Mr. Martin, said calcium was the only extraneous ingredien included generally in the national loaf to-day, which was not presen in the pre-war loaf. As substantial advantages had been obtaine from this addition he was not prepared to make available an alternative national loaf without it. Specialty breads containing no adde calcium were available from most bakers.

Nutrition and Health of Miners.—Mr. ATTLEE told Col. Ropne on Feb. 1 that clinical and scientific inquiries into the health an nutritional state of miners had been and would continue to be made He was taking up with the interested Departments the questio whether a more general survey would be helpful, and if so by wha agency it could best be conducted.

Notes in Brief

No change is contemplated in the present priority arrangement for milk so long as the consumption of milk by the general publi has to be restricted. Col. Llewellin states the latest returns sho that hospitals are getting more milk than they ever had before.

Exact figures for the incidence of hernia in the mining industr are not available, but only 1% of the miners applying to leave th industry on medical grounds advance hernia as the cause of disability.

Hospitals and institutions already have the highest priority fo such nursing staff as they require urgently. During the nine month ended Sept. 30 the net increase in the number of nursing sta employed in hospitals and institutions was approximately 3,500, o which about 600 were part-time nurses.

Despite several approaches the Japanese Government has show itself completely uninterested in exchanges of prisoners of war an has refused even to contemplate an exchange of sick and wounded A small batch of telegrams from British prisoners of war in the Fa East have been received recently. These are the first such telegram to reach this country.

Forty-three claims for pensions made by widows of members o the Forces who have died of cancer have been allowed by Pension Appeals Tribunals and 465 refused.

Seventeen Pensions Appeals Tribunals have been established. I the hearing of cases by them preference is given to the severel disabled.

There were 201 outbreaks of foot-and-mouth disease during th 12 months ended Feb. 1. Ninety-two were due to spread of infec tion from other animals. In 95 of the remaining outbreaks th disease first appeared among pigs, and in 23 the animals were owne by butchers.

Medical News

Technical fuel experts and members of local authorities will attend joint conference of the Institute of Fuel and the National Smoke batement Society in London on Feb. 23. The conference will be pened by Major Gwilym Lloyd George, M.P., Minister of Fuel nd Power.

The next meeting of the Association for Scientific Photography be held on Saturday, Feb. 24, at 2.30 p.m. in Caxton Hall, estminster, will be devoted to spectrography.

The Duchess of Kent, president of the National Association for e Prevention of Tuberculosis, has promised to attend a meeting sanatorium matrons to be held in B.M.A. House on Thursday, larch 1, at 3 p.m., when a Matrons' Section of the N.A.P.T. will formed.

The Galton Lecture of the Eugenics Society, on "Eugenics in etrospect and Prospect," will be delivered by Dr. C. P. Blacker -day (Friday, Feb. 16) at 4.30 p.m., at 26, Portland Place, W. The cture is open only to fellows and members and their guests.

The programme of medical films arranged by the Scientific Film ssociation will be shown at the Royal Society of Medicine , Wimpole Street, W.) on the fourth Wednesday in February, larch, April, and May (*not* the fourth Thursday as previously nnounced). Each programme will be given at 5.30 p.m. and again t 8 p.m. and will consist of examples of a general interest introuction, a specialized illustration, a direct teaching film, and, lastly, broad discussion of a subject. Application for admission should be ade to the hon. secretary of the medical committee of the association, Dr. S. J. Reynolds, at 14, Hopton Road, London, S.W.16.

Doctors who have professional premises in another district from at in which they live are entitled to a professional vote for those remises. This applies with particular force in London to doctors ith professional premises in the Marylebone parliamentary division. hey should note, however, that under the new Registration of the eople Act they will not be entitled to such a vote unless they first omplete the necessary form, which can be obtained from their town all or local council's office, and return it to the Local Electoral egistration Officer of their district before Feb. 28 next—that is, ithin ten days' time. Doctors who fail to do this will be unable record their professional vote at the general election. It should so be noted that the husband or wife of an occupier of professional premises is no longer eligible for the vote for those premises.

EPIDEMIOLOGICAL NOTES

Discussion of Table

England and Wales during the week whooping-cough fell incidence by 160 cases, diphtheria by 68, dysentery by 82, d scarlet fever by 54; measles notifications rose by 887.

Only one case of diphtheria was reported from Caernarvonire, Bangor M.B., where there were 55 cases in the outbreak st week. In Lancashire cases of diphtheria rose by 20. The wer incidence of whooping-cough was due mainly to the crease in the south-west and south midlands; elsewhere there as little change. Scarlet fever notifications in Lancashire ll by 52. Notifications of measles were higher than last eek by the following figures: Yorks West Riding 378, orcestershire 199, Middlesex 157, Lincolnshire 128, Staffordire 122, London 91; in Lancashire the incidence fell by 5, in Durham by 111, and in Nottinghamshire by 75.

There were 59 more cases of dysentery in the outbreak in uckinghamshire, Aylesbury R.D., where 62 cases were reported st week. Only 19 cases were notified in Yorks West Riding, mpared with 92 and 100 in the two previous weeks. The her large centres of infection were Essex 23, Gloucestershire , London 20, Lancashire 20, Suffolk 19, Middlesex 15, Kent , Derbyshire 13, Surrey 10, Northumberland 10.

In *Scotland* notifications of infectious diseases fell by the llowing figures: whooping-cough 75, scarlet fever 63, acute imary pneumonia 42, measles 18; notifications of diphtheria se by 18, and of dysentery by 4. In Edinburgh cases of sentery rose from 8 to 23.

In *Eire* the incidence of infectious diseases underwent little ange during the week. Diphtheria is still widespread, the cases involving forty-three registration areas.

In *Northern Ireland* the measles incidence continued to fall, ere being 160 notifications, compared with 281 three weeks rlier.

Week Ending February 3

The notifications of infectious diseases in England and Wales ring the week included: scarlet fever 1,401, whooping-cough 02, diphtheria 415, measles 16,039, acute pneumonia 1,366, rebrospinal fever 76, dysentery 376, paratyphoid 2, typhoid 4. eaths attributed to influenza in the great towns numbered 89.

No. 4

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Jan. 27.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths; and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	81	7	16	5	2	60	3	14	2	2
Deaths		—	3				1	—		
Diphtheria	450	17	151	95	18	777	28	171	152	31
Deaths	4	—	1	2	—	19	—	6	2	2
Dysentery	295	20	79	—	2	176	27	56	—	1
Deaths				—	—				—	—
Encephalitis lethargica, acute	3	—	1	—	—	1	1	—	—	—
Deaths		—					1			
Erysipelas			44	5	6			62	4	3
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				6					6	
Deaths	46	5	9	12	5	48	10	12	14	2
Measles*	12,941	381	558	21	160	919	153	116	189	—
Deaths	12	—	—	—	1	1	—	—	—	—
Ophthalmia neonatorum	47	2	15	—	1	65	2	24	—	—
Deaths										
Paratyphoid fever	3	2	1 (B)	—	—	4	—	2	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	1,397	106	14	5	5	1,079	88	35	19	11
Deaths (from influenza)	87	11	3	1	4	104	16	6	2	1
Pneumonia, primary			302	20				276	7	
Deaths		69		23	21		71		20	12
Polio-encephalitis, acute	—	—				2	—			
Deaths		—					—			
Poliomyelitis, acute	7	—	—	—	—	4	—	2	—	—
Deaths		—					—			
Puerperal fever		—	10		—		7	16		—
Deaths										
Puerperal pyrexia‡	141	9	19	1	1	167	10	12	4	1
Deaths		1					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,510	49	182	10	48	1,928	138	217	26	71
Deaths	2	—	—	—	—	3	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	3	—	2	4	—	2	1	2	16	5
Deaths	—	—	—	2	—	—	—		—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,625	66	115	42	10	2,104	177	133	64	15
Deaths	14	1	2	3	—	13	3	2	3	1
Deaths (0–1 year)	460	50	68	58	31	433	67	69	61	20
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	6,739	922	815	322	185	5,346	840	723	282	137
Annual death rate (per 1,000 persons living)			18·5	20·8	§			16·6	18·4	§
Live births	6,202	704	814	258	271	6,747	851	888	411	280
Annual rate per 1,000 persons living			16·3	16·6	§			18·1	26·8	§
Stillbirths	198	18	27			220	25	35		
Rate per 1,000 total births (including stillborn)			32					38		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Calamine Lotion

Q.—*Calamine is impure zinc oxide. Have the impurities any merit apart from the cosmetic effect of the pink colour? What is the pigment? Why is calamine mixed with equal parts of pure zinc oxide in many formulae?*

A.—Calamine may or may not contain zinc oxide, being chiefly zinc carbonate to which a small amount of iron oxide is added for its cosmetic effect. Its addition to the calamine lotion is therefore partly as a colouring matter and partly to produce a suitable concentration of a zinc salt.

Acquired Immunity

Q.—*Where an acquired immunity is life-long, do the same molecules of antibody remain in the blood indefinitely? If not, what is the stimulus to the formation of new ones?*

A.—Antibodies, once formed as globulin, do not persist for long in the circulation, as is shown by the temporary immunity of a few weeks' duration conferred on a child who is passively protected with homologous convalescent measles serum, or by the infant who remains resistant to the common childhood fevers during the first few months of life, presumably because of the passive transfer of antibody from the mother via the placenta. Where immunity is actively acquired and lasting, as happens with many bacterial and virus infections, it does not necessarily follow that there is demonstrable antibody in the patient's blood. However, in yellow fever, and probably also in measles, the life-long immunity is associated with circulating antibody, and no one has yet given a satisfactory explanation of this phenomenon. There are two views: either the antigen persists in or on the antibody-forming cells, presumably the reticulo-endothelial system, for many years acting as a sort of template; or these cells, once having received the imprint of a particular antigen, go on producing specific antibodies and pass on this property to their descendants, even in the absence of antigenic stimulus. Persistence of the infectious agent is known to occur in trypanosomiasis, rickettsial infections, and herpes labialis, but there is no epidemiological evidence for its occurrence in yellow fever or measles or typhoid. Thus there seems no escape from the view that life-long immunity depends on some property acquired and transmitted by the antibody-producing cells in the absence of any antigenic stimulus. The interested reader should read the excellent review, *Production of Antibodies,* by F. M. Burnet and others (London, 1941).

Haemin and Anaemia

Q.—*During a discussion it was suggested that haemin might be used in the treatment of microcytic hypochromic anaemia. We were unable to adduce any theoretical evidence against such a form of treatment, but would be grateful if you would consider our reasoning* [*omitted here*] *and point out flaws in it.*

A.—The scheme for the synthesis of haemin has certain weaknesses. Although the ionic form in which iron is absorbed from the intestine is still a matter under investigation, it would seem from existing evidence that it is absorbed chiefly in the ferrous state. In fact metabolic reactions within the stomach tend to maintain iron in this condition. Whether iron compounds can react with haematin or protoporphyrin in the plasma is doubtful. Neither haematin nor protoporphyrin has been detected in normal plasma; small amounts of protoporphyrin have been found in reticulocytes. It is difficult to visualize a mechanism whereby a reaction between haematin (or haemin) and globin, taking place in the plasma, would lead to haemoglobin. Globin is not a normal constituent of plasma, and haematin in plasma would probably form methaemalbumin (ferriprotoporphyrin albumin). The reaction between haemin and globin suggested in the question would not lead to a naturally occurring iron-porphyrin-globin pigment. Haematin in combination with globin gives methaemoglobin (ferriprotoporphyrin globin whereas haem gives haemoglobin (ferroprotoporphyrin). In bot these compounds the valency bonds of the iron atom have bee shown, from measurements of their magnetic susceptibility, to b essentially in the ionic condition; in haemoglobin Fe^{++}, an methaemoglobin Fe^{+++}. In oxyhaemoglobin the bonds are essen tially covalent and the iron atom is linked to the pyrrole nuclei i a manner similar to that in the formula in question.

Haemin would not be an effective substitute for iron salts in th treatment of microcytic anaemia. Given orally, haemin suffers th same fate as the haem of haemoglobin in the intestine. It is decom posed into protoporphyrin and iron. The intravenous administra tion of haemin would be difficult, since haemin is not soluble i solvents at a *p*H near to that of blood. The best solvent for haemi is sodium hydroxide, and the use of alkaline solutions of *p*H 8 or is clearly not to be recommended for intravenous administration.

Sulphanilamide per Rectum

Q.—*How should sulphanilamide be given per rectum? In th M.R.C. Memorandum on the medical use of the sulphonamide page 15, there are directions for giving sulphanilamide per rectu which beat even the brain of a mathematical friend. According our deductions, one could not give a satisfactory dose by this metho I would be glad if you could throw some light on the subject.*

A.—Why should the questioner and his friend be so baffled b these simple directions? They are that a saturated solution c sulphanilamide (0.8%) be prepared, of which "the required quantit is brought up to a total volume of 300 c.cm., if necessary, by admix ture with 1% glucose in normal saline. . . ." If no such additio were considered "necessary" the dose would be 2.4 g.—given fou hourly, is this not a "satisfactory dose"? This method of adminis tration is nevertheless not to be recommended, owing to slow an sometimes incomplete absorption; it should rarely be necessary.

Common Salt for Cleaning Teeth

Q.—*A school has instituted the practice of cleaning teeth wit common salt instead of toothpaste. Has this any advantages o disadvantages?*

A.—Common salt is excellent for cleaning teeth and has been i use for generations for this purpose. It has the great advantage c being cheap and in plentiful supply, but the taste is an acquired on and many people do not like it. It matters little what dentifrice i used so long as the teeth and gum margins are brushed conscien tiously at least twice daily, and common salt (or common soap) as good as, if not better than, the proprietary articles, though it ma not be as pleasant or attractive. It is encouraging to hear of school insisting on a routine of this nature, for the dental health c the grown man depends very largely on the habits acquired in h youth.

Estimating Antibodies

Q.—*What is the technique for estimating antibodies, specific an non-specific?*

A.—There is a variety of methods for testing for the presence c specific antibodies. The best-known is the agglutination reactio which occurs as bacterial clumping and sedimentation when suspension of the micro-organism suspected of causing the infectio is mixed with suitable dilutions of the serum of the infected patien Antibodies may take a week or more to appear after onset of th clinical infection, so that, in typhoid fever, for example, the Wid test, which is an agglutination reaction, will give no positive informa tion before 7 to 10 days. Another common method of estimatir antibody is the complement-fixation test, of which the Wasserman reaction is an example. Or antibody may be demonstrated by precipitation reaction, or the animal protection test, or oth specialized techniques suitable for particular infections. Details c the usual methods for estimating antibodies are to be found in an bacteriological textbook, but these tests should not be undertake by persons who have not had a laboratory training.

What does the questioner mean by non-specific antibody?

Treatment of Ascariasis

Q.—*Roundworms are extremely common in this area (Bomba Presidency). Santonin has to be given very frequently. Under th existing sanitary conditions, formation of roundworms cannot b prevented. What is the safe dose for repeated administration?*

A.—In adequate dosage santonin is always liable to cause tox manifestations, sometimes very severe; there is therefore no sa *effective* dose. Oil of chenopodium is rather more efficient, but als is toxic. A good method of treating ascariasis in adults, which i the area mentioned is likely to be associated with hookworm infesta tion, is to give ol. chenopodii 0.3 c.cm. with tetrachlorethylen 2.7 c.cm., followed in an hour or so by a sharp saline purge. Th treatment may be given, with adequate spacing, several times a yea

Oculogyric Crises in Encephalitis Lethargica

Q.—*Is there any effective method of controlling the severity and equency of the oculogyric crises which are such a distressing ymptom of chronic encephalitis lethargica?*

A.—Oculogyric crises sometimes respond well to the ordinary eatment of encephalitic Parkinsonism; for example, tincture of ramonium pushed to the limit of tolerance or a mixture such as ıe following:

℞ Hyosc hydrobrom.	gr. 1/200
Tinct. stramon.	♏ 15
Tinct. bellad.	♏ 10
Sod. brom.	gr. 10
Aq.	ad oz. 1/2

Sig.: 1/2 oz. t.d.s.

Amphetamine sulphate in doses of 5 mg. three times a day and) mg. at the onset of an attack may also help. Artificial pyrexia ıight be tried for a patient who responds to nothing else. In some ıses, unfortunately, the spasms recur in spite of all treatment.

Estimating Osmotic Pressure

Q.—*Would you describe the most delicate method of noting ıanges in osmotic pressure, or tell me where a description can be ound?*

A.—Direct methods for estimating osmotic pressure are laborious ıd difficult, requiring a well-equipped laboratory. Estimation of ıpour pressure and depression of freezing-point are the chief ıdirect methods. Chapter 41 in J. Reilly and W. N. Rae's *Physico-hemical Methods,* 1933, published by Methuen (London), or .. Findlay's *Osmotic Pressure,* 1919, published by Longmans ondon) will be helpful.

Case of Peritoneal and Pleural Effusion

Q.—*A man aged 29, with no past illnesses, on June 1, 1944, had ffuse abdominal pain and pain on micturition. He went to ormandy on "D" day, but 15 days later had to be sent home with greatly distended abdomen. A large amount of yellow fluid with fibrin deposit was removed: protein, 600 mg. per 100 c.cm.; no ganisms. Later he developed small bilateral pleural effusions, hich soon absorbed. Ascites and pleural effusions have not curred. He feels well except for a dragging pain on standing. e is apyrexial, and sedimentation rate is 14 mm. in one hour. ıggestions as to the probable diagnosis will be welcomed.*

A.—It is difficult to offer a satisfactory diagnosis. The presence fibrin suggests an inflammatory exudate. Possibilities are a non-ıppurative acute peritonitis due to a leaking perforation, or less obably a pneumococcal or streptococcal infection. On the other ınd, the low protein content of the effusion suggests a transudate. ıis might be due either to a constrictive pericarditis—the most tisfactory explanation of the simultaneous involvement of the eura—or, less probably, a thrombosis of the portal vein. If con-ictive pericarditis is present, the heart may appear normal but e venous pressure should be high. It would be appropriate to amine by *x* rays the heart and pericardium; the lower oesophagus r varices; and the stomach and duodenum for ulcer. If these aminations are negative, the function of the liver should be ıdied.

Urinary Antisepsis

Q.—*At a recent discussion on pyelitis it was stated that in the sulpha" treatment the urinary concentration of the drug was of eater importance than that in the blood; consequently smaller ıses were advised. Upon what evidence is this opinion based? there reliable statistical evidence to show that recurrences are eater or less after adequate treatment with sulphonamide, as com-red with the alkaline treatment alone?*

A.—This is not an opinion; it is a fact that the action of any ınary antiseptic depends on its concentration in the urine. If this ıre not so, there would be no urinary antiseptics except the lphonamides and penicillin, since no others have any action in e blood and tissues. The urinary concentrations of the several lphonamides required to inhibit the growth of the various bacteria mmonly causing urinary-tract infections have been determined appropriate *in vitro* methods by H. F. Helmholz (see, for stance, *Proc. Mayo Clin.,* 1940, **15,** 651, for his data on sulpha-azole), and concentrations well in excess of those necessary for ppressing the more susceptible bacteria can be attained on very ıderate dosage.

We know of no statistics of the frequency of recurrence after ferent forms of treatment. The main difference between sulphon-ıide and alkaline treatment is that the former will cure a large ıjority of suitable cases in a week, whereas the latter leaves the re to Nature.

*** Helmholz's article was commented on in an annotation in the *M.J.* of April 5, 1941 (p. 521). Previous comments on his work urinary infections appeared in the *B.M.J.,* 1937, **1,** 396; 1937, **2,**); 1938, **1,** 459.

Sodium Cacodylate

Q.—*Is sodium cacodylate of any use in the treatment of chilblains, and if so in what dosage should it be prescribed?*

A.—The cacodylates were introduced some fifty years ago as almost a specific remedy for certain conditions, such as tuberculosis, pernicious anaemia, and leukaemia. Sodium cacodylate contains about 62% of arsenious acid; it has proved an entirely disappointing remedy and is not recommended in the treatment of chilblains.

Iodine as Contraceptive

Q.—*I have heard that in Russia a common method of contraception is the painting or swabbing of the cervix with tinct. iodi mitis immediately after each period, thus avoiding the use of pessaries, etc. Is this so, and what are the advantages and disadvantages of the method?*

A.—The method in question involves the introduction of iodine *into the uterine cavity,* rather than its application to the cervix. The object is to damage the endometrial surface to such an extent that the implantation of a fertilized ovum is either prevented, or is so disturbed that an early abortion results. It has been employed mostly in Russia and Germany. A 10% solution of iodine, or a mixture of equal parts of tincture of iodine (?, fortis) and glycerin, is used, and is carried to the uterine cavity by cotton-wool mounted on a probe. The cervix may need to be dilated first. As a rule, the treatment is carried out once a month, before or after menstruation. A modification of this method is to *inject* a small amount of iodine solution into the uterus, and it would appear that this technique is employed not only to prevent implantation, but to induce abortion of an already established pregnancy.

The repeated introduction of irritant chemicals into the uterus in this way is to be condemned. If it is to be effective, there must be injury to the epithelium, and this in turn may be followed by infection. Moreover, the infection may not be limited to the uterus, and cases of pelvic cellulitis and acute salpingitis are recorded—although in some of these cases it may be that the woman was already pregnant before treatment. Permanent sterility might result, and it has been suggested that there is increased likelihood of ectopic pregnancy. The actual introduction of the iodine solution causes uterine spasm, and is painful; vomiting and collapse may occur. Not only is this method of contraception (or rather induction of abortion) dangerous, but it is unreliable, and there is little if anything to be said in its favour. The details of the technique are described by E. J. Kvater in *Contraceptive Methods and their Technique* (1926), and the method is discussed by C. A. Selitzky, chief of the gynaecological department of the Moscow State Hospital, in *Contraceptive Methods in the Light of Modern Science* (1929). The latter concludes that the use of such methods is unjustifiable. These pamphlets are published by the State Department of Health in Moscow, and both are referred to by Antoinette F. Konikow in her book, *Physicians' Manual of Birth Control* (1931), page 114.

Flexor Spasms in Octogenarian Tabetic

Q.—*An octogenarian tabetic, otherwise healthy, suffers from spasticity of his right leg. When he tries to sleep and conscious control is relaxed, his right leg assumes a position of extreme flexion at both hip and knee. He is able to sleep only in this uncomfortable posture, with the right thigh pressed close to the abdomen and his heel almost touching his buttock. Sedative drugs (short of morphine, which has not been used) have no effect. No splint or other restrictive device can be tolerated. Is there any medical or surgical procedure likely to give relief?*

A.—Spasticity is not part of the clinical picture of tabes, so that in this case there must be an associated lesion of the pyramidal tract, presumably syphilitic. Flexor spasms such as those described are a feature of paraplegia in flexion, though rarely confined to one lower limb. If sedation is ineffective the only possible treatment would be an extensive division of the posterior roots from the lower dorsal level downwards on the affected side, to interrupt the reflex arc, but such a serious operation would be out of the question in an octogenarian.

Sudanophobic Units

Q.—*In the* JOURNAL *of Aug. 12, 1944 (p. 212), there is an article by Hemphill and Reiss which mentions "sudanophobic units" of "corticotrophic hormone." Sudanophobic units are quite new to me, and I should appreciate information about them.*

A.—This method of standardization of corticotrophic hormone is based on the ability of the hormone under test to produce regeneration in the sudanophobic zone of the adrenals of the rat after hypophysectomy. It is fully described by M. Reiss, J. Balint, and F. Oestricher (*Endokrinologie,* 1936, **18,** 1). The method was "rediscovered" and has been described by H. M. Evans and Choh Hao Li (*Endocrinology,* 1943, **33,** 261).

INCOME TAX

Amount of Tax Payable

"Colony" inquires what tax he would have to pay in this country on the income shown below, assuming the continuance of present allowances and rates of tax.

⁂ The income-tax year ends on April 5: If "Colony" comes to this country on, say, December 5, 1945, the position for the first two years or so will be approximately as follows:

(*a*) 4 months to April 5, 1946—tax payable, say £45.
(*b*) Year to April 5, 1947—

	£	£
Earned income:		
8 months to Dec. 5, 1946 = 2/3 of £1,100	733	
4 „ „ April 5, 1947 = 1/3 of £500	167	
		900
Allowances, 1/10 of £900	90	
Married allowance	140	
"Children" allowance	100	
		330
		570

		£	s.	d.
£165 at 6s. 6d. ..		53	12	6
£405 at 10s.		202	10	0
£570	Total tax	256	2	6

(*c*) Year to April 5, 1948:

	£	£
Earned income	500	
Investment income	39	
		539
Allowances:		
Earned income 1/10 of £500	50	
Married allowance	140	
"Children" allowance	100	
		290
		249

		£	s.	d.
£165 at 6s. 6d. ..		53	12	6
£84 at 10s.		42	0	0
£249	Total tax	£95	12	6

Post-war credit would be due—i.e., (*a*) £18, (*b*) £50, and (*c*) £36. The lump-sum payment arising from partial conversion of the pension is not taxable, but any income arising from the investment of it would, of course, be taxable. It has been assumed that "Colony" can establish the fact that some War Bonds standing in his name are held by him in trust for his sons, and that the interest thereon is therefore not liable to tax as being his income.

LETTERS, NOTES, ETC.

"Structural" instead of "Organic"

Dr. P. E. **Dipple** (Sawbridgeworth, Herts) writes: It has occurred to me for some time that a point in the accepted cataloguing of diseases needs revision. I refer to the main division of all diseases into the groups of either organic or functional. If we are to retain the term "organic" then surely functional diseases should be termed "inorganic." May I suggest that what we now refer to as organic should be entitled "structural" diseases, this term implying some change of structure, either macroscopical or microscopical, or both, and the term "functional" to be retained in its present usage to label those diseases where no structural changes can, *at present*, be demonstrated. Such a nomenclature would appear to me to be more logical than that now in use. Surely functional diseases are also organic inasmuch as the function of one or more *organs* is involved.

Demobilization and the E.M.S.

"1939 **Volunteer**" writes: I am greatly surprised at the sense of grievance evident in the letter under this heading in your issue of Oct. 7 (p. 482) just to hand. I think that if your correspondent will answer honestly the following questions he will probably realize that neither he nor his fellow members of the E.M.S. have any legitimate grievance. (1) What does he mean by "virtual" conscription? (2) Did he volunteer for service with the armed Forces before his "conscription" into the E.M.S.? If he did not do so, and had to be conscribed into the E.M.S., what work did he propose doing during the war? (3) What disadvantages (domestic, educational, or financial) has he suffered by being a member of the E.M.S.? Has he gained any advantages in these respects over his contemporaries serving in the armed Forces? While the proposed scheme of demobilization of the armed Forces depends on age and length of service it should be realized that this is only so that thereby the scheme becomes workable; but morally, factors less tangible and not so easily measured are of more importance—viz., hardship suffered and sacrifices made. No one will deny how great has been the amount of useful work done by the E.M.S., but surely it cannot be claimed that this has involved serious hardship on its members. In conclusion I would like to suggest that if there should be any difficulty in releasing medical officers from the armed Forces before members of the E.M.S. are released, then members of the E.M.S. (provided they are under the age of, say, 40) should be conscribed to replace those in the armed Forces. In this way it may be possible to mitigate the disadvantages (especially educationa which will otherwise face the Service medical officer in the inevitab post-war scramble for a livelihood.

Rocking Movements in Sleep

A. B. C. writes: With regard to the question on this subject i the *Journal* of Dec. 2, 1944 (p. 744), and the letter appearing in th issue of Dec. 23 (p. 842), it may interest your correspondents if cite the case of my younger daughter. She is now 12½ and abo the average in intelligence, and she has always been a good sleepe like the rest of her family. From the age of about 3 months un quite recently she has been in the habit of vigorously rocking herse to sleep, both when first settling down for the night and aga whenever sleep became light for any reason. When this occurs s is usually lying on her back, never on her face, often with her han behind her head so that her projecting elbows act as a sort oscillating fly-wheel, causing her head and shoulders to ro violently from one side to the other. When she was quite sma the violence of this rocking shook the cot or bed, causing it creak, and thereby disturbing others, but now that she is older t rocking is less frequent and much less violent. She is trying overcome the habit, and has, I think, practically succeeded, but the rocking occurs only when already asleep, she has found difficult to exercise conscious control over it. She is now at boarding school, and only once recently has her rocking disturb the other girls. I have not seen or heard it myself for some tin now. There is no familial history of rocking, and her elder sist never did it. She was never rocked in her cradle by a nurse duri infancy, but she seemed to discover the advantages of rocking f herself. She seems to have a well-balanced personality and to normal both physically and mentally. Personally I do not rega the habit as in any way pathological—rather, perhaps, as a man festation of a somewhat original and independent spirit! But used to be a terrible nuisance!

Aetiology of Erythema Nodosum

Dr. Eva **McCall** (Sunninghill, Berks) writes: I have read wi much interest Prof. Bruce Perry's paper (Dec. 30, p. 843), for to n it has a personal application, which, in my case at least, seems point to a rheumatic origin of this condition. When I was a scho girl I had an attack of erythema nodosum, and can still rec after all these years the red nodules over the tibiae, accompani by acute pain and tenderness in the legs and inability to walk. Th point I wish to emphasize is that I inherited the rheumatic diathes my mother having had an attack of rheumatic fever as a you woman, with a resulting endocarditis. I myself am a rheuma subject, and have suffered for many years from the different ma festations of rheumatism, fibrositis, neuritis, and arthritis. In r case there is no evidence whatever of tuberculous infection.

Passive Hyperventilation

Dr. S. **Conchubhair** (Dublin) writes: The inquiry of B. (Dec. 30, p. 876) reminded me of a method I learnt from the la Dr. P. J. Keogh of Dublin of using passive hyperventilation f the same (or a similar) purpose. When about to induce gene anaesthesia with Clover's inhaler the ether container is filled a the rebreathing bag attached. The facepiece is then applied a the patient told to breathe in and out steadily and strongly. With a couple of minutes the respiration deepens and becomes somewh stertorous, and the patient then becomes drowsy. When depth respiration and duration of hyperventilation are judged sufficie the air valve is rotated fairly rapidly, to "3/4" at once, and then more slowly to "full." The patient then very rapidly becon sufficiently anaesthetized for such procedures as tonsillecton Almost never is there any coughing after the ether is turned and breath-holding is impossible. The quantity of ether used considerably smaller than with the more usual method of inducti On being questioned later patients do not remember having notic any of the unpleasant sensations usually experienced when getti ether. I do not know whether this method is widely kno or has been published, but I send it to you in the hope that, if has not, you may be able to give it a little space.

Recurrent Phlebitis

Dr. A. J. **Colby Tingey** (Epsom) writes: Recurrent phleb (*Journal*, Feb. 3, p. 171) of the infective type is sometimes a sequel fungus infection of the toes. Virulent streptococci may enter the bo through the fissures in the interdigital spaces met with in this con tion. Although the questioner mentioned that the phlebitis was c fined to the veins of the lower limbs in the case referred to, writer of the reply, giving a list of possible infective foci, did suggest that the toes should be inspected. Unless this point recei attention the patient might be subjected to extraction of tee exploration of the nasal sinuses, appendicectomy, cholecystecton and prostatectomy without deriving any benefit. I have had p sonal experience of this form of phlebitis, which incapacitated for weeks at a time.

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THE HUNTERIAN MUSEUM: YESTERDAY AND TO-MORROW*

BY

G. GREY TURNER, LL.D., D.Ch., M.S., F.R.C.S.

Hunter will stand out for all time not only as a famous urgeon-pathologist but as one of the first of the great exponents of the experimental method in medicine. The circumstances of the times imperatively dictate that attention should be paid o the story of the other great record which he left to posterity n his collections. This task coincides with my own inclinations, or I have been attracted to museums from my earliest days, and indeed it seems as if the desire to collect had come so naturally as to be almost inborn. There are some who question he value of medical museums or consider that they have become superseded now that the art of book illustration has been carried to such a high state of perfection. Before we go on to consider the huge task of restoring our museum his point of view requires some consideration, for to those of us who so much appreciate museum collections it seems unnatural. When contrasted with even the most precise and beautiful picture the actual specimens seem so much more real: heir size, contour, and perspective are so different from anyhing shown on a flat surface. But the great advantage is that hey can be handled, looked at from all aspects and from new ngles. Further, it is possible to re-examine them by dissection, o cut them up if necessary, and to review their minute tructure by histological methods.

How Hunter was Inspired to Collect

John Hunter's teachers doubtless had their own preparations, nd although I can find no account of Cheselden's collection here seems no reason to think that he would be behindhand. Bart's, always to the fore among the medical schools, is ortunate in that its history has been so carefully compiled y Norman Moore, and in his great work appears the ollowing record by the Governors of St. Bartholomew's Hospital under date of June 23, 1726: "Two convenient rooms were prepared under the cutting ward—one for the more ecent laying of the dead patients before their burial, the ther as a repository for anatomical or chirurgical preparaons." This repository would later contain the treasures of ercivall Pott, and a specimen of a congenital hernial sac with the original roll of paper which Pott placed through he neck not only survives but is still used for teaching nearly 00 years after it was prepared. But undoubtedly the chief imulus was William Hunter's collection, which was well arted before John made that notable journey from Scotland o join his brother as assistant in the dissecting-room. William Hunter in his lecture syllabus always set great store n his preparations, and in it referred to the making of these nd undertook to teach the processes in his anatomy course.

Before we go further into the circumstances which inspired ohn Hunter to build his museum we ought to know something f his fascinating life story. It is with his boyhood that I want specially to deal, for his early years were said to have been asted in idleness, and it was constantly held against him hat at 17 he could neither read nor write and that part of his youth was spent in a carpenter's shop. In after-life John poke of those early years spent in the country around his ome as of special value in cultivating his powers of observaon. In retrospect I think we must recognize that the time spent in close touch with nature was probably among the most valuable in the whole of his life. Like most small boys, Hunter was inquisitive and was always wanting to know the reason for the things he saw about him. Doubtless he had much time to wander about and make observations and to think, but I cannot believe that he was entirely idle. In Scotland in those days there were few who could be, for it was essential that everyone should work for his daily bread. The family was in straitened circumstances, and we may be sure that John not only helped his mother but was employed about the business of their holding. The life of the farmyard must have been thought-provoking, from the traditional query, Why does water run off the duck's back? to Why do fowls sometimes eat their feathers and sows devour their young? Pigeon-lofts infected with contagious tumours, crop-bound fowls, lambs with grass-ill, and "sturdy" sheep, all provide fascinating problems. The accidents to which stock are liable would arouse keen interest in the surgery of injuries and repair, and would certainly teach a reverence for the healing powers of nature. The vagaries of swallowed foreign bodies, like the fate of a needle and thread swallowed by a kitten and discharged from an abscess in the neck when death seemed inevitable, would also be an arresting experience. What lad could ever forget seeing a young horse trailing its intestine on the grass after castration, and what inquiries might it stimulate in after-years in connexion with the anatomy of congenital hernia? Quite possibly the more thoughtful men about the place cut up dead animals in the hope of finding the answers to some of these questions, and thus Hunter would learn the wonders of the disclosures of post-mortem examinations. Life about small farms runs close to nature, and household gossip would often be intimate. The phenomena of reproduction and abortion and obstetric emergencies of all sorts obtrude themselves wherever stock-breeding is part of a hard-won livelihood, and it is interesting to recall that in later life Hunter envisaged artificial insemination. Family illness and episodes of the crises of human fate would often be discussed, and in the Hunter household death was all too familiar. At about 18 it was felt that something should be done to help him to make a career, and he went to Glasgow to assist in the workshop of his brother-in-law, a cabinet-maker. There is no record of how John's time was actually employed, but he probably learnt many lessons not only in using his hands but in conduct, and it would probably be obvious to him that application and industry are the only roads to success. After two years his brother-in-law failed in business and John returned to the old home. Some who have commented on Hunter's later career have rather looked askance at this period in the cabinet-maker's shop and have suggested that he might have been better employed. With this I would join issue, for I believe that a period working with tools, and especially the clean precise tools that wood-workers employ, is an excellent education for anyone destined to use his hands for his life's work.

One of my earliest teachers and colleagues, the late W. G. Richardson of Newcastle-upon-Tyne, was an amateur cabinet-maker who could turn out wonderful work. But with his big clever hands Richardson was also an expert dissector after the true Hunterian style, and some of his preparations were very beautiful. He had the further gift of being able to convey what he saw to paper, and many of the drawings which illustrate his essay on the prostate could scarcely be bettered. Withal he was an expert surgeon, and I have never seen anyone who could carry out a better radical breast operation.

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* Some extracts from the Hunterian Oration, delivered at the oyal College of Surgeons on Feb. 14, 1945.

When John returned home from Glasgow wanting an outlet for his activities he was armed with the attributes of a training in observation, disciplined hands, and an inquiring mind. At that time William, in London, was sending letters home describing the fascination of his work in the great city and extolling the opportunities it provided. We may depend upon it those letters would often be read and discussed in the family circle. Most probably it was John's mother who wrote to her elder son asking him if he would do something for his young brother. Doubtless John felt a secret pride in William's success, and probably needed very little persuasion to undertake that journey to London in search of fame and fortune. Once in London, William's influence and example must have had a very powerful effect on his younger brother. William was not only a very successful teacher of anatomy but was a fashionable practitioner in midwifery, courted by the best people and popular among them. Withal he had a passion for collecting. He knew the art of the *préparateur*, which he first learnt from Douglas, to whom he had been apprenticed, and which was later furbished on his Paris visit. His preparations were among the best in London, and the museum he founded was generally regarded as one of the finest then in existence, being very readily accepted by the University of Glasgow after his death.

Inception and Growth of his Collection

It is often wondered where John Hunter secured his specimens in his early days, for it has been stated that while working as demonstrator for his brother any preparations he put up were placed in William's museum, and we know that several prepared by John are in the Hunterian collection in Glasgow. It is highly probable that, like other keen young men working in dissecting-rooms, he might remove some portions that were of special interest and take them to his lodgings to dissect in private; or he might hoard up some treasure, surreptitiously hidden away until such time as he felt he could use it. In these days, when the operating theatres so constantly supply the needs of our museums, it is perhaps forgotten what a wealth of pathological conditions is unearthed in the dissecting-rooms. It is recorded that Hunter collected when with the Army in Belle Isle, and when he came home in 1763 he was supposed to have something like 200 specimens of normal and diseased structures. In the Golden Square days he was mostly concerned with studies in comparative anatomy, and his great sources of supply were the animals that died in the menagerie then kept in the Tower. He never lost an opportunity of acquiring anything that would make a suitable preparation. Some were presents from friends. "If you will step in at Banks' in Soho Square, you will find the corpse of the fine Sierra Leone cat, the inside of which is at your service. The skin is to be stuffed for the British Museum." So wrote his friend Sir Joseph Banks, who was later President of the Royal Society and always his firm supporter. Other friends were roped in to help, and his old pupil Jenner was an unending source of supply. Further specimens were secured by purchase, and we know, in connexion with the skeleton of the Irish giant, to what length of monetary impropriety he was prepared to go rather than lose some specimen on which he had set his heart.

Hunter's Method of Work

The making of his preparations, the actual labour of creating his museum, must have been a colossal task, and there can be no doubt that the major part of this work fell on Hunter himself. Just think of the dissections, the macerations, the injections, and the display of the pathological material! Then there were the jars to choose and the specimens to be suspended or otherwise displayed, and the tops to be fixed. There were no ground lids to be cemented, but each jar had to be covered with pig's bladder or parchment, which had to be securely tied on; and after drying there was the outer cover of thin sheet-lead to be fitted, secured, painted, and probably varnished. Hunter certainly knew all about these processes, as we may gather from his remark concerning his brother-in-law, young Home, who was told that his damned clumsy fingers were all thumbs and that he would never have sense enough to tie down a bottle. Doubtless he would get help from those abo him and from his pupils, but his was the master hand, an indeed he was probably the only one who knew anythin about the art of preparation. Hunter himself was taught t make preparations during his apprenticeship to his brothe and there can be no doubt he made it a hobby and soo learned to excel. But, even if he did enjoy the work, th time involved must have been enormous. Anyone familia with the dissection of animals, and especially large one will know what a long time it takes: Clift speaks of Hunte standing at his work for hours. The same applies to patho logical specimens, for they must be prepared, displayed, an set up when fresh to get the best results. Then there is alway the recording to be done, descriptions to be written, labels t be fixed, and other duties of the kind. There is evidenc that Hunter was concerned with all these tasks.

Most of his experiments were done at Earl's Court, but th arrangements of his establishment there showed that room for dissection were not forgotten and that the work of makin preparations was provided for. It was there that he had th large copper for boiling bones, and we have the story of ho the body of O'Brien, the Irish giant, was taken there in th dead of night and hastily dismembered, and the parts boile so that the skeleton could be quickly prepared rather tha risk detection if the slower process of maceration was employe Just think what it meant to be engaged in the active wor of preparation almost every day for a period of 30 year Hunter's routine was to rise at 5 a.m. or earlier in summe and 6 a.m. in winter, and to go at once to his workroo where he remained until breakfast-time. Certain it is tha these morning hours were spent in association with those abo him, for it is recorded that on the very morning that he m his end he was particularly happy among his pupils. In on branch of his museum work he was not particularly carefu and that was the labelling of jars and the recording of date But Hunter was deeply conscious of the need for a caref record, and it was only the difficulty of applying some metho in the stress in which he lived that allowed this delinquenc to occur. No one, however, can say that Hunter was n systematic. He was constantly making notes on odd bits o paper, and these were all carefully sorted and entered up int his record books; but he was not careful about dates. H was also a great letter-writer and kept his correspondenc carefully.

The Workroom

Hunter's dissections and museum work were done in hi own house, for there were no laboratories or workrooms ke for him at the hospital, and he had to provide all that h required and to supervise everything that went on. At eac of his homes arrangements were made so that he could fulf these self-imposed tasks. There was undoubtedly good accom modation at Earl's Court, but the question of transport had t be considered. This was by coach, and it is interesting t ponder on the loads that Hunter's coach must have carrie to and fro in those busy days when it had to be a sort o covered wagon taking all kinds of human and animal remai from London out to the country and back. The methods o specimen-preparing that were used at that period are wort considering. There were the ordinary dissections, some o them very delicate and some of great size. Many of thes were mounted in spirit. Because of the difficulty of securin jars large enough and a sufficiency of spirit, some were prepare by the dry method. His original collection contained over 50 of this type. It was a tedious method, for the specimens ha to be very carefully cleaned, and packed or distended wit air; they were then painted with an arsenical preparation an hung up until dry. Finally they were carefully varnished an re-varnished, and as a rule mounted in jars to protect the Specimens made in this way will often last for many year and there are still some Hunterian preparations of this ki in good condition. Then there were the injected specimens a method in which Hunter excelled and for which he le directions—but they do not appear to have conveyed the secr of the art to those who have tried to follow in his footstep Corrosion specimens were also used. A great many of t pathological preparations were in spirit, which meant a lot work for their proper display and the fixing of the jar cover

The dry bone specimens had all to be macerated or boiled—both slow processes—to get the best results. There were also he calculi, the plants, foreign bodies, and the fossils, of which Hunter left so large a collection.

A great deal of Hunter's work must have been done in artificial light provided by candles. Heating must have been a difficulty, for there was nothing but open grates, which would probably burn coal. Judging by my boyhood experiences in the North, it is highly probable that in winter some of the fires would never be allowed to go out—not only for he purpose of heating the house but because it was the only method of securing a ready supply of hot water from a kettle on the hob and of obtaining a light. Clift mentions hat Hunter made spills from the scraps of letters on which he had previously made notes. Matches as we know them were not introduced until 1834, and if there was no fire it would be necessary to use a flint and steel with tinder-box to strike a light. Cold water may have been conveyed through pipes to a basin or sink in his workroom, for it is interesting to observe that among Hunter's belongings sold by auction after his death were wo leaden cisterns. The question of the disposal of waste must have been rather troublesome, for there was no water-carriage system, and dry closets and cesspools for the convenience of so large a household would require frequent emptying. Fortunately soap was plentiful and cheap, but after a heavy day and an evening spent in an atmosphere rendered grimy by a succession of smoky candles, there was no hot bath for Hunter before he retired to bed in the early hours of the morning. For his literary work there were only quill pens, as shown in Reynolds's portrait. His handwriting is good and legible but occupies a considerable amount of space, and we know that during those very full evening hours he illed an enormous number of notebooks. During the latter years of his life he dictated a good deal to an amanuensis, but there is no evidence that any sort of shorthand was employed. The manuscripts which were taken away from the Castle Street house to suffer so sad a fate at the hands of his brother-in-law, Everard Home, were said to fill a coach. Fortunately for us a considerable number were not destroyed. Hunter's dissecting and other instruments were of good quality.

With what we should consider to be such inconveniences there were bright features, for Hunter was saved the tyranny of the telephone and long out-of-town journeys. Had he done nothing more than care for his museum, his pupils, his lectures, his writings, and supervise his amanuenses and artist he would have been very fully employed and would have accomplished a great deal of which he might be proud. But these were really only side-lines, for he conducted a very large practice. His professional work began immediately after breakfast, when he saw patients at home. It is said that those waiting were so numerous that they often invaded his wife's drawing-room. At a fixed hour he left home in his coach to make outside visits and for hospital practice, and he never delayed his departure even if persons of importance were still waiting to be seen. He did not return home until four o'clock, which was then the usual dinner hour; after dinner he commonly slept for an hour on a couch in what was called the afternoon bedroom. Then began what must have been some of the most strenuous work of the day—letter-writing, case-recording, the description of his dissections, and the task of laboriously turning out those iterary works which eventually made for him a fame which has been lasting. In addition, for years he lectured at his own house every alternate evening from April to October. Can we assume that he was so intensely occupied and so absorbed in the practice of his profession that he found no time for affairs around him? No one could have been more single-minded or more absorbed in his pursuits. Assuredly he scorned delights. and certainly no one has ever lived more laborious days.

The Disaster and After

On the night of May 10, 1941, the College Museum was struck by a heavy high-explosive bomb and showered by incendiaries. As a result the greater part of the Museum and some parts of the College were destroyed, and about two-thirds of our collections vanished in the conflagration. The story of the measures which had been taken from 1938 onwards to guard against such a tragedy, the details of the disaster, and the steps taken to salvage and care for what remained of our treasures has been admirably told by Prof. A. J. E. Cave, the Assistant Conservator, in the Scientific Reports of the College for 1939–40 and 1940–1. It is a sad chapter in College affairs, and has caused much regret and unhappiness to lovers of the great museum we so much treasured. Clearly our duty is to look to the future and to consider plans with ways and means for complete restoration.

The Future

The disaster has not only imposed a greater responsibility than ever before but has provided an opportunity of which it is necessary to make use. After some months of hard work the Museum Committee was able to present to Council a suggested plan for the restoration of the Museum, together with many ideas on future developments. The Museum will be reborn in circumstances different from those which existed when it first came into being over 130 years ago. Then there were no museums devoted to anatomy and pathology in this country, and only one or two London hospitals had a few preparations for the use of their pupils. Now all medical schools up and down the country have museums, some of them excellent, so that from the purely vocational aspects of medical education the country is well provided. But there is a large floating body of students in London, mostly Empire students not owing allegiance to any school in the Metropolis, who naturally look to the College for museum facilities and who must be catered for. Other museums, and notably the natural history collections at South Kensington, are now in a position to carry out many of the activities previously shouldered by the College in the field of zoology and natural history, and others may be expected to develop—for instance, in anthropology.

Broadly, the conclusions of the Museum Committee, accepted by Council and by the Hunterian trustees, are that the museum should be restored and built up around the surviving collections to illustrate the development, structure, and functions of man, together with the accidents and diseases to which he may be a victim, with such reference to the animal kingdom as may help to elucidate the problems involved. The part of our museum that earned us an international reputation was the physiological and comparative anatomy series. In any event that would be the part most difficult to replace and, alas! it has suffered severely. The restoration of the pathological sections will be much less perplexing. One of the first questions that had to be settled by the committee was how to dispose of the surviving Hunterian preparations. The first inclination was that they should be kept together as a precious relic and a memorial to the work of our founder. The idea of having a room set aside, as a sort of shrine, in which they might be exhibited together with any other Hunterian relics, was most attractive and made a strong sentimental appeal. But more mature reflection convinced us that this would not be in keeping with the Hunterian tradition, and that it would be much better to have them allocated each in its proper section of the general collection, where they might act as a leaven and a stimulus. No one would wish to claim that all the Hunterian preparations are now of great value; some have served their purpose, their usefulness having been superseded by advances since Hunter's day, and some are so deteriorated as to be of little but sentimental value. Others were classical and some unique, and some possibly guarded secrets of nature which up to the time of their destruction had not been divulged. Those most interested and best able to judge agree that, so far as possible, destroyed Hunterian specimens with a lesson to teach or recognized as classical or potentially valuable should be replaced. An idea very much in my mind is the suggestion that when the specimens can be safely returned to the College an exhibition of the whole surviving Hunterian collection should be set up in one of the rooms together with all the existing relics of Hunter that can be got together. This should be attractively set out according to the original plan, and should be on view for several months, so that those who are interested may have the rare privilege of seeing assembled together what remains of the collection. Photographic and other records should be made, and these would serve in years to come to interest those who had not enjoyed the opportunity of seeing such a unique exhibition.

Among many who have talked about the restoration of the museum there are not a few who dread that the new museum will be cluttered with animal skeletons. There are some who have no use for the wonders presented by the bony framework of the elephant, the giraffe, or the whale, and no veneration for extinct monsters like the Irish elk or the megatherium. They may be astonished to hear that it was never the policy of the College to collect such taxonomic exhibits, but those that came to us in various ways were not rejected. But if a skeleton or part of a skeleton, irrespective of its size, is necessary to display some feature in comparative anatomy or physiology which leads to the better comprehension of the structure and function of man, then let us hope it will be preserved and exhibited. The same general principle should apply to the soft parts of animals, however large or however minute. Just fancy the interest of comparing the oesophagus of the giraffe with its insignificant counterpart in man! Perchance the secret of achalasia may be disclosed in the study of its neuro-muscular mechanism. Then how truly awe-inspiring to be able to re-create Hunter's wonder when contemplating the enormous aorta of the whale. And what bearing may the structures of that great creature yet have on the understanding of some of the problems of aeronautics? It is the intention to keep the museum up to date as a collection by replacing deteriorated specimens and by constantly adding better ones as these become available. Only the very best obtainable should be found on our shelves. But there is another point, and that is the question of the history and after-history of the cases from which specimens have been obtained. Many a poor-looking specimen is valuable because of its clinical history, and many another grows in value as the long after-history of the case adds to its interest and importance. The renewal and follow-up department must be much more active than ever before. Personally, I would like to see the day when it would be a distinction to have specimens accepted by the College because of their excellence and the complete histories with which they were accompanied. Specimens should be accepted and retained only because of their value, and the days are long past when the distinction of the donor could claim precedence over the distinction of the gift. Special collections should be accepted only with the proviso that the specimens may be dispersed among the general collection if this is considered best in the interests of the museum.

Another idea I want to bring forward is the value of special but changing exhibits. The restored museum should possess a large demonstration room where special exhibits could be put up from time to time and kept on display for a month or more. A section on the anatomy of approach is somewhat of a new idea, and would be intended to display the anatomy of operative incisions. How often has the novitiate wondered exactly what are the structures encountered and to be divided or thrust aside in carrying out the exposure of the kidney, excision of the rectum, or the exposure of the Gasserian ganglion? For each operation a series of special dissections would have to be available and alternative routes of approach would have to be illustrated. I am convinced of the value of such a plan, and am most interested to find that it was employed by James Douglas, who died in 1742, and who is remembered by the peritoneal pouch to which his name is linked. The section of general pathology was of the greatest value, embodying as it did the very kernel of the Hunterian idea. This should be restored in its entirety, and there may be directions in which it could usefully be extended. The old museum contained the most remarkable collection of calculi—about 1,000 in number—of all sorts, which were classed mostly according to the parts of the body in which they were found. In the future museum, considerations of the formation of calculi—calculus disease—should provide a more thought-provoking section. Then there is the idea of group exhibits where the ravages of any one condition are shown together irrespective of the number of the regions of the body that may be involved. A medico-legal section is very badly needed, for there is none of any moment in a public museum, and it would seem a very proper activity for us to undertake. I was very much impressed with such a collection in Buenos Aires, in which most beautiful wax models were largely used to supplement the exhibits.

Gynaecology and obstetrics were always well represented in our museum, but the specimens might well be brought more in line with present-day knowledge. There is no branch of surgery which lends itself better to museum illustration, and there ought to be no difficulty in rebuilding our collections and in making them second to none. The odontological collection was fortunately spared. Under the devoted guidance of its honorary curator, Sir Frank Colyer, this branch of surgery which originally owed so much to Hunter, was very worthily represented. Each of the special senses must have sections devoted to its exhibition, as in the past, but this must not prevent certain conditions being included in the section of general pathology or elsewhere if some principle can thereby be the better illustrated. In view of the well-directed activities of the Wellcome Foundation I think we might properly restrict our historical collection to relics of Hunter and his immediate associates. A large part of our surgical instrument collection has survived, and might well form the nucleus of an exhibi to illustrate their evolution and development. Sections for venereal disease, anaesthesia, blood transfusion, and wound treatment would appear to be necessary, and will certainly prove useful and interesting. A standard collection of the very best *x*-ray films should not be excluded from such a museum as we have in mind. The results of surgical intervention—i.e., the after-results of operations—should be fully illustrated, and might form an increasingly fascinating exhibit Similarly the results of experimental surgery should be demonstrated by specimens. Of the thousands of experiments carried out, how little in the way of museum records is available. In other ways there should also be a closer association between the department of experimental surgery and our museum Another good feature which must be continued and developed was the annual show of new specimens, always on exhibition in connexion with the Annual Meeting of Council in July.

In order that we may help serious workers to extend knowledge it will be necessary to have a large amount of store material, not merely tucked away, but easily accessible and properly catalogued or indexed. Facilities should be provided for its close examination, even if dissection is necessary. The use of such material could not be very open-handed, and only accredited workers who seriously wanted to obtain information which they could not get elsewhere should expect to be allowed such facilities. I also have in mind proper study rooms, where those engaged in a particular piece of work could keep their specimens and could work on them without necessarily having to reassemble their material each day. For some years there has been much talk of research in the profession, but this has usually been in terms of laboratory work and usually animal experiments. Many people forget how much research is waiting to be done in other directions, and there is certainly a great deal that might be carried out in any well-equipped museum. It is especially important that we should provide for the very many keen young surgeons who are working in and about London, and they should be encouraged to make use of the opportunities for study which our museum affords We should aim at making our collections the most famou in the world, but we must not assume that other museums have stood still, and it is most important that we should have information as to what may be going on elsewhere, so tha inquirers might be helped by direction to the proper quarter for this and other purposes a museum bureau would be mos useful.

Conclusion

Hunter's saying, "Why think; why not try the experiment?" has been handed down as a sort of tradition; but to look and see and to verify everything by observation is to carry out the same fundamental principle, which is so revealing tha its recognition fully justifies the existence of our museum Everything that we can learn about Hunter encourages th re-creation of the very best museum that can be assembled We want it to be a Mecca for inquiring students from every part of the world. Its reconstruction will be slow; it mus be patiently done, and it must be thorough. We must plod on and on till the task is well under way, knowing full wel that it can never be completed. There is always the exampl of Hunter's driving force to encourage us, for "there wer no drones in his hive."

INFLUENZA EPIDEMICS AND THE INFLUENZA VIRUSES

BY

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LECTURE II

n my first lecture I attempted to outline the history of fluenza epidemics in this country in recent years and to escribe the characteristics of the human disease invoked by e influenza viruses. In the present lecture I wish to refer ainly to the study of immunity to the viruses under natural r experimental conditions and to the development of possible ethods of control of influenza.

Immunity to Influenza Virus Infection

From the earliest days of work with influenza virus in the boratory the subject of immunity and of artificial methods f producing resistance to infection has been given constant ttention. Much has been learnt; much probably remains ndiscovered. The ability to control conditions and to standardize procedure in the laboratory has resulted in the accumu-tion of a valuable body of knowledge of immunity in xperimental animals, much of which is probably applicable the more complex immunity in man. Most of this work as been carried out on virus A, but there is no reason suppose the results do not apply to virus B also. More cently, however, experiments on human volunteers have been rried out, with the result that knowledge concerning the uration of immunity and the effectiveness of various methods immunization in man is accumulating rapidly.

Immunity in Experimental Animals

Ferrets are especially suitable for studies of immunity cause of the resemblance between the infection induced by e viruses in this species and that occurring in man. Immediely after an attack of the disease the ferret is completely mune to reinfection, antibodies are present in high titre in e serum, and the immunity is broad-based so that heterogous strains of the same major type are resisted in addition the homologous one. There is even, in the days of early nvalescence, a cross-immunity between swine influenza virus d virus A, though not between virus B and virus A. Heterogous cross-immunity of this type may be present, though tibodies to the heterologous strain may not be detected in e serum. As time passes the homologous antibody level gins to fall and susceptibility to reinfection returns. However, mologous antibodies are still demonstrable in the serum when infection is possible, and the second attack, though accomnied by fever and nasal symptoms, is usually less severe and not followed by the development of lung lesions if a lunglapted strain of virus is used for the reinoculation.

In an attempt to illuminate the apparent failure of antibodies -that is, of humoral immunity—to explain the phenomena bserved in the ferret, Francis and I (1938a, 1938b, 1938c) udied the histological changes in the nasal mucosa following rimary inoculation and reinoculation with virus A. We found at a cycle of events occurs in the respiratory portion of e nasal mucosa during primary infection. The ciliated ithelium undergoes complete necrosis, leaving only a single sal layer of flattened cells, and, after three days, repair by rowth of a many-layered pseudo-stratified type of epithelium ts in. Ciliated epithelium is not re-formed until a fortnight three weeks after infection, but by the fourth week the mage to the epithelium has been largely repaired. The ratified epithelium present for several days during conlescence interested us very much, and we were able to show at this modification of the normal nasal mucosa, which is resent when immunity is at its height, is resistant not only reinoculation of virus but to unrelated physico-chemical gents. Zinc iontophoresis or simple instillation of zinc lphate intranasally in normal ferrets produced an acute ecrosis of the epithelium very similar to that of influenza, d repair and regeneration followed a similar course. The rret convalescent from influenza showed, in the second week, a complete resistance of the nasal mucosa to destruction by iontophoresis, and the epithelium revealed no histological changes after this operation. As the epithelium of the convalescent animal became more normal, destruction by ionization again became possible, until at four weeks a normal reaction was obtained. The converse experiment of ionization of the nose followed by instillation of virus gave, however, no evidence of resistance by the regenerating epithelium to the virus.

These studies demonstrated to us that virus infection was followed by morphological changes, which were of a temporary character only and were therefore inadequate by themselves to explain the observed immunological phenomena. There seemed to us to be an analogy to the experiments of MacNider (1937) on the morphological changes of fixed tissue cells in the liver and kidney resulting from damage by chemicals. Whereas chemical tolerance to those agents was found by MacNider to be accompanied by a permanent modification of the liver and kidney structure, our abnormal nasal epithelium, on the other hand, was only transitory, and with the reappearance of a normal epithelium the non-specific resistance to damage was lost.

The nasal mucosa of ferrets exposed to reinfection at a time when immunity from the first infection had waned underwent necrotic changes similar to those seen in the first attack. Differences were discerned, however. Areas of epithelium sometimes remained normal, so that the necrosis tended to be focal in type, a more rapid repair followed the necrosis, and often the epithelium was not reduced to a single basal layer by the reinfection. This appeared to indicate a conditioning of the nasal mucosa by the first attack, so that the infecting agent was more readily repulsed and the damage more speedily repaired. Furthermore, if the ferret had had two previous nasal infections a solid immunity to a third or fourth inoculation might be encountered and then the nasal mucosa showed no histological changes at all. We studied the antibody levels of some of these ferrets prior to reinoculation, and were led to believe that the actual titre of circulating antibodies at the time of the immunity test was of fundamental importance.

These studies also afforded some explanation of the reaction observed in the ferret after subcutaneous inoculation with the virus. It has already been mentioned that infection does not follow introduction of virus by this route, and though antibodies subsequently develop in the serum the animal is not immune to nasal instillation of the virus, though possibly resistant to the more delicate test of contact infection (Smith, Andrewes, and Stuart-Harris, 1938). If parenteral inoculation of virus is given to a ferret in a state of waned immunity following an actual attack, the immunity may be boosted once more and a solid resistance to a second intranasal inoculation of virus may result. The production of a state of immunity by the re-installation of a high antibody level in an animal whose nasal mucosa is conditioned by previous infection can be readily visualized. Also from experiments on the immunization of ferrets, Francis (1939) was able to show that a considerable quantitative relationship existed between the degree of immunity following subcutaneous vaccination, the level of circulating antibodies at the time of the immunity test, and the amount of virus which was given in the vaccinating dose. Artificial immunization in the ferret is thus dependent for its success on the amount of actual virus antigen which is introduced parenterally; but the susceptibility of the nasal mucosa to infection, aided perhaps by the remoteness of the epithelium from circulating antibody in the serum, makes it impossible to reproduce the complete immunity which follows nasal infection.

Immunity in mice appears to be less complicated than that in ferrets, and it is also easier to produce a state of complete immunity by artificial immunization. The changes in the lung following intranasal inoculation with virus A have been studied by Oakley and Warrack (1940) and correlated with the presence of antibodies in the serum. The production of actual lung lesions was found to be essential with mouse-adapted strains of influenza virus for the subsequent development both of antibody and of immunity. Immunity developing after intranasal infection was broad-based, and was effective against heterologous virus A strains even in the absence of good levels of antibody against such strains. Other observers have found it to be possible to obtain immunity after intranasal infection of mice in the absence of lung lesions, but only, however, if the virus used is not of mouse origin. Thus Burnet and Clark (1942) showed that unadapted human virus would both immunize and produce antibodies even though no lung lesions were produced, and Eaton and Beck (1940) obtained immunity without lung lesions by using ferret virus or tissue culture from chick embryos.

Because mouse-passage strains of virus must be used in high dilution if the production of lung lesions is to be avoided, it seems that these results simply mean that the effectiveness of immunity after actual infection in mice is closely dependent on the quantity of virus which has actually been administered. The immunity following parenteral inoculation of mice with virus preparations has been closely studied. Inasmuch as massive doses of living virus have to be given intraperitoneally (Rickard and Francis, 1938) in order to produce infection of the lungs by this route, the results of parenteral inoculation with living or with inactivated (formolized) virus are rather similar. Antibodies are most rapidly produced, however, after the introduction of living virus intraperitoneally, and persist somewhat longer than when inactivated virus is used (Oakley and Warrack, 1940). The results of repeated inoculation with either virus preparation are better than those of a single dose. The influence of the subtle changes of past infection in mice is well illustrated by the fact that although antibodies to heterologous strains of virus A are poorly developed after either parenteral or nasal introduction of virus, the immunity to heterologous virus following parenteral immunization is much more feeble than that following actual infection. Eaton and Pearson (1940) noted that about 10 times as much virus was needed to protect against heterologous strains as against homologous ones after intraperitoneal immunization either by living or by inactivated virus. Eaton (1940) also estimated that, given by the same route—that is, intraperitoneally—about 30 times as much inactive virus was needed to produce the same degree of immunity as active virus. The importance of the amount of actual antigen in the production of an immunity which is broadly based and effective against heterologous strains is thus clear. The superiority of immunization based on an actual infection, even if this is inapparent, is also obvious. Two further factors have been shown to operate adversely in the case of parenteral immunization. The presence of foreign protein from the host species used to prepare the vaccine has an interfering action on the effect of the vaccine in stimulating antibody formation, and the intraperitoneal route of inoculation is more favourable than the subcutaneous one (Andrewes and Smith, 1939).

Many of these facts which have been elicited from studies with mice have a bearing on human immunization, as we shall see later. Meanwhile, it is necessary to mention the effectiveness of prophylactic administration of immune serum, either from convalescent ferrets or from hyperimmunized rabbits or horses, in the influenza virus infection in mice. Laidlaw, Smith, Andrewes, and Dunkin in 1935 showed that serum given intraperitoneally saved life and diminished the extent of lung lesions if given either before or after intranasal infection. More recently, others (Henle, Stokes, and Shaw, 1941; Taylor, 1941b) showed that the serum was much more effective as a prophylactic if given intranasally, and that some effect was demonstrable even up to 10 days after serum introduced by this route. Trial of the method in ferrets has not, however, given results comparable to those obtained in mice (Zellat and Henle, 1941). Unpublished experiments of Glover and Andrewes, to which I am kindly allowed to refer, indicated that some protection could be given to the lung of a ferret, but that it was not possible to protect the nose by inhalation of atomized serum or by exposure to a coarse spray. The intensity of the infecting dose of atomized virus to which the serum-treated ferrets were exposed was carefully controlled, and even a low degree of immunity was unlikely to have been overlooked.

Immunity in Man

(a) Natural Immunity

At least three mechanisms are now known to be concerned in determining resistance or susceptibility in man to influenza virus infection. The first—namely, the development of antibodies with specific neutralizing power for the virus—has been most studied. The distribution of antibodies to virus A the population in interepidemic times has been found to related to age. Children other than newborn babies have leas and adults of middle age have most antibodies. Cyclic changes in the general level of antibodies in the serum a correlated with the occurrence of human epidemics in th levels are highest immediately after an epidemic and lowe before an outbreak, while the individuals with the highe levels after infection undergo the greatest proportional chang with the passage of time. Some individuals, particularly tho in the middle range of antibody levels, possess remarkab stable antibody titre over periods of many months. Complement-fixing antibodies also undergo cyclical changes, b are at their highest levels for a shorter period of time aft an epidemic than are neutralizing antibodies. The fact th sharp changes in titre of antibodies accompanied actu infection and that both clinical and subclinical attacks a associated with changes of a similar magnitude has alread been mentioned. So far virus has only rarely been recovere from clinical influenza unaccompanied by serological chang (Adams, Thigpen, and Rickard, 1944), but it is known fro deliberate infection experiments that clinical symptoms can times occur without serological alteration, and the significan of the varying percentage of cases in the various outbrea which yield neither virus nor antibody change (influenza Y can be interpreted in various ways, as previously pointed ou Apart altogether from diagnosis, however, the antibody chang during infection are of considerable importance in relation susceptibility or resistance to attack. All observers are agree that a majority of cases of influenza are drawn from th population group which has the lowest levels of antibody befo infection, but that individuals with all levels of antibody yie cases during an outbreak.

The accumulation of all this mass of information has bee the work of many observers in all parts of the world, ar evidence on which these statements are made was fully reviewe by Burnet and Clark in 1942. Our own slender contributio may be referred to briefly. In 1936 Andrewes and I bled group of 50 medical students at St. Bartholomew's Hospita estimated their neutralizing antibodies, and then observed th experience of this group during the 1937 epidemic. Cases we scattered through all the various levels of pre-epidemic antibody content, and though we did not prove virus A infecti in all cases, the uniformity of experience in this outbrea indicated the probability of this diagnosis. A large number cases of influenza B were observed in 1943 and investigat by Hirst's test. There was a fairly marked scatter of cas (Chart VII), with antibodies during the acute febrile stage very different levels. Also, the number of B cases was proportionately greater in those with low antibody level in the fi specimen of serum. The influenza Y cases whose antibody lev showed no change had on the whole higher levels of antibo than the B cases, but some cases had low levels. The correlati between the actual multiplication of antibody content in th blood of the B cases and the original content of antibody w definite, and has been noted by other observers in bo influenza A and B (Chart VIII). It means, as Hirst and othe (1942) have pointed out, that the same total quantity of antibody is added to the serum of the various cases, and that th is many times the amount already present in those with lo levels and is relatively less in those with high pre-existing leve of antibody. Comparison between severity of clinical infecti and pre-existing antibody level or degree of multiplication antibody failed to show any relationship either in virus influenza (Chart IX) or in virus A influenza (Chart X). Th agrees with the known fact that an individual can have subclinical attack or a clinical infection at any pre-existi level of antibody.

One last fact which must be mentioned concerning the antibody response to infection is the degree of change in the seru for heterologous strains of virus. There has been some controversy between various workers as to whether huma respond to infection with antigenically distinct types of vir with the same degree of specificity for homologous strains does the ferret. The balance of evidence now favours the vi that the amount of antibody in the serum in the acute sta is less when tested against the homologous virus than wh heterologous virus is used. The actual amount of increase in antibody is also greater for antigenically related than for antigenically distant strains of virus, as our own results (Andrewes, Smith, and Stuart-Harris, 1938) indicated. Magill and Sugg (1944) have recently re-emphasized the importance of this finding in connexion with diagnosis. The existence of a multiplicity of antigenic types of the same major strains during any one outbreak, such as has actually been proved, must also have an important influence on the effectiveness of the resistance of the individual whose antibody titre may be adequate to produce immunity against some but not against other types of virus.

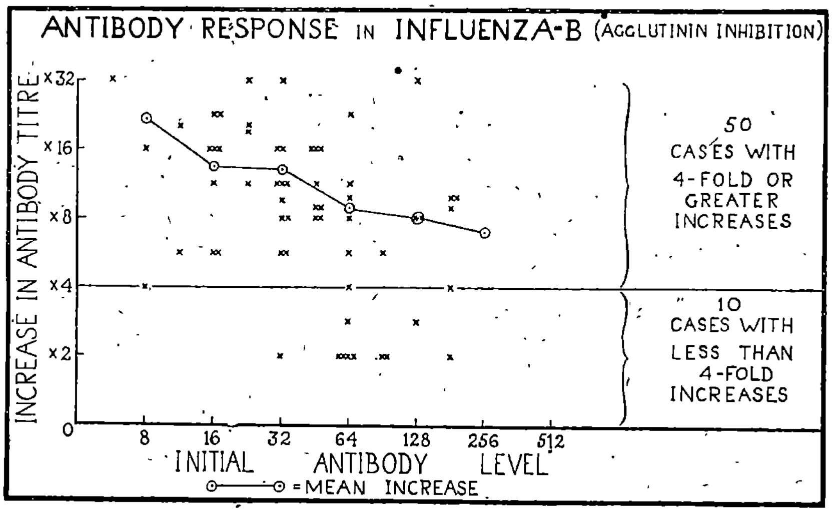

CHART VIII

The results obtained from study of human infection indicate that no critical level of antibody exists below which there is susceptibility and above which there is resistance to infection as was thought originally (Hoyle and Fairbrother, 1937; Francis *et al.*, 1937). Burnet (1944) has recently emphasized that the fundamental fact concerning immunity to influenza is that in all recent epidemics never more than 50%, and usually under 20%, of the population experience clinical attacks during an outbreak. It has been shown that cases of actual clinical infection are chiefly drawn from individuals with the lower levels of antibody (Rickard, Lennette, and Horsfall, 1940), but that cases can occur throughout the range of antibodies. Yet the 70-odd% of the population which escapes influenza must include many individuals with low antibody levels, though during the outbreak some—perhaps in widespread epidemics the majority—develop increase in antibodies irrespective of clinical attacks. It is in these individuals that the explanation of antibodies as the chief factor in the resistance to infection breaks down. To what, in fact, do they owe their immunity? Doubtless some escape contact with the virus altogether, but this does not account for those who develop subclinical attacks.

Studies of groups of individuals who have been deliberately infected by spraying with virus A or by inhalation of atomized virus A have given much clearer correlation between antibody levels and immunity than the experience during natural infection (Burnet and Foley, 1940; Henle, Henle, and Stokes, 1943). It appears that standardization of the dose of infection produces clinical attacks only in those individuals with low antibodies in their blood before infection. In the experiments of these workers, 26% and 36% respectively of normal individuals experienced clinical attacks and more developed subclinical infection. In the much more intense exposure to virus B by Francis and others (1944), when clinical attacks were produced in 90% of individuals by inhalation of atomized virus, there was much less correlation with antibody levels. Four months after the original spraying Francis could again produce clinical attacks in 90% of the group sprayed initially, in spite of the fact that they still had an enhanced antibody level as a result of their initial experience. Possession of good antibodies was somewhat correlated, however, with shorter and milder fever. Besides demonstrating the evanescence of human immunity to actual infection by influenza virus, Francis thus showed that the defence against infection could be broken down if the intensity of the infecting dose was sufficiently great. We may perhaps deduce that the intensity of

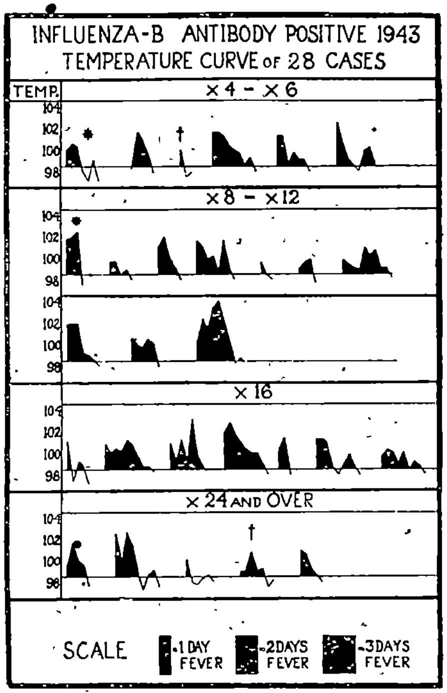

CHART IX.—* Two cases with high initial titre. † Two cases with low initial titre. x 4, etc., indicates the increase in antibody titre (Hirst test).

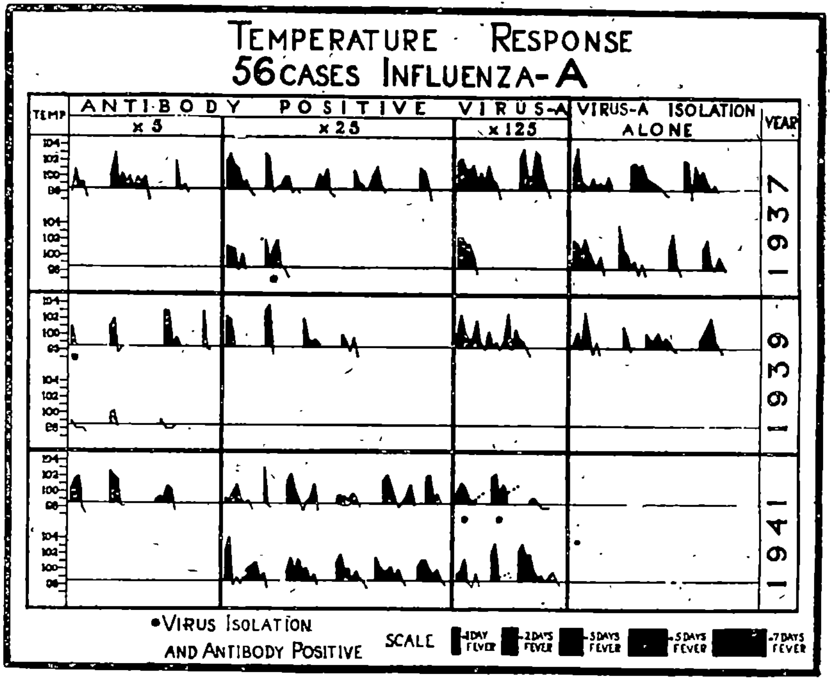

CHART X.—x 5, etc., indicates the increase in antibody titre (mouse neutralization test).

natural infection during an epidemic is much less than that used by Francis and probably less than that of the earlier workers with virus A, in view of the lower percentage incidence of infection observed during natural outbreaks. May it be that repeated exposure to infection during an epidemic breaks down in some individuals the resistance conferred by a high antibody level? Also, may the escape from clinical attack by some individuals with low antibodies be attributed to the fact that they are lucky in receiving just enough virus to cause a subclinical but not enough to cause an overt infection? Other mechanisms governing resistance probably do exist, however, and one of these is the natural defence of the nasal mucosa to attack.

No observations on the changes in the nasal mucosa which accompany human influenza appear to have been made, but a humoral system of defence based on the property of virus inactivation possessed by nasal secretion has been studied both by Burnet and his co-workers (1939) and by Francis (1941). Controversy still exists as to the nature of this substance, which has a wide range of activity against viruses other than influenza. However, different individuals possess different amounts of it, and Francis showed that there was a correlation between the inhibitory activity of the nasal secretion to influenza virus and the influenza antibody present in the blood; and a sharp increase in virus-inactivating power of nasal secretion accompanied infection (Francis and Brightman, 1941). In connexion with this it was also shown (Francis *et al.*, 1943) that an increase in the amount of inhibitory substance in nasal secretion followed subcutaneous immunization accompanied by successful stimulation of antibody production. Burnet, on the other hand, considers the substance to be an enzyme in character, and is inclined now to attribute less significance to its action than at one time (Burnet and Clark, 1942). If, however, both chemical and cellular defence of the nasal mucosa, including the capacity of the nasal epithelium to regenerate rapidly after attack, is considered, it must be obvious that the first line of defence against the virus is probably important. A more doubtful mechanism, which may or may not play a part in the production of clinical phenomena, has been unearthed by Beveridge and Burnet (1944), who studied the skin reactions to inactivated influenza viruses inoculated intradermally. They found that boiled chick allantoic fluid from eggs infected with either virus A or B was capable of eliciting an erythematous skin reaction in both children and adults. No correlation between level of antibody and liability to a positive skin reaction was found, but in children positive reactions were obtained only when possession of some demonstrable antibody suggested past infection or exposure to the virus.

These observations suggested that allergy may be important in determining clinical reaction to influenza virus. Observation on animals has hitherto given little indication that allergic reactions were important. However, Shope and I, in 1938, carried out a few unpublished experiments in which pigs were inoculated intraperitoneally with immune horse or convalescent pig serum and were subsequently inoculated intranasally or exposed to contact infection by swine influenza virus and *Haemophilus influenzae suis*. There was a definite indication that the serum-treated animals were in some way sensitized, because fever and clinical symptoms consistently developed some hours earlier in these animals as compared with the controls who did not receive serum. We were, however, more interested at that time in the possibility of attenuating clinical attacks, and this we failed to accomplish. Allergic reactions in man have been suggested by the deliberate infection experiments of Bull and Burnet (1943), in which symptoms were commoner after intranasal reinoculation than after a first intranasal inoculation with a modified attenuated strain of virus B. An increased incidence of symptoms on reinoculation three to four months after the first spraying of volunteers with the virus occurred in spite of enhanced antibody levels in the serum. The strain of virus used did not produce febrile reactions, and the occurrence of nasal symptoms after both first and second spraying bore no relationship to the subsequent development of an antibody rise in the serum. By the criterion of demonstrable antibody rise, infection was produced in more than 90% of the 23 individuals by the primary inoculation, but in only two instances in the second inoculation. Dissociation of this type between nasal symptoms and immune reaction may be related in some way to the type of infection produced by attenuated viruses, and it was not encountered by Francis (1944) in his reinfection experiments with less modified virus B. Francis, far from demonstrating an increased tendency to symptoms in individuals subject to reinoculation, thought that individuals with the highest antibody titres had less reaction after inhalation of the virus. Time alone will show whether allergy is of much importance in relation to the natural disease.

(b) Artificial Immunization in Man

The discovery of the aetiological agent of human influenza was soon followed by attempts to produce immunity with virus preparations, and these have been actively pursued by several different groups of workers. Emphasis has been largely placed on experiments designed to produce active immunity, and the various workers in this field have concentrated their energies along two distinct lines of attack. British and American investigators have tended to develop methods of immunization based upon the fact that most individuals have, at one time or another, been subject to nasal infection by the virus, and therefore the human problem is essentially one of reinforcing a waned immunity rather than that of developing one in a previously uninfected host. They have therefore tried various methods of immunization by the subcutaneous route, arguing that if a sufficiently intense antibody response could be produced the nasal mucosa could be left to take care of itself. In contrast, Australian workers have concentrated on the development of an attenuated virus strain which could be given intranasally without producing clinical reaction yet producing an effective immunity by reason of its attack on the nasal mucosa, which would be unaffected by subcutaneous inoculation. Such a strain of virus would ideally resemble the yellow fever 17D virus, which has been so successfully used in human immunization against yellow fever (Theiler and Smith, 1937).

Early work in Britain and America was concerned with the demonstration that subcutaneous inoculation of virus enhanced the antibody titres of those inoculated. The fact that inactive formolized virus appeared to be an effective antigen in man was demonstrated at an early date. Furthermore, one inoculation produced as good a rise in antibodies as did several doses. However, detailed study of the factors concerned in determining the relative efficiency of various vaccines in producing antibodies has been chiefly pursued of recent years in America. Hirst, Rickard, Whitman, and Horsfall showed in 1942 that there was a considerable variation in the human antibody response to the same preparation of virus given subcutaneously. The rise in antibodies was correlated with the pre-vaccination titre of the serum, so that the actual amounts of antibody produced by individuals with originally different amounts of antibody were approximately the same as in the case of actual infection. Secondly, the antibody rise induced by subcutaneous vaccination was evanescent and titres had dropped considerably six to nine weeks after vaccination. Thirdly, the antibody response increased in proportion to increase in the amount of virus antigen which was injected. The most concentrated preparations of antigen which were inoculated produced antibody responses of a magnitude similar to those encountered as a result of actual infection. Fourthly, inactive virus, especially in a relatively protein-free medium such as chick allantoic fluid, was as effective an antigen as living virus. The incorporation of a strain of distemper virus originally thought by Horsfall, Lennette, and Rickard (1941) to exert an adjuvant effect on the influenza antigen was not found to be helpful. Bodily and Eaton (1942) added a fifth factor, which would be expected to be of significance if the results of experiments with animals are applicable to man. They compared the specificity of the antibody response following vaccination with that occurring in actual infection with virus A. The sera from vaccinated individuals were more specific in their antibody content to the strain used in the vaccine than were the sera from infected individuals to the infecting strain, although these too showed a limited degree of strain-specificity.

Notwithstanding the apparent drawbacks associated with the use of a virus vaccine subcutaneously, several trials have now been carried out which indicate that such a method of immunization is not only practicable but gives results which indicate a measure of protection in vaccinated individuals. Our own record in connexion with such studies has hardly been brilliant. In 1937 we employed a formolized vaccine made from filtrates of the lungs of mice infected intranasally with the W.S. strain of virus A—a strain which is apparently particularly specific in antigenic constitution. Only 30 volunteers were vaccinated at an adequate time prior to the 1937 outbreak, and none of these or their controls contracted the disease. Some hundreds of other subjects were also immunized with the same vaccine, but the immunization was too late in the course of the epidemic for reliable data to be obtained. Several instances occurred of influenza A in vaccinated individuals, however, and all the virus strains recovered in the outbreak were relatively remote antigenically from W.S. We wondered if the antigenic difference between vaccinating and infecting strains was the cause of the poor result.

In 1938 we immunized 500 boys at the Naval training school at Shotley in November and December, some with a polyvalent formolized mouse-lung vaccine containing the broadly antigenic P.R.8 strain and also the W.S. strain, and some with W.S. virus vaccine only. When influenza broke out in Jan., 1939, it did not affect this particular institution. A small wave of mild influenza occurred in April, however, and we were able to recover influenza virus A from some of the cases. During the fortnight when virus A influenza was affecting the unit, 4.35% of the vaccinated and 5.4% of the controls suffered clinical attacks. The differences in incidence in the groups receiving the two vaccines were insignificant. We thought that the interval of four months between vaccination and infection meant that the effects of the vaccine had worn off by the end of this period. It was also surprising that this institution experienced its outbreak of influenza so late in the year, for other areas were affected in February and March. Again, we wondered if the number of vaccinated individuals in the community in these months was proportionately high enough to confer temporary immunity on the whole group.

Since the war we have for various reasons been unable to undertake the manufacture of enough virus vaccine for field trial. However, in 1940 a considerable quantity of the combined formolized virus A and distemper vaccine thought by Horsfall and others (1941) to be such an effective antigen was made available to the Medical Research Council for use in this country. In spite of the relatively poor antibody responses obtained on preliminary trial, we decided in 1942 to utilize the vaccine in a controlled field trial in the Army. Some 12,000 volunteers in the various Home Commands were inoculated and a similar number were set aside as uninoculated controls. The vaccination was completed by Dec., 1941, but no outbreak of influenza occurred at all in the next three months, and such tests as were carried out on sporadic cases of influenza failed to give serological evidence either of influenza A or of influenza B.

Thus we reached no conclusion as to whether this vaccine had been beneficial or not. However, Horsfall, and also Brown and his co-workers (1941), used the same type of vaccine in 1940 on some thousands of individuals, and concluded that a real reduction in the incidence of clinical influenza occurred during a subsequent virus A epidemic. The best results were that a 50% reduction occurred in certain of the vaccinated groups of individuals, but the results in other groups were not so good. Since then Francis and his co-workers have experimented with a type of vaccine produced by utilization of the phenomenon of red-cell agglutination by the virus. Virus is absorbed out from allantoic chick fluid with red cells, eluted, and subsequently resuspended in a smaller volume of fluid. These manœuvres result in a considerable separation of virus from foreign protein, and also in a concentration of virus antigen. Preliminary studies of the efficacy of the vaccine were made by exposing vaccinated individuals to an immunity test with inhalation of atomized virus A of a recently recovered strain (Francis, Salk, Pearson, and Brown, 1944). This strain was not identical serologically with the strain used for preparing the vaccine. It was found that the vaccinated individuals had a lessened febrile response to the infection, and that the effect of the vaccine was most evident two weeks after inoculation and had practically worn off four months later. The test of infection was presumably severe in that 80% of unvaccinated men exposed to a similar inhalation developed fever and 50% had temperatures over 100°.

The vaccine, which contained equal amounts of virus A and virus B, was given a large-scale field trial in 1943 during the virus A outbreak of that year. The report by members of the Commission on Influenza of the United States Army (1944), who undertook the organization of the trial, contained unequivocal evidence of the value of the vaccine under the particular conditions of the test. The percentage incidence of clinical influenza in the various groups of the 6,000 controls varied from 3.38 to 9.06, that for the groups of 6,000 vaccinated individuals from 1.15 to 5.25. The incidence of clinical attacks in the vaccinated groups was lowered on the whole to one-fourth that in the controls, and only two groups had small differences between incidence in vaccinated and that in control individuals. These figures included all cases of clinical influenza and excluded afebrile colds, follicular tonsillitis, and infectious mononucleosis. Though the result of serological analysis of the influenza cases has not yet been reported, the general prevalence of virus A during the outbreak suggests that the majority of cases belonged to influenza A. It also seemed that immunization did not begin to affect incidence—that is, to confer immunity—until at least eight days after the vaccine was given. One point is of great importance in assessing the result of this trial. Immunization was carried out in October and November with one subcutaneous dose, and the outbreaks of influenza began about the middle of November. In at least one area vaccination was begun after the epidemic was in progress, but in general an interval of two to four weeks ensued between vaccination and epidemic. It may well be, therefore, that the extraordinarily successful timing of vaccination, which was in fact a matter of chance, was an important factor in the success of the experiment. The serological response to the vaccine was actually at its peak when the outbreak of influenza occurred. It seems probable that this question of the time interval between vaccination and exposure to infection by the virus is of critical importance is deciding the effectiveness of the immunization. Not only in the case of our own experience at Shotley, but in the comprehensive trials carried out in State institutions by Muckenfuss and his co-workers in New York State (Siegel *et al.*, 1942), no difference in incidence of cases of influenza in vaccinated or control individuals was seen when the epidemic occurred six weeks or more after the vaccination. That a concentrated type of virus vaccine may still have some significant effect for as long as one year after immunization has, however, been demonstrated recently by Hirst, Rickard, and Friedewald (1944).

All these experiences with human immunization were carried out with influenza A, and much less is known concerning influenza B. Eaton and Martin (1942) showed that formolized allantoic fluid containing virus B was an effective antigen as judged by the production of neutralizing antibodies, and some of us feel that virus B is actually more highly antigenic, at any rate in animals, than virus A. Salk, Pearson, Brown, and Martin (1944) tested their formolized concentrated virus A and B vaccine by exposing vaccinated and untreated individuals to inhalation of active virus B. As in the experiment with virus A, a diminished febrile response was observed in the vaccinated individuals compared with the controls, but a higher degree of residual immunity was discernible four months after vaccination than in the case of virus A. No field trial of an influenza B vaccine has yet been reported.

In Australia the work of Burnet and his colleagues upon the production of immunity by the intranasal use of attenuated virus strains has been pursued since 1937, when it was found that prolonged cultivation of a virus A strain (Melbourne) on the chorio-allantoic membrane of the chick resulted in loss of pathogenicity for the ferret and mouse. At the same time the virus, though causing an inapparent infection of the ferret, produced an antibody response in this animal, and it thus seemed possible that the same result would be obtained in man. The work with attenuated strains both of virus A and of virus B given by nasal spray was summarized by Burnet in 1943. The essential difficulty has been to produce strains with the correct level of attenuation for man. If attenuation is carried too far, as in the case of the original Melbourne strain, the virus produces neither clinical nor serological reaction. If attenuation is not carried far enough, clinical reactions follow. Ideally attenuated virus produces good serological responses which are closely correlated with the pre-existing antibody levels to the virus and which occur in about 20 to 30% of individuals. At the same time, clinical reactions are trivial or absent in the majority, and take the form of coryza, slight headache, or malaise in the remainder. This method of immunization was tested by Bull and Burnet (1943) by determining the response to a second spraying some months after an initial inoculation. Virus B was used, and the experiment has already been referred to. Although, by the criterion of antibody response, the sprayed individuals were mostly immune three to six months later, nasal symptoms were actually more frequent after the second spraying, which suggested that such symptoms may have an allergic foundation. Repeated sprayings carried out by Mawson and Swan (1943) with mixtures of attenuated A and B strains further showed that failure to respond by antibody rise to a first inoculation was again noted after a second spraying, thus suggesting that individual factors in resistance to infection are the cause of the failure to respond in the first place. In the experience of these workers and in that of Burnet and Foley (1940), use of a less attenuated virus strain in such individuals led to actual clinical attacks.

The effect of administration of attenuated virus strains during an actual epidemic was seen in only one unit in 1942. There, though influenza, presumably due to virus A, was actually spreading in the camps, no serious acute reaction followed such as would have suggested that spread from person to person under conditions meteorologically suitable for an epidemic would permit the attenuated virus to regain virulence. Nor, however, was much benefit conferred by the immunization, though the study was not carried out under ideal conditions. A reduction in incidence of influenza from 6.63% in the controls to 4.4% in the immunized individuals was, however, observed (Burnet, 1943). Only further experience will enable full judgment to be passed on the relative merit of this method of immunization compared with the subcutaneous method, but simplicity of production and economy of material make rapid large-scale production of the attenuated vaccine much easier than in the case of the concentrated vaccines needed for subcutaneous immunization. It is also conceivable that the time lag before immunity becomes effective is shorter with intranasal than with subcutaneous vaccines, and therefore in the presence of an outbreak the value of an intranasal vaccine would not necessarily be impaired.

Passive Immunization

I can here do no more than mention the experiments which have been made to confer resistance to influenza by passive immunization of man with serum. Earlier in this lecture I mentioned the use of immune serum intranasally in mice and ferrets, and in man successful use of atomized intranasal serum has been reported from Russia (Smorodintseff, Gulanoff, and Chalkina, 1940). Trial of this method last year by Andrewes and Glover (unpublished experiments) during the virus A outbreak gave inconclusive results because none of the groups in which the method was applied developed a sufficient number of cases of influenza in the non-serum-treated controls after the application of serum to the remainder. It was therefore impossible to draw any conclusions as to the value of the method. Possibly such a method might be of greater value during a pandemic type of influenza with high incidence of pulmonary infection by the virus.

Control of Epidemic Influenza

Rational control of any infectious disease depends on knowledge of the whole cycle of the infection, including the source of the causative agent, its mode of spread, and the factors which underlie natural resistance of the host. In the case of influenza, knowledge is still lacking on many of these points, and particularly on the source of infection and whereabouts of the virus in interepidemic times. Possible methods of control based on the mode of spread have, however, been studied, particularly since the outbreak of war. Andrewes and Glover in 1941 defined the mode of spread of contagion in the case of ferrets infected with virus A and showed that, though distant contagion by fine air-borne droplets was entirely possible, the relatively coarse droplets spread from the mouth and nose, particularly in sneezing, were also of great importance in conveying infection. Human contagion is almost certainly conveyed by true air-borne spread at times, but direct droplet infection from man to man must be important. Dust infection is also possible, as shown by the experiments of Edward (1941) on the resistance of influenza virus to slow drying at room temperatures. The great developments which have taken place in recent years in methods of sterilization of the air were reviewed by Andrewes in 1940 and Stuart Mudd more recently (1944). Air-borne particles of influenza virus have been shown to be capable of destruction by such methods as ultra-violet irradiation (Wells and Brown, 1936), or by germicidal mists or vapours such as hypochlorous acid gas (Edward and Lidwell, 1943) or propylene glycol (Henle and Zellat, 1941). Stokes and Henle (1942) have used propylene glycol vapour in a ward, and have demonstrated that atomized influenza virus released into the air is thereby destroyed.

All these methods may play a definite part in the reduction of air-borne infection in crowded messrooms, air-raid shelters, and places of entertainment. They would inevitably be less successful against the direct spread of coarse droplets over short distances, and, though the wearing of masks would provide ideal barriers against such droplets, experience has shown that people will not readily tolerate such measures. The limitations of physical and chemical methods of introducing barriers to the spread of virus during outbreaks of influenza are therefore considerable. Not much more than a reduction of incidence in particular groups where overcrowding would produce an abnormally high rate can be hoped for so far as the uncomplicated virus infection is concerned. There seems more hope that complications may be reduced in incidence, and in pandemic influenza the value of methods of aerial hygiene would be most definite. I do not propose to elaborate this type of work further, as I have not myself taken part in it. I would, however, point out the fact that, even without special apparatus or knowledge, simple measures of hygiene such as improvement in window ventilation, spacing out of beds, and encouragement of a hygienic attitude towards coughing and sneezing may do much to lower the incidence of infection in disciplined communities such as Army units.

When we turn to survey the problem of control of influenza in general it is obvious that the usefulness of all prophylactic methods is dependent on the particular variety of influenza which it is desired to control. In regard to the type of influenza experienced in recent years, there would be little room for methods which failed to reduce actual incidence though they affected severity or incidence of secondary complication. In the face of an outbreak of influenza of the 1918 type, however, any method which modified the course of infection, even if it failed to prevent it completely, would be of use. Naturally, also, there is, in wartime, increased scope for control measures against influenza in order to effect a reduction in the loss of labour to industry or of time to duty from minor as well as major sickness, and measures which fall short of perfection would be relatively more acceptable now than in times of peace. We have seen the promise held out by methods of artificial immunization in limiting the incidence of infection during an outbreak, and the problem would seem essentially to be the application of the method. In such a periodic disease as influenza we are enormously handicapped by lack of knowledge as to when to expect epidemics. The fact that the methods available for artificial immunization are probably effective for only short periods after inoculation adds further difficulty. It will clearly be useless to immunize unless there is a reasonable probability of an outbreak within the next few weeks or unless the outbreak has already begun in neighbouring areas. Use of a vaccine after an epidemic has begun may not be actually harmful, but, in view of the delay before subcutaneous vaccine exerts an effect, only intranasal virus would then have much chance of success. If we are lucky enough to experience indicator outbreaks during the months preceding an epidemic, as occurred in 1943, then we may be able to apply immunization with benefit, but unfortunately we do not yet know whether such experience is exceptional or not. Should we desist from attempts at immunization because of the argument that we owe our present freedom from a recurrence of pandemic influenza of the worst variety to the regular recurrences of the type of mild influenza which we have been considering? My own view coincides with that of Stuart Mudd (1944), who believes that the dissemination of agents of respiratory disease should be attacked whole-heartedly by all possible methods. On the other hand, there is clearly much room for improvement both in how best to apply vaccines and in their actual composition. An example of possible future developments lies in the recent discovery of Friedewald (1944) that the addition of certain substances—of which a mixture of liquid paraffin, killed human tubercle bacilli, and a lanolin-like absorption base known as falba was the most effective—has an amazing adjuvant effect on the antigenic power of influenza virus, and increases the size and duration of the antibody response to virus given subcutaneously. The application of the methods of aerial sanitation in addition to immunization will certainly be necessary if ever we are faced by a recurrence of pandemic

fluenza of the 1918 type ; and there is the undoubted possi-
lity, as already mentioned, that the causative organism of
ch influenza may be entirely different in type or in anti-
nicity from the viruses so far studied. Faced by a virus
entirely novel antigenic type, it is unlikely that any of our
esent vaccines would have any beneficial effect at all, and
e should probably have to spend our time studying the new
gent in the laboratory during the period when it was wreaking
s vengeance on ourselves and our fellows. General methods
f hygiene as well as the methods of aerial disinfection would
our only prophylactic weapons. The use of quarantine for
land communities, as in Australia in 1918, may only postpone
e fatal day when the pandemic virus begins to spread among
e population ; but such postponement, in addition to allowing
ne for the development of specific methods of attack in the
boratory, might mean that the virus then would be less
rulent than if it reached the area at the height of its passage
rough the population elsewhere.

Conclusion

To summarize: the development of knowledge concerning
e mechanism of immunity and of resistance to influenza virus
fection has been traced in experimental animals and in man.
animals and in man immunity is found to be a complex
ocess, in which the production of antibodies plays only a
rt. Other processes, though less well outlined, belong to
e innate resistance of the mucosa of the respiratory tract,
hich appears to possess methods of defence by virtue of the
sal secretion in addition to more definitely cellular activities.
ossible ways of producing immunity in animals and in man
ve been described, and the general problem of control of
fluenza, particularly by the use of the methods of aerial
erilization, have been mentioned.

No speaker on the subject of influenza has any right to
onclude a review such as I have attempted without once again
nphasizing the fact that we are so fundamentally ignorant
f many of the vital links in the chain of the natural infection
at the need for more research on this aspect is still pressing,
d must occupy as much of our time as methods of application
knowledge so far gained, or even more.

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The Empire Rheumatism Council was established eight years ago to organize research throughout the British Empire into the causes and means of treatment of rheumatic disease. The annual report for 1944 is signed by the chairman, Lord Horder, who welcomes an intimation from St. James's Palace that the Duke of Gloucester wishes to continue as president during his term as Governor-General of Australia, and that absence over-seas will in no way diminish his Royal Highness's interest in the Council's work. A committee on postgraduate education has been set up, with Sir Adolphe Abrahams as chairman. The report confirms a recent announcement in these columns that the tests so far made with a Russian serum have not justified recommendation of its use; but in view of the high reputation of Soviet medical research the Council proposes, when war conditions permit, to invite the Russian scientist responsible for the treatment to visit this country, or, alternatively, to send a research worker to Moscow to make further investigations. The Council looks forward to great progress in the field of clinical research on rheumatic disease when the establishment of a national chain of treatment centres will enable comprehensive tests under full control conditions to be made for evaluating present means and proposing new means of treatment. The *Annals of the Rheumatic Diseases*, by agreement between the Empire Rheumatism Council and the Council of the British Medical Association, is now published by the B.M.A. at Tavistock Square.

DUODENAL ILEUS IN THE NEWBORN

BY

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Duodenal obstruction in the newborn may be associated with a complete atresia or with stenosis caused either by narrowing of the bowel wall or by partial obliteration of the lumen by a membrane. It is, however, with duodenal ileus due primarily to external pressure that we are dealing in this paper.

In 1930, and later, Miller and Gage (1930, 1932, 1935a, 1935b) published a series of papers under the headings "Gastromegaly and Chronic Duodenal Ileus in Childhood" and "Chronic Duodenal Ileus in Infancy and Childhood," describing cases of obstruction to the second and third parts of the duodenum. They considered that there were two separate mechanical factors at work in producing ileus: first, a congenital anatomical factor, where a band of mesentery, usually associated with the superior mesenteric artery, was stretched across in front of the duodenum, causing some degree of compression; and, secondly, the vicious circle likely to be set up by this. They showed how the proximal duodenum tended to become distended and how this, in turn, caused ptosis and kinking over the band, so making the ileus more severe. They stressed the great importance of the latter factor in the causation of symptoms, and showed that if it could be overcome by medical treatment the baby would thrive even though the anatomical factor remained.

Ladd and Gross (1941) gave an excellent description of a further group of cases together with a bibliography. In this group, volvulus of the midgut was superimposed upon a high intestinal obstruction caused by external pressure on the duodenum. They gave a clear description of the embryological basis for the condition. Between the 6th and the 10th week of foetal life the intestinal tract grows more rapidly than the abdominal cavity, and the midgut passes out into the base of the umbilical cord. When, later, the relative rate of growth changes once more, the gut returns to the abdomen and, in the process, it rotates. It follows that the caecum at one stage comes to lie high up on the left and only later passes across to the right upper abdomen and finally to its adult position. When the process is complete the caecum has its peritoneal attachment in the right iliac fossa, while the small intestine is anchored by a diagonal attachment on the posterior abdominal wall extending from the duodenojejunal junction above to the caecum below. The normal process may become arrested at any stage. If the caecum has not reached its final position it may lie across the duodenum, high up and to the right, so that its peritoneal attachment may cause duodenal obstruction. Associated with this, the fixation of the small intestine is likely to be abnormal and volvulus of the mobile midgut may occur.

Symptoms and Signs

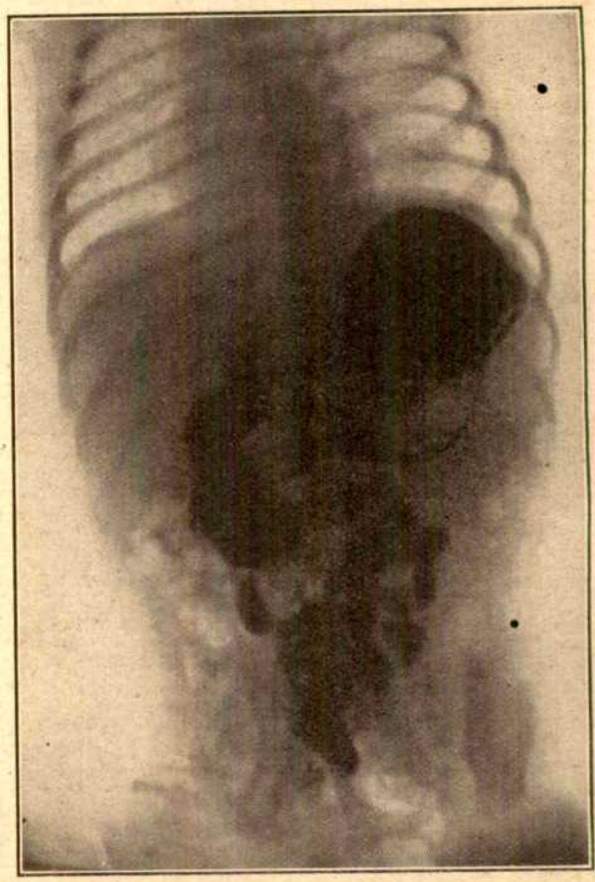
Vomiting is usually the predominant symptom in any form of duodenal obstruction; it is generally forcible, occurring immediately after each feed, and the vomit is often bile-stained. When present this last sign is of great value in diagnosis. Miller and Gage have noted the fact that anorexia is usually pronounced and that if the baby is not forced to take more than it wants its intake is so small that duodenal distension and the onset of vomiting may be delayed. Constipation may be very severe owing to starvation, but the stools, when passed, show no evidence of digestive upset. In the first days of life, when the differential diagnosis from duodenal atresia may be difficult, the identification of cornified epithelium in the meconium may be a valuable finding, proving that obstruction to ingested material has not been complete. Wasting and dehydration vary in degree according to the severity of the case. Distension is limited to the upper abdomen in simple cases; when it becomes more severe the complication of volvulus is to be feared. Visible peristalsis of the stomach may be seen, though not as marked as in pyloric stenosis; duodenal peristalsis, passing downwards on the right, has also been noted.

On palpation of the abdomen, failure to find the characteristi firm pyloric tumour is an important point in the differentia diagnosis between duodenal ileus and pyloric stenosis, thoug it is possible to mistake the duodenum, if distended and fille with curd, for the pylorus. The general examination of th baby includes inspection of the limbs and fontanelle in search for any evidence of a cerebral cause for vomiting, an also the elimination of any possibility of parenteral infectio in the ears, urine, chest, and elsewhere. A straight x-ray fil may be sufficient to show fluid levels in both stomach an duodenum, together with gross distension of the latter. Lad and Gross give a warning against barium meals in these cases as they believe that the barium may become inspissated. Wit care there should be very little danger, and the results ma be of great value in diagnosis.

Case I

First seen Dec. 31, 1940, at the age of 3 weeks. A first child born 2 weeks before term after a normal labour, the baby ha appeared healthy at birth and had weighed 7 lb. 12 oz. Vomitin started "directly the milk came in," usually occurring immediatel each feed had been taken, though it might be delayed for an hour The vomit was greenish yellow in colour, and "sometimes he seeme to pump up more than he had taken." Constipation was severe the baby had had only 4 stools during the 3 weeks of life, and had followed soap enemata. There was nothing relevant in th family history.

On examination the baby was very thin, weighing 1 lb. 4½ oz. les than its birth weight. In spite of this the general condition wa reasonably good, and the infant looked starved rather than ill; ther was no gross dehydration. Seen at a feed, there was no visib peristalsis, though slight distension was observed in the uppe abdomen; no tumour was palpable and the hernial orifices we normal. There was no evidence of disease elsewhere. In view c the history of persistent forcible vomiting of bile-stained flui associated with severe constipation a partial obstruction could b visualized, situated distal to the entrance of the common bile du but at a point high up in the intestine, since there was no generaliz distension. A tentative diagnosis was made of duodenal ileus d to compression of the third part by mesentery.



Barium-meal examination of Case I. Radiograph showing dilatation of the first and second parts of the duodenum.

Treatment.—The baby was admitted to hospital. After gastric lavage a barium meal (see Fig.) was given; the report read: "Oesophagus normal. Stomach normal in situation. Emptying occurred readily. The first and second parts of the duodenum are grossly dilated. There is vigorous peristalsis in this area. The site of the obstruction is at the junction of the descending and ascending portions. The obstruction is only partial and may settle down." The aim of medical treatment was to empty the stomach and duodenum completely twice a day so as to enable them to regain their tone and prevent the vicious circle produced by distension and kinking. With the same end in view, feeds were small and frequent. Gastric lavage was continued twice daily for the first week; the intervals were then gradually increased till a clear result was obtained after four days without treatment. Feeds at first were given at 2-hourly intervals, with 10 feeds in the 24 hours; the intervals were then increased to 2½ hours on the 3rd day and 3 hours on the 9th day. By the 16th day the infant was able to take 3 oz. every 3 hours. On this treatment vomiting ceased almost at once and there was only very occasional sickness after the first 24 hours. The bowels moved normally on the 2nd day and caused no further trouble. There was an improvement in weight, and the baby gained steadily. He was discharged after 24 days in hospital, having gained 25 oz. and being free of all symptoms.

Barium Meal, Jan. 15, 1941.—"Repeat examination. Stomach emptied quite well. There was no hold-up in the duodenum. Stenosis can still be recognized, however."

The child was seen again on Nov. 7, 1944, at the age of 3 years and 11 months. He was well developed and in excellent health. He had been free from symptoms since leaving hospital. A barium meal showed no abnormality of the stomach or duodenum.

Case II

This patient was first seen on Dec. 10 at the age of 15 days. He was a first child, born at full term after a rapid normal labour: birth weight 7 lb. 10 oz. He appeared normal at birth. Vomiting began directly feeds were taken, and persisted for 3 days, occurring after practically every feed. The vomiting had then ceased suddenly and completely, and for the 5 subsequent days the baby took well from the breast and gained weight. Sickness returned on the 8th day and was very severe; it was frequently projectile and the fluid was usually bile-stained. The family doctor had seen peristalsis and palpated a tumour. There had been no bowel action for 4 days. Since the return of the sickness the breast milk had been expressed and given at half strength. The family history showed nothing relevant.

On examination the baby's weight was 6 lb. 9¼ oz. He was thin, but, considering the history, the general condition was fairly good and dehydration was only of moderate degree. Seen at a feed, there was some distension in the upper abdomen, but no peristalsis was visible and no tumour could be palpated. A projectile bile-stained vomit occurred immediately after the feed. Except for slight umbilical discharge nothing abnormal was found elsewhere, and a normal stool was passed. Consideration of the history and physical signs suggested that we were dealing with a case similar to the one already described, and the same provisional diagnosis was made. The obvious difference between the two cases lay in the fact that in Case II there had been one complete spontaneous remission between the 3rd and 8th days of life. Mother and baby were admitted to hospital. In view of the fact that the family doctor had seen peristalsis and palpated a tumour, eumydrine was given for 36 hours, although it was felt that bile-stained vomit should rule out the possibility of pyloric stenosis. The drug had no influence on the vomiting, and was discontinued. In spite of treatment on the same lines as Case I there was no improvement. The baby was therefore put into the Trendelenburg position and the duodenum aspirated with a Ryle's tube; continuous duodenal drainage was kept up for some hours and subsequently repeated at frequent intervals. Additional fluid was given by the subcutaneous route and by continuous rectal drip; half-strength saline, followed by tap-water and glucose, was absorbed extremely well from the rectum. Since there was no fault in digestion and the baby took well, the caloric value of the feed was increased by the addition of 1 dr. of half-cream dried milk powder to each 4 oz. of breast milk. After a day of this treatment the baby for more than 24 hours did not vomit and the bowels opened normally. Unfortunately the sickness returned and persisted with far greater intensity in spite of continued treatment, so that the infant went downhill rapidly and died 2½ days later, 8 days after admission to hospital.

When the vomiting returned, after the short interval of freedom, the question arose whether laparotomy was advisable. Various factors had to be considered. The infant was in poor condition; there had been two remissions, and a third might possibly occur. Looking back, in view of the post-mortem findings (see below) it is just possible that surgery might have been successful even two days before death. We can only make a conjecture as to the sequence of events inside the abdomen. It seems probable that the partial obstruction had been caused in the first place by pressure on the duodenum, either from malposition of the caecum or from the primitive mesentery around the superior mesenteric artery. Then, with the onset of continuous sickness 2½ days before death, a volvulus of the midgut had been superimposed. The volvulus might easily have been relieved surgically, and Ladd and Gross describe a simple operative procedure by which they free the caecum from its attachment high up on the right and allow it to fall across to the left of the abdomen, in which position it can no longer obstruct the duodenum.

Post-mortem Report.—The relevant extract from the report reads as follows: "The body of a small, rather wasted male infant. The head appeared rather large, the fontanelles were a little depressed. The skin was loose. The upper part of the abdomen was somewhat full, though the lower part was insunken. . . . *Abdomen:*—Peritoneal cavity: The stomach was rather large and distended. The duodenum was grossly distended, being almost as large as the stomach. The distension stopped abruptly at about the mid-point of the third part of the duodenum. At this point the duodenum was involved in a volvulus which had occurred at the root of a primitive mesentery around the superior mesenteric artery. The volvulus was left-handed. It was not so tight as to have interfered with the blood supply of the small gut, though tight enough to have prevented the passage of intestinal contents beyond the point of volvulus. The descending and transverse colons were in the normal situation, but the caecum lay on the anterior aspect of the immensely distended second part of the duodenum. The long appendix passed medially over the distended third part of the duodenum. The absence of the caecum from the right iliac fossa, and the drawing up of the small intestine by the volvulus, accounted for the fallen appearance of the lower abdomen. There were no further abnormalities in the abdominal cavity." The body was otherwise natural except for a very few pericardial haemorrhages and a fairly severe tear of the upper leaf of the tentorium on the left, which had healed over, though there was some extravasation of blood into the substance of the tentorium.

Summary

Two cases of duodenal obstruction in the newborn are described. They illustrate two types of case. The first resembled those described by Miller and Gage and responded rapidly to medical treatment. The second probably began in a somewhat similar way, but volvulus was superimposed and caused the infant's death.

I am indebted to Dr. Robb-Smith, Director of Pathology, Radcliffe Infirmary, Oxford, for the post-mortem report, and to Dr. Kemp, radiologist to the hospital, for the *x*-ray reports and the print.

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BURNS AND THEIR TREATMENT AMONG E.M.S. HOSPITAL IN-PATIENTS

BY

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Examination of the records of the E.M.S. Statistical Branch at Norcross shows that of the total injuries for which Service patients were admitted to the E.M.S. hospitals, burns caused among men about 3% in 1942 and 4% in 1943, and among women about 10% in each year (Stocks and Brooke, 1944). At Norcross every fifth record of admission for in-patient treatment is selected, and the primary, secondary, and complicating causes of admission are coded by means of the Medical Research Council's Classification of Diseases and Injuries. In the code numbering for burns the third digit indicates the agent causing the disability and the fourth digit the part of the body affected. A random sample of 400 of the cases admitted on account of burns during 1943 and the first half of 1944 has been examined in detail, and an analysis of the distribution according to age and site is given in Table I.

Six males and one female died—a proportion of 1.75%. Five deaths of men were due to extensive burns caused by aeroplane crashes. In each case the patient was very shocked

TABLE I.—*Distribution of Burns according to Age and Site*

M.R.C. Code No.	Site of Burns	Males						Females					
		15–	25–	35–	45 up	Total	%	15–	25–	35–	45 up	Total	%
93–0	Face, head, or neck	24	20	9	0	53	14·9	4	2	1	0	7	15·5
93–1	Trunk	3	6	1	0	10	2·8	0	0	0	0	0	—
93–2	Upper limb or limbs	10	12	2	0	24	6·8	2	5	1	0	8	17·8
93–3	Hand or hands	27	32	10	0	69	19·4	3	1	0	0	4	8·9
93–4	Lower limb or limbs	19	33	13	3	68	19·2	12	4	0	1	17	37·8
93–5	Face, head, or neck, and also trunk and limbs ..	2	9	0	0	11	3·1	1	0	0	0	1	2·2
93–6	Face, head, or neck and also limbs	36	28	6	0	70	19·7	3	0	0	0	3	6·7
93–7	Trunk and limbs	10	5	1	0	16	4·5	1	0	0	0	1	2·2
93–8	Other or unqualified areas	14	11	8	1	34	9·6	2	2	0	0	4	8·9
	Total	145	156	50	4	355	100	28	14	2	1	45	100
	Percentage	40·9	43·9	14·1	1·1		100	62·2	31·1	4·5	2·2		100

and, despite blood or plasma transfusions and such other treatment as it was possible to give, four died on the day of admission to hospital, and the fifth four days later. The death of a woman was due to toxaemia. Five men and one woman were discharged from the Services as a result of their injuries, after periods of treatment ranging from 162 to 378 days.

TABLE II.—*Distribution of Burns according to Agent*

M.R.C. Code No.	Agent	Males		Females	
		Frequency	%	Frequency	%
930–	Fire and hot objects ..	164	46·2	6	13·3
931–	Hot liquids and vapours	80	22·5	25	55·6
932–	Corrosive liquids ..	14	3·9	3	6·7
933–	Radiations	1	0·3	—	—
934–	Electric currents	2	0·6	1	2·2
935–	Other or unqualified ..	93	26·2	10	22·2
936–	Sunburn	1	0·3	—	—
	Total	355	100·0	45	100·0

13.5% to incendiary bombs and other instruments of war, and 18.9% to miscellaneous agents. Phosphorus caused 10.75% of all burns (included in No. 935–).

Tables III and IV show the distribution and the median number of days of treatment of burns by site and degree. The period of in-patient treatment given for a burn depends not only on its severity and the site and size of the affected area, but also on whether adequate after-care can be provided at the man's unit, in which case he can be discharged before the injury is completely healed. Since this applies chiefly to cases of long duration, the median number of days' treatment for different degrees and sites provides a better measure for comparison than would a complete tabulation of periods of hospitalization or an arithmetical mean of these periods.

The median is naturally high for numbers 93–5 and 93–7, which are for multiple sites. The high median for 93–4, lower limb or limbs, is partly accounted for by there being 8 third-degree burns in this group as compared with 3 at most in any other.

TABLE III.—*Distribution of Burns according to Site and Degree*

M.R.C. Code No.	Site	Degree									
		Males					Females				
		1st	2nd	3rd	Not Stated	All Types	1st	2nd	3rd	Not Stated	All Types
93–0	Face, head, or neck	13	15	3	22	53	3	3	0	1	7
93–1	Trunk	1	3	1	5	10	0	0	0	0	0
93–2	Upper limb or limbs	0	10	3	11	24	0	5	0	3	8
93–3	Hand or hands	5	34	2	28	69	1	2	0	1	4
93–4	Lower limb or limbs	1	31	8	28	68	4	4	0	9	17
93–5	Face, head, or neck, and also trunk and limbs	1	4	2	4	11	0	0	0	1	1
93–6	Face, head, or neck, and also limbs	10	31	2	27	70	1	0	0	2	3
93–7	Trunk and limbs	1	7	0	8	16	0	1	0	0	1
93–8	Other or unqualified areas	2	17	3	12	34	1	2	0	1	4
	Total	34	152	24	145	355	10	17	0	18	45
	Percentage	9·6	42·8	6·8	40·8	100	22·2	37·8	0	40·0	100

The distribution of burns according to agent is shown in Table II. Of the 170 burns caused by fire and hot objects, many of which were avoidable accidents, 42.9% were due to burning petrol, 24.7% to flames from fires, blow-lamps, cookers, etc.,

TABLE IV.—*Median Period of Treatment, according to Site and Degree (including Period of Treatment at Unit before Admission)*

M.R.C. Code No.	Site	Median Number of Days' Treatment							
		Males				Females			
		1st Deg.	2nd Deg.	3rd Deg.	All Types*	1st Deg.	2nd Deg.	3rd Deg.	All Types*
93–0	Face, head, or neck	13	11	20	15	5	7	—	7
93–1	Trunk	—	11	—	14	—	—	—	—
93–2	Upper limb or limbs	—	17	21	18	—	19	—	19
93–3	Hand or limbs ..	16	14	—	16	—	—	—	17
93–4	Lower limb or limbs	—	37	120	45	15	35	—	26
93–5	Face, head, or neck, and also trunk and limbs	—	37	—	53	—	—	—	—
93–6	Face, head, or neck, and also limbs	18	20	30	19	—	—	—	21
93–7	Trunk and limbs	—	37	—	63	—	—	—	—
93–8	Other or unqualified areas	—	28	—	31	—	41	—	39

* Including burns for which the degree was not stated.

Summary

A statistical analysis is presented of a random sample of 400 in-patients from the Services admitted to all E.M.S. hospitals during 1943 and the first half of 1944 on account of burns. Distributions according to sex and age of patient, site and degree of burn, and duration of treatment are given; and the method of sampling was such that these may be regarded as representing the average experience in E.M.S. hospitals during the period.

I am indebted to Sir Francis Fraser, Director-General of E.M.S., Sir Claude Frankau, Director of E.M.S. in London and the Home Counties, and Dr. P. Stocks, General Register Office, for their help and suggestions.

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R. F. Norris, R. A. Kern, H. P. Schenck, and L. E. Silcox (*U.S. nav. med. Bull.*, 1944, **42**, 518), who report an outbreak of 18 cases of diphtheria in a U.S. naval hospital ship in the Solomon and neighbouring islands, state that the efficiency of antitoxin suggests that there is no fundamental difference between the strain of *C. diphtheriae* in the Tropics and those in the U.S.A. Since diphtheria in the Tropics is a comparatively mild disease, it often goes unrecognized and may be followed by fatal peripheral paralysis.

REATMENT OF THE PATIENT WITH BURNS, WITH REFERENCE TO THE PROFLAVINE POWDER TECHNIQUE

BY

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e trend of modern surgical thinking is to focus attention on a stated lesion rather than to take into conception a view the patient as a whole. In certain diseases the actual ion is the outward sign of a complex interplay of patho-ysiological processes affecting the whole organism. The rollary is also true as applied to the effects of injury. e local damaged area calls the same general processes into ion, and it is important to recognize and understand the ctions of the body to injury. It has become commonplace discuss treatment under two headings—general and local— t too often inadequate attention is given to the former. ce the measures instituted in the general treatment often ert a local action, and vice versa, it appears advisable to dify this classification and to consider the patient as a whole. e patient with a major burn must be treated from this point view.

Since the outbreak of the present war the subject of burns s received considerable attention and our knowledge has nsequently been enriched. The division of the local lesion o three degrees instead of the classical six of Dupuytren helpful, but it is pointed out that several days usually elapse fore it is possible to classify a burn, and all three degrees y be represented. The psychological aspect requires atten-n, especially with major burns in exposed parts of the body reassurance and encouragement must be given as regards rring, with disfigurement and dysfunction. In burns of the e an early inquiry with respect to these matters is usually de by the patient. For the relief of pain morphine must given in adequate amounts, and if a quick result is desired should be administered by the intravenous route. Interesting periments have been carried out on the effects of nembutal, d it is reported to reduce the fluid loss of the burned surface. these results are confirmed and applied clinically this drug y be used also as a soporific with a double advantage.

Plasma Loss

This is rapid at onset, and may be severe in amount. rther, the loss of plasma is a continuous process extending er a long period of time in the injured area. As a result, poproteinaemia develops. In the pathogenesis of this con-ion more than one mechanism is operative. There is the s of plasma at the site of injury, and in addition the output nitrogen in the urine is increased. The patient is unable ingest an adequate protein diet during the initial period lowing his injury.

Later there may be damage to the liver as the result of ic absorption, with consequent impairment of function in synthesis of plasma albumin. Acute hypoproteinaemia may velop a few hours after a severe burn, and both its presence d its degree must be rectified and corrected. Chemical alysis of the blood should be carried out and the plasma umin fraction measured. In addition, the haemoglobin rcentage must be determined, together with an enumeration the red blood cells. To rectify this condition plasma nsfusion is required as early as possible and in adequate ount. In severe cases a minimum of 1,000 c.cm. is given once, and quickly in rate. Further quantities may be neces-y over a period of time, and the clinical condition of the ient is the simplest guide. Fluid-balance charts must be tituted and the output of urine watched carefully. When the tient is able to ingest it, he should be put on a high-protein t containing a large proportion of essential amino-acids. r an adult of average size 150 g. of proteins per day can given, the best foods being milk, lean meats, and eggs. nino-acids may be given orally if there are digestive dis-bances, but this is an expensive method. In an excellent review of this subject Elman and Lischer (1943) call attention to the value of amigen, an enzymic digest of casein and pork pancreas containing amino-acids and a small quantity of polypeptides. Amigen can be administered orally and intravenously; as much as 300 g. has been given in 24 hours by the latter route. A high protein intake is necessary to safeguard the live cells from the effects of toxic absorption.

Sulphonamide Therapy

It is not our practice to give sulphonamide drugs orally as a routine. In cases of severe toxic absorption and liver insufficiency they may be harmful. Each patient must be carefully considered from this angle and the general condition assessed. Oral chemotherapy is beneficial in cases of haemolytic streptococcal infection with marked pyrexia. An adequate fluid intake is necessary and the response of the patient should be carefully noted. We have ceased to employ these drugs locally in the injured area.

After a period of three or four days secondary anaemia frequently develops, and becomes marked unless measures are taken to combat it. Iron therapy, using massive doses, is instituted. In severe burns one or more blood transfusions may be required during the second and third weeks, and it is our practice to transfuse when the haemoglobin falls below 70%. Hypovitaminosis is corrected by the daily administration of vitamins B and C. Careful attention to the cardiac and respiratory systems is necessary, especially in elderly patients, and cardiac failure or pulmonary infection is treated along routine lines. In the case of septic burns constant scrutiny of the condition of the heart, liver, and kidneys is essential.

In countries where malaria is endemic this infection may be a complicating factor in cases of burns. We have shown elsewhere that trauma may precipitate an attack of malaria in a patient whose disease is quiescent. Thus in patients who are pyrexial in malarious areas it is a wise precaution to examine the blood for malaria parasites on several occasions.

Treatment of the Wound

Wound treatment is carried out under strictly aseptic conditions in the operating theatre, usually without general anaesthesia; morphine should be administered subcutaneously half an hour before the operation, and in severe cases this can be given intravenously with good effect. The toilet of the wound is careful and conservative. Contaminants are mopped away with a solution of normal saline, and pieces of dead tissue are lifted off. Normal skin surrounding the wound is carefully cleansed with spirit. Blisters are evacuated carefully by pricking with a sterile needle. Dry proflavine powder is lightly smeared over the wound, the whole lesion being thinly coated. The wound area is covered with one layer of wide-meshed gauze impregnated with vaseline and, over this, two layers of wide-meshed gauze with a liberal supply of cotton-wool. The dressing is bandaged firmly to form a pressure-dressing with either plaster-of-Paris or calico bandages, and this initial dressing is not removed for a minimum period of five days. After the first re-dressing the time-interval between dressings is increased from 10 to 14 days. Proflavine powder is dusted on the wound at each re-dressing. The wounds in burns of third degree should be skin-grafted as soon as they are in a satisfactory state.

Use of Plaster-of-Paris

We have with advantage used plaster coverings for the dressing in certain parts of the body. Attention is called to the value of the "plaster glove" for the treatment of burns of the hand. The toilet is carried out as described, each finger being covered separately with vaselined gauze and dry gauze. The following technique is employed for the application of the "plaster glove."

The patient is instructed to place the hand in the position of rest, the fingers being partially flexed at the interphalangeal and metacarpo-phalangeal joints, with the tips of the index finger and thumb in opposition. The wrist-joint is held in partial dorsiflexion. A rolled pad of cotton-wool is placed in the palm of the hand as a support for the fingers, and the hand and forearm are covered with a liberal supply of that material. The hand, wrist, and forearm are then encased completely in the plaster glove, which extends as high as a point two inches below the elbow-joint. The limb is elevated for several days in order to minimize tissue oedema. Active exercises are instituted for the fingers after 48 hours, together with active exercises at the elbow- and shoulder-joints.

In the case of burns of the foot a similar technique is employed. The glove is left in position for a period of two to three weeks. Other regions of the body have been treated by the proflavine-plaster technique, including the leg, thigh, forearm, arm, shoulder, chest wall, and abdominal wall. In the case of large joints such as the knee and elbow, bandages are applied, with plaster above and below, in order that active exercises may be carried out. There are several advantages in the plaster technique. The dressing is comfortable and is held firmly in position. If evacuation of the patient is necessary, travelling in plaster is comfortable. In tropical and subtropical countries, where flies are numerous, the plaster forms a barrier against maggot infestation.

In order to illustrate the results obtained reference is made to the following typical cases among those we have treated by the powder. It is our practice to investigate the bacterial flora present in the wound from its inception until healing occurs. On account of the necessity for evacuation it was not possible to hold every patient until healing was established. Nevertheless we have investigated sufficient cases treated by this method to be very impressed with the end-results.

Illustrative Cases

Case 1.—Trooper aged 30 Admitted with major burns—second and third degrees—involving face, neck, forearms, hands, right chest wall, anterior abdominal wall lower half, penis, scrotum, right buttock, and both thighs. Treated with proflavine powder as described. Plasma transfusion 1,350 c.cm. Bacteriology of burns showed coliform organisms. Four days after admission, plasma transfusion 1,350 c.cm. Seven days later re-dressed. Coliform organisms present. He was re-dressed at intervals, and bacteriological examinations showed *B. proteus*, *Staph. aureus*, and coliform organisms. Thirty-six days after the first treatment the wounds were clean, sloughs had separated, and healthy granulation tissue had formed. All areas not healed were skin-grafted, using split-thickness grafts. There was a good "take," and in 69 days the patient was evacuated in good general condition, walking well, and all wounds had healed save a small patch on the right thigh which was in process of healing.

Case 2.—Fireman aged 38. Admitted with major burns—second and third degrees—involving both lower extremities, buttocks, penis, and lower part of the back. The patient had been treated at another hospital, the injury having occurred 18 days before we saw him. He had received sulphathiazole orally, 45 g., and sulphanilamide powder locally. His general condition was very poor and secondary anaemia was present—Hb 68%. Two pints of blood were transfused and routine proflavine treatment given for the burns, which were very infected. A second blood transfusion, one pint, was given 12 days later and again on the 47th day. Dressings were changed at intervals, and bacteriological investigations showed *B. proteus*, *Staph. aureus*, coliforms, and diphtheroids. Patient was evacuated 67 days after admission in good general condition, walking well, and with wounds healed.

Comment

It is of interest to compare Cases 1 and 2, as these burns were of comparable severity. In Case 1, treated with proflavine powder, the general condition did not show the marked toxicity of Case 2, and no blood transfusions were required as in the latter. The lengths of stay in hospital before healing was achieved were 69 and 67 days respectively. The haemolytic streptococcus was absent in all cases, and we believe that such infection can be prevented by the use of this method. Bacteria met with in our cases were *Staph. aureus* and *albus*, *B. proteus*, coliforms, diphtheroids, and *B. pyocyaneus*. In the past it has been stated that the acridine compounds retard the healing process in a wound. This has not been our experience using powdered proflavine in burns and also in other types of wounds. On the contrary, healing is usually rapid and there is a noticeable absence of scarring, the resulting skin being supple and of excellent quality. The hands we have treated are functioning normally and no contractions have developed. It is recognized that a burn of the hand may be of such severity that a deformity will result no matter what treatment is given. There has been no instance of a deleterious general effect from absorption of proflavine at the wound surface.

Summary

In the treatment of burns the patient as a whole must be carefu considered, and the salient features in his management are h discussed. Powdered proflavine has been used in the treatment the wound and the results achieved are described. This chemi substance is of proved value, and we employ it as a routine. Att tion is called to the use of plaster-of-Paris as a covering for dressings, and in particular to the "plaster glove" in burns of hand. Proflavine powder does not retard the process of heali and the resulting healed area showed a remarkable freedom fr scarring, the skin being supple and of excellent quality.

I am indebted to Major T. Day, R.A.M.C., for carrying bacteriological examinations on a large series of patients. C W. A. Y. Knight, A.M.S., commanding the hospital, has kin allowed me to publish the case histories.

Reference

Elman, R., and Lischer, C. E. (1943). *Surg. Gynec. Obstet.*, **76**, Int. Abst. Su 503.

Medical Memoranda

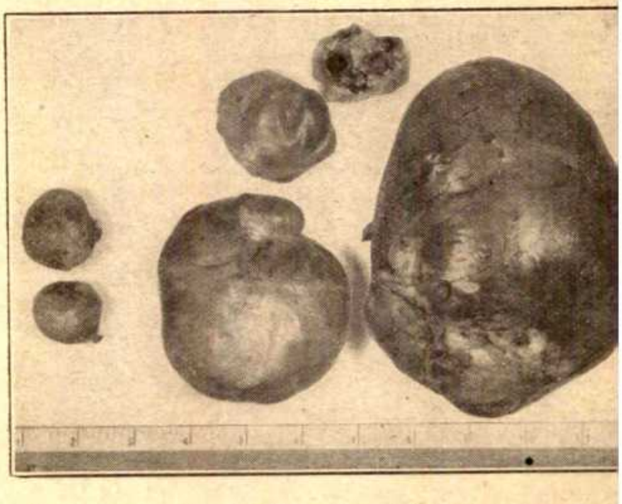
Enucleation of Six Ovarian Dermoid Cysts fro one Woman, with Conservation of the Ovarie

The following case record illustrates the scope of conservat surgery on the ovaries.

CASE HISTORY

Miss J., aged 21 (No. 24703). During a routine examinat a swelling was found in this girl's abdomen. At the West Lond Hospital a provisional diagnosis of ovarian cyst was made, and name was placed on their waiting list. As a result of the air ra in London in the early months of 1944 she came to Oxford was admitted to the Radcliffe Infirmary. On the previous diagno with which I had no reason to disagree, the abdomen was open The operative details are as follows:

Left lower paramedian incision. A bluish cystic swelling aris from the left ovary was immediately apparent; it was about 9 long, and had the appearance of a multilocular ovarian cyst an extension running up towards the left. The uterus was nor in size and position. The right ovary was about 5 in. long, clearly contained two separate cysts, one at each pole. Each in the right ovary was a little smaller than a golf ball, and yellowish in colour, as if filled with sebaceous material such as commonly present in dermoid cysts.



These two cysts in the right ovary were both enucleated ea and bloodlessly, and the ovary was repaired. Because of the fi ings in the right ovary the loculated swelling of the left ovary re-examined. Though each locule was obviously filled with wat fluid, there were in addition a few fat globules to be seen throu the capsule. On the supposition that the left-sided cyst was als dermoid, enucleation was proceeded with. Surprisingly, the turned out to be not one but four quite separate ovarian dermoi Three were enucleated without difficulty, though one was accident punctured; the fourth was removed along with a piece of thinn out ovary. The ovary was repaired and the abdomen closed.

Convalescence was uninterrupted. Before operation the pati menstruated every two months; subsequently she reported her peri as "regular every month."

All six cysts contained hair. The two on the right side w largely filled with sebaceous material; the four on the left with watery fluid. Histological examination confirmed the clini diagnosis of benign cystic ovarian dermoids; a great variety of tis elements were identified.

COMMENT

)ermoid cysts of the ovaries are not infrequently bilateral, it is especially important that the scope of conservative gery should be realized. Furthermore, they often occur in ıng women who have their child-bearing future ahead. ucleation of such cysts is the operation of choice in young men. The operation is easy, tidy, and surprisingly blood-;. I have found diathermy helpful in stopping any slight ting from the tumour bed.

3onney (1937) has recorded cases similar to the above, and ; emphasized that there are many ovarian conditions which, a general rule, should be treated by conservative surgery.

xford. C. SCOTT RUSSELL, F.R.C.S.Ed., M.R.C.O.G.

REFERENCE

Bonney, Victor (1937). *J. Obstet. Gynaec. Brit. Emp.*, **44**, 1.

Estimation of Bromide in Body Fluids

e necessity may arise at intervals to check the administration bromides or their mixtures to patients during a course of atment. Particularly is this the case in a mental hospital. suitable and easily worked process would therefore be an vantage, and the one described below is by no means comcated and gives fair results.

Not much work has been undertaken on this subject recently. ıly one process for blood bromide could be found. This s by Barbour, Pilkington, and Sargant (*British Medical ırnal*, 1936, **2**, 957). When testing this method in the hosal laboratory very poor results were obtained, although ndard bromide solutions were employed. It was found that ces of serum protein unprecipitated from the first stage preıted the formation of the gold colour-combine. Further, lium chloride in concentration equal to that obtained in ıod serum similarly prevented the colour formation. Iodides 'e exactly the same colour-combine as bromides when treated h the gold chloride solution.

t will thus be seen that these distracting features had to be ninated before any reliance could be placed upon the results. e following process was therefore instituted.

1. URINE

\ 24-hour sample of urine is collected and measured. 100 c.cm. urine is evaporated to dryness in a silica basin on a water-bath. : urine is previously made slightly alkaline with 5% NaOH. ite slowly until all organic matter is decomposed, but do not tinue heating to drive off all the carbon. Cool, and add about c.cm. of distilled water and a few drops of 5% HCl till slightly l; heat to almost boiling-point and filter. Wash with warm illed water at least three times. Keep bulk of fluid as low as sible, if necessary by further evaporation. Transfer filtrate to a arator and cool. Add 10 c.cm. of chloroform ($CHCl_3$) and 5 c.cm. freshly prepared chlorine water, shake vigorously, and allow Cl_3 + Br to settle for a few minutes. Run the $CHCl_3$ layer into ther separator under 10 c.cm. of distilled water. Treat the ginal solution with a little more $CHCl_3$, shake, and add to first Cl_3 extract. Wash quickly with distilled water. Run the total Cl_3 + Br extract into a separator, add 10 c.cm. distilled water, slowly add just enough anhydrous Na_2CO_3, shaking the while l the red colour of the bromine in the chloroform disappears the whole becomes water-clear. Shake well and allow to settle. aqueous layer now contains NaBr in solution. Run off the Cl_3 carefully. To the aqueous layer 1.5 c.cm. of a 1% gold ıride ($H.AuCl_4$) solution is now added, and drop by drop 5% HCl l the orange-red colour is fully formed. Three or four drops he acid solution should suffice. This colour is then compared ı colorimeter with a standard NaBr solution of known strength ɔr 4 mg.). The appropriate quantity of standard should be ted to the same volume as the final aqueous solution of the erial under test, made slightly acid with dilute HCl, and 1.5 c.cm. he gold solution added.

est of Process.—4 mg. of NaBr was added to 50 c.cm. of a nal urine and the entire process carried out. 3.81 mg. of NaBr recovered. Tests on patients receiving exact quantities of nide daily showed an excretion of from 60 to 70% of the added over that period.

2. BLOOD

he process can be adapted to blood, a small measured quantity which is incinerated slowly until most of the carbon is driven off. ther steps are then completed as above. It is most advisable : to keep the bulk of the liquid as low as possible. The results ' vary slightly owing to the small amount of sample used.

t is not claimed that this process is 100% efficient, but with :ful working comparative results will be assured. The chemireactions made use of are of the simplest nature and, should e desired, the test could be carried out in any laboratory.

ffordshire Mental Hospital, Stafford. J. S. SHARPE. M.B., Ch.B.

Gaucher's Disease: Diagnosis by Sternal Puncture

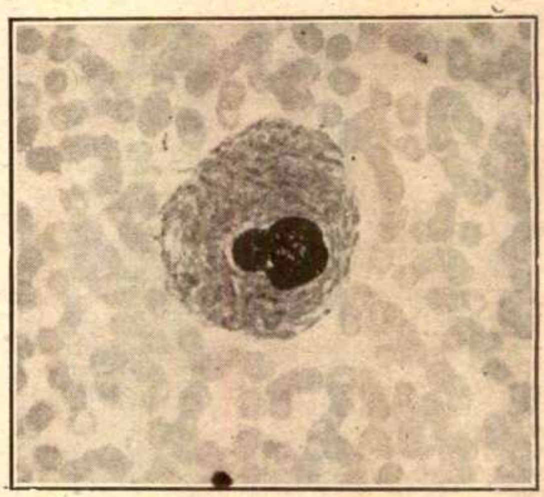
The case reported below was referred to me by the Armed Forces Medical Board on account of splenomegaly. The diagnosis of Gaucher's disease was made by sternal puncture. In view of the rarity of the condition and the fact that this case was revealed by the routine examination of recruits it is felt that a brief clinical memorandum would be of interest.

CASE HISTORY

The patient, a youth aged 19, is of British nationality and is not of Jewish ancestry. There is no familial history of splenomegaly. One brother died at birth. The father is at present on active service in the Royal Navy. The mother is alive and well, and apparently healthy. He has had no serious illness apart from an attack of bronchitis at the age of 10, though there have been occasional mild attacks of "influenza." During these attacks the patient feels a creaking sensation over the spleen.

Eighteen months ago the spleen was found to be enlarged when he was examined by his doctor during an attack of "influenza." Since then an increase in the size of the spleen has been noted. His general health is good and he has played rugby and water-polo without difficulty.

Examination revealed a tall, well-built youth of healthy appearance, with no conjunctival pingueculae or abnormal pigmentation. There was no abnormality of the nasopharynx or chest. The blood pressure was 130/85 mm. Hg. The spleen was enormously enlarged, with a firm edge and an easily palpable notch. In the supine position, at a point 2 in. lateral to the umbilicus the lower margin of the spleen was 6 in. from the costal margin. The lower thorax on the left side was visibly bulged forward by the underlying spleen. The liver was not palpable. There were no palpable glands apart from a few small slippery glands in the left axilla.



Investigations.—Blood count:—Hb 110% (Haldane scale); mean diameter of cells (halo method), 6.8 μ; red cells, 6,120,000 per c.mm.; leucocytes, 6,000 per c.mm.—polymorphs 56%, lymphocytes 40%, monocytes 4%; platelets, 285,600 per c.mm.; red cells stain normally. Bleeding and coagulation times were normal. Urine:—No protein of any nature present. Hippuric acid excretion test for liver function:—In one hour 17.4%, in two hours 47.5%, in four hours 82.6% of ingested sodium benzoate excreted. Red cell fragility to saline normal. Radiographs of skull, scapula, humerus, pelvis, and lower ends of femora showed no abnormality. Marrow smear:—After a prolonged search a typical Gaucher cell was found (see photomicrograph). Otherwise the picture was within normal limits.

Emanuel (1941) reported two cases of Gaucher's disease diagnosed by sternal puncture. In one, that of a man aged 30, the splenomegaly was revealed through the routine examination of recruits.

I am indebted to Prof. S. L. Baker and Dr. C. E. Jenkins for their interest and help, and to Mr. Gooding for his excellent photomicrograph.

M. L. THOMSON, M.D., M.R.C.P.,
Honorary Assistant Physician, Salford Royal Hospital.

REFERENCE

Emanuel, E. (1941). *Edinb. med. J.*, **48**, 843.

There were 25,285 persons on the register of the Pharmaceutical Society of Great Britain at the end of last year, compared with 25,224 the year before. The total includes 4,471 persons known to be serving with H.M. Forces. Since 1900 the number of pharmacists has increased by 10,000 and is now 1 to 1,800 of the population, compared with 1 to 2,700 in 1900. The proportion of women pharmacists is now 10.5%. Last year the number of women entering pharmacy was 52% of the total.

Reviews

BACKACHE AND SCIATICA

Backache and Sciatic Neuritis. Back Injuries, Deformities, Diseases, Disabilities. With Notes on the Pelvis, Neck, and Brachial Neuritis. By Philip Lewin, M.D., F.A.C.S. With drawings by Harold Laufman, M.D. (Pp. 745; 235 figures. 50s.) London: Henry Kimpton.

This work has been written for the general practitioner. To many the anatomy and mechanics, the investigation, diagnosis, and treatment of the spine when deranged or diseased is a closed book. And yet an enormous literature has been accumulated upon different aspects of these matters. It is a notorious playground of the charlatan. That an attempt should be made by such a distinguished orthopaedist as Dr. Lewin to "open this book" is timely. Yet he would have been more successful if he had been disciplined by even a little of the shortage of paper with which our medical writers have to contend. If "brevity is the soul of wit," so also conciseness and clarity are the essence of science.

Though well printed and illustrated on good paper it is very uneven in its teaching. There are some excellent chapters, particularly on the investigation of spinal disturbances and upon general matters of treatment. The whole is tinged with a naivety which will be somewhat strange to crusty old conservatives of Great Britain, and yet is often stimulating to those who understand American ways of thought and humour. Nevertheless the volume is clouded to a disturbing extent by verbose repetition. The work of other writers is freely quoted but often with lack of critical assessment and explanation such as the general practitioner really needs. An impressive bibliography is added as an appendix, but to a number of the items there mentioned we find no reference in the text, and, conversely, we found authorities noted in the text and no corresponding entry in the bibliography. The book seems to have been written in haste, with no proper editing, for how else could one have such repetitions as on page 439, where it is stated:

> "Pure sciatic neuritis is rare. It probably does not occur except . . . due to metallic poisoning, arsenic or lead, or to an infection or as alcoholic or syphilitic neuritis, as an avitaminosis or from anaemia. Sciatica may be due to diabetes, syphilis, alcoholism, lead poisoning, or any lesion producing an inflammatory or degenerative change directly in the nerve tissue." . . . "The predisposing factors in sciatic pain are congenital anomalies, postural defects and metabolic, circulatory, and endocrine disturbances. Determining factors are infection, trauma, exposure, and fatigue. Any focus of infection, exposure, etc., may precipitate an attack. Vitamin deficiency is also a predisposing factor."

This is not an isolated instance. It is also found, for example, on page 442 in an involved discussion upon the relation of the pyriformis muscle to the sciatic nerve. A section on page 471 on "Uncontrollable Brachial Neuritis" is entirely concerned with a proposal of Cushing's for the treatment of malignant spinal metastases with paralysis below the 12th thoracic segment by transection of the spinal cord. Further on we find, under "Chordotomy," a confused statement of the origin of the Spiller-Frazier operation. Discussing traumatic lesions of the sciatic nerve it is stated: "The order of return of function following *internal popliteal* (tibial) injury is: the gastrocnemius, tibialis posticus, *peronei, tibialis anticus*" (our italics). The last two mentioned muscles are later correctly listed under injuries of the external popliteal nerve; but an equally confusing and inaccurate statement had already been given on the page before.

Into the book has been dragged much material whose relation to backache is slight—e.g., burns and skin grafting, gas gangrene, anaesthetic and general surgical technique—and some irritating repetition in describing and enthusing upon the Kenny treatment of poliomyelitis. The lack of condensation and judgment, the insertion of inconsequential asides, and numerous inaccuracies produce an unfortunate atmosphere of confusion. Such errors shake our confidence in the book as a whole, and this confidence is not increased by reading the detailed and over-enthusiastic description of operations for ruptured intervertebral disks and spondylolisthesis, by inadequate illustrations of the radiological appearances of spinal lesions (e.g., spondylolisthesis), the intrusion of illustratio from the advertising literature of commercial firms, and a me passing reference (and that Putti's) to the use of the plast jacket in sciatica.

After reading the book and going back to Dr. Steindler foreword it seemed to us still true that "even the most arde advocates of surgery concede that backache is largely a proble for conservative treatment. . . . What we still need is to b shown how far rest can be accomplished by conservative mea and when and why operative methods . . . become necessary Dr. Lewin has, we feel, "just missed the boat."

THE CANCER PROBLEM

The Riddle of Cancer. By Charles Oberling, M.D. Translated by William H. Woglom, M.D. (Pp. 196. $3.00 or 20s.) Connecticut: Yale University Press; London: Oxford University Press. 1944.

In 1942 the book *Le Problème du Cancer,* by Prof. Charl Oberling, was published in the series "France Forever," i Montreal. On both sides of the Atlantic experts in canc research recognized that here was a book which provides th balanced and exact information needed by medical studen by doctors who have not enough time and leisure to rea original literature widely, and even by well-informed lay peop It is not primarily a book for those who are well acquaint with cancer literature, but even for the expert it provides ide and novel analogies and subtle arguments which cannot fa to enlighten and broaden his conception of the vast proble which cancer presents.

Cancer research has now become so extended that it almost beyond any one man's capacity to be master of a its branches; such a man would need to be very we acquainted with chemistry, bacteriology, genetics, parasitolog as well as with pathology and general medicine. The mass facts now accumulated about cancer—e.g., the induction cancer by a hundred or more pure chemical compoun administered by feeding or injection or by mere inunction the skin; the initiation of cancer by hormones, the influen of heredity, the action of viruses, the part played by Bittne milk factor in mammary cancer—must necessarily cause co fusion or lead to sterile argumentation unless the whole ma can be surveyed and correlated in a way which does n offend the general sense of the fitness of things. The key the general survey is the pathology of cancer, and he Prof. Oberling is completely at home. He realizes as acute as the early pathologists who disentangled cancer from gran lomas, and the pioneers of cancer research—e.g., Bashfor Leo Loeb, Ehrlich, Borrel—that the problem to be solv is autonomous growth, a form of growth which is unique pathology. Again and again in his discussions of the meani of the many discoveries which have been made during t forty years of experimental cancer research, Oberling us the pathological nature of cancer as the touchstone of impo tance. To review this book adequately would need mo columns than any journal could possibly spare; all aspects the subject are dealt with fully and fairly.

The French edition of this book was attractive not on because of the masterly way in which facts were broug together to form a rational picture of perhaps the mo complicated disease process in the whole realm of patholo but also because of the elegant precision of the langua It must often occur to the English reader that our Fren colleagues have an advantage over us in the language they u But it must be admitted by all readers of Dr. Woglon translation that the English edition loses little or nothing the grace and beauty of the original. Dr. Woglom deserv the thanks of the English-speaking world for giving us su a faithful and beautifully written volume.

TROPICAL MEDICINE

Tropical Medicine. By Sir Leonard Rogers, M.D., F.R.C.P., F.R.S., an Sir John W. D. Megaw, M.B. Fifth edition. Churchill's Empire Series (Pp. 518; illustrated. 21s.) London: J. and A. Churchill. 1944.

That a new edition of this book has been called for with two years of the appearance of the fourth edition is perha not surprising in view of the increasing number of medi officers being drafted for service in the Tropics. The autho as they say, have resisted the temptation to increase the s of the book by the incorporation of new matter. Such fre formation as was necessary, particularly in the chapters voted to malaria, kala-azar, trypanosomiasis, typhus, leprosy, d dietetics, has been introduced by the procedure of rewriting any pages in these sections. The upshot of this has been actual reduction in the size of the book. To the casual server it appears unchanged, but careful inspection shows at much new information of real value has been included, that readers may rest assured that in it they will still find thoroughly reliable and up-to-date account of all those nditions which are grouped under the heading "tropical seases." The book was written originally for the tropical actitioner, and this objective has not been lost sight of; this, the fifth, edition the medical officer who has to deal ith patients in the Tropics will find all the information he eds, not only for treating the sick but also for maintaining health those under his care. As with the earlier editions, e latest can be thoroughly recommended to all those, whether ung and inexperienced or old and mature, who are called on to practise medicine in the Tropics.

Notes on Books

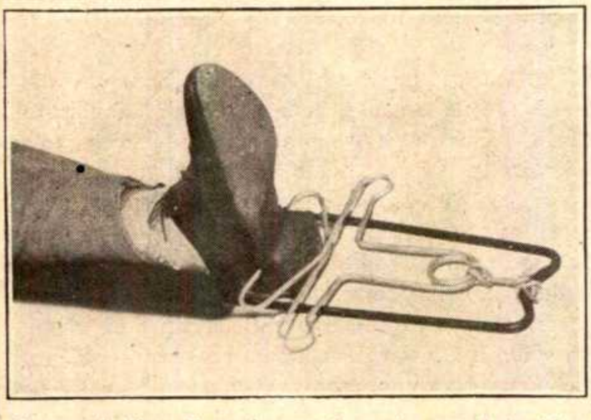
wis's Medical and Scientific Library, Gower Street, London, .C., was founded in 1848 to supply mainly the needs of members the medical profession and also to lend out books of scientific, chnical, or philosophic interest not to be found in the ordinary rculating libraries. It has proved a boon to generations of medical udents and practitioners and to workers in the allied sciences. The st full catalogue (to Dec., 1937) has been out of print for some ne, and a Supplement covering the four-year period 1938 to 1941 also out of print. A new edition has been revised to the end of 43. Part I, "Authors and Titles" (714 pages), and Part II, Classified Index to Subjects with Names of Authors" (208 pages) e issued together in one volume from 136, Gower Street (12s. 6d. to bscribers; 25s. to non-subscribers). Every book in Lewis's Library the latest revised edition, and the aim of the catalogue is to pro- de subscribers with the titles of the works available there. For asons of space and practical usefulness books for which there is demand and textbooks which have passed out of date are with- awn from time to time. The catalogue includes about 24,000 les and it forms a very useful work of reference.

Preparations and Appliances

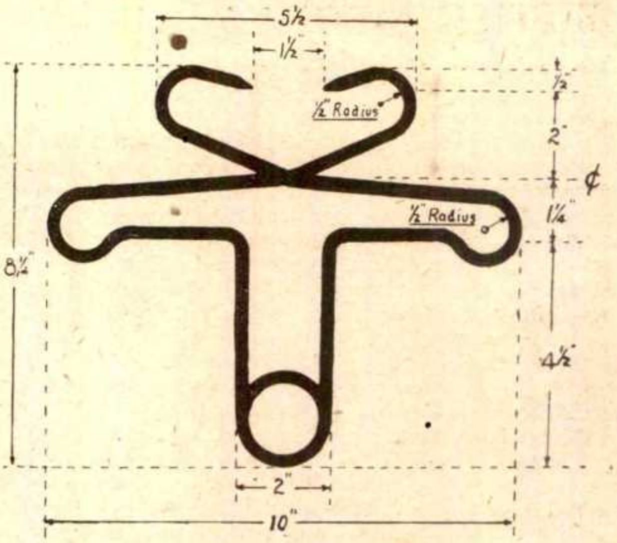
CLIP FOR USE WITH THOMAS SPLINT

r. J. R. M. WHIGHAM, *M.C.*, M.S., F.R.C.S., writes from . Andrew's Hospital, Bow, E.3:

The accompanying illustrations show a clip for use with the omas splint which has proved valuable. It is made of 1/4 in. und mild steel and consists of jaws, wings, and tail. The ws grip the side of the boot, the wings rest on the parallel rs of the splint and prevent rotation, and the tail when htly held opens the jaws ready for application on the principle the towel clip. Extension cord can be attached either to e tail or to the wings. The more the pull on the wings the eater is the grip on the boot.



The grip resembles in some ways the Millbank pattern of eut.-Col. Monro, R.A.M.C., detailed in the *British Medical urnal* (Feb. 10, 1940, p. 217), but the addition of the tail gives the clip a handle and makes it, I think, easier to apply, especially under the difficult conditions which often confront the first-aider. A ready sling for the fractured limb can be improvised by passing the splint through the sleeve of a jacket, and this completes the essential treatment.



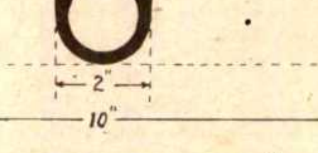
STEADYING GADGET FOR TOCANTINS'S NEEDLE

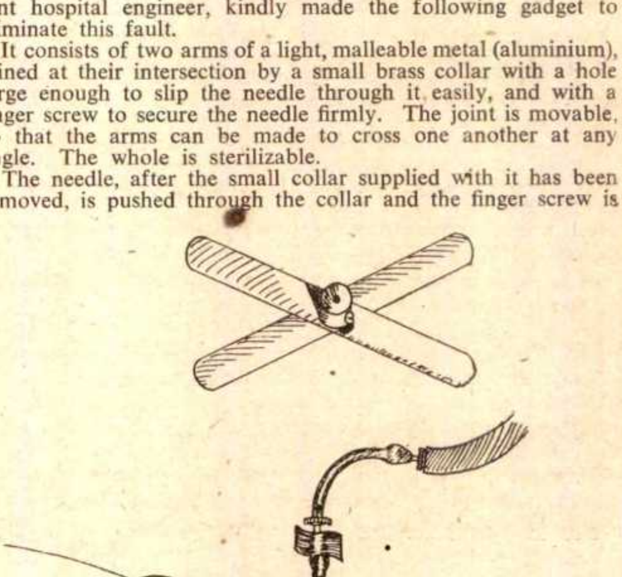
Dr. BRIAN V. I. GREENISH writes from the Grove Hospital (L.C.C.):

When using the longer types of Tocantins's needle for intramedullary drip therapy in the tibiae of infants, especially if treatment has to be continued for longer than 24 hours, the needle tends to become less stable than it is at first, due partly to its own slight top-heaviness, partly to contraction of the child's muscles, and partly, no doubt, to its unavoidable movement when the child has to be changed. On several occasions I have found this to lead to leakage of fluid back through the tissues, escaping where the needle penetrates. Mr. Delo, assistant hospital engineer, kindly made the following gadget to eliminate this fault.

It consists of two arms of a light, malleable metal (aluminium), joined at their intersection by a small brass collar with a hole large enough to slip the needle through it easily, and with a finger screw to secure the needle firmly. The joint is movable, so that the arms can be made to cross one another at any angle. The whole is sterilizable.

The needle, after the small collar supplied with it has been removed, is pushed through the collar and the finger screw is tightened. The arms are straightened and the needle is pushed into the medullary cavity. The arms are then moulded round the child's leg and secured with adhesive plaster. The needle is thus firmly held, the efficiency of treatment is increased, and the child is relieved from the great discomfort of an unsteady needle.





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SATURDAY FEBRUARY 24 1945

INFLUENZA: WHERE WE STAND

Scrutiny of the epidemiologist's tables and charts can tell us much about the nature and behaviour of influenza, but vital statistics alone have not revealed and are never likely to reveal the whole story. Nor can we expect that study of the behaviour of influenza viruses in laboratory animals will, by itself, unravel the mysteries of the disease. There is urgent need for concerted attack by epidemiologist, clinician, and laboratory worker. Progress made by such correlated studies is reviewed in the first of Lieut.-Col. Stuart-Harris's Goulstonian lectures, published in our issue of last week. The yearly variations in the incidence of influenza take on a new significance when we know that the major peaks have been associated with the activity of influenza A virus, and that in years without pronounced peaks that virus has been rarely, if ever, isolated. Influenza A virus is now recognized to have been the causative agent of almost every one of the serious outbreaks all over the world since, in 1933, it was shown to be pathogenic for ferrets and thus became amenable to study in the laboratory. The serologically distinct influenza B virus, first recognized in 1940, has been recovered in a few wide outbreaks, sometimes in association with the A virus, but has not been proved to be a major cause of trouble; there is some evidence that it is more apt than is A to cause sporadic infections or to be associated with grumbling outbreaks not showing the sharp peaking which is characteristic of A epidemics. Virus A tends to make itself felt every other year; in this country it seemed liable to cause particularly large outbreaks every fourth winter. Thus it hit us in 1933 and in 1937. It was detected in the blitz winter of 1940–1, but, when we most feared it, the threatened outbreak came to nothing. Its next public appearance was in the winter of 1943–4, when it started a sharp outbreak in October instead of waiting till its favourite month of January. We understand that neither virus has yet been detected this winter.

Certain winters, as in 1934–5, 1938–9, 1939–40, and perhaps this winter also, have no major epidemic, but clinical influenza turns up in larger quantity than in other blank years; sometimes it is most noticeable in semi-closed communities, in outbreaks which do not spread generally. These "intermediate" years are particularly puzzling. Laboratory study shows that virus A may be present, but in a minority of clinical cases, and B may exist alongside it; but most cases are not obviously associated with either virus. Stuart-Harris discusses whether another strain of virus is at work here or whether modified strains of A or B are concerned. Wh virus A is recognized in such seasons it tends to be low virulence for ferrets, and the antibody response attacked persons is also of a lower order than in epidem years.

The second of the Goulstonian lectures, published this issue, deals with experimental evidence as to immuni to influenza and with the possibilities of active immuniz tion. Serological studies of human sera have been carri out on a large scale, especially since Hirst's discovery th influenza virus will agglutinate fowl and other red blo cells. This agglutination is inhibited by specific antiser and this inhibition is the basis of a quantitative test whi can be carried out in any laboratory where fresh blo cells are available. It now seems clear that possession high-titre antibodies does not guarantee anyone again getting an attack of 'flu, for the disease may assault peop having antibodies at any level. There is, however, a te dency—no more—for influenza to lay low in larger nu bers persons with relatively poor antibodies. This bei so, vaccination, which probably acts by raising antibo levels, will never guarantee an individual against infectio though it may appreciably reduce the incidence in a co munity. Virus inactivated by formalin and injected su cutaneously has been the basis of almost all influenza vir vaccines to be tried; these have been improved lately substituting for mouse-lung filtrates allantoic fluid fro infected chick embryos. Such material contains mu more virus and less unwanted protein than preparatio used earlier. Concentration by several methods can applied to improve the product still further. Unfortunate evidence suggests that even the best vaccines have effect on immunity of comparatively short duration, pe haps a couple of months. A recent trial in America, whi Stuart-Harris mentions, gave much the best results recorded—approximately a fourfold reduction in inciden of clinical influenza; but, as he says, "it may well . . . that the extraordinarily successful timing of vaccin tion, which was in fact a matter of chance, was an impo tant factor in the success of the experiment." For in th trial the outbreak began at just about the time when response to the vaccine was at its height. At present, wh we cannot foretell just when an epidemic is coming, would be wasteful, if not actually harmful, to inject infl enza vaccines indiscriminately, on the off-chance of epidemic's appearing when the resulting immunity was st raised. The alternative course, though administrative difficult, seems much wiser at present—namely, to pla laboratory-trained scouts to look out for evidence activity by viruses A and B and to distribute a inject the appropriate vaccine as rapidly as possib when the scouts' reports indicate that the right mome for doing this has come.

A recent report by Friedewald suggests that, by mixtu with suitable adjuvants, an influenza vaccine will produ much better and more prolonged effects: this work has n yet reached the stage of clinical application, but its furth development may ultimately solve some of our difficulti Meanwhile we do well not to look only to vaccines banish influenza from our midst. Far more do we ne learn all the grisly details of the natural history of the irus. The factors permitting epidemics to arise are ertainly complex. One of them is the cyclical variation the immunity of the herd, high after an outbreak, gradu- lly falling till the next one begins. Another concerns the hereabouts of influenza A virus between epidemics. It as but rarely been incriminated as a cause of sporadic ifluenza. Was there any special significance in its appear- nce in scattered local outbreaks in the summer preceding e October–December, 1943, epidemic? Is it ever brought our shores from abroad? Can the virus lie hid in some ther host, as swine influenza has been shown to do in e pig lung-worm and earthworm? If the chain of caus- ion of influenza epidemics proves to have many links e may hope all the more to find one of them which is ot too hard to break.

Stuart-Harris touches but lightly on the crucial but ghly speculative question of the relation between ordinary outbreaks and pandemics such as that of 1918–19. In recent and fascinating review of pandemic influenza ope[1] says: "We may be missing something of signifi- nce in the epidemiology of influenza by placing our entire nfidence in the conception that every case of influenza, pecially at the outset of a pandemic, must of necessity ring from some preceding case of the disease." Discussing e autumn wave of 1918, he points out the difficulty of plaining on the basis of contact infection "its relatively ow diffusion over comparatively short distances as com- red with its unbelievably rapid spread over geographi- lly wider areas." It is gratifying that Stuart-Harris sees signs suggesting that a pandemic visitation is threaten- g the final stages of World War II. We devoutly hope is right.

TREATMENT OF LARYNGEAL CANCER

e treatment of carcinoma of the larynx has fascinated ryngologists and surgeons for some ninety years, since arcia made the living vocal cords visible in the laryngo- ope. In the early days it could not be expected that e disease would often be diagnosed in its initial stages; nsequently any rational treatment by surgery had to adapted to at least moderately advanced cases, but if t radical enough it was naturally disastrous, while if nceived on a scale appropriate to the extent of the dis- se its mutilating character carried the seeds of disaster the magnitude of the plan. Of the many who laboured overcome the technical difficulties Gluck above all others cceeded in converting the story of failure from all kinds septic complications, of which he has given a careful storical account,[2] into one of the most satisfactory apters in the tale of surgery for carcinoma. Without ing further into historical detail it may be said that the olution of laryngeal surgery has now produced a reason- ly safe operative technique appropriate to every stage intrinsic cancer, so long as it remains intrinsic. Laryngofissure, modified hemilaryngectomy, and total laryngectomy (now by the aid of chemotherapy almost freed from risk in otherwise sound subjects) provide a standardized technique applicable to all the varieties of situation and extent of the disease, and it is unlikely that much further technical progress will be made in this direction. The less mutilating of these procedures, suitable for early cases, provides nearly 80% of cases free from recurrence for ten years; while total laryngectomy in more advanced cases, where the cancer is not only more extensive but often changing in character to a more malignant type, provides 60% of ten-year cures.[3] Nevertheless it is only natural that, for an organ so intimately connected with the functions of voice and respiration and deglutition, efforts should be made to cure the disease by radiotherapy without subjecting the patient to the hazards and mutilation associated with surgery. If these efforts are to be justified, however, they must show results at least as good as may be claimed for excision. The direct application of radium to the growth, or as near as possible to the base of the tumour, was the method first adopted, and with various modifications it still finds favour in the practice of some who like to combine surgery with radiation; but radiation applied from a distance in the form of deep *x*-ray therapy or by beam from a large quantity of radium has also been given extensive trial and with some measure of success.

Using radium needles applied to the base of the growth by removal of part of the laryngeal cartilages Harmer[4] reports that of 24 early cases 14 survived three years, and of 72 more advanced 32 patients are still living. This gives percentages of 58 and 46, which are inferior to the results of surgery. Lederman and Mayneord[5] in a study of the distribution of radiation from teleradium in the larynx by different techniques showed by physical measurements how these techniques can be adapted to individual needs, while when radium needles are used as the source of radiation the distribution in the horizontal plane shows a region of heavy irradiation principally at the anterior commissure but falling off rapidly along the cord towards the arytenoid cartilage. Morton, Gray, and Leary[6] have also found, by measurement of the dosage reaching the area of the vocal cord and its environment, that by the usual method of employing needles the anterior part of the larynx receives twice the dosage that reaches the posterior part. Therefore, unless the tumour is very small, complicated methods of application are needed to ensure a homogeneous dose throughout a tumour which has extended much either along or below the vocal cord, and homogeneity of dosage is one of the guiding principles for this form of radiotherapy. It may be that a method of applying needles in conformity with this principle will be devised, but the method generally adopted hitherto gives one reason why treatment with needles so often fails except in very early cases where the growth is small. In any event there is no means of telling beforehand whether an epithelioma will prove to be radio-sensitive or radio-resistant, but for needling a rigid standardized technique must be applied. It might be expected, therefore, that high-voltage deep *x*-ray therapy or treatment by teleradium would have certain advantages, both in the matter of distribution of the dosage throughout the volume of tissue to be irradiated and in enabling the treatment to be adapted to the progress of the case by observing the local reaction to the radiation. In fact both Nielsen and Strandberg[7] (Copenhagen) and Max Cutler[8] (Chicago) have gone so far as to recommend a therapeutic test in order to discover whether the tumour is radio-sensitive, in which case a full course of treatment is administered, or whether it is radio-resistant, so that if the response is unsatisfactory the case may be transferred to the surgeon. This assumes, however, that the radiotherapist will have the moral courage to abandon his line of treatment in midstream, as it were, and such an Olympian level of reasoned pessimism is not to be expected of every radiotherapist. However, Lederman[9] can show by the use of teleradium the following results at the Royal Cancer Hospital: out of 8 early cases 6 remain free of symptoms, and of the other two patients, who also became free of symptoms, one died from intercurrent disease and the other is untraced; out of 15 more advanced cases (i.e., suitable for laryngectomy) 12 patients are living and free from symptoms, 6 of them for more than five years. This appears to indicate a clear superiority over treatment by needles, though the figures are still small.

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[1] *Medicine*, 1944, 23, 415.

[2] Gluck, Th., and Soerensen, J., *Geschichte der Operationen am Larynx und arynx*, Vol. IV, *Handbuch der speziellen Chirurgie des Ohres und der oberen ftwege*, Katz, L., Preysing, H., and Blumenfeld, F., Würzburg, 1911–14.

[3] Colledge, L., Roy. Soc. Med., Discussion on Treatment of Carcinoma of the Larynx, Feb. 2, 1945 (in press).

[4] Harmer, W. D., ibid.

[5] Lederman, M., and Mayneord, W. V., *Brit. J. Radiol.*, 1943, 16, 301.

[6] Morton, J., Gray, L. H., and Leary, G. J., ibid., 1944, 17, 204.

The position at present therefore remains that surgery can give as good results for laryngeal cancer as for any other situation favourable for surgery. Not only is biopsy useful surgically in confirmation of the diagnosis, but Broder's grading provides a fair indication of the degree of malignancy and therefore of prognosis from the surgical standpoint, though at present histology gives no information on the matter of radio-sensitivity. If a surgical line of treatment is chosen much attention must be devoted to selection of the appropriate operation. There should be no exploratory laryngofissures. If the choice of treatment falls upon radiotherapy—which may often claim an advantage in the case of the aged and of those who nowadays are described, regardless of grammar, as "poor surgical risks"—then a decision has to be made between (*a*) the local application of needles, with economy of radium but erratic dosage and some risk of wound infection, and (*b*) irradiation at a distance by deep *x*-ray therapy or by teleradium, with accurately distributed dosage, absence of operative risk, and the opportunity for observing the progress of the case during treatments. It is useless to deny that the introduction of radiotherapy has enveloped the whole subject in a fog of prejudice and bias; and the best that can be done for any individual patient is to place him in the care of someone who has had a comprehensive experience of both lines of treatment and is capable of deciding what is the best treatment for the particular case, or in the care of a surgeon and a radiotherapist who are really willing to co-operate.

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[7] Nielsen, J., and Strandberg, O., *Acta radiol.*, Stockh., 1942, **23**, 189.
[8] Cutler, M., *Arch. Otolaryng.*, Chicago, 1944, **39**, 53.
[9] Lederman, M., Roy. Soc. Med., Discussion on Treatment of Carcinoma of the Larynx, Feb. 2, 1945 (in press).

PRECOCIOUS FEMALE PUBERTY

If every physician were first to say to himself: "It depend what you mean by 'precocious,'" many an infant bell would remain unscarred. That there is a great variatio in the time of onset of puberty among perfectly health girls is obvious. It is not so obvious at what stage it justifiable to believe that the onset is early or late enoug to warrant a search for a cause. Climate and race a certainly factors to be considered. Puberty at 9 is unusu in Northern European peoples, but would certainly n be considered abnormal in southern or tropical race Are we justified in regarding as deviations from healt even such extreme cases as that of Lina Medina, th Peruvian girl who began to menstruate at 7½ months an created a world's record by giving birth to a child whe only 5 years and 8 months old?[1]

The constitutional element is one which has been ne lected by many workers. The onset of puberty depend so far as present knowledge goes, on two factors—the pr duction of oestradiol by the ovary, presumably as a resu of pituitary stimulation, and the response of the tissue to this ovarian hormone. That the latter factor is variabl not only between individual and individual but betwee one part and another of the body of an individual, an even between the right and left sides of the individual, well recognized. It seems impossible to escape the co clusion that the response of a girl's tissues to oestrogen stimulation is, as Novak[2] has put it, part of "an unde lying foreordained sex pattern innate in the huma mechanism and having its source in the chromosom themselves." If this is so we must expect to find wi variations in the age of onset of puberty in the absen of any discoverable endocrine cause. A disorder of th endocrine system may be expected sometimes to cause a abnormality in time or in strength of the necessary oestr genic stimulus, but it cannot affect the underlying suscept bility to stimulation of the tissues of the body. In fact, tumour as a cause of precocious puberty is rightly su pected but seldom found. A tumour of the adrenals, whic may cause precocious puberty in boys or virilism in girl is a very rare cause of true female puberty. Reilly an his colleagues[3] were able to find only 4 reported case Pineal tumours, on which great stress was formerly lai produce true precocious puberty only in boys, and it now accepted that they do so not by virtue of any end crine overactivity but by pressure upon the hypothalamu Lesions in this area, tumours of the tuber cinereum an corpora mammillaria, hydrocephalus, and encephalit have been occasionally reported as causing true fema precocious puberty, probably by interfering with th functional control of the anterior pituitary. Of great numerical importance is the granulosa-celled ovari tumour. Lull[4] was, however, able to collect only reported cases of precocious puberty due to this caus Even so, the patients are not strictly pubertal, for the "menstruation" is in reality oestrogen-withdrawal blee ing, and ovulation is lacking.

In a recent review Novak[2] has emphasized the rari of neoplastic cases (one in 60,000 patients passing throug the department of gynaecology of Johns Hopkins in 6 years), and has emphasized the relative frequency of th constitutional type hitherto neglected by the majority workers. How common such cases are it is impossib to say, for different observers have used different criter of precocity, and many cases have doubtless gone u reported or have been reported without full investigatio

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[1] Escomel, E., *Presse méd.*, 1939, **47**, 875.
[2] *Amer. J. Obstet. Gynec.*, 1944, **47**, 20.
[3] Reilly, W. A., Lisser, H., and Hinman, F., *Endocrinol.*, 1939, **24**, 91.
[4] *Amer. J. Obste .Gynec.*, 1941, **41**, 445.

As an index it is noteworthy that Novak has never encountered a neoplastic case in his own practice, but here reports 9 cases, 6 of them his own, in which the investigation and subsequent history make a constitutional diagnosis inevitable. The age of the first menstruation in this series varied between 15 months and 7½ years, the arbitrary age at which children were excluded from the series being 8.

The prognosis of the constitutional type of precocity is good. The girls grow into normal adults, except for a tendency to stunting of the long bones due to early union of the epiphyses. Their psychological management may be difficult, and it must be remembered that they ovulate and may, like the young girl of Peru, become pregnant.

EMOTIONAL ALBUMINURIA

Like the systolic heart murmur, albuminuria is a call for critical attention rather than a sign of disease. Benign albuminuria, which occurs in the absence of organic renal disease, is a well-known condition which is quite common in adolescents and young adults. It is frequently orthostatic, the albuminuria being associated only with the erect posture. It also occurs in almost everyone after violent exercise, and is not uncommon in students before examinations and in other conditions of mental strain. The factor of emotion in the production of benign albuminuria has recently been given prominence by Ahronheim's observations[1] on a large group of men between the ages of 17 and 26 years who were potential air cadets in the United States Air Corps. The routine procedure included the examination in each case of two specimens of urine obtained within a period of 15 minutes, the second specimen being voided after the routine withdrawal of blood for a Kahn test. Albuminuria was present in practically all " fainters "— those who either fainted or showed shock-like symptoms and felt sick. In the whole group more than 50% showed albuminuria, of which the majority had a positive reaction only in the second specimen. A detailed follow-up was not possible, but it was calculated that the albuminuria was persistent in only about 2%. Ahronheim showed that there was a direct relation between emotion and the occurrence of the albuminuria, and he made the rather comforting if indefinite observation that in 50% of an unspecified number a considerable albuminuria cleared promptly when the subjects were given a draught of medicine which had the properties of being bright and bitter.

In considering the pathogenesis of emotional albuminuria a clue is provided by the very high incidence in the " fainters," in whom there were the usual signs and symptoms which document gross vasomotor disturbance. It is known that in animals even transitory interference with the arterial or venous supply to the kidney produces albuminuria.[2] In the orthostatic type the alteration in posture probably produces albuminuria as the result of a transient renal circulatory disturbance. It is therefore not difficult to accept as a likely factor in emotional albuminuria a transient change in the blood flow of a similar nature, an effect of the widespread vasomotor disturbance associated with syncope. Although the translation of the psychic disturbance into terms of vasomotor changes is probably mediated through the hypothalamus, there is no reason to suppose that a close parallel exists between emotional albuminuria and the so-called cerebral albuminuria of acute brain injury. Acceptance of the view that benign albuminuria is common carries with it the assumption that the glomerular capillary membrane is often permeable to plasma protein under conditions which are within the range of experience of the normal individual and the normal kidney. The facility with which protein can pass through the glomerular capillary wall is in keeping with the trend of recent work by Whipple[3] and others,[4, 5] which suggests that there is a much freer and more rapid passage of protein between the circulating plasma and the protein stores of the tissues than is suggested by the orthodox view that the capillary wall is relatively impermeable to plasma protein.

PROBLEMS OF INANITION

The study of inanition is one of great interest to both clinician and physiologist. In certain medical and surgical conditions lesions in the intestinal tract often interfere with the digestion and absorption of food, and some degree of inanition results. If this goes on long enough the patient may die. To some extent life can be prolonged by parenteral feeding with glucose, amino acids, vitamins, and emulsified fats, although such therapy is still experimental; the only substances in routine use are sodium chloride, glucose, and blood products such as plasma. We still do not know enough of the nutritional requirements in inanition. Holt and Kajdi[6] have thrown some light on the subject by noting the survival times of rats fed on water and single foodstuffs only. Rats have an uncanny skill in making dietetically sound selection of food. When offered a variety of pure foods they choose those suitable not only for optimal growth but for optimal calorie intake as well. Holt and Kajdi therefore assumed that in inanition the rat will eat only what it can make use of, and that its survival will indicate its need for particular foods made available to it. Survival was longest on a protein diet. Rats fed on fat or carbohydrate alone showed a gradual loss of appetite beginning towards the end of the first week and continuing progressively until death. This was attributed to lack of some dietary factor or factors concerned in the utilization of fat and carbohydrate. Rats fed exclusively on fat, carbohydrate, and protein diets drank widely varying quantities of water, the most with protein and the least with fat. The greater need for water on a pure protein diet is explained by the increased quantity of urea formed; it must have water for its excretion.[7] The " water-sparing " property of carbohydrates and fats is of some practical importance, particularly in conditions in which the intake of water is restricted either for therapeutic reasons or because of actual scarcity. Pronounced variations in survival rates were also observed with different carbohydrates. The best results were obtained with glucose, fructose, maltose, cane sugar, and invert sugar, which were almost identical in effect. On pentoses, lactose, and galactose survival rates were lower.

The gradual failure of appetite in rats given carbohydrate and fat to eat was attributed to an impairment of the utilization of food. In further experiments Holt and Kajdi[8] showed that deficiencies of the fat-soluble vitamins and minerals played no part in the phenomenon. Vitamin B_1 deficiency developed regularly in the third week of the tests, but there was no evidence of a deficiency of any other factor of the vitamin B complex. The most serious—namely, a deficiency causing failure of appetite on the third or fourth day—is apparently the want of some factor needed for making use of carbohydrate and fat. At present its nature is unknown. It may be some undiscovered food factor, or the protein component of some enzyme, which cannot be synthesized when the diet is lacking in protein.

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[1] *War Med.*, 1944, **5**, 267.

[2] Fishberg, A. M., *Hypertension and Nephritis*, 1939, 4th ed., p. 110, Philadelphia.

[3] *Physiol. Rev.*, 1940, **20**, 194.

[4] Beattie, J., and Collard, H. B., *British Medical Journal*, 1942, **2**, 507.

[5] Sharpey-Schafer, E. P., and Wallace, J., *Lancet*, 1942, **1**, 699.

[6] *Johns Hopk. Hosp. Bull.*, 1944, **74**, 121.

[7] *Amer. J. Dis. Child.*, 1936, **52**, 751.

[8] *Johns Hopk. Hosp. Bull.*, 1944, **74**, 142.

THE PROPHYLAXIS OF TRENCH FOOT

BY

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In every war in history trench foot has been a serious cause of casualties. In the last great war there were 84,670 such casualties in the British Army. In the week ending Dec. 16, 1916, there were 3,104 cases in France and Flanders alone. One blizzard in November, 1915, caused 15,900 cases in Gallipoli and 988 in Serbia. After 1916 the incidence fell rapidly. It was realized that trench foot is almost completely preventable.

The present spell of mild weather following a hard frost is ideal for the production of this malady, and the time seems appropriate for a summary of the teaching which has been given to a large number of medical officers of the three Services in the war medicine courses at the British Postgraduate Medical School of the University of London.

Given proper training and good equipment, the incidence of trench foot is an index of discipline. It is the army in retreat, low in morale and with its communications in disorder, that suffers most severely. In other circumstances, it is almost as foolish to get trench foot as to blow off one's big toe with a rifle. There are bound to be unexpected circumstances in war to make the occasional case unavoidable, but when once an epidemic has been controlled every case should be the subject of inquiry. Almost every such inquiry will bring to light an error in training, equipment, or discipline which, checked in time, will save not merely sections or platoons but even brigades and divisions.

There is a way of life in cold damp weather which must be learned not only by medical officers but by combatant officers and by every individual man. The maintenance of cold-weather discipline must be the responsibility of the combatant officers, but it is the duty of the medical officer to see to it that his brother officers understand the reasons for the rules, and are continuously alert for breaches of them. In the battle against cold there is no place for "toughness." The man who breaks the rules and gets away with it is not a hero but a lucky fool. Moreover, he is a stumbling-block to those who are less well adapted, and he should be treated as a criminal.

Preliminary Training

In the training of troops it should be remembered that the physiological reactions to cold, which are the concern of the adrenal medullae, the thyroid, and the autonomic nervous system, are themselves capable of being trained. In those habitually overclad they become dulled. Troops should accustom themselves to exercise for short periods in the minimum of clothing in the coldest weather. In safe surroundings no more clothing should ever be worn than is necessary to prevent shivering. It is probably not necessary to emulate the Finnish custom of "wallowing naked in December snows," but bathing in cold water and drill in frosty weather stripped to the waist are both of great value.

Clothing

Sir Thomas Lewis showed that if the whole body is chilled the local protective reactions against cold may fail. The clothing must be as nearly as possible waterproof, for it is the great thermal conductivity of water which is to blame for trench foot. It should also be windproof, so that the protective warm layer of air about the body is not too often blown away. The clothing should be in many light layers rather than a few heavy ones, for the air caught in the interstices is of more value than much wool.

All clothing must be loose, for the essential cause of tissue damage in trench foot is the exudation from damaged capillaries, and the slightest venous constriction raises the intracapillary pressure to a serious degree. For this reason puttees were discarded. The boots must be loose, supple, well oiled, and preferably without toecaps. Socks should be undarned, and also loose. Most men can realize that tight boots are dangerous: they forget that tight socks are equally so. They forget, too, that though it is a good thing to wear two pairs of socks if the boots are large enough to take them, it is dangerous if they are not. Ideally the outer pair of socks should be a size larger than the inner, but this is a refinement usually impracticable. Garters and sock suspenders should be forbidden, the socks being kept up by pinning them to the pants. Gloves also must be loose. Some people favour an inner glove of thin silk covered by a woollen one, with a big outer glove of waterproof material. Personally I have always found an ordinary woollen glove perfectly satisfactory and the silk one unnecessary. The outer waterproof glove is important. It should be made without separate fingers and should be loose enough to slip on and off easily when fine finger movements are needed.

Damp

Dry extreme cold is far less to be feared than damp slight cold. Trench foot has occurred in temperate climates even in the spring. For this reason it is absolutely necessary that wet clothes, especially boots, socks, and gloves, should be changed at every opportunity. Combatant officers are sometimes inclined to regard such an instruction as "soft": they must be overruled. A general routine order issued to British Armies in France in November, 1915, laid it down that every man should carry a second pair of socks, and that where possible battalion arrangements should be made for socks to be dried and reissued during each tour of duty in the trenches; and that while in the trenches boots and socks should be taken off from time to time if circumstances permitted and the feet dried, well rubbed, and covered with dry socks. Although much more is now known of the pathology of trench foot, it is almost impossible to improve on this general routine order and the later Fourth Army standing order of June, 1917. Obviously the one extra pair should be increased to several whenever possible. Even if the boots cannot be dried, dry socks are a considerable protection.

The provision of gum boots for use in waterlogged trenches is important, but it must be remembered that sweat is itself dangerous, and gum-boots are sweaty things. Men must not march far in them. In the last war it was usually possible to arrange for men going forward for a tour of duty in waterlogged trenches to call at a post where they removed their boots, performed foot drill, and put on dry socks and gum-boots. On their return they left their wet socks and gum-boots, again performed foot drill, and donned their own dry socks and boots before going down the line.

Foot drill was performed in pairs. Each man washed the feet of his opposite number in warm water and carefully dried them. He then, in the early part of the war, rubbed in whale oil, but it was later found that the oil was unnecessary and a powder of talc and camphor was substituted. The benefit of the whale-oil treatment probably rested in the rubbing. All abrasions were reported to the medical officer. A double washing with ordinary and special soap was ordered, but this is probably an unnecessary refinement. A single wash with ordinary soap is probably as good. Foot drill should be performed in cold weather, both in and out of the trenches. A good method of drying boots is to lay a 6-foot length of gas-pipe across a brazier, push one end into the toe of a boot, and blow air from the other end with a bellows. If the business end of the pipe is made like a toasting-fork many pairs can be dried at once. These measures were often regarded as fussy, but the proof of the pudding was in the eating. The incidence of trench foot fell dramatically after the winter of 1915–16.

Stagnation

After constriction the most important cause of increased intracapillary pressure and consequent oedema and tissue damage is venous stagnation. The men must be taught not to stand still, slumped into their boots, but to keep the muscles of their calves continuously in motion. They must lie down whenever possible, with their feet higher than their heads—a manœuvre which lowers venous pressure. They must not sit on seats, boxes, or firesteps in such a way that the popliteal space is constricted. They must on no account bring their feet near to a fire if they are cold or numb, but warm them between a companion's hands or inside his clothes. The boots must be unlaced or, better, removed at every opportunity and at least twice a day.

Food

The warming power even of cold food is considerable, and men in danger of trench foot must be kept well supplied. Hot food is, of course, far better. Arrangements must be made by means of heat-insulated containers, self-heating tins, or such devices as "Tommy's cookers" for a regular supply of hot food and drink to men in exposed situations.

Trenches

The design of trenches in mobile warfare is easy to neglect, but is neglected at peril in time of thaw. Whenever possible they must be properly drained, or, as a second best, provided with duck-boards. Men cannot stand long periods in damp trenches. Commanding officers may be well aware of this in theory, but they may suffer from a wishful faith in the capacity of their own men to "rough it out." Such faith is always misplaced. Human physiology is remarkably adaptable, but it is not infinitely so. No equipment, however good, no precautions, however studious, and no watchfulness, however devoted, will avail if men have to spend more than 24 or at the most 36 hours in a waterlogged trench or fox-hole. If the prosecution of the war demands that men should fight in such conditions, then the High Command must allow for a high proportion of casualties. It is unreasonable that allowance should be made for casualties from firearms and not from the equally predictable hazard of cold. This hazard has not gone with the thaw. It has rather increased and will remain with the armies till summer comes.

AVIATION MEDICAL RESEARCH

AIR MARSHAL WHITTINGHAM'S ADDRESS

On Jan. 31 Air Marshal Sir Harold Whittingham, Director-General of the R.A.F. Medical Services, was presented with the John Jeffries Award of the Institute of Aeronautical Sciences of the U.S.A. We print below some extracts from his speech in acknowledgment of this honour.

Liaison across the Atlantic

Early in 1939 I had the privilege and pleasure of visiting the United States to see the high-lights of aviation and its associated researches. I visited 12 States, and was particularly impressed by the fine work done at Wright Field, in Dayton, by Col. (then Capt.) Harry G. Armstrong. I returned to the United Kingdom determined to build up so far as was in my power an aviation medical research organization much on the lines of Wright Field, where the aeronautical engineers and other scientists worked as a team with those engaged in the physiology of flight. The urgent problem was to fit the machine to the man, instead of the other way round, as had so long been the case owing to insufficient co-operation between the engineering and medical groups. That was a defect which this Institute has done much to eradicate.

Since 1939 there has been the closest and happiest liaison between British and American research centres and workers, both Service and civilian, including your National Research Council. To our mutual benefit, members of research groups from both countries have visited each other, and continue to do so, to study and discuss various problems at first hand. Thus on either side of the Atlantic and in the field, America, Britain, and Canada have pooled their knowledge and resources in aviation medicine to improve the comfort and efficiency of those engaged in flying during training and on operations.

Some Problems Investigated

Among the problems investigated, roughly in order of their occurrence, have been the following:

How to provide an adequate supply of oxygen, with the maximum of comfort, at all oxygen-requiring heights under the most adverse conditions.

How to protect air-crew against cold and the occurrence of frost-bite, which has now been reduced to negligible proportions (1 case in 2,000 bomber sorties—that is, 1 case in 12,000 individuals engaged in these sorties) by the provision of suitable clothing, particularly electrically heated garments.

How to prevent blacking out in combat during high acceleration without interfering with pilot-readiness, active movements, and performance under all climatic conditions.

How to guard the eyes against the glare of the sun and searchlights without reducing the field of vision or visual acuity, and how to obtain and maintain the optimum night vision under various flying conditions.

How to deal with such stratosphere problems as the prevention of bends, the physiological requirements in pressure-cabin design and development, including explosive decompression and bailing out from aircraft at altitudes over 30,000 feet.

How to lessen fatigue, which is such a potent factor in the causation of air accidents.

How to improve intercommunication, as poor intercommunication leads to fatigue and many errors, especially during the height of air operations.

How to protect those in cockpits and cabins of aircraft against the possible entry of noxious substances, such as exhaust gases or hydraulic fluids.

How to prevent air-sicknesss, particularly among paratroops.

Evacuation of Casualties by Air

In addition a considerable amount of research and development has taken place in connexion with air-sea rescue, and last but not least the evacuation of casualties by air.

The U.S. Army Air Force has done a stupendous job in evacuating casualties by air from all fronts to oversea bases and to the United States. Major-General David N. Grant, your Air Surgeon, deserves the greatest credit for this wonderful achievement, as he does also for the gigantic strides that your country has made in aviation medicine during this war.

The British endeavour, as regards evacuation of casualties by air, has been less only in proportion to the Forces employed. In 1944 the Royal Air Force alone evacuated approximately 300,000 cases of sick and wounded, mostly Army personnel, on all fronts—the Far East, the Mediterranean, and in Europe proper—without a single mishap, although this evacuation involved some 20,000 separate flights, and much of the flying was done from forward landing strips near the enemy, over jungle, mountain, and sea in all sorts of weather.

Outstanding Pieces of Work

I should now like to pay tribute to certain medical men of both countries who have done outstanding work for aviation. Some of our theoretical calculations of the effects of stratosphere flying on man have proved to be wrong; certain hazards were overstressed, others were underestimated, with resulting casualties.

In 1941, during the experimental phase of adapting the Boeing 17 for operational work at higher altitudes, two R.A.F. medical officers —Squad. Ldrs. W. K. Stewart and J. Robson—had the misfortune to be in one of these aircraft when it broke up at an altitude of some 32,000 feet. Stewart was the sole survivor.

Col. Randy Lovelace, of the U.S. Army Air Force, in 1943, purposely and courageously bailed out at 40,000 feet to make physiological observations in a parachute descent from such an altitude. He became unconscious almost immediately after bailing out and suffered severe frost-bite of the hand, but fortunately landed safely. Only last year another distinguished American research worker, Col. Boynton, met his death doing an experimental delayed parachute drop from 44,000 feet, though he knew the hazards. He was a very brave man and a great loss to science.

Again, Squad. Ldrs. Gibson, Pask, and Stewart carried out a series of dangerous experiments—to find out how long man could live during a parachute descent without additional oxygen—in rarified atmospheres similar to those between altitudes of 44,000 and 25,000 feet. These laboratory experiments were carried to just short of extremes and gave valuable information to help perfect apparatus and technique for bailing out in the stratosphere.

In studying the problems of high acceleration in aircraft, that brilliant young American scientist Lieut.-Cmdr. Lillienkrantz met his death tragically some two years ago.

In the Royal Air Force Squad. Ldrs. W. K. Stewart and S. Davidson have carried out since 1940 many hundreds of blacking-out experiments in the air, having to bail out from damaged aircraft on more than one occasion. Squad. Ldr. Davidson has also for the past year been engaged in experimental flying on jet-propelled aircraft to study various physiological problems. In this connexion it is of interest to note that some 120 R.A.F. medical officers are qualified pilots, many being highly skilled—flying Spitfires and even jet-propelled aircraft.

Many medical officers have made physiological and psychological observations during actual air operations against the enemy to assess the strain, fatigue, behaviour of air-crew, and general efficiency of the flyer and his equipment. Thus, in 1942, that gay, lovable Highlander, Group Capt. Hugh Corner, was shot down in his Spitfire by a Messerschmitt over the English Channel when studying what he called "mental lapses" of members of Paddy Finucane's Fighter Squadron.

Wing Cmdr. Roland Winfield has done some 50 operational sorties to study aviation medicine problems in bomber and coastal aircraft on all fronts. Wing Cmdr. MacGown has won the coveted Pathfinder badge, studying night-vision problems over Berlin and other enemy targets.

To assess the flotation value of life-jackets for the unconscious man Squad. Ldr. E. A. Pask had himself anaesthetized for a total period of 3½ hours, while he was thrown into a swimming bath in different positions, wearing various types of life-jackets. Many of these jackets were so designed as to ensure drowning of an unconscious man. Of the types he tested, the British Mae West, the New Zealand Navy, and the German life-jackets proved to be the most efficient and to give adequate flotation. A film of these tests was shown to all concerned, and most of the defects have now been remedied.

In conclusion, I would like to stress that these advances on aviation medicine have been accomplished only by the full co-operation of aircraft instructors, aeronautical engineers, medical men, physicists, physiologists, and textile experts of the United States of America, Britain, and the Dominions working in the closest liaison. Long may this association for our mutual benefit endure in peace as in war.

ROYAL COLLEGE OF SURGEONS

RESTORATION AND DEVELOPMENT FUND

There must be many Members of the Royal College of Surgeons of England and other medical men and women who are interested in the effort to make the College a still more worthy headquarters of surgery in this country. We therefore reproduce below a personal letter which the President, Sir Alfred Webb-Johnson, Bt., sent on Feb. 14 (John Hunter's birthday) to each of the Fellows of the College, asking for their support for the Restoration and Development Fund.

The President's Appeal

The time has come when we must prepare for the restoration of our College. The sum which will be received from the War Damage Commission will not cover the whole cost of restoration; moreover, we have a unique opportunity to carry out many improvements which will make our College an even more worthy headquarters of British surgery. Among the amenities which it is proposed to provide are a large Conference Hall, common rooms, extensions of the museum and library, accommodation for the new professors, and more research laboratories. It is estimated that £250,000 will be required to complete the scheme of development. In order to have a free hand in planning, and, at the same time, to provide space for the sister colleges if they decide to move to Lincoln's Inn Fields, the Council has acquired several adjoining properties.

The future scientific influence of the College has been assured by the generous endowments we have received from Sir Buckston Browne and the Bernhard Baron Trustees, and from our latest and greatest benefactor, Sir William H. Collins. I now appeal to Fellows of the College for donations to the Restoration and Development Fund. I realize that commitments vary for all of us, and that many of us have suffered considerable financial loss owing to the war, but I want every Fellow to feel that he has made some contribution towards making our College worthy of its progressive outlook and great history and traditions.

Past and present members of the Council and Court of Examiners have subscribed over £10,000. The appeal has been supported by the American College of Surgeons, the Royal College of Surgeons of Edinburgh, the Royal College of Surgeons in Ireland, and many surgical associations. Donations can be earmarked for special purposes and can be spread over a term of years. If a gift is intended for the scientific departments a seven-years covenant can be entered into with the result that the benefit to the College will be greatly increased. I rely on you to help as generously as possible.

R. N. Herson, G. P. Christopoulos, and N. F. Coghill (*J. R.A.M.C.*, 1944, **83**, 107) record their observations on 432 cases of mumps occurring between November, 1942, and the end of April, 1943, principally in Cypriot troops stationed in Cyprus, and representing part of an epidemic in the island at that time.

Reports of Societies

PENICILLIN: USES AND LIMITATIONS

A discussion on the uses and limitations of penicillin took place at the Medical Society of London on Feb. 12. The president, Dr. ANTHONY FEILING, was in the chair.

Sir ALEXANDER FLEMING said that penicillin was received for use as a yellow powder. Pure penicillin was in white crystals; the yellow denoted impurity. With penicillin were administered a number of impurities, the composition of which was not known, and which varied according to the methods of extraction and manufacture. Originally it was said that the sodium salt only could be injected, but with the higher standard of purity of the material which had now been reached this was no longer true; the calcium salt could be used for all purposes, and it had one advantage over the sodium salt in that it was not so deliquescent. One important thing about penicillin was that it was non-toxic to leucocytes. The ordinary antiseptics like carbolic acid killed the leucocytes more quickly than they killed micro-organisms. Penicillin was reputed to be bacteriostatic, but it was being established that it did kill micro-organisms and helped to dissolve them. He showed a table dividing the organisms which were sensitive and insensitive to penicillin:

Sensitive	*Insensitive*
Staphylococcus	B. pyogenes
Streptococcus (except enterococcus)	B. proteus
	B. influenzae
Pneumococcus	B. pertussis
Meningococcus	B. pestis
Gonococcus	V. cholerae
Diphtheria bacillus	Friedländer's bacillus
Anthrax bacillus	Enterococcus
Morax-Axenfeld bacillus	Tubercle bacillus
Gas gangrene bacillus	
Tetanus bacillus	
Spirochaetes	

Penicillin must be brought into contact with the micro-organism. The expensive way, though the easy one, was to inject it so that it got into the blood; the cheaper but more troublesome way was to put it on to the infected area so that it reached the organisms locally. In injecting penicillin into a vein the administration must be repeated because the kidney excreted it very rapidly. With the intravenous method, using the standard dose of 15,000 units, most of the substance had disappeared within an hour. With intramuscular injection it remained for about two hours; if 50,000 units were given, for rather more than four hours, and, if 100,000 units, for rather more than six. Intravenous drip was the most economical method of using penicillin, but it involved certain troubles, while as to intramuscular drip, there was a limit to the amount of fluid which could be put into a muscle with comfort to the patient, but subcutaneous drip served the purpose quite well. The latest apparatus for introducing the requisite small amount of fluid was one in which a small clock or motor worked a spindle in such a manner as to turn a screw once in an hour, and this was connected with the piston of a syringe so that up to one million units, or something like ten times the ordinary dose, could be given subcutaneously in 24 hours without discomfort.* The stock dose of penicillin was 124,000 units in 24 hours given either by single injections or by drip. His clinic had been successfully using half that dose when the ordinary sensitive organisms, like the staphylococcus and the streptococcus, were concerned. With less sensitive organisms the dose had been larger.

Dramatic Effects of Penicillin in Gonorrhoea

The treatment of generalized infection caused by any of the sensitive micro-organisms could be undertaken with success, and when penicillin became plentiful Sir Alexander Fleming had no doubt that this would be done. Cases of staphylococcal septicaemia, which formerly were regarded as almost hopeless, now all but invariably got well. In venereal diseases the effect of penicillin was dramatic. Gonococcal infection seemed the asiest of all to get rid of by means of the drug. The stock reatment at the moment was 100,000 units split up into 8 or 0 doses given at 2- or 3-hourly intervals. This seemed to cure omething like 97% of the cases. Such frequent repetitions ere not administratively so suitable for civilians as for those n the Services, and in the case of civilians the plan was ften followed of giving 100,000 units in the morning and 0,000 at night, and it seemed to serve the purpose, though was probably not as good as the frequently repeated adminis-ation throughout the day. Syphilis was now being placed n the list of diseases to be treated with penicillin. A start as made by giving 120,000 units for a week in the usual plit doses; this had since been doubled, but even with the maller dosage the spirochaetes disappeared in from 12 to 15 ours. The Wassermann reaction became negative, and the atient appeared well, though in some cases there was relapse, nd he was a bold man who would declare that he could cure yphilis with anything.

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* See *British Medical Journal*, Jan. 27, 1945, p. 122.

Oral and Respiratory Infections

Penicillin was likely to be extremely successful in the region f the mouth and the respiratory tract. Nearly all the micro-rganisms common in these regions were sensitive to peni-illin; the only trouble was to get the penicillin into contact ith them. He did not know how to get penicillin into a nus, but most sinus infections were due to penicillin-sensitive rganisms. He mentioned one case of fractured jaw which was xpected to become septic. Penicillin was given for 4 days. nd the wound healed without sepsis. Penicillin if injected into e blood did get into the meninges, though not in high oncentration.

The two serious limitations of penicillin were its instability nd its rapid excretion. When made up in the form of solu-ons, ointments, creams, or lozenges (he was sure that when it ecame plentiful there would be enormous quantities of peni-illin lozenges used for the less serious mouth infections) it as unstable. If anybody could invent a method whereby it as not rapidly excreted this would simplify the treatment ery greatly. Some would say that it was a further disadvan-ge that it could not be given by the mouth, the acid in e stomach destroying it; that, however, might be an advantage preventing its abuse. Great care had to be exercised in aking it up to see that it was bacteriologically sterile, other-ise something might be produced with it which would destroy e penicillin, and what was administered would not be peni-illin but a culture of the organism which had destroyed it. ut if care were taken over these details there was in peni-llin something nearer to the ideal antiseptic than had ever een known before.

"The Surgeon's Occupation Gone"

Mr. A. **Dickson Wright** said that penicillin was an anti-ptic which went beyond all the dreams of the bacteriologist. the last war Sir Almroth Wright was always looking for an tiseptic which would kill micro-organisms and would not ll the leucocytes, and they now saw how right his quest had en. Here was something which worked in a concentration of in 50 million, which was equivalent to 1 drop in 550 gallons. one sweep all the infections of the skin and all the infec-ns of the airways were almost brushed aside by this one tiseptic. "We are only left now to discover something for e alimentary tract, and then we are through." The sur-on's occupation would be gone. It was true that he might ve still to deal with collections of pus, but in this war, in hich penicillin had been used with great liberality, large col-ctions of pus were not found. Boils and carbuncles had been nply "wafted away." Osteomyelitis, which was a busy field r the surgeons, would presently be closed to them entirely. aemic arthritis and pyaemic infections of the joints would brought to an end. The ear, nose, and throat surgeon would d fewer occasions for his intervention. In urinary condi-ns Mr. Dickson Wright had seen stubborn staphylococcal fections of the urinary tract swept away by penicillin. onderful results had been recorded in the treatment of gonor-oea. Childbirth fever might be expected to disappear. Post-operative infections were nearly always staphylococcal, and the use of penicillin would save many a patient from disappointment and complaint and many a surgeon from chagrin. In orthopaedics large operations on the hip were very prone to develop staphylococcal infections, and these would now be under control. As for dentistry, he imagined that in all future extractions a prophylactic dose of penicillin would be given. In Vincent's angina penicillin gave miraculous results. Within 24 hours the most vicious and firmly entrenched "Vincent's" had all the "kick" taken out of it. He had seen a large carbuncle of the lip, giving the patient acute misery, lose all its venom within 24 hours. So far as virus diseases were concerned, apparently nothing was claimed for penicillin, though he believed it had been used and found of value in psittacosis. When the chemistry had been worked out he felt sure that some method would be found of linking penicillin with a radicle, as had been done with insulin, to delay its absorption. Penicillin had "opened a vista which leaves us reeling." One thing was certain: surgeons were going to lose a great deal of their work, and the people were going to enjoy a tremendous benefit.

Dr. A. **Hope Gosse** said that empyemas had been found to be "penicillin-sensitive." In some cases, if the empyema had been diagnosed quite early before thick pus had formed, the fluid seemed to clear up without drainage. He described also three cases of acute nephritis treated with penicillin, all of which did well.

Baffling the Imagination

Mr. **Zachary Cope** said that in the case of staphylococcal septicaemia penicillin was "simply wonderful." It baffled the imagination to think what would follow the full development of this drug. Surgery was being revolutionized before their eyes, and the young men entering surgery now would have a very different outlook from their predecessors, concerning the reaction of the tissues and the like. He desired to ask Sir Alexander Fleming how often skin irritation of any kind occurred after using penicillin, and also his view concerning the reaction of penicillin in endocarditis. He himself had for years felt that there was a great deal which still remained to be understood about the reaction of the cellular tissues. He also asked what delay in the onset of syphilis had been noticed in certain cases after the clearing up of a gonococcal infection.

Mr. V. E. **Negus** referred to the use of penicillin in oto-laryngology. One of the great bugbears had been a fulminating sinusitis affecting a patient suddenly after swimming. Recently he saw a naval officer who, after a swim, developed a condition of severe staphylococcal septicaemia. He was treated with penicillin, and five days later he saw him at his military hospital taking part in a dance, whereas, without this treatment, his chances of being in his coffin by that time were considerable. Another patient developed a mediastinal abscess, with a temperature of 105°, and would have died, but was cured very quickly with penicillin.

Dr. C. E. **Lakin** asked whether it was possible to mix oil with penicillin so as to diminish the rate of absorption. Dr. G. W. **Goodhart** asked whether there was any evidence that the absence of leucocytosis in the blood had any bearing on the question of penicillin treatment. He mentioned two cases of staphylococcal septicaemia in which there was an extremely low leucocyte count. Dr. L. **Carlyle Lyon** asked whether any patients were known to be allergic to penicillin, also whether penicillin was useful in the tertiary stage of syphilis.

An "Umbrella" for Operation

Mr. E. W. **Riches** said that the organisms infecting the urinary tract—*B. coli*, for example—were not sensitive to penicillin. In his unit for spinal injuries he had seen a number of patients who had penicillin from the beginning, and it had not, of course, prevented urinary infection altogether. There was not a drug at present known which would entirely prevent infection. But penicillin had been extremely useful in helping to clear up cases in which the infection was mainly staphylococcal, and it had been used as an "umbrella" under which to operate in cases of stone formation and had helped to tide such cases over a difficult period.

Mr. R. C. **BROCK** said that in thoracic surgery they were looking forward to great benefits from penicillin, in particular in the after-care of pneumonectomies.

The **PRESIDENT** wished to take the opportunity of testifying to the remarkable effects of penicillin in many germ infections. He had seen, at a neurosurgical unit, a number of these cases, the result of gunshot injuries of the brain, and the value of penicillin there had been demonstrated. The surgeons sewed up the wound completely within a short time and no sinus infection developed later. He mentioned one recent case of a man agd 48 admitted to hospital with clear signs of meningitis. Lumbar puncture gave a turbid fluid. He was put on sulphathiazole. The culture showed a pure pneumococcus. Pneumococcal meningitis, particularly if no primary cause was discoverable, was accompanied by a high mortality even after the sulphonamide drugs were available. In this case the sulphonamide was continued, but the patient had two intrathecal injections of penicillin on two successive days, and got perfectly well and left the hospital within a week; he could hardly be persuaded to stay as long as that. Dr. Feiling mentioned two cases in which penicillin had failed. One was a staphylococcal septicaemia in a woman of nearly 70 who died in spite of continued intramuscular drip, and in whom post mortem no bacterial endocarditis was found. He had also tried penicillin, quite experimentally, in a very severe case of glandular fever, with continued high temperature and a most violently inflamed throat, both tonsils being very much enlarged, with a superficial necrosis on one tonsil. The penicillin gave no benefit, though the patient did recover spontaneously within about a week.

Sir **ALEXANDER FLEMING**, in reply, said that it was interesting to hear about the use of penicillin in glandular fever. If the micro-organism of glandular fever were known it would come within the insensitive category. That was the sort of case in which he would not expect a good result. Concerning skin irritation, this did occur sometimes, though not often, and was never serious. He had seen an American report concerning urticaria, but this seemed to occur with the use of pure penicillin, so that it was not to be attributed to one of the impurities. The Americans had made certain claims concerning the value of penicillin in endocarditis, but he himself had not much faith in the short-term treatment of that condition. In endocarditis penicillin had to diffuse into the "vegetation," and a certain concentration in the blood was necessary for a considerable period. Before long they might be expected to know more about the treatment of endocarditis by doses of 5 million units which was projected in America.

A question had been asked about the use of penicillin in the form of snuff. This was much more pleasant in the form of dried plasma with penicillin, and he was told that in some more or less acute nasal conditions it was a treatment worth trying. Endeavours had been made to delay the absorption of penicillin by means of oil, and one mixture was of an oil containing 5% of beeswax. This did seem to delay the absorption, but there were troubles in its preparation and injection.

He could only with difficulty answer the question about delay in the onset of syphilis. Air Cdre. McElligott had told him recently that he had had several cases where syphilis was delayed, after treatment for gonorrhoea, for from 60 to 80 days. As for the treatment of tertiary syphilis, he must refer the questioner to the American journals, for nobody in this country had experience of it. In the U.S.A. they had been using penicillin for general paralysis of the insane, and he had seen one report which stated that it was as good as malaria treatment.

Mr. Dickson Wright had suggested that surgery was going to disappear. That, of course, was an exaggeration. On the other hand, the use of penicillin would take away one at least of the surgeon's disabilities, for he need no longer wear a mask while operating.

Approximately 2,400 newspapers and periodicals were examined last year by the Law Department of the Pharmaceutical Society of Great Britain and its inspectors for advertisements, now forbidden, of "cures" for certain diseases. In many instances the Society had the advertisements amended without taking proceedings. A number of infringements were, with the consent of the Attorney-General, brought before the courts.

Correspondence

Nursing in Tuberculosis

SIR,—Much of the "tuberculophobia" which still exists a which is exhibited by some of your correspondents is sure based upon shibboleths which die a hard death. There is s little distinction drawn between infection by the tuber bacillus, which is universal, and tuberculous disease, which relatively uncommon. And there is very little appreciatio even among those who should know better, of the essenti difference between the innocuous manifestations of prima infection and progressive phthisis. The sanatorium nurse that much-photographed, much-investigated scapegoat for pr judice—is certainly infected during the course of her duti but no one, in spite of every effort, has been able to conv her of undue tuberculous morbidity. To be sure, the san torium nurse does not claim an *ex-officio* immunity to di ease, and a certain number of young women prove to unfavourable reactors. In this case there is always so bystander who will cry havoc.

The figures of Hansen of Oslo have been mentioned Dr. W. E. Snell (Feb. 10, p. 198), but Ustvedt, summarizi the work of all the Scandinavian workers in this field (wi particular reference to intensive investigations in connexi with infection and disease in hospital nurses), states:

> "Infective dose and virulence are factors which we can disrega . . . The type of bacillus may possibly play some part in countr where bovine tuberculosis is prevalent. . . . The role of superinf tion has not been fully elucidated, but it cannot be regarded all-important. . . . It therefore appears that on the whole t widely varying course of the tuberculous infection in differe individuals can only to a very slight degree be regarded as depe dent upon variations in the infection itself. We must turn to t infected organism to find the explanation."

It should be remembered that no other comparable gro of young women is submitted to such physical, mental, a psychological strain as is the hospital nurse, and that h conditions of work often leave a good deal to be desired.

Ustvedt, Jacobs, and other writers have also pointed c fallacies in the popular conception of the significance "massive infection" as a factor in the aetiology of tuberculo disease. Of far greater value is the growing appreciation the significance of environmental factors in aetiology, and pa ticularly of genetic factors, as demonstrated in the rece remarkable work in the United States on the incidence of tub culosis in twins.

Those who continue to speak of sanatorium nursing as hazardous undertaking should await the publication of the cl analysis of the health of sanatorium nurses which is promis by Drs. Edwards and Clark Penman (Jan. 20, p. 957), and other reports which are in process of preparation.—I am, et

Harefield County Hospital, Middlesex. L. E. HOUGHTON.

Solubility of Sulphadiazine

SIR,—In the leading article on sulphamerazine (Feb. 3, p. 1 it is stated that the solubility of sulphadiazine is 139 mg. 100 c.cm. at *p*H 7.6. From the preceding sentence this p sumably refers to solubility in urine. The figure quoted diff from the figure given in M.R.C. War Memorandum No. 10 "The Medical Use of Sulphonamides," in which it is stat that the solubility in urine at 37° is 52 mg. per 100 c.cm. I important to know which figure is right.

If the patient is taking 4 g. sulphadiazine a day, then, assumi 75% of this is excreted in the urine unchanged, there will be 3 in the urine. If the urine has a *p*H of 7.5—that is to s alkaline—the volume required to dissolve it will be 6 litr or 10 pints, if the solubility is 52 mg. per 100 c.cm. Since f patients excrete so much urine as this, many must suffer fr deposition of crystals in the urinary tract. If, however, solubility is 139 mg. per 100 c.cm. the same amount of sulp diazine will be excreted in 2.2 litres, or 4 pints. This is a v different story.—I am, etc.,

Department of Pharmacology, Oxford. J. H. BURN.

⁂ The figures given for the solubility of sulphadiazine ha varied somewhat in different papers. Thus in the origi scription by W. H. Feinstone, R. D. Williams, R. T. Wolff, E. untington, and M. L. Crossley (*Johns Hopk. Hosp. Bull.*, 1940, , 427) the solubility is given as 12 mg. per 100 c.cm. in water 37° C., 32 mg. in urine at *p*H 6.6, and 107–247 mg. in blood. R. Gilligan and N. Plummer (*Proc. Soc. exp. Biol.*, N.Y., 1943, ; 142) give a curve from which it can be deduced that the ubility is 100 mg. per 100 c.cm. at *p*H 7.2, about 223 mg. at H 7.5, and about 270 mg. at *p*H 7.6. In the paper by L. H. hmidt, H. B. Hughes, E. A. Badger, and I. G. Schmidt (*J. armacol.*, 1944, **81**, 17), which supplied the figures to which of. Burn refers, the solubility is given as 41.6 mg. per 100 m. at *p*H 6.8, 78.5 mg. at *p*H 7.2, and 130 mg. at *p*H 7.6. wever, all these authors are agreed that the solubility is comratively low in acid solution and that it is greatly increased the solution becomes slightly alkaline. It is understood that figures given in the M.R.C. Memorandum were based on earlier publications and that they will be revised in the ond edition (now being prepared) according to the fuller ormation now available.—ED., *B.M.J.*

Painful Intramuscular Injections

SIR,—Dr. Geoffrey Dean (Dec. 2, 1944, p. 737) doubts if it is iversally recognized how painful intramuscular injections of nicillin can be. It is not in fact widely recognized because ramuscular injections of penicillin are not invariably painful. ce, however, patients do suffer acute pain, which can be ided by simpler means than Dr. Dean suggests, it might well to examine the contributory factors in detail. These tors are the same as for any intramuscular injection—namely, The skill of the operator. (2) Efficiency of instruments. Nature of skin antiseptic. (4) Nature of substance injected. Position and attitude of patient. (6) Patient's threshold to in.

. Patients requiring penicillin now and for some time to me must be hospitalized, and therefore the operator for these -hourly injections is a senior nurse. It is inevitable with day d night staffs and changes for off duty, etc., that a fortunate tient will have at least three operators in any 24 hours. The bility to pain varies with the training and skill of the nurses, d in particular the variation is most marked in the rate of ertion of the needle and the rate of injection of solution. The xperienced pierce the skin slowly (and painfully) and proceed inject rapidly, giving rise to a particularly unpleasant stinging n of wide radiation. Contrariwise the injection which is tually painless results from a bold insertion of the needle and low (2 c.cm. per minute) rate of injection of solution. This ed of the procedure is the most important single factor in the duction of pain.

. The period of penicillin injections during the past two rs has been one in which the quality of steel allocated to dle manufacturers has deteriorated, and thus the life of the ting edge of a needle is shorter and requires more care—e.g., routine replacement of the stylet between use so that the jecting end prevents contact with, and injury by, other tallic objects.

. Spirit has become almost the only skin antiseptic in eral use for injections, intramuscular and intravenous, and artificial pneumothorax. It is a common experience that e patients complain of pain when submitting to injection material other than penicillin where this antiseptic is used. s pain is due in most instances to the irritant action of spirit ried from the skin by the needle to the soft tissues, and can avoided by using ether or ether meth. and allowing a few onds for evaporation before inserting the needle.

. It is recalled that many parenteral therapeutic agents— , liver extract, arsenicals, etc.—have been painful when first oduced, due to unsuitable *p*H and/or contained impurities. use of local analgesic is an uncertain method of minimizing n in these cases and converts a simple procedure into one ch is complicated and time-consuming.

. Recent letters in your columns have debated the respective antages of the buttock and the lateral thigh area, though no rence has been made to position—upright or recumbent. en the injection is made into the buttock in the upright ition the usual practice is to have the patient unsupported. however, the subject is allowed to lean on the edge of the or couch the glutei are relaxed, and as a result perhaps more long courses of treatment involving this method might be completed! In the bed-patient the gluteal injection is usually given when the patient is lying in the half-lateral position, so that it is made in an awkward vertical direction. Apart from other important considerations, the external vastus site is far more convenient, and makes an injection in the horizontal direction easier and less liable to pain.

6. Apart from the recognized variation of individuals in their pain threshold there is the patient's variation at different stages of the illness. This, as well as other points mentioned above, is clearly exemplified in the following account:

> A patient suffering from a staphylococcal septicaemia had a total of over 4,000,000 units of penicillin during various periods aggregating some nine weeks in a five-months illness. In the first few desperate days he was hypersensitive to handling of any sort, and penicillin injections by all but one (expert) person provoked a "refusal of treatment" reaction. This short period ended by an improvement in general condition and by the substitution of ether for spirit as a skin antiseptic. Injections were continued, and maintained due to relapse, for a period of eight weeks, and the ruthless monotony of 3-hourly day-and-night injections became a small factor in the patient's comfort provided the skin was cleaned with ether, the needle sharp, and the injection made slowly.
>
> After a remission of two months injections were resumed for one week, when 2 c.cm. (20,000 units) of penicillin was injected 3-hourly. There was no comparison at this stage with the condition of the patient at the beginning of the illness, and during each of the last 50 or so injections he didn't "turn a hair." He did, however, turn his head if a blunt needle necessitated two attempts to pierce the skin or if the rate of injection was raised! No local analgesic was used throughout, and the majority of injections were made laterally into the upper two-thirds of the thighs.

In view of the increasing use of the intramuscular route more training should be given to nurses and junior medical officers in the details of this procedure, and care should be shown in the selection of nurses delegated to give the injections. It is not enough to order therapy for a patient suffering from a severe general infective condition which will probably require a protracted series of injections for recovery, and to be satisfied if nurses whose aseptic technique and training are not fully established are left, eager but nervous, to undertake injections which may result in the disaster of a broken needle. It is not necessary to acquire all skill on human beings; there is the post-mortem room for doctors and the tennis ball (when obtainable) for nurses; and in any case for both there are the opportunities presented by the occasional single injection or the short series prescribed for conditions of local infections.—I am, etc.,

WM. DODD.

Injectable Liver Extracts

SIR,—In your issue of Feb. 10 (p. 197) Dr. Harold Fullerton called attention to the danger attending the use of injectable liver extracts that possess little or no potency. This is clearly a matter of much importance. I am strongly in favour of immediate steps being taken to obviate any such danger.

I suggest that this might be achieved by making it a compulsory requirement that every issued batch of injectable liver extract shall have been shown to have produced a satisfactory response when the dose recommended has been administered to not fewer than three cases of pernicious anaemia that have not been previously treated or are in relapse. This, however, does not involve an accurate standardization such as is implied by stating the activity in units. The use of the term "unit," as applied to medicinal substances, is inappropriate except where an exact determination of potency can be made, in comparison with that of a standard stable substance which has been rendered available for this purpose. This is surely not the case with injectable liver extracts, since the only known method of testing them is the administration to a patient.

To all pernicious anaemia patients presenting themselves for curative treatment there is an obligation to administer sufficient injectable liver extract to ensure a good haemopoietic response. Without an almost unlimited number of suitable cases, one cannot determine the degree of curative activity with the accuracy required for expressing it in units. On the other hand, it is quite possible to determine that a given number of c.cm. administered to patients will produce a satisfactory increase in the red blood cells in 10 to 14 days. This being determined on every batch in at least three typical cases may be taken to provide a sufficient assurance that the extract in question possesses full activity. It does not, on the other hand, justify attributing to it a numerical value in terms of units.—I am, etc.,

London, N.1. FRANCIS H. CARR.

? Otitic Barotrauma

SIR,—The writer of your annotation on barotrauma (Feb. 10, p. 190) rightly asserts that "aero-otitis media" was a misnomer. "There is," he writes, "no inflammatory change . . . and therefore in the interests alike of accuracy and euphony the term otitic barotrauma has now taken its place and has been adopted by the R.A.F."

I do not want to argue about the euphony, but does the writer not realize that "otitic" signifies as much inflammation as "otitis," and that, therefore, the term "otitic" barotrauma is just as inaccurate as its predecessor? Will Air Cdre. Dickson and his fellow workers be prepared to write "otitic" ganglion when the otic ganglion is referred to? If we assume that similar events could occur in the stomach, we might, in the absence of inflammatory changes, speak of "gastric barotrauma." "Gastritic barotrauma" entails no less inflammation than "aero-gastritis."

The term otic (or aural) barotrauma avoids the pitfall; but, while the condition is certainly not "otitic," it is also very doubtful whether it is "traumatic" in the usual medical sense of the word. I maintain that "tubo-tympanic pressure syndrome" (which I suggested in a discussion at the R.S.M.; *J. Laryng.*, 1943, 58, 493), while of doubtful euphony, designates the condition more accurately.—I am, etc.,

London, S.W.13. A. B. ALEXANDER.

Selenium Poisoning

SIR,—In your issue of Feb. 10 (p. 196) you report a meeting of the Nutrition Panel of the Food Group of the Society of Chemical Industry on the effect of diet on industrial poisoning. To me is attributed a reference "to work on selenium poisoning in which, by means of labelled molecules, it has been shown that selenium took the place of sulphur in the methionine molecule, and hence caused what might almost be described as a conditioned protein deficiency." I fear that the reporter in a laudable attempt to condense my discursive remarks has attributed to me something that I did not say. I have already had one inquiry for the reference to the work to which I am reported to have alluded. To the best of my recollection, this was what happened. In the course of the discussion a speaker mentioned the selenium poisoning of cattle and the theory (not his own) that this might be due to its substitution for sulphur in the sulphur-containing amino-acids of proteins. In my remarks I called attention to some recently published work by du Vigneaud and his colleagues, in which it has been shown by the use of labelled elements that the sulphur of methionine is required for *in vivo* conversion to cystine, whereas the carbon chain of methionine does not appear in the cystine molecule. Putting the theory and the fact together, I suggested the possibility that selenium might thus interfere with the *in vitro* synthesis of cystine. But there is no experimental evidence for this purely speculative view, nor, so far as I am aware, has any biological work yet been carried out with labelled selenium.—I am, etc.,

Greenford, Middlesex. A. L. BACHARACH.

Choline for Fatty Livers

SIR,—I have read with interest the article by Drs. Alexander and Eiser (Sept. 30, 1944, p. 425) and the letter from Dr. Lewes (Oct. 28, p. 575) on infantile diarrhoea and vomiting. In 1939 Martin Hynes and I were working on this problem when a milk salesman put me on to some work by Wilkinson, Best, *et al.*, done, I think, at Liverpool, the gist of which was, that if rats were fed on a "fatty-liver-producing" diet they could be protected against getting fatty livers by the addition of protein to their diet. Impurities in the protein were found to be the active agents, choline being the one ultimately named. A fatty liver being so constant a post-mortem finding in this disease, we thought to protect our patients from it by giving them choline. Choline was difficult to get, but a preparation was found. The war intervened before a series could be treated in this way. I am certain the prevention of the fatty liver, if this is possib will improve the prognosis, and suggest that choline may be means of doing this. With this in view it would be interesti to know the choline content of the hydrolysates used at Sout end.—I am, etc.,

R. E. BONHAM-CARTER.
Germany. Capt., R.A.M.C.

Breathing and Coronary Circulation

SIR,—My letter published on Jan. 6 (p. 27) might have bee written especially for members of the medical profession, f the death rate among doctors is 40% higher than among bar officials in the same social group. "Surgeon" (Jan. 20, p. 9 is to be congratulated on being treated so skilfully by Dr. A. Todd, who advocates breathing with the mouth open and wh standing. The patient when breathing should be seated—all t muscles of the body should be relaxed, even the facial muscle the shoulders should be held gently back and down, by t muscles acting just below the scapulae, 3 in. below t axillae. Mr. F. Matthias Alexander (author of *Constructi Conscious Control of the Individual*) would state that t relaxation of the chest muscles is important using only tho previously mentioned, otherwise the range of movement the thorax would be impeded. The first exercise is breathe fully in and out deeply through the nostrils, t shoulders being first drawn back and down; the second is inhale fully and then hold the breath for 15 to 60 seconds longer; and the third is to exhale completely and then ho the breath for 15 to 60 seconds or longer. By keeping t shoulders down and back when standing, sitting, writing, a stooping, the necessary movement of the chest is carried unconsciously, and the same happens at night, when lying, sa on the right side if the left elbow is placed just behind the lo axis of the body. When standing the weight of the body shou be on the balls of the toes. This way of breathing, besides he ing the heart, is a wonderful restorative to all the remaini organs of the body.—I am, etc.,

Ealing, W.5. R. HALSTEAD DIXON.

Impetigo

SIR,—Surg. Lieut. J. Munro Gold's memorandum on impeti treated by sodium penicillin (Feb. 3, p. 152) was extreme interesting, but I think calls for some comment.

1. He found acriflavine 1/2 gr., tannic acid 20 g., and wa to 1 oz. unsuccessful. To my mind the failure was probab due to the fact that the lotion was too strong—half the abo strength might have shown good results.

2. Failure occurred when ung. hydrarg. ammon. dil. w used; here again, unless the patient was sensitive to mercu the preparation was too strong. The late Sir Norman Walk advised that 5 gr. of hydrarg. ammon. to the oz. should be use and years of experience have shown me the correctness of t advice. I believe that the reason why hydrarg. ammon. h fallen into disfavour is because this advice has been neglect

3. The ointment base for the penicillin was described as t soft. It consisted of equal parts of cod-liver oil, lanolin, a water. Might I suggest to Surg. Lieut. Gold that the n time he uses penicillin he should try 5% lanolin, 20% wat and 75% liquid paraffin if a soft cream is required, or 75 paraffin. molle if a firmer cream is wanted.

I do hope he will understand the spirit in which I make th remarks. I enjoyed his well-written article and I feel that has done dermatology a great service, for, like the po impetigo is always with us, and its treatment has many ang and pitfalls.—I am, etc.,

Paignton ARTHUR J. AMBROSE.

Artificial Insemination

SIR,—Artificial insemination of a wife by her husban semen is a very different matter from a similar procedure which the semen comes from another selected man or from pool.

In every civilized community parenthood carries respon bilities for the care and upbringing of the child. It is diffic to understand how any reasonable man can in cold blo consent to take part in the procreation of children in wh upbringing he deliberately refuses to take part. Such cond conflicts with all civilized standards of rectitude, and would seem unwise even on grounds of expediency.—I am, etc.,

London, W.1. V. ZACHARY COPE.

SIR,—Not everyone would willingly become involved in this discussion on artificial insemination, but loyalty to the traditions and good name of medicine may sometimes transcend personal inclinations, and therefore I do not propose to let Mr. Kenneth Walker (Feb. 10, p. 199) disappear behind the smoke screen of a quotation from Voltaire. For all the relevance this has to his thesis, he might as well have ended his letter by inditing "Rule, Britannia." No one objects to his stating his ethical position; the objection is that he appears to have none. His situation is that artificial insemination by donated semen is practicable and therefore requires no other justification. What the cattle breeder does, we may do.

Let us look this business fully in the face so that all its implications may be clear. We are told that the qualifications of the human stallion, and what is asked of him, are that he shall be a married man of "intellectual attainments," between 30 and 45 years of age, and the father of two legitimate children. He should be of high fecundity, acceptable character and viability, and his "other qualifications" must meet with the august approval of the specialist in the new science of siphoseminology. He must be subjected to periodical tests of his seminal products, and should he be willing and able to deliver these to the laboratory twice weekly—presumably in a plain van—he might theoretically become the father of 400 children a week. However, his total of offspring is to be arbitrarily limited to 100, after which he retires upon his well-earned laurels. In his unsearchable wisdom the inseminator will decide which of his private stud of human stallions best meets the needs of the particular female candidate for insemination. The donor's wife finds no mention in this prospectus. Presumably the donor must keep from her the secret of his perverted philoprogenitive cravings, or he will need a wife as degraded as himself, one who, the mother of two of his children, does not object to his acting as sire to an indefinite number of human females.

One can but marvel at the grandiose frame of mind of the inseminator, who conceives himself fit to assume these superhuman prerogatives, and to people the land with a new race that shall improve upon the handiwork of Providence. In time, doubtless, we shall be presented—in due scientific form—with an analysis of the careers and achievements of these siphogens.

But this is not all. If so much is unobjectionable, the business can surely with equal freedom from reproach be carried still further. There must be unmarried women whose lives might be rounded off by maternity. Why not render this "service" available to them? Then there are thousands of married men over-seas unable to raise families. Might not these wish to give some sort of power of attorney to the inseminator, to permit his donors and his syringe to act as proxy for them? If we begin where are we to stop? Why stop, indeed, short of exploring the full possibilities of the new technique? A syringe has no ethics, and can impart no ethical sanction to a transaction of this order. Why bother about it? After all, ethics are merely a matter of "feeling," which is Mr. Kenneth Walker's naive way of saying that a little of what you fancy makes you good.

When techniques come into the irresponsible hands of the ethically rootless they are a constant threat to both intellectual and ethical values, as we may see when we gaze round us upon a world in which man is torn and tormented by the fruits of techniques he has neither the wisdom nor the sense of values to control. Medicine now is being invaded by this evil, and every thoughtful doctor who holds dear the traditions of medicine as a humane and learned profession must feel called upon to protest in unequivocal language.—I am, etc.,

London, W.1. F. M. R. WALSHE.

SIR,—While reading the other day the chapter on sterility in *Diseases of Women*, by Ten Teachers (1930 ad.), I came across the following passage relative to artificial insemination. "This method is successful sometimes with domestic animals, but is naturally somewhat repugnant to *normal* human beings, though some women resort to it in desperation." (The italics are mine.)

In a letter (not published) which I sent to you several months ago on this subject there occurred the following questions: "What sort of a woman is it who demands artificial insemination? If the maternal urge in a childless woman cannot be satisfied by the adoption of a suitable child, is she not better without one altogether?" The question is whether she is concerned about the thwarting of her own feelings of motherly love or whether it is her own sense of frustration and inferiority as compared with other women who have children which troubles her most. One suspects such women of having a neuropathic tendency, and it would be of interest to see the life history of the offspring of this method of procreation for evidence of psychoneurosis which they might inherit from the maternal side.

We have yet to have the views of the leaders of the profession in the realm of obstetrics and gynaecology as to this seemingly thorny question, which bristles with moral, if not medical, difficulties. One imagines that the stomachs of the average medical man and woman, in spite of nearly six years of war and Nazi horrors, still retain sufficient sensitivity to experience some feelings of antiperistalsis when discussing this subject.—I am, etc.,

Hove. G. L. DAVIES.

SIR,—Recent letters on the subject of artificial insemination reveal a peculiar emotional attitude in many of your correspondents. They seem to regard the operation with the same sort of horror which antivivisectionists and antivaccinationists have towards their pet aversions.

It is difficult to obtain any idea of the extent to which artificial insemination may be used, but the number of operations will undoubtedly be small, and may possibly be insignificant when compared with the number of illegitimate pregnancies, the number of illegal operations, or the number of pregnancies averted by contraception. To me the matter is one purely for the consciences of the applicants, and if a couple wish to resort to this method to obtain a child they should be allowed to do so, as the alternative would seem to be for the wife to commit adultery, which is just as illegal and unethical.—I am, etc.,

Hebburn, Co Durham. J. A. FORREST.

Health of Children in Day Nurseries, 1944

SIR,—Referring to recent correspondence in connexion with the health of children in wartime day nurseries, the accompanying figures may be of interest. As some of the data on which diagnoses were based were somewhat vague the figures can be accepted only provisionally and regarded merely as a rough indication of the extent of illness in the Halifax wartime nurseries. So far as I can ascertain (and allowing for the difficulties and inadequacy of morbidity statistics) they compare favourably with morbidity rates for non-nursery children in this area.—I am, etc.,

Nursery Index	Average Monthly Attendance		Measles and/or Rubella	Whooping-cough	Diphtheria	Scarlet Fever	Bronchitis	Pneumonia	Pulm. T.B.
	0–2 yrs.	2–5 yrs.							
L.B.	14	Nil	10	6	Nil	Nil	3	2	Nil
B.H.	17	Nil	15	Nil	Nil	Nil	2	2	Nil
C.L.	13	21	6	7	Nil	1	2	1	Nil

G. C. F. ROE,
Medical Officer of Health,
Halifax County Borough.

Psychology's Opportunity

SIR,—It seems a pity that the *Journal* should, through an editorial note to a letter from one of its correspondents (Feb. 3, p. 164), ascribe (even though only partially and by implication) the great successes of the Red Army to an "aggressive instinct" traditional to our Allies. The manner in which they have endured hardships appalling to contemplate and yet have preserved their ability to stage colossal victories has been ascribed to an infinite capacity for suffering, a docile patience, an animal-like willingness to accept discipline imposed from above, a reckless disregard for human sacrifice, and other qualities supposedly traditional to the Russian peasant or to the "Slav" temperament. That any degree of credence should be given to such an unscientific view in a reputedly scientific journal is regrettable. It would appear that Red Army men are themselves getting rather tired of this explanation for their deeds of prowess. An article in a recent issue of *Red Star* (the newspaper of the Red Army) says:

> "It is time to see us for what we are—to study us, not from old fables and legends, or even from Dostoyevsky, but from a current textbook—our present-day deeds and our living people. . . . Foreigners are astonished at our victories. The world must have been asleep. It failed to see that we were learning to write, to build, and to fight. We are winning to-day not because our Cossacks are dashing, or because of the infinite docility of the old Russian soldier. The Red Army man knows why he is fighting and for what. And if certain foreign wiseacres know that the Red Army is winning thanks to the traditional qualities of the Russian soldier, we are entitled to retort: 'You praise Platon Karatayev only because you don't like the October Revolution.'"

The Russians evidently attribute their victories to their socialist way of life. They, of all people, should know.—I am, etc.,

Cymla, Neath. T. Francis Jarman.

Sir,—With all deference may I point out that your note under Dr. Tandy Cannon's admirable letter (Feb. 3, p. 163) in no wise weakens, much less nullifies, the truth of the latter's thesis, your note being in the nature of an *argumentum ad hominem*. The "aggressive instinct" of the Russians in its present manifestation is comparable to the surgeon's knife when used (granted without an anaesthetic) to extirpate a cancer threatening the welfare, and indeed the life, of every nation, including that of Germany itself.—I am, etc.,

Royal Societies Club, London. George S. Brock.

Demobilization and the E.M.S.

Sir,—I feel that the letter of "E.M.S." (*Journal*, Jan. 20, p. 97) calls for further comment. Certainly the majority of Service M.O.s do not spend more than a small proportion of their time sitting beside a slit trench; nevertheless, they have sustained a considerably higher mortality and morbidity than E.M.S. officers. This, however, is beside the point, and in actual fact the tedium of uneventful patrols at sea is often harder to bear than the dangers of enemy action. The essential point is that while "E.M.S." has continued to do professional work and to increase his post-war market value by the acquisition of a diploma in anaesthetics, we in the Services have lost through disuse much of our skill and gained little beyond a well-found cynicism.

"E.M.S." speaks of the compensations of Service medicine with little sense of reality; the rank of lieutenant after five years loses its glamour, while the promised gratuity will not pay for the re-education we shall require.

Mutual recriminations, of course, are entirely profitless, but one solution does present itself. The release of E.M.S. officers for the Services would allow them to have their share of travel and prestige; while Service M.O.s (who might, after all, have escaped the London "blitz" because they were in Crete or Tobruk) would gladly take their place in the E.M.S. Incidentally it might interest "E.M.S." to know that "blitzed" homes are not confined to civilian doctors. I also have had my wife and child bombed out.—I am, etc., "R.N.V.R."

Service Medicine

Sir,—As a chemist whose children are both budding "medicals," I have followed with interest the recent correspondence in the *Journal* about Service medicine. So, apparently, has my son, now serving with a specialist R.A.M.C. unit over-seas, where he has come into contact with a large number of medical officers of all types. Because he has thus had a good opportunity of gauging the opinion of the younger medical officers, and has written to me quite frankly what he thinks on this subject, with no notion whatever of publication, you may think it useful to reproduce the relevant part of his letter which I give below, with only such slight elisions as are necessary to preserve anonymity.

> "There has been a lot of mud-slinging in the *B.M.J.* recently. Several (obviously junior) officers have written letters, hiding behind screens like 'Temporary Serving Officer.' They have all said that Service medicine was a very poor show because they didn't see enough sick men, and because promotion was too much on the 'old chap' basis and not on the 'clever boy' basis. More senior officers than I had realized to exist in the Medical Services have haughtily stood their ground in the face of this mutiny. What they say is roughly: (1) Patients are better treated in the Army than in civil life (I agree about this). (2) Doctors in the Army must administrate as well as ministrate. (I'm afraid this is too true.) (3) The cowardly chaps who write these letters anonymously are in a minority. Most M.O.s love the dear old Army. They seem sure about this. I am equally sure that most junior medical officers in the various Services feel they would prefer to have a job in a civilian hospital. The only way these scribes are in a minority is that they think it will do any good to write letters about it. Most M.O.s just manage to be cheerful and to do what little work is offered to them. Mostly they feel it is in bad taste to complain about their lot when men skilled at other jobs have an even more unprofitable time in the Army, as well as a more dangerous time. Mostly they lapse into a shock-absorbing state of relaxation about the whole business.
>
> In the Army there are two different kinds of medical officer: (1) There are middle-aged men hoiked out of their lucrative general practices to try and pay their life insurance premiums on a captain's pittance—as it seems to them. They rather resent the fact that they are pushed around by adolescent young puppies with the rank of major or colonel. And it's much rougher, I suspect, to be uprooted at the age of 40 than it is at the age of 30. So the middle-aged G.D.O.s (general duty officers) are the hardest-treated ones. (2) There are newly qualified chaps being paid what they regard as a princely salary for doing less work than they ever did before. Like everyone nowadays they want to be specialists, but they hadn't been qualified long enough in civil life to realize that they would have to be G.P.s. As time passes they are coming to see it anyway, and they blame it on the Army. These are the ones most of whom *don't* write letters to the *B.M.J.*
>
> But the brigadiers writing letters in the *B.M.J.* are wrong if they imagine that most medical officers really like the Army. The more cheerful ones try to cheer up the gloomier ones by pointing out its brighter side. And, of course, anyone speaking to a brigadier tries to give the impression that he's a happy and contented sort of bloke, but when Major X and I, in our travels, met a medical officer who did really prefer the Army to civil medicine we drew back from him as we would from someone who announced, 'I'm Napoleon.' If there had been a brigadier in the room his behaviour might have been understood, but there wasn't. Anyway, one of the good things about the Army is that most brigadiers are human, and don't particularly like being Army doctors themselves, though they quite enjoy being brigadiers."

—I am, etc., University Teacher.

WAR INJURIES

EXHIBITION OF SPECIMENS

After the destruction by enemy action in 1941 of the Army Medical War Collection housed in the Museum of the Royal College of Surgeons, London, the Medical Research Council accepted a request from the War Office and the Royal College of Surgeons of England that they should assist with arrangements for forming a comprehensive national collection of pathological specimens, photographs, and drawings of war injuries, which would serve both for teaching purposes and as a permanent record of the types of injury sustained in the present conflict. A special subcommittee of the Council's War Wounds Committee was appointed to direct the scheme; this subcommittee includes nominees of the three Services, the Ministry of Health, the Department of Health for Scotland, the Royal College of Physicians of London, the Royal College of Surgeons of England, and the Ministry of Pensions. The arrangements for the collection were entrusted to Dr. Joan M. Ross, who is acting as temporary curator.

A large number of specimens have now been accumulated, and by kind permission of the Royal Society of Medicine an exhibition of a selection of these is to be held in the Society's Council Room from March 5 till March 9, both days inclusive, from 9 a.m. until 6 p.m. The exhibition will be open to all members of the medical profession, but not to the general public. The exhibition will consist mainly of specimens, photographs, and drawings of wounds sustained in the land fighting in Italy and North-West Europe, which have been collected with the co-operation of the Army Medical Department. It will include museum specimens, collected by Dr. Ross; coloured photographs by Mr. P. G. Hennell (by courtesy of the Metal Box Co., Ltd.); drawings by Mrs. M. L. Wright and Mrs. Ehrenborg. It is hoped that all medical men or women having specimens of relevant interest to offer to the national collection will communicate with Dr. Ross, Science Block, Mill Hill School, London, N.W.7 (Mill Hill 3640). It is intended that the specimens collected shall be distributed to appropriate museums and teaching institutions after the war.

Obituary

E. A. PETERS, M.D., F.R.C.S.

Mr. Edwin Arthur Peters, consulting surgeon to the nose, throat, and ear department of University College Hospital and to the Bolingbroke and Paddington Green Children's Hospitals, died in London on Jan. 29.

He took a first-class in the Natural Sciences Tripos at Cambridge and the M.D. degree in 1900. In 1903 he took the F.R.C.S.Eng. He soon decided to devote himself to ear, nose, and throat practice, and was appointed to the staff of the Royal Ear Hospital, which was subsequently amalgamated with University College Hospital, and later to the Bolingbroke and Paddington Green Children's Hospitals. He was an active member of the Laryngological and Otological Sections of the Royal Society of Medicine and occupied the presidential chair in the latter. During the last war he became a captain, R.A.M.C., and was in charge of the nose, throat, and ear department of the Royal Victoria Hospital, Netley.

Mr. Peters's main literary contribution was his association with Richard Lake in the later editions of the well-known manual *Diseases of the Ear*, but he also contributed a number of articles on the special subjects in various journals. During his younger days he carried out investigations on the distribution of the peripheral nerves and the bacteriology of diphtheria. With the late Dennis Embleton he collaborated in an inquiry into the relation of sphenoidal sinus infections with cerebrospinal meningitis. He was intensely interested in the clinical side of his subjects and was a most regular attendant in his hospital departments. He always welcomed the visit of a colleague, and willingly gave of his knowledge in solving difficult problems.

In private life he had many hobbies—yachting, shooting, and carpentry among others—and he was devoted to country life. He was married twice, first to Alice Serjeant, by whom he had two daughters, one of whom is the well-known industrial dermatologist and the other an artist of distinction. Later he married Margaret Mains, by whom he leaves two children, a boy and a girl.

The medical profession has suffered a great loss by the untimely death at the age of 39 of Hugh Carmalt. He was in practice in Birmingham until August, 1939, when he joined his Territorial battalion. He served over-seas until the Dunkirk evacuation, and was awarded the *M.C.* for the part he played in this. It was in the intensive training period that followed Dunkirk that his fatal disability was caused—a chafing gaiter on the march, a phlebitis, a coronary thrombosis, and permanent invalidism. His outstanding quality of courage which had been recognized by his military award was now evident to all who came in contact with him. The struggle against his affliction won the admiration of a large circle of medical and non-medical friends. He tried to return to general practice, was seriously ill again, recovered a measure of his former health, and determined to break new ground. He entered upon a course of studies at Moorfields, and in July of last year successfully completed the first part of the D.O.M.S. examination. Within a fortnight of the date on which he had entered to sit for the final part of the D.O.M.S. his long illness had a sudden fatal termination. Hugh Carmalt had a great gift of patience which endeared him to many hundreds of patients before the war and stood him in good stead in the last uneasy months of his life. He leaves a widow and two young children.—L. H. G. M.

Dr. Robert Fenner died in retirement on Dec. 10 at Liphook aged 85, having continued in active practice up to the age of 80. He qualified at the age of 21 from King's College Hospital, where as a student he had been dresser to Lord Lister, and spent a couple of years after qualification as medical officer to the copper mines at Betts Cove and Tilt Cove, Newfoundland. His work there gained him the Fellowship of the Royal Geographical Society. He practised for many years at Cromer, where he attended numerous well-known people, including the late Emperor of Austria and King Edward VII. He moved to London in 1897 and worked for many years more in partnership with the late Sir M. Abbot-Anderson, and in 1898 he accompanied Kaiser Wilhelm II and his Empress on their tour to Palestine. He was well known at the Royal Thames Yacht Club and at one time owned the yacht *Chough*. During the last war he was chief constable of the Marylebone Police Volunteers and head of the Thames Police Patrol. That war brought him cruel losses, for his two sons were killed in 1917 and 1918, one in the Scots Guards and the other in the Navy, and his daughter also died, but he found some consolation afterwards in a particularly happy second marriage late in life. Fenner was a man of handsome appearance, combined with a most courteous manner and kindly disposition, and it is not surprising that he retained the confidence of so many distinguished patients. The outbreak of the present war compelled him to leave London at the end of 1939, and he had outlived many of his friends, but those who remain will remember his striking figure and, above all, his kindness and loyalty. They will be glad to know that he retained his vigorous personality to the end and died quickly from a cardiac attack, with little suffering

Dr. George Shepherd Wilson, for 12 years medical superintendent of the Durham County Mental Hospital, Winterton, Sedgefield, Stockton-on-Tees, died on Jan. 31 at the age of 47. He was a native of Greenock and was educated at Glasgow University, where he graduated M.B., Ch.B. in 1921. He saw service in the war of 1914–18 and was invalided out of the Army as a result of becoming a gas casualty. After graduation he acted as house-surgeon in the Glasgow Western Infirmary, and from there went to the Lancashire County Mental Hospital at Prestwich. He obtained his D.P.M. in 1929 and relinquished the post of first assistant at Prestwich to become medical superintendent of the hospital at Winterton. His twelve years in the County of Durham were indeed fruitful, and it was due to his energy and vision that the present modern units—reception and administrative—took shape and expression. He promoted and directed the establishment of psychological clinics at Darlington and Durham City, and he was ever eager to apply the most modern methods to the treatment of the mentally afflicted. The outbreak of war added fresh burdens to an already crowded life, and it fell to his lot to found and to guide the Emergency Medical Services Hospital, which many will remember with pride and gratitude. Despite all demands upon his strength and attention he never failed to give of his best.

Robert Blair Kinloch, M.B.Lond., who had been in general practice in St. Albans since 1904, died on Feb. 5 at St. Bartholomew's Hospital at St. Albans after a very brief illness, at the age of 69. He was born in Cardiff in 1875, and crowned his career at St. Thomas's Hospital by winning the Mead Medal. A correspondent writes: Dr. Kinloch was unsurpassed in St. Albans as an obstetrician, and few were his equals as an anaesthetist. He was truly a family doctor, for he devoted himself to his patients, and they in turn were devoted to him. His work was his life, and his patients loved him for his unfailing kindness and gentleness, so that he became not only their doctor but their guide and counsellor and trusted confidant, for his advice was sought on all manner of subjects. He would never commit himself to an answer until he had turned the matter over in his mind for some time, thus ensuring that his answer, when given, carried the full weight of his mature thought. In the first world war he served in France, and was for a time at Ostrahove Camp at Boulogne. His second son, Robert Alastair Boys Kinloch, M.B., captain, R.A.M.C., was killed in Burma in May, 1944, while acting as R.M.O. to the 1st Btn. King's Regiment. This tragic news, coupled with strain from overwork (for he never spared himself) and a serious collapse early in 1941, was undoubtedly a contributory cause of Dr. Kinloch's death.

The Services

The appointment of Surgeon Vice-Admiral Sir Sheldon Dudley, K.C.B., M.D., F.R.C.P., F.R.S., as Medical Director-General of the Navy has been extended for a further six months from July 2, 1945

Col. N. C. Speight, N.Z.M.F., has been appointed C.B.E. (Military Division), and Brig. J. M. Twhigg, D.S.O., N.Z.M.F., has been mentioned in dispatches, in recognition of gallant and distinguished services in the South Pacific during the period Feb. 1 to July 31, 1944.

The King of Egypt has conferred the Insignia of the Third Class of the Order of the Nile on Lieut.-Col. A. G. Harsant, O.B.E., R.A.M.C., on the occasion of his retirement as professor of clinical surgery in the Faculty of Medicine at Fouad University.

Surg. Lieut. E. J. Gilmore, R.I.N.V.R., has been commended for good services in fire-fighting after an explosion at Bombay Docks

CASUALTIES IN THE MEDICAL SERVICES

Officially reported died of wounds.—Capt. Reidar Scott Holtan, R.A.M.C.

Medical Notes in Parliament

Increased Grants to Universities and Medical Schools

On Feb. 13 Mr. Salt and Sir E. Graham-Little asked the Chancellor of the Exchequer whether he was now in a position to make a statement on the provision to be made to meet the post-war requirements of the universities. Sir John Anderson replied: I have carefully considered the report made to me by the University Grants Committee on the probable financial needs of the universities in Great Britain during the first decade after the war, and I have also had the advantage of hearing the views of a deputation of representatives of the universities and university colleges. It is clear that if the universities are to play the part they should in the reconstruction of our national life after the war they will have to incur expenditure on a very much higher scale than before the war. It is also clear that if the future financial needs of the universities are to be met, a large share of this new expenditure will have to be met by the Exchequer. As regards recurrent expenditure, it is not easy to forecast with any accuracy what will be the actual expenditure of the universities during the transitional period between war and peace. Both the University Grants Committee and the universities themselves have emphasized the importance of not sacrificing quality to quantity, and it follows that in the immediate future the supply of adequately qualified staff will be a limiting factor on development. The increased expenditure to be incurred by the universities will not, therefore, be spread equally over the 10-years period of the Committee's review. It will be heavier during the later than the earlier years of the decade, and the Government recognizes that the grants to universities during those later years will need to be further and substantially increased above the level now proposed for the next two years.

The University Grants Committee has recommended that the present annual vote for the universities of £2,149,000 should be increased for each of the next two financial years by the addition of £2,000,000 for general university purposes, £1,000,000 for developments in the medical schools arising out of the recommendations of the Interdepartmental Committee on Medical Schools, and £500,000 for grants for teaching hospitals as recommended by that committee. The Government has decided to accept the recommendations of the University Grants Committee for the two years in question. The question of the grant for future years will need to be reviewed at the end of the two years.

With regard to expenditure for capital purposes, the needs of the universities have in the past been met for the most part by private benefactions. I am advised by the University Grants Committee and the universities that this source of support cannot be expected to meet the needs of the universities for capital developments in the years following the war, and that if the building programmes of the universities are to be carried out a large share of the cost will have to be met from the Exchequer. The University Grants Committee has estimated that the universities will need to expend about £18,750,000, calculated at pre-war prices, on capital developments during the decade, and the Interdepartmental Committee on Medical Schools estimated that an additional sum of £10,000,000 (also at pre-war prices) will be required for developments in the medical schools. The Government accepts these estimates as indications of the probable scale of necessary capital developments, and recognizes that a very substantial proportion of the money will have to be provided from the Exchequer.

In view of the restrictions on buildings which are likely to operate during the years immediately after the war, it seems unlikely that the universities will have opportunities for any considerable capital expenditure during the next year or two. In the circumstances it seems to me that it will be sufficient to include in the Estimates for the coming year a token sum of £250,000 for distribution by the University Grants Committee, without prejudice to what may be necessary in later years. Accordingly, I am including in the 1945 Estimates £5,900,000 as a grant-in-aid of universities, colleges, medical schools, and teaching hospitals (Great Britain). It should not be assumed, however, that this amount will need to be distributed in grant within the financial year. This matter will be within the discretion of the University Grants Committee, which will review the position from time to time in the light of developments and may elect to retain part of the provision in the deposit account into which the grant-in-aid will, as usual, be paid. Any amount so retained will not in any case be liable to surrender to the Exchequer at the end of the year, but will remain available for distribution in the future.

Replying to questions, Sir John Anderson said that in the event of the £250,000, which was really not much more than a token sum, proving insufficient, the possibility of its being increased within the financial year would certainly not be ruled out. Dr. Summerskill asked what period of grace the Chancellor proposed to give those medical schools which now only admitted men to allow them to make arrangements for the admission of women before he withheld grants in those cases where they refused to do that. Sir John Anderson: I am glad to say that that particular question has not so far come within my jurisdiction.

Diphtheria in Lincolnshire

Asked on Feb. 8 by Mr. Viant how many cases of diphtheria had been notified in the three divisions of Lincolnshire since 1939, and how many deaths from that disease had been recorded in those areas, Mr. Willink provided the following table:

	Holland (A.C.)		Kesteven (A.C.)		Lindsey (A.C. and Associated C.B.s)	
	Notns.	Deaths	Notns.	Deaths	Notns.	Deaths
1940 ..	54	3	85	4	339	12
1941 ..	61	4	50	4	323	18
1942 ..	72	2	32	2	383	11
1943 ..	19	0	22	4	397	16
1944 (1st 3 quarters)	13 (a) 6 (b)		12 (a) 12 (b)		239 (a) 216 (b)	

Notes

1. All the notifications and deaths refer to civilians only.
2. The notifications for the years 1940–3 allow for such partial corrections of original notifications as were supplied to the Registrar-General.
3. For 1944 notifications are for the first three quarters of the year and no figures for deaths are yet available: (a) represents the numbers originally notified and (b) the numbers as finally corrected.

Protective Power of Vaccination

On Feb. 14 Sir James Grigg, replying to Mr. Leach, said it had never been claimed that vaccination conferred 100% immunity against smallpox in all cases and under all conditions. The maximum degree of immunity was estimated to develop about 14 days after vaccination; thereafter it gradually waned, but it remained effective, under normal conditions, for five years in the United Kingdom and for three years in Egypt, where the risk of infection was somewhat greater. During an epidemic, whenever it occurred, the virulence of the infecting agent was such that even the maximum degree of immunity conferred by immediate revaccination was not in every individual case sufficient to resist the disease. Nevertheless, experience had shown that the revaccination of all exposed to infection, coupled with the normal precautions of immediate isolation of infected persons and restriction of movement of possible "contacts," was successful in giving immunity to all but a small proportion and in quelling an epidemic.

Universities and Colleges

UNIVERSITY OF OXFORD

Somerville College announces that Miss Helen Darbishire will be succeeded as Principal of the College by Dr. Janet M. Vaughan, F.R.C.P. Dr. Vaughan is medical officer in charge of the North-West London Blood Supply Depot for the Medical Research Council. She was an undergraduate of Somerville College and took a first class in physiology in 1922 and her D.M. in 1930. She has been a Rockefeller Fellow, a Beit Memorial Fellow, and a Leverhulme Fellow, has held the post of assistant clinical pathologist at University College Hospital and the British Postgraduate Medical School. Her book, *The Anaemias*, is in its second edition. She was a member of the Interdepartmental Committee on Medical Schools (the Goodenough Committee), and is now a member of the Royal Commission on Equal Pay and of the body appointed by the Government to investigate public health in India.

UNIVERSITY OF CAMBRIDGE

At a Congregation held on March 2 the following medical and surgical degrees were conferred:

M.D.—R. I. N. Greaves.

M.B., B.Chir.—(All by proxy) C. D. Drew, H. H. E. Batten, D. W. R. Lyle, I. A. Magnus, T. J. S. Patterson, A. N. Pearson.

Medical News

A general meeting of the Medical Society for the Study of Venereal Diseases will be held at 11, Chandos Street, W., to-day (Saturday, Feb. 24) at 2.30 p.m., to consider the proposals of the committee of the society on "The General Principles of Administration and Staffing of the V.D. Clinics." The discussion will be opened by Dr. I. N. Orpwood Price.

The Royal Sanitary Institute has postponed the sessional meeting to have been held in Liverpool to-day (Feb. 24).

Dr. H. B. Morgan, M.P., medical adviser to the Trades Union Congress, will deliver an address on "Health and Industry" to a meeting of the Polish Medical Association in the United Kingdom on Tuesday, Feb. 27, at 5 p.m. in the Hastings Hall of B.M.A. House. All who are interested will be welcome.

The following films will be shown by the Scientific Film Association at the Royal Society of Medicine, 1, Wimpole Street, W., on Wednesday, Feb. 28, at 5.30 and again at 8 p.m.: "Mass Radiography," "Motion Pictures of the Larynx," "Liver Fluke," "Accident Service." Admission will be by ticket only, and application should be made immediately to the honorary secretary of the Medical Committee, Dr. S. J. Reynolds, 14, Hopton Road, London, S.W.16.

A meeting of the Council of the Medical Superintendents' Society will be held at Queen's (L.M.S.) Hotel, Birmingham, on Saturday, March 3, at 10 a.m., and will be continued on March 4 if necessary.

Sir Henry Dale, P.R.S., will deliver three lectures on "Nerve-endings and Chemical Transmitters" before the Royal Institution, 21, Albemarle Street, W., on Tuesdays, March 6, 13, and 20, at 5.15 p.m.

The annual general meeting of the Society of Public Analysts and Other Analytical Chemists will be held at the Chemical Society's Rooms, Burlington House, Piccadilly, W., on Friday, March 9, at 3.15 p.m., and will be followed by the presidential address by Mr. S. Ernest Melling on "Water and Water Supplies."

The annual general meeting of the Institute of Hospital Almoners will be held at Caxton Hall, Westminster, S.W., on Friday, March 9, at 5.30 p.m., when Sir William Beveridge will give an address.

Prof. David Brunt, Sc.D., F.R.S., will deliver an address on "Climate and Human Comfort" before the Royal Institution, 21, Albemarle Street, W., on Friday, March 9, at 5 p.m.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* there were 3,098 more cases of measles than in the previous week, and 81 more of dysentery. Whooping-cough, scarlet fever, and diphtheria, on the other hand, dropped in incidence—by 123, 109, and 35 cases respectively.

Diphtheria notifications fell most markedly in the north. Local notifications of whooping-cough fluctuated, and the only large variation was a fall of 59 in Lancashire. The incidence of measles rose sharply in most areas, increases being recorded as follows: Yorks West Riding 880, Surrey 314, Middlesex 251, London 192; Yorks East Riding 152, Durham 127, Cumberland 116, Lincolnshire 103, Lancashire 103; the only decline of any size was in Warwickshire, where 169 fewer cases were recorded.

There were two fresh outbreaks of dysentery during the week: 32 cases were recorded in Cambridge M.B., and 22 in Bath C.B.; 56 cases were reported from the outbreak in Buckinghamshire, Aylesbury R.D. Other large returns were London 45, Essex 43 (Southend-on-Sea C.B. 35), Yorks West Riding 27, Lancashire 26, Gloucestershire 20, Northumberland 15, Middlesex 13.

In *Scotland* the measles incidence fell by 80, diphtheria by 39, and scarlet fever by 19. Diphtheria notifications were at the lowest level in recent months. There were 25 more cases of dysentery than last week; the chief outbreaks were Glasgow 26, Stirling 23, Edinburgh 11, Lanark County 11.

In *Eire* notifications of diphtheria fell for the fourth consecutive week, and the 83 cases marked the lowest total of recent months. An outbreak in Dublin, Clifden R.D. 16, accounted for the rise in the incidence of measles.

In *Northern Ireland* notifications of measles continued to drop; during the past five weeks the weekly total has fallen from 281 to 139. A small rise in scarlet fever, 13, was reported for the fourth week.

Week Ending February 10

The returns of infectious diseases in England and Wales during the week included: scarlet fever 1,466, whooping-cough 1,516, diphtheria 402, measles 20,627, acute pneumonia 1,449, cerebrospinal fever 94, dysentery 324, paratyphoid 2, typhoid 6. Influenza was responsible for 67 deaths in the great towns.

No. 5

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Feb. 3.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London) (*b*) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	76	7	26	9	3	71	4	23	4	—
Deaths		3	—				—	2		
Diphtheria	415	18	112	83	10	733	35	187	145	26
Deaths	4	—	2	1	1	15	2	2	6	—
Dysentery	376	45	104	—	3	161	18	97	1	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	1	—	—	—	—	3	—	1	1	—
Deaths		1					—			
Erysipelas			56	6	2			32	10	1
Deaths		1					—			
Infective enteritis or diarrhoea under 2 years				16					10	
Deaths	66	4	8	11	3	47	12	9	20	
Measles*	16,039	573	478	34	139	1,162	206	113	241	1
Deaths	11	—	7	—	1	—	—	—	1	—
Ophthalmia neonatorum	67	3	19	1	—	70	5	19	1	1
Deaths										
Paratyphoid fever ..	2	—	—	—	—	9	1	1 (B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	1,366	90	14	23	11	1,115	69	27	4	3
Deaths (from influenza)	89	8	3	—	2	78	15	3	3	2
Pneumonia, primary ..			287	32				293	21	
Deaths		76		26	23		51		14	9
Polio-encephalitis, acute	1	—				1	—			
Deaths		—					—			
Poliomyelitis, acute ..	5	—	—	—	1	7	—	—	—	1
Deaths		—					—			
Puerperal fever		1	20		—		11	13		—
Deaths										
Puerperal pyrexia‡ ..	130	8	12	—	—	185	5	10	—	1
Deaths		—					1			
Relapsing fever ..	—	—			—	—	—			—
Deaths										
Scarlet fever	1,401	37	163	21	61	2,032	147	241	36	9
Deaths	—	—	—	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	4	1	1	4	—	5	—	2	5	2
Deaths	—	—	—	—	—	1	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough* ..	1,502	65	110	41	17	2,116	172	143	66	22
Deaths	13	3	4	2	—	13	1	1	3	1
Deaths (0–1 year) ..	609	56	61	68	34	438	58	74	59	20
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	8,032	1105	979	389	217	4,981	799	669	246	144
Annual death rate (per 1,000 persons living)			22·2	25·1	§			15·4	16·1	
Live births	6,595	722	828	414	230	6,638	813	877	415	282
Annual rate per 1,000 persons living ..			16·6	26·7	§			17·8	27·1	
Stillbirths	199	14	32			240	37	39		
Rate per 1,000 total births (including stillborn)			37					43		

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* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

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ANY QUESTIONS?

Hallucinations in Old Age

Q.—*A woman aged 78, with excellent mental and physical family history, has of late developed hallucinations at night time. Men or women or animals appear when ? awake, and when she rises to accost them or drive them away they vanish. Is this a serious condition? By day she is quite well, but has B.P. of 200/96.*

A.—Hallucinations, particularly visual ones, and especially when occurring in a dim light, are an indication of a slight confusional state. In this case this could be adequately accounted for by age and presumable consequent slight organic changes in the brain. But it might also be due to a toxic effect. If bromides are being taken, they would be better omitted and replaced by another sedative; sodium chloride should then be given to displace the bromide from the blood. Otherwise it might be worth trying fairly heavy dosage with nicotinic acid. If neither of these causes is operating, the hallucinations can be attributed to vascular changes, but the prognosis for life and sanity is not much affected. Some deterioration can be expected fairly soon in any case.

Choice of Contraceptive

Q.—*What is the best contraceptive for a woman in the forties who has had two children and has no indications of the onset of the menopause? If you advocate a cervical cap and concurrent use of a chemical contraceptive, would you also give some advice on the fitting and hygienic use of such a contraceptive method? Are the cervical caps supplied in various sizes, as the fit of such a pessary must be an important factor in the success of the method? What length of time should elapse after intercourse before it is safe to remove the cap, and should a vaginal douche be used at the same time?*

A.—In this case, as in any other, the method of choice of contraception will depend upon the degree of security required and the preference of both partners. It is wisest to consider a woman as potentially fertile until a year after her last menstrual period. If a third pregnancy would be no disaster, the use of a contraceptive suppository could be advised. If a high degree of security is requested, either the husband must use a condom or the wife must be taught to use an occlusive cap of some suitable kind—a "cervical" type is actually the one least preferred by experts. It would be beyond the scope of this answer to describe the technique of fitting, and teaching the use of, occlusive caps: this technique, like, say, the choice of ocular lenses, requires tuition and experience. Reference will be found in textbooks, or in Butterworth's *British Encyclopaedia of Medical Practice*. Most authorities instruct a woman to cover the occlusive cap with a spermicidal ointment, and if it is not removed until 8 or 10 hours have passed no douche is necessary, for the spermatozoön cannot survive so long in the vaginal medium.

Sulphanilamide for Burns

Q.—*In what form is sulphanilamide best used as routine treatment for burns in a factory practice?*

A.—In the form of a 3% cream made up with lanette wax, castor oil, and water, as described in the M.R.C. Special Report Series No. 249—*Studies of Burns and Scalds* (2nd paper).

Vitamin D and U.V.L.

Q.—*In certain selected cases of undernourishment, where some additional treatment is obviously indicated, would ultra-violet therapy be desirable in addition to giving vitamin D by mouth?*

A.—The antirachitic properties of the appropriate ultra-violet radiation (2,800 to 3,100 A.U.) are easily demonstrated in both animals and human beings. That their action results from the conversion of ergosterol into vitamin D on absorption can be shown by experiments *in vitro* and *in vivo*. Whether irradiation of the skin by a more extensive light spectrum is more beneficial than the ingestion of vitamin D is not easy to determine. It may, however, be stated that, in the experience of those in charge of departments where light is administered, a large proportion of children who have previously been taking vitamins in adequate dosages, but without striking result, undoubtedly derive benefit from irradiation. Even though no scientific proof is forthcoming to support it, the existence of some additional action of ultra-violet rays on the skin over and above the vitamin D production might be postulated. Although there appears to be no justification for the use of ultra-violet radiation in the absence of indications, or where vitamins by the mouth are having the desired effect, there is no reason why ultra-violet rays should be withheld where vitamins by mouth fail.

Mechanism of Fever

Q.—*Why does the temperature rise in a fever, and why does it stay up? What is the precise physiological explanation of that sudden "gearing up" by several degrees of the heat-regulating mechanism; and why, in the crisis of pneumonia, for instance, should the normal functions of the skin be so dramatically restored?*

A.—In fever due to infection the body's thermostat is set at a higher level, mainly as a result of a raised threshold for heat loss. This is believed to be the result of the action of bacterial toxins on the heat centre or centres; but the reaction is a purposive one, as the biological activities of the tissues are increased by the rise in temperature, whereas the conditions are less favourable for some of the pathogenic micro-organisms. The activity of the leucocytes is increased and antibody production is stimulated. This hypothesis has led to the use of artificial fever in the treatment of a variety of diseases, such as rheumatoid arthritis, subacute bacterial endocarditis, resistant gonorrhoea, and syphilis of the nervous system. The crisis in pneumonia occurs shortly after the appearance in the serum of a positive agglutination reaction for the pneumococcus responsible for the infection, and it is probable, therefore, that a critical fall of temperature is generally due to the neutralization of toxins and the sudden lowering of the threshold for heat loss.

Pain from Crystal Violet

Q.—*In the treatment of an indolent varicose ulcer I have applied once a day a 2% aqueous solution of crystal violet. The patient complains of extreme pain after each application. Is this painful reaction usual?*

A.—Some patients complain of pain when dyes are painted on a raw surface, and in the example quoted, since the reaction is severe, an alternative method of treatment might be considered.

Loa loa Infection

Q.—*Some cases of Loa loa infestation have appeared in Palestine, probably imported by Congo native troops. Mountjoy Elliot considers phenothiazine efficient against Filaria medinensis (Dracunculus). Has phenothiazine been used in cases of Loa loa and with what success? I would also welcome information on the toxic effects of phenothiazine.*

A.—Loiasis is common in the coastal regions of West Africa. No drug in therapeutic dosage has been shown to have any lethal action on the adult worms, which wander more particularly in the subcutaneous tissues. The microfilariae do no harm to the individual, and circulate in the peripheral blood solely for the purpose of infecting the insect host. Their removal, even if procurable by drug therapy, can therefore be only temporary and without benefit to the host unless the adult female worms from which they continuously derive are destroyed. Mechanical removal of these adult female worms when visible, as under the conjunctiva, is the only means so far known satisfactorily to achieve this end. Mechanical removal by gentle intermittent traction, with aseptic precautions, is also the most satisfactory and safe method of getting rid of *Dracunculus*.

Phenothiazine has caused a grave and even fatal haemolytic anaemia in children and is to be regarded as a drug potentially dangerous to man.

Blood-volume Estimation

Q.—*What advantages has the improved Evans-blue method of blood-volume estimation over the older methods employing vital red or Congo red?*

A.—The Evans blue (T. 1824) dye has the following advantages over the older dyes used: (1) The tedious corrections for traces of haemolysis in test or control plasma necessary for red dyes can be eliminated. (2) The dye is very stable and is somewhat less toxic. (3) The dye disappears from the blood stream more slowly. The technique recommended is that of Harington *et al.* (*Clin. Sci.*, 1940, 4, 311), where the dye is extracted into butyl alcohol and thus freed from plasma pigments and opacity.

Disappearance of Keloids

Q.—*I have recently observed the disappearance of post-operative large abdominal keloids in patients suffering from deep jaundice. Have bile acids or salts ever been used as a local application for the removal of keloid?*

A.—No record of an effect of jaundice or bile derivatives on keloids has been noted, but it is known that these lesions sometimes disappear spontaneously.

Bilateral Vasoligature

Q.—*A woman has been told that she must not have any more children for at least five years. The usual methods of contraception have proved distasteful, and the husband inquires if he can undergo any operation to make this possible. Is bilateral vasoligation applicable in this case, and does it interfere with normal sexual relations? Is there any other suitable method?*

A.—The operation of bilateral vasoligature is a simple one which inflicts no hardship on a husband and does not disturb the sexual relationship. The only difficulty likely to be encountered is in finding a surgeon to do it. As the law stands, sterilization is an illegal operation. Most surgeons would consider the advice that the wife should not have a child for at least five years an insufficient reason for carrying out vasoligature. They would say that modern methods of birth control are sufficiently effective to make them the right treatment in such a case.

Repeated Miscarriage

Q.—*A woman miscarried at 3 months on two occasions. Five months after the second miscarriage she consulted me with a history of painless haemorrhage after 10 days' amenorrhoea. On examination the os was tightly closed, the uterus normal in size, but there was a small mass in the right fornix, suspected to be an ectopic gestation. No pregnancy was found on operation, but the right tube was much thickened and bound down with adhesions, probably from a chronic appendix removed in 1937. Both ovaries contained over a dozen retention cysts, each about the size of a pea. The tube was freed, the cysts ruptured, and the abdomen closed. The patient wants to have a baby. What is the cause of the non-rupture of the follicles, and is the prognosis for a future pregnancy good or bad? Is treatment with gonadotrophic hormone of the pituitary of any use in these cases?*

A.—Cystic ovaries of this type are not uncommon and do not necessarily have any pathological significance, but from the description it is not easy to decide the nature of the cysts in this case. The cysts were probably atretic follicles, but since the menstrual cycle was disturbed it seems likely that one or more of them contained functional granulosa or lutein tissue. The presence of numerous small cysts does not inevitably mean that the patient was not ovulating; and it would be of value to know if there was any lutein tissue present at the time of operation.

The causes of follicular atresia—cystic degeneration of corpora lutea and corpora albicantia—and follicular retention cysts are different. If it can be assumed that the cysts in this case were follicular and due to non-rupture of the follicle, then the pelvic adhesions may have been a causal factor. It is considered that old pelvic infection, by thickening the tunica albuginea, interferes with ovulation, giving rise to "sclero-cystic disease" of the ovaries. No matter whether this explanation is correct, there is no doubt that cystic ovaries and pelvic adhesions are commonly associated. In the absence of some such local lesion, then failure of the follicle to rupture is assumed to be due to some disturbance of the pituitary-ovary hormone mechanism normally responsible for ovulation. The exact nature of this is still unknown, but ovulation probably requires successive and integrated action of two pituitary factors: various types of upsets in this gonadotrophic stimulus are postulated as causing cystic ovaries, but they are mainly hypothetical.

There does not appear to be any adequate reason for supposing that the ovarian condition played any part in causing the abortions, but the pelvic adhesions may have done so. Now these have been separated the chances for the next pregnancy may be better. If no other cause for the abortions can be found, the chances of the next pregnancy going to term are reasonably good. The patient should be advised to wait 6 months from the time of operation before attempting to conceive again, and when she does become pregnant should adopt the usual precautions of rest and avoidance of coitus. Vitamin E and twice-weekly injections of 5 mg. of progesterone in the early months might also be given empirically.

For the moment there is no indication to treat the cystic ovaries. They may be of little importance, and in any case may correct themselves spontaneously. If, however, the patient does not conceive again after reasonable opportunities, then premenstrual endometrial biopsy should be carried out to see if she is ovulating. If there is evidence that ovulation does not occur or is infrequent, then treatment with gonadotrophin should be tried, although it is difficult to induce ovulation in women by such means. Serum gonadotrophin (follicle-stimulating) should be given over the first half of the cycle, 400 to 1,000 I.U. intramuscularly every three days for five doses. This could be followed by injections of chorionic gonadotrophin in the second half of the cycle. As an alternative the newer preparation of gonadotrophin with synergic factor could be given. Gonadotrophic hormone therapy, however, should be used with caution, since it is reported as sometimes *causing* "cystic ovaries."

Compensation for Doctor's Illness

Q.—*If a doctor is employed as a house-surgeon, R.S.O., or in any paid appointment, and contracts an illness which can be directly attributed to infection whilst acting in the hospital, is he entitled to compensation for loss of wages during his incapacity? Does the Compensation Act apply to doctors so employed?*

A.—A house-surgeon or the holder of a similar appointment in a hospital is doubtless a "workman," and if his yearly salary is £420 or less he may be compensated under the Acts. He is not, however, necessarily entitled to compensation for the effects of an illness he contracts in the course of his duty. The decided cases make the law very obscure, but, broadly speaking, he has to show some element of accident.

Measles Prophylaxis

Q.—*Will whole blood taken from a parent who had measles in childhood, and given intramuscularly—e.g., into the buttock—to an infant of 18 months at the 6th day after contact, materially abate the subsequent development of measles? What dosage should be employed? Has some statistical or experimental evidence already been published in support of the above procedure?*

A.—Pooled adult serum has been used on a large scale for the prevention or attenuation of measles, and a careful statistical analysis of the results obtained in over 1,000 cases is to be found in the fifth L.C.C. report on measles, published in 1938. The dosage of adult serum recommended there is in c.cm. the age of the child multiplied by 4. Thus for this child of 1½ years the dose of adult serum (to be given intramuscularly) would be 6 c.cm., or if whole blood is given, 12 c.cm. Complete protection against measles cannot be guaranteed with adult serum, but does in fact occur in 60 to 75% of inoculated contacts, with attenuation in most of the remainder Children are most susceptible to measles at ages 1 to 3 years, and complete protection at that age could probably be obtained by a rather larger dose—say, 20 c.cm. of whole parental blood. The time after exposure when the blood or serum is given does not greatly matter up to 6 days, but after that time the chances of obtaining complete protection are lessened. Protection should, of course, be the aim in children under 2 years, but in older, healthy children attenuation is preferable, as the child with modified measles is usually immune to further attack, whereas the "protected" child is not. Modification is best obtained by giving half the appropriate dose used for protection within the first 6 days of exposure. Adult serum for use in measles contacts may be obtained in many areas through the local M.O.H.

Psychiatry in the Services

Q.—*As medical officers on the Western front, we would appreciate a practical and simple explanation of the differences between: (1) anxiety neurosis, (2) hysteria, (3) battle fatigue, (4) lack of moral fibre. The differences seem tenuous, but the methods of disposal between the first three and the last vary.*

A.—This is a difficult request to meet. To give an adequate explanation would demand a series of lectures covering most of the field of the psychoneuroses. We cannot expect in psychiatry such clear dividing lines as we find in "organic" medicine; the various syndromes tend to merge into one another, and "mixed states" are common. The main difficulty, however, about this list of four diagnoses is that it is a mixed classification. The names of (1) and (2) imply criteria of symptomatology and psychopathology, and the name of (3) refers to symptoms and aetiology; (4), on the other hand, is essentially a moral judgment.

The term "anxiety neurosis" is applied nowadays to an uncontrollably anxious frame of mind, recognized by the patient as excessive for the circumstances, and usually associated with lack of concentration, easy fatigability, and impairment of sleep and appetite, with physical concomitants such as tachycardia, gross sweating, etc A case of anxiety neurosis may have a superadded hysterical symptom, but the diagnosis "hysteria" is usually confined to men who, because of the nature of their special type of basic personality, under stress convert all, or almost all, their anxiety into "functional" symptoms such as blindness, deafness, aphonia, stammer, headache, or paralysis of a limb, their conscious state of mind remaining unanxious or even nonchalant.

The term "battle fatigue" is a convenient one to use in the case of men of good physique and good previous morale who, under the long-continued stress of exposure to danger, overwork, and insufficient sleep, gradually develop a state of anxious weariness that gives the general impression of being due to mental and physical exhaustion. Such men sometimes have to be ordered to "go sick" before they will do so. It is characteristic of them that, if free from severe depression and if given, at an early enough stage, a period off work with good food, full rest, and adequate sedation, they quickly make a good (or fair) recovery, and willingly return to duty.

Psychiatry, of course, includes within its field not only signs and symptoms in the ordinary sense but all acts of behaviour and attitudes of mind; it attempts objectively to work out the causation of the acts and to assess the significance of the attitudes. The same behaviour and attitudes can be assessed by other criteria, such as their compatibility with the immediate demands of the particular social group in which the patient finds himself at the relevant time. Such criteria loom large in wartime, and especially as regards the behaviour of men on active service. They may, in certain circumstances, be held to have overriding importance, the medical and psychiatric aspects of the case remaining true but being regarded as outweighed.

When a man is considered to be displaying unwillingness to do his duty and to be surrendering to his fear, it is sometimes said that he is showing "lack of moral fibre." The intention of the statement is presumably to keep in the foreground certain urgent practical issues, and possibly to strengthen the resolve of the men remaining on the station. The accuracy and long-term effectiveness of such a statement may by some be thought disputable. In any case, it is important to emphasize that the term "lack of moral fibre" is not a medical diagnosis. It lies outside the scientific field of medicine and psychiatry, and within the pragmatic field of military discipline. The term seems to indicate that the man in question is regarded as a coward, lacking in "guts," will power, and unselfishness; or, at least, that the circumstances demand that he be treated as such. As medical men we may be inclined to think that the patient is a hypersensitive person who more quickly than is normal develops anxiety and complains of it. We may feel that his whole life history reveals poor opportunities of developing a sense of social duty. We may find evidence that the general morale of his particular section is rather low. Possibly, it will seem that factors of all these three kinds play a part.

It would be less difficult to deal with this question if medical officers could stick to their last, reporting after examination on the *medical* aspects of the case, and leaving the use of the term "lack of moral fibre" to the executive authorities.

LETTERS, NOTES, ETC.

Sprouting Legumes

Dr. J. Gee-Tseh Mar (Manchester) writes: Bean-sprouts have been eaten by the Chinese from time immemorial, and may be found on the menus of their restaurants, even in this country. Space does not permit details, but here are a few further points from their technique. (1) Chinese green beans the size of match-heads are used. These have a moderate rate of growth, and the tiny softened cotyledons are easier to chew and digest. (2) Wooden containers retain moisture better than metal ones, so a bucket or keg is ideal. Two or three 1/2-in. holes in the bottom are sufficient for drainage, the beans being kept in by lining the bottom with a piece of matting. (3) Water twice daily with lukewarm water (in this climate), and drain well to prevent the bottom beans from rotting. (4) Cover loosely with matting or a wooden lid to prevent green leaves. Place in a warm dark place. (5) Vary the temperature of the water and surroundings according to experience. Too rapid growth produces tough, weedy shoots with long leaves, and overheating produces brownish rot. Aim at fat, stubby, succulent shoots about an inch long, and taking about a week to grow. (6) When ready, place the sprouts in a loose wire strainer, and gently swish in a basin of cold water. This separates the now black husks, leaving the snowy white shoots. Recently the American magazine *Life* printed an excellent article on methods of cooking bean-sprouts.

Use of Sulphonamide Pastilles in the Oral Cavity

Mr. Henry J. Murphy, M.B., B.D.S., writes from Dublin: For some years I have been using sulphonamide preparations for various conditions in the mouth. Most of the treatments are routine and known to most dentists and doctors, but there is one type of therapy from which I am getting very good results and which I think is little used. I got a pastille made up in a gelatin base containing approximately 2 grains of sulphapyridine and flavoured with menthol. After I extract teeth or do any oral operation I put the patient on these pastilles in the following way. He is to place one in his mouth and allow it to dissolve as slowly as possible (most patients can make the pastille last from half to three-quarters of an hour). I give one pastille immediately after the operation and then fit them into the daily dosage of one pastille on awaking in the morning, two at equal intervals between breakfast and lunch, two at equal intervals between lunch and dinner, one between dinner and bedtime, and one last thing at night. After a severe operation such as extraction of all the teeth I would give two extra tablets the first and second days to make the intervals shorter. I keep up this routine for four days and then reduce the dosage to four pastilles divided equally over the day. I don't syringe the sockets or advise mouth-washes, except when necessary to clear food particles out of the wounds. I find the action of these pastilles and the saliva a more perfect healing stimulus than any other treatment; pain is reduced to a minimum and healing is clean and rapid. I get no gross sepsis or dry sockets after teeth extractions. There will be some pain and swelling, but this is in relation to the trauma caused by the operation and the amount of sepsis of the teeth. I find that whatever infection is present rapidly clears up without the complication of more infection being added from mouth bacteria, and that this healing of the infected areas is as painless and rapid as the body tissues can accomplish it. Before I took to the pastilles I used to break a tablet of sulphapyridine into four equal parts; the quarter tablets gave good results but dissolved faster and therefore would not give as even a distribution of the drug as my present pastille. The dosage of the sulphonamide is big enough to combat the bacteria in the area and still not large enough to have any serious effect on the patient, such as large doses taken orally will sometimes cause.

Effects of Sexual Continence

Dr. A. D. McDwyer (Dublin) writes: The answer to the query on the effects of sexual continence (Jan. 13, p. 67) omitted a fact which, however unfamiliar, is very pertinent to this subject. It has been demonstrated by seminal vesiculography in a series of normal males that the seminal vesicles in the absence of emissions, involuntary or otherwise, completely and gradually empty per urethram over a period of approximately 40 days (*Med. Annu.*, 1937, John Wright and Sons, Bristol). Consequently it seems that the seminal fluid is not normally retained. Secondly, a spontaneous and involuntary ejaculation during sleep is not, of necessity, a normal mechanism to prevent the retention of semen in completely continent males. Since Nature has provided for complete continence it seems illogical to impute various vague ills and psychological upsets to chastity *per se*. No ill effects result from such a state in a normal male.

Treatment of Varicose Ulcer and Eczema

Dr. R. R. Foote (London, W.1) writes: Under this heading (Jan. 6, p. 26) Dr. M. Ghosh does a great service in calling attention to the use of elastic web bandage as a substitute for the almost universal use of elastic adhesive bandage. His reasons for discarding the latter are that many cases are allergic to the constituents of the bandage, that haemorrhages of ulcers may occur under it, and that these bandages are, anyway, difficult to obtain. He might have quoted Dickson Wright, that it is harder to apply an elastic adhesive bandage *correctly* than it is to remove a gall-bladder! I would like to add to Dr. Ghosh's suggestions for treatment the use of crude coal tar for his eczematous cases, the application of Unna's plasters according to the technique of Dickson Wright, and the use of the "ceraban" bandage. I feel that Dr. Ghosh's 100% success with 112 cases would not remain at this high level unless he availed himself of these suggestions.

Oxalated Blood for Cell Counts

Dr. G. J. W. Ollerenshaw (Sunbury-on-Thames) writes: I would like to support Dr. Martin Folan's letter (Jan. 13, p. 70) with regard to the use of oxalated blood specimens for cell counts. In my experience one can obtain a very high degree of accuracy (as compared with specimens collected at the same time and counted immediately without the addition of an anticoagulant), provided the oxalated specimen is examined within 24 hours of collection. As Dr. Folan points out, if a smear is made when the blood is collected a full blood count can be performed. The quantities used in this work here are 3 c.cm. of venous blood with the addition of 0.5 c.cm. of the following mixture: 1.2 g. ammonium oxalate; 0.8 g. potassium oxalate; 100 c.cm. distilled water, with the addition of 1 c.cm. 40% formalin. We are about to introduce a modification, which should be even more satisfactory, by drying this solution on to the walls of the specimen tube in an oven prior to dispatch.

Infected Foci in Blood-stream Infections

Dr. Sydney Pern (Ballarat, Victoria) writes: The *Journal* for Sept. 16, 1944 (p. 380), contains a reference to penicillin in bacterial endocarditis. It also mentions that in spite of the blood becoming sterile the patient relapsed. I would like to make the following suggestions. In blood-stream infections the micro-organisms have to gain entrance from some site—such as tonsils, infected sinuses, pyorrhoea, apical abscesses, etc.—and just so long as these infected foci are left so will the organisms continue to invade the blood stream. It is a very moot point if organisms are able to breed and multiply in the blood stream, so the obvious conclusion is that they are pouring in from outside. I have not yet heard of anybody attempting to remove any of the foci of infection in these desperate cases, yet it would appear the most logical procedure to adopt. I hope that somebody will have the temerity to try.

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CROSS-INFECTION RISKS IN THE HOSPITALIZATION OF MEASLES PATIENTS*

BY

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A mild catarrh of the aural mucous membranes, due to primary virus infection, is not unusual in the eruptive stage of measles. The serious and permanently damaging conditions, of which suppurative otitis media is the most common, are caused by secondary invading organisms, particularly the haemolytic streptococcus and the pneumococcus. The perforated drum may heal and no further trouble ensue; on the other hand, infection may spread to the mastoid process, the meninges, or the brain. A report by Linford (1936) on the otological examination of 400 unselected measles patients in an L.C.C. fever hospital illustrates the extensive ear damage which may occur. Of these patients 56 (14%) developed otorrhoea, 35 (9%) severe otitis media, 204 (51%) mild otitis media; while 105 (26%) remained normal throughout. Among 100 unselected patients suffering from measles otorrhoea, one developed facial paralysis; one facial paralysis, extradural abscess, and mastoiditis necessitating operation; four required unilateral mastoidectomy; and 12 suffered appreciable destruction of the tympanic membrane.

That haemolytic streptococci may spread in measles wards as a secondary transmissible disease superimposed on the primary virus infection was shown by Allison and Brown (1936). They found that among 43 patients admitted to a measles ward 51% became cross-infected by haemolytic streptococci and that as a result 19% of the 43 patients developed otorrhoea. Wright, Cruickshank, and Gunn (1944) confirmed the findings of Allison and Brown and suggested that dust particles derived from bed-clothes and garments are possibly the chief means by which streptococci spread in measles wards.

Scope of the Investigation.—The present report falls into two sections: (A) A detailed study, with bacteriological examination and clinical observation, of the measles patients in one ward for 12 weeks in March, April, and May, 1943. This ward served as a control in the experiment reported by Wright *et al.* (1944). (B) An analysis of the case histories of all measles patients admitted to the North-Western Hospital from Dec. 1, 1942, to May 31, 1943.

Investigation A

Ward Arrangements.—(1) The normal bed complement of the ward was 18 and the normal bed-spacing 12 feet between bed-centres. During the 12 weeks of the investigation two extra beds and during two weeks four extra beds were put up, with a corresponding reduction of bed-spacing. (2) Sulphonamides were given prophylactically to all patients unless there was any contraindication. During the first three weeks of the work a number of different drugs were used, in varying doses and for varying times. An intensive scheme was then introduced and alternate patients admitted to the ward received sulphanilamide or sulphathiazole. The dosage, according to age, was 1 to 2 g. on admission, 3 to 7.5 g. daily for 3 days, followed by 1.25 to 3.75 g. daily until the day before discharge. (3) On admission prophylactic mixed scarlet fever and diphtheria antitoxin was injected into 54 (70.1%) of the 77 patients admitted. (4) Mattress, pillows, and blankets of each patient were disinfected in the hospital disinfector (5-lb. pressure for 30 minutes) on his discharge or transfer from the ward. (5) Four patients with middle-ear suppuration remained in the ward until discharged and were barrier-nursed. Other patients with otitis media were removed to isolation elsewhere in the hospital.

Routine Procedure.—At the start of the investigation nose and throat swabs were taken from all patients in the ward. Subsequently swabs were obtained from the nose and throat and from any suppurative lesion—e.g., ear discharge, impetigo—of every new patient immediately *before* admission to the ward and then once weekly. Nose and throat swabs were taken from each member of the ward staff once monthly, and also on development of any upper respiratory tract infection. Swabs were plated on gentian violet blood-agar plates and incubated aerobically for 18 hours at 37° C. Representative colonial forms of haemolytic streptococci were tested for their serological type by the Griffith agglutination method. Cross-infection was judged to have occurred if a patient, free from haemolytic streptococci on admission, acquired these organisms in the nose or throat; or if a patient who carried haemolytic streptococci on admission acquired haemolytic streptococci of different type in the nose or throat. In assessing the cross-infection rate the Type 6 streptococcus was adopted as the "indicator organism," since more than 90% of the cross-infections were due to this type. For completeness, however, cross-infections with other types are recorded.

Complication Rate.—A daily round of all patients in the ward was made and any complication or rise of temperature noted. Appropriate swabs were taken and plated on blood agar, and/or gentian violet blood agar, and/or tellurite medium, according to the nature of the complication. Ear and mastoid swabs were investigated for the presence of haemolytic streptococci, pneumococci, staphylococci, and diphtheria bacilli. Any haemolytic streptococci isolated from patients with complications were tested for serological type.

Results of Investigation A

Cross-infection Rate.—At the start of the investigation 8 (36.4%) of the 22 patients in the ward had Type 6 streptococci in the nose and/or throat; one patient had Type 2 and one Type 27 streptococci. During the ensuing 12 weeks 47 (72%) of the 65 patients at risk acquired Type 6 streptococci in the nose and/or throat. One patient acquired Type 2 and one Group C streptococci.

Of the 47 cross-infections of the upper respiratory tract 21 (44.7%) occurred within the first week of hospitalization, and 16 (34%) in the second. The average day on which cross-infection was discovered was the 10th, with a range from the 3rd to the 34th. (The date on which the cross-infection actually occurred may have been earlier than the date on which it was discovered, as swabs were not taken until the routine weekly swabbing day unless there was clinical evidence to suggest cross-infection.) In 30 instances the cross-infecting Type 6 streptococcus was first discovered in both nose and throat at the same swabbing, in 8 in the nose only, and in 7 in the throat only. In most of the "positive" patients the streptococci were present in abundance.

Among children under the age of 9 years the cross-infections were fairly evenly distributed as to age group. Of 38 patients under the age of 3 years, 29 (76.3%) became cross-infected with Type 6 streptococci; of 14 from 3 to 5 years, 9 (64.3%); and of 9 from 6 to 8 years, 8 (88.9%). Of the 4 patients of 9 years or over, only one acquired Type 6 streptococci.

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* A report to the Medical Research Council.

Complications

Middle-ear Suppuration.—Of the 65 patients exposed to risk, 12 (18.5%) developed middle-ear suppuration due to Type 6 streptococcal cross-infection; 4 of this number required mastoidectomy, and Type 6 streptococci were in each case recovered from the mastoid. Six of the 12 patients had some history of previous ear infection, but 5 of these were free from otorrhoea on admission, and the 6th, admitted with otorrhoea, had no haemolytic streptococci in the ear discharge. Histories obtained at the home are not necessarily reliable; they suggested, however, that children with previous ear infection are particularly liable to develop ear complications if cross-infected. Six typical histories are as follows:

H. A.: 1 year 11 months.—Admitted March 5, 1943, with uncomplicated measles. 1st day, no h.s. (haemolytic streptococci) in nose or throat. 6th day, few Type 6 h.s. in nose. 13th day, fair number Type 6 h.s. in nose and throat. 17th day, right suppurative otitis media; abundant Type 6 h.s. in ear discharge. 65th day, left hospital.

D. B.: 1 year 2 months.—Admitted March 12, 1943, with measles and bronchopneumonia. 1st day, no h.s. in nose or throat. 6th day, right suppurative otitis media; abundant Type 6 h.s. in nose, throat, and ear discharge. 34th day, left hospital.

C. D.: 1 year.—Admitted March 16, 1943, with uncomplicated measles. 1st day, no h.s. in nose or throat. 7th day, abundant Type 6 h.s. in nose. 17th day, right suppurative otitis media; abundant Type 6 h.s. in ear discharge; gastro-enteritis. 23rd day, child extremely ill and dehydrated. 24th day, bilateral mastoidectomy; abundant Type 6 h.s. in both mastoids; extensive disease with necrosis found on both sides. 68th day, rubella. 86th to 95th day, boils of forehead and abdomen. 130th day, left hospital.

N. H.: 7 years.—Admitted April 4, 1943, with uncomplicated measles. 1st day, no h.s. in nose or throat. 7th day, abundant Type 6 h.s. in nose and throat. 8th day, right suppurative otitis media; abundant Type 6 h.s. in ear discharge. 39th day, left hospital.

T. R.: 6 years.—Admitted March 28, 1943, with measles. History: otitis media on previous day; otorrhoea at 1½ years. Examination on admission: old perforation of right drum; no right or left otorrhoea. 1st and 10th days, no h.s. in nose or throat. 14th day, left suppurative otitis media; abundant Type 6 h.s. in ear discharge. 15th day, pustules on hands and feet; abundant Type 6 h.s. in pus. 54th day, left hospital.

B. P.: 10 months.—Admitted March 5, 1943, with measles. History: ear discharge on previous day. Examination on admission: no right or left otorrhoea. 1st day, no h.s. in nose or throat. 6th day, abundant Type 6 h.s. in nose and throat. 8th day, right purulent conjunctivitis; abundant Type 6 h.s. in eye discharge. 18th day, left mastoidectomy; left extradural abscess of middle fossa; abundant Type 6 h.s. in mastoid. 76th day, left hospital.

The average day of onset of suppurative otitis media was the 15th hospital day, with a range from the 6th to the 30th. In three of the 12 patients the onset of Type 6 streptococcal cross-infection and consequent otorrhoea occurred within the first week in hospital. This finding disproves the common belief that otorrhoea which develops within the first week in hospital is due to pre-existing infection. In addition to these 12 patients, two of the 8 patients who harboured Type 6 streptococci at the start of the investigation later developed suppurative otitis media. Abundant Type 6 streptococci were found in the ear discharges, and it may reasonably be assumed that they had been acquired by cross-infection.

Skin Infections.—Of the 77 patients either present at the start of the investigation or subsequently admitted to the ward, 20 (or 26%) developed infections of the skin. Among the 20 patients there were 26 skin infections: impetigo of face, 13 cases; boils of buttocks, 6 cases; septic fingers or toes, 4 cases; boils of head, abdomen, or anterior auditory meatus, 3 cases. Skin lesions of only 11 of the patients were examined bacteriologically; in seven instances Type 6 streptococci were isolated in abundance and in four cases *Staph. aureus.*

Other Complications.—One child admitted with laryngitis died with bronchopneumonia on the 9th day in hospital. Her nose and throat swabs on admission had yielded no haemolytic streptococci. From her larynx and pharynx at necropsy Type 6 streptococci were isolated, and these organisms may have contributed to her death. Five children developed bronchopneumonia after admission. Two had no haemolytic streptococci in the upper respiratory tract; the other three had Type 6 streptococci in the nose and throat, but it was not determined whether these caused the pneumonia.

Prolongation of Hospital Stay due to Cross-infection

If an allowance of 14 days' stay is made for a normal measles case the excess time spent in hospital by the 14 patients with middle-ear suppuration (additionally complicated in six by skin infections and in one by rubella) amounted to 89 weeks. Excess time spent by the 14 children with skin infections amounted to 40 weeks. Hospital infection among the children admitted to only one ward during a period of 12 weeks led, therefore, to an excess stay totalling 129 weeks.

Investigation B

Investigation A showed by combined bacteriological and clinical examination that a high rate of middle-ear suppuration due to streptococcal cross-infection prevailed in one ward during the spring of 1943. To find out if this occurrence was limited to one ward or to one season, an analysis was made of the middle-ear complications among *all* measles patients admitted to the hospital from Dec. 1, 1942, to May 31, 1943. The analysis was made according to a scheme drawn up in the light of the bacteriological work recorded in Investigation A. The scheme, with reasons where called for, was as follows:

1. The case-history sheets were carefully searched for evidence of complications. (The summary occasionally omits some important complication.)

2. The date of onset of a complication was referred to the month of admission—e.g., a patient admitted in February who developed a complication in March was placed in the February group.

3. All patients suffering from measles on admission to hospital were included; those who developed it after admission were excluded.

4. The day of admission was counted as the first hospital day, even if the time of admission was afternoon or evening.

5. Cases of middle-ear suppuration were classified as follows:—(*a*) *Early:* Present on admission, or developed on or before the 5th hospital day. (*b*) *Late:* Developed on or after the 6th hospital day. Patient was included in series however long the interval between the onset of measles and the onset of the complication, even if a second infection—e.g., chickenpox—had occurred in the meantime. (The division into "early" and "late" was set between the 5th and 6th days because the bacteriological work in Investigation A had shown that streptococcal cross-infection could cause middle-ear suppuration as early as the 6th hospital day—see Case-history D. B. above. All cases of middle-ear suppuration which develop after the 5th day in hospital should be regarded as due to cross-infection unless the contrary can be proved.)

6. All patients with a history of previous otitis media, otorrhoea, or "ear trouble" were included in the analysis. (Evidence from Investigation A suggested that a patient with a history of middle-ear infection is more liable than others to suffer from the consequences of cross-infection; exclusion of such patients from an analysis, as is sometimes done, leads to an underestimate of the risks of cross-infection.)

Table I.—*Incidence of Early and Late Middle-ear Suppuration (M.E.S.) by Month of Admission and by Age Group*

	Dec.	Jan.	Feb.	Mar.	Apr.	May	Total
Under 3 years:							
No. of patients	18	40	54	71	38	17	238
„ early M.E.S. ..	0	2	1	4	2	1	10
„ late „ ..	4	4	11	12	3	0	34
3 to 5 years:							
No. of patients	14	29	40	33	12	9	137
„ early M.E.S. ..	1	1	1	2	1	2	8
„ late „ ..	3	3	6	6	0	1	19
6 to 8 years:							
No. of patients	10	12	14	10	7	6	59
„ early M.E.S. ..	0	0	0	0	0	0	0
„ late „ ..	2	2	5	1	1	0	11
Over 9 years:							
No. of patients	4	15	15	14	10	4	62
„ early M.E.S. ..	0	0	0	0	0	0	0
„ late „ ..	0	1	1	0	0	0	2
Total: No. of patients ..	46	96	123	128	67	36	496
Total: „ early M.E.S.	1	3	2	6	3	3	18
Total: „ late „	9	10	23	19	4	1	66

7. If middle-ear suppuration developed in one ear on or before the 5th hospital day and in the other ear after the 5th hospital day the case was placed in the "early" group.

8. According to this scheme, figures were analysed by age group, by month, and by ward. (*a*) The age groups were: under 3 years, 3 to 5 years (i.e., 3-, 4-, and 5-year-olds), 6 to 8 years, and 9 years or over. (*b*) The months were Dec., 1942, to May, 1943, inclusive. This covered the epidemic period in London.) (*c*) Analysis by wards depended on admission to the ward at the onset of measles; any subsequent transfer—e.g., to isolation units—was disregarded. A certain number of patients, including 35 of 9 years or over, were admitted and nursed throughout in isolation accommodation. These were not included in the ward analysis.

The following points emerge from the analysis:

1. The total percentage of patients who suffered from "early" middle-ear suppuration was 3.6 and from "late" 13.3, showing how much in excess over the early ear complications were the late ones, due to cross-infection in the wards. (Actually the latter figure would probably have proved to be 1 to 2% higher if in one ward, for 9 weeks, dust-borne infection had not been controlled by means of oil-treated bed-clothes and garments (Wright *et al.*, 1944).) The average hospital day on which late middle-ear suppuration developed was the 14th, with a range from the 6th to the 48th. In 21 cases the complication was bilateral and in 45 unilateral.

2. The percentage of early and late middle-ear suppuration cases in the four age groups was as follows:

	Early	Late	Total
Under 3 years	4·2	14·3	18·5
3 to 5 „	5·8	13·9	19·7
6 to 8 „	0	18·6	18·6
Over 9 „	0	3·2	3·2

The percentage of late middle-ear suppuration cases did not vary greatly in the three groups under the age of 9 years. The figures for the 6-to-8-year group show a particularly marked excess of late complications over early. In this group no child was admitted with otitis media or developed it before the 6th day; but nearly one in every five children was a victim of late middle-ear suppuration, presumably due to cross-infection. The percentage incidence of middle-ear suppuration was considerably lower in patients of 9 years and over. This would be due partly to increased resistance and partly to reduced exposure to infection, since nearly 60% of the patients of this group were nursed in isolation accommodation.

3. The percentage incidence of early and late middle-ear suppuration by month was as follows:

	Early	Late	Total
Dec., 1942	2·2	19·6	21·7
Jan., 1943	3·1	10·4	13·5
Feb., „	1·6	18·7	20·3
March, „	4·7	14·9	19·5
April, „	4·5	6·0	10·5
May, „	8·3	2·8	11·1

During December and February the high rates of 19.6 and 18.7% were recorded for late middle-ear suppuration. If the less susceptible group of "9 years and over" is omitted, the incidence for these two months becomes 21.4 and 20.4% respectively. The late middle-ear suppuration rate was less among patients admitted in April and May than among those who were admitted in the winter months.

4. The percentage incidence of late middle-ear suppuration cases in the three open wards of the hospital were: Ward A, 18.8%; Ward B, 17.2%; and Ward C, 12.9%. The highest rate was in Ward A, the figures for which were given in detail in Investigation A. The lower figure for the identical ward —Ward C—was largely accounted for by the fact that during a period of nine weeks the cross-infection rate was reduced by the use of oil-treated bed-clothes and garments. If for this period the figures for Ward A are substituted for those of Ward C, the correct percentage for the whole period of 6 months for Ward C becomes 17.9. Wards A and C were of an old-fashioned type, but this apparently was not the factor responsible for their high complication rate, since the rate was nearly equalled by that of Ward B, an "open" ward of the ordinary fever hospital pattern.

Table II shows how the remote effects and serious consequences of cross-infection fell most heavily on the children under 3 years of age. In this group of 238 children, 11 (4.6%) underwent mastoid operations—i.e., nearly one-third of the 34 who developed late otorrhoea. Among the total number of 496 measles patients admitted to the hospital, 14 required mastoidectomy; of these, 11 (78.6%) were under 3 years of age. Gastro-enteritis attacked three of these young children; one died as a result.

TABLE II.—*Complications following Late Middle-ear Suppuration*

Case	Age in Years	Day of Onset of Otorrhoea	Day of Onset and Particulars of Further Complications
1	2 9/12	15th, right otorrhoea	51st, scarlet fever
2	5 6/12	14th, left „	24th, „ „
3	9/12	24th, bilateral „	32nd, retropharyngeal abscess
4	1 4/12	17th, left „	69th, gastro-enteritis 78th, bilateral mastoidectomy 84th, death
5	8	6th, right „	23rd, right mastoidectomy 30th, impetigo of face
6	2 4/12	15th, „ „	15th, left mastoidectomy
7	10/12	17th, „ „	20th, left mastoidectomy and extradural abscess
8	1	17th, „ „	17th, gastro-enteritis 24th, bilateral mastoidectomy
9	5/12	9th, „ „ 10th, left „	15th, gastro-enteritis „ bilateral mastoidectomy
10	2	7th, right „	10th, „ „
11	1 2/12	21st, „ „ 22nd, left „	23rd, „ „
12	3	8th right „	94th, right mastoidectomy
13	5	8th, „ „ 10th, left „	75th, „ „
14	1 10/12	30th, right „	32nd, bilateral mastoidectomy
15	7/12	6th, „ „	8th, orbital cellulitis 15th, bronchopneumonia 21st, extensive pemphigous eruption 86th, right mastoidectomy
16	2 6/12	18th, bilateral „	35th, right suppurative parotitis
17	2 6/12	29th, left „	45th, left mastoidectomy
18	1 6/12	11th, „ „ 17th, right „	35th, bilateral mastoidectomy

Forty-five infants under 1 year of age were admitted with measles; the incidence of 13.3% for late middle-ear suppuration among them was no higher than that among children of other age groups. Of the 6 infants who developed late otorrhoea, however, four suffered very serious further complications—namely, retropharyngeal abscess (one case), extradural abscess and mastoidectomy (one case), bilateral mastoidectomy and gastro-enteritis (one case), and orbital cellulitis, bronchopneumonia, and right mastoidectomy (one case).

Prolongation of Hospital Stay due to Late Middle-ear Suppuration and its Sequelae.—Allowing 14 days as the normal stay in hospital for an uncomplicated measles case, the excess time spent by the 66 patients with late middle-ear suppuration and its sequelae amounted to 432 weeks. At an average weekly cost of £5 per patient, the extra expense for these patients, detained in the main as a result of cross-infection, would amount to £2,160.

Discussion

The prevention of middle-ear complications in measles is important for two reasons: (*a*) Suppurative otitis media in young children is liable to cause permanent impairment of hearing. Kerridge (1936) found in a London special school that the starting-point of deafness among 18% of the children was a specific fever, and that, among the fevers causing deafness, measles led with a figure of 43%. (*b*) The high measles attack rate during each epidemic results in large numbers of young children being exposed to the risk of ear infection.

In Investigation A bacteriological and clinical observations were made over the same period in one ward. The results showed that where middle-ear suppuration developed after admission to hospital it was in the great majority of cases due to streptococcal cross-infection. It demonstrated, further, that complications due to cross-infection may occur sooner than is commonly supposed—namely, as early as the 6th hospital day. Banks (1944) stated that the high figures presented in Investigation A were apt to give a false impression of the magnitude of the problem. The figures of Investigation B show, however, that a high incidence of measles otitis media prevailed in all three "open" wards of the hospital from the beginning of December to the end of March. Whether the incidence of ear complications in this hospital was higher than that in others it is impossible to say, as no comparable figures have been published. Accurate comparison of the figures for different hospitals would require the undertaking of analyses in accordance with an inflexible scheme such as that drawn up in Investigation B. Otherwise it is possible that in some hospitals (*a*) the figures for measles otitis media may be estimated after the exclusion of patients with a history of previous ear trouble, (*b*) the dividing day between "early" and "late" otitis media may differ. In interpreting the results of "short-stay" hospitals it should be taken into consideration that patients may develop complications, due to hospital infection, after returning home. It is important that any analyses made should be undertaken by medically qualified persons and not by clerical staff.

The dangers of hospitalizing measles patients are clearly stated in the L.C.C. Report on the Measles Epidemic of 1931–2: "Measles is not a disease which lends itself to mass treatment, and is not very suitable for hospital treatment for various reasons. . . . If the home conditions are suitable, it is better for the patient to be treated at home, where, if medical assistance is available and the child is put to bed in a well-ordered, well-ventilated, and airy room, there need be no risk of complications." The figures presented in this paper show that the risk of serious complications due to hospital life are still present. Nevertheless, during every epidemic the fever hospitals of London are flooded with measles cases. The comparative risk of infection by haemolytic streptococci in a hospital or in a home may be shown by a few figures. In a measles ward each patient may be exposed to 20 fellow-patients, over 60% of whom may be carriers of streptococci of epidemic type in profuse numbers; to 10 staff members, one or two of whom may be streptococcal carriers; to infected dust particles in the air; and to grossly contaminated ward articles and toys. In a home a measles patient has a good chance of not encountering any haemolytic streptococci at all. Home visiting by doctor and nurse is best for the treatment and nursing of uncomplicated measles. After over five years of war, home nursing is not always practicable; but the fact remains that too many patients whose circumstances would permit home nursing are without due inquiry taken into hospital. So far as is possible measles patients who can be cared for at home should remain at home, and hospital accommodation be reserved for those who are actually in need of hospital care. For the protection of those patients who must be admitted to hospital certain recommendations may be made in the light of the findings of Investigations A and B.

Recommendations for the Nursing of Measles Patients in Hospital

(*a*) *Avoidance of Overcrowding.*—A distance of 12 feet between bed-centres should be strictly adhered to. In the long run no economy in accommodation or staff is gained by overcrowding; since this leads to complications which in turn prolong the average stay in hospital.

(*b*) *Protection of the Most Susceptible Groups.*—Infants under 1 year of age incur the highest risk of serious complications due to cross-infection, and should accordingly be given priority of isolation accommodation. The next claimants to special consideration are children of any age with a history of previous otitis media, because they are particularly susceptible to further attacks.

(*c*) *Preventing the Entry of Haemolytic Streptococci to the Ward.*—Patients with a suspected haemolytic streptococcal infection should be nursed in isolation units until they are proved to be free from streptococci. Patients should not be moved direct from one open ward to another open ward, since by so doing an epidemic streptococcal strain may be spread.

Patients under (*b*) and (*c*) for whom isolation accommodation cannot be found should be barrier-nursed in the open ward. In making the analysis for Investigation B it was found that 29 patients over 18 years of age were nursed in isolation units. Since adults run little risk of cross-infection they should not, for reasons of their comfort alone, be allocated to accommodation required for the protection of infants and children.

(*d*) *Control of Dust-borne Infection.*—Blankets, sheets, pillow-slips, and patients' garments may be treated with technical white oil during the laundering process. The method of Harwood, Powney, and Edwards (1944) is practicable in a well-conducted hospital laundry. This recommendation rests on the marked fall in cross-infection which followed the introduction of oil-treated articles into a highly contaminated measles ward, and on the inference that dust is an important means of streptococcal spread (Wright *et al.*, 1944). If oiling of bed-clothes is not practicable, bed-making rounds should be abolished and the beds made individually as required, with the least possible disturbance. This avoids a sudden large increase in aerial contamination. Beds should preferably be made during hours of good ventilation and not during "dim-out" hours. Floors, if of wood or covered with linoleum, should be treated with spindle oil (see M.R.C. War Memorandum No. 11, Appendix E). Children should not be placed on the floor or on a blanket on the floor, as is sometimes done while beds are being made or when convalescents are playing.

(*e*) *Control of Contact Infection.*—*Nasal toilet*:—In Investigation A it was found that in doing the nasal toilets the nurses' fingers and the vaseline became contaminated, often heavily, with the prevalent Type 6 streptococci. The procedure was to clean the nostrils with cotton-wool rolled at the bedside on to orange sticks and then to smear the face with vaseline; streptococci were thus implanted direct into the nose and on to the face. Individual equipment consisting of previously prepared sterile cotton-wool pledgets on orange sticks, individual vaseline-pots, and discard jars should be provided at each bedside. Nurses should wash their hands each time after attending to a patient's nasal toilet. This is important in preventing the spread of impetigo as well as respiratory infection. *Bedpans and chamber-pots*:—These should be disinfected between each use (see M.R.C. War Memorandum No. 11, Appendix A). *Mugs, spoons, and forks*:—These articles should be boiled between each use. *Dressings*:—The "no-touch" technique should be followed (see M.R.C. War Memorandums No. 6 and No. 11, Appendix D). Discharging ears should be covered, and pus should not be allowed to run on to pillows and bed-clothes. *Toys and books*:—These proved a prolific source of haemolytic streptococci. In measles, which normally is a short-stay fever, children will suffer no undue hardship if they are denied toys and books. *Barrier-nursing*:—This should be immediately introduced for any patient who develops, or who is under suspicion of, an intercurrent infection of the respiratory tract, gastro-intestinal tract, or skin. If isolation accommodation is not available for such a patient, barrier-nursing should be maintained until bacteriological investigation proves him to be free from infection.

(*f*) *Control of Droplet-borne Infection.*—All members of the staff should wear masks while attending to measles patients. The fact that masking is enforced in bed-isolation wards indicates that it is not impracticable in measles wards. Staff members who develop upper respiratory tract infection should immediately be taken off duty and should not nurse measles patients until they have fully recovered.

(*g*) *Convalescent Patients.*—The control of convalescent measles patients provides a difficult problem. The risk of their becoming cross-infected is high unless strict measures are taken for their protection. The procedure which is followed in bed-isolation wards should be adopted—i.e., the patient when up should be restricted to his own bed-area and should not be allowed to gather with others at a meal-table or round the fire.

(*h*) *Chemoprophylaxis.*—Prophylactic sulphonamide administration has been advocated by Banks (1944); he did not, however, include a control group among patients of the same epidemic. That chemoprophylaxis is not necessarily an effective measure is shown by the high cross-infection and complication rates at the North-Western Hospital among patients who received, as a routine, sulphonamides in high dosage throughout their stay. In two wards the epidemic Type 6 streptococcus was found by *in vitro* tests to be sulphonamide-resistant (Wright *et al.*, 1944). Discrepancies in the evaluation of chemoprophylaxis in measles are possibly due to varying degrees of sensitivity and resistance of the particular streptococcal strains involved. Prophylactic sulphonamides are not always effective, they involve the risk of engendering drug-fast strains, and they are time-consuming and worrying for he nursing staff to administer. For these reasons it is probably wiser to reserve sulphonamides for therapeutic purposes.

Summary

The results are recorded of two investigations made among measles patients admitted to the North-Western Hospital during the epidemic of 1942–3.

1. In Investigation A an intensive study of the bacteriological and clinical conditions in one ward for a period of 12 weeks showed hat: (*a*) 72% of the 65 patients at risk became cross-infected with Type 6 haemolytic streptococci; (*b*) as a result of Type 6 streptococcal cross-infection 12 patients (18.5%) developed middle-ear suppuration—of these 12, 4 underwent mastoid operations; (*c*) 26% of the patients developed skin infections, mainly impetigo; (*d*) allowing 14 days as the normal stay for an uncomplicated measles case, excess stay in hospital amounted to two and a half years.

2. In Investigation B an analysis was made, in accordance with a set scheme, of the middle-ear-suppuration cases among all the measles patients admitted to the hospital from Dec., 1942, to May, 1943, nclusive. This showed that: (*a*) Among the 496 patients 3.6% suffered from "early" (i.e., on or before the 5th hospital day) middle-ear suppuration, and 13.3% from "late" (i.e., on or after the 6th hospital day). In view of the findings in Investigation A, it could be assumed that the great majority of the late middle-ear complications were due to cross-infection. (*b*) Among children under the age of 9 years the percentage incidence of late middle-ear suppuration did not vary greatly in the three age groups. Under 3 years of age the incidence was 14.3%, in the 3-to-5-year group 13.9%, and in the 6-to-8-year group 18.6%. Among patients of 9 years or over the rate was much lower, being 3.2%. (*c*) The late middle-ear-suppuration rate was considerably lower among patients admitted in April and May than among those admitted in the winter months. (*d*) The incidence of late middle-ear suppuration did not vary greatly in the three "open" wards of the hospital, being in Ward A 18.8%, in Ward B 17.2%, and in Ward C 17.9% (corrected igure). (*e*) The percentage incidence of ear complications was not higher among children under 3 years of age, but the seriously damaging effects of cross-infection fell most heavily upon them. Of the 238 children in this group, 11 (4.6%) underwent mastoidectomy, and one of these died. Infants under 1 year of age suffered particularly severely; 6 of the 45 infants admitted to the hospital developed late middle-ear suppuration, and in 4 cases this was followed by further complications—namely, in one by retropharyngeal abscess, in one by extradural abscess and mastoidectomy, in one by bilateral mastoidectomy, and in the last by orbital cellulitis, bronchopneumonia, and mastoidectomy.

3. In view of the high complication rate due to cross-infection, reatment at home rather than in hospital is advocated for patients with uncomplicated measles.

4. For the protection of measles patients who must be admitted o hospital, recommendations are made for the control of cross-nfection and for improvements in administrative and nursing procedures.

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Dorothy M. Horstmann, Robert Ward, and Joseph L. Melnick J. *Amer. med. Ass.*, Dec. 23, 1944, p. 1061) report a study undertaken at the New Haven Hospital, Connecticut, to determine the average duration of excretion of poliomyelitis virus in stools of patients who had had acute infection. The stools were examined of 61 patients in whom a clinical diagnosis of poliomyelitis had been stablished. It was found that 61% excreted virus during the first wo weeks after onset of the disease; 50% during the third and ourth weeks; 27% at the fifth and sixth weeks; 12.5% at the eventh and eight weeks. Between the ninth and twenty-fourth weeks virus was detected in only one of 52 specimens tested; this was excreted by a boy in the twelfth week of paralytic disease. Not one of the 61 patients followed-up was demonstrated to become a persistent carrier of poliomyelitis virus.

CHANGES IN PERSONALITY AFTER CEREBROSPINAL FEVER

BY

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Literature on the neuro-psychiatric residuals and changes in personality after cerebrospinal fever (C.S.F.) is very meagre, and most of the papers on this subject record observations made chiefly on children. Among the papers dealing with adults are 12 English, 4 American, 6 French, 1 Russian, 1 Spanish, and 7 German. There is, however, no unanimity in their findings. Some writers—notably Rolleston and Ronaldson (1940), Rundle (1929), and others—say that a few patients with predisposition to neuroses may during convalescence suffer from neurasthenia and occasionally from mental deterioration (Brain, 1940). Others, including Netter and Debré (1911) and Foster and Gaskell, are emphatic that after recovery from the acute illness and in the absence of internal hydrocephalus no mental changes occur. In 1918 Rosanoff described a uniform syndrome as a result of observations made on 26 adults at the U.S. Army Hospital for War Neurosis at Plattsburg Barracks. The symptoms in order of frequency were limitation of flexion of the spine; undue fatigue; pains in the back, legs, and head; tendency towards dizziness and faintness; muscular weakness; tendency towards blurring of vision associated with photophobia; and, lastly, impairment of appetite and sleep associated with a state of undernutrition. These findings have not been confirmed by subsequent writers.

From a study of patients who gave a history of C.S.F. in adult years one finds that some who have apparently recovered from the acute stage may continue to complain of symptoms which incapacitate them for work for prolonged periods. Some of them wander from hospital to hospital, and on account of negative findings are finally labelled "neurotics," which only adds to their hardship by depriving them of the sympathetic consideration of their employers. Anxiety state resulting from prolonged unemployment and financial insecurity may obscure the picture before a psychiatrist is consulted. It is therefore essential that symptoms due to external stress should be clearly differentiated from those due to the meningococcal infection. The criteria to be used in these cases have already been discussed elsewhere (Pai, 1944).

Independent and extensive inquiries were made to obtain reliable information on patients' personality, previous illness, disposition to neurotic or psychotic illness, intellectual level, and capacity for work before and since meningitis. Letters from relatives, reports of psychiatric social workers, and, in Service patients, personality and efficiency reports by the officers commanding units were available in most cases. On the basis of this information the patients were considered in three groups according to whether their previous personality was (1) good (i.e., well organized and stable), (2) fairly good, or (3) poor (i.e., neurotic or psychopathic).

Symptomatology

When the symptoms were studied in the light of information obtained from various sources it was found that some symptoms appeared to be purely functional in origin and to be precipitated by psychological factors such as domestic and financial stress or unsuitable employment in their units. Among such symptoms were stutter, amblyopia, and hysterical paraplegia (Hurst, 1918) and disorders of gait, and these began after varying intervals of complete freedom from symptoms. As was only to be expected, such symptoms were predominant in patients of the second and third groups, indicating that functional symptoms were more common where disposition to neurosis existed before the meningococcal infection. Some of these patients had actually suffered from somewhat similar symptoms before the onset of cerebrospinal fever, and their present psychiatric disorders more or less conformed to their previous pattern of behaviour to stress.

But functional symptoms were also present in a few patients with previous good personality who had not suffered from any neurotic illness prior to the C.S.F. For instance, three months after recovery from an attack of fever one patient was torpedoed off the west coast of Ireland, and ten days after his return to England the house next to his billet was hit by a bomb. He then developed fainting attacks. Investigation revealed that before his C.S.F. he had been torpedoed twice and had withstood the London "blitz" without showing symptoms of neurosis. In another patient, who complained of pains in the spine and chest, the symptoms had obviously been precipitated by the serious illness and subsequent death of his mother from cancer of the breast with metastasis in the vertebral column. In the case of another patient, who complained of sudden amblyopia about six months after recovery from C.S.F., psychiatric investigation revealed that he was a capable signaller who since his recovery from C.S.F. had developed a fear of oversea service (though prior to the C.S.F. he had twice volunteered to go over-seas), and his hysterical blindness began while home on embarkation leave. The symptoms in these patients were obviously functional, but as they had no history of inherited or personal disposition to neurotic illness previous to the C.S.F. the tendency for neurotic breakdown seems to have been acquired as a result of the infection.

It was, however, difficult to assess whether such symptoms as headaches, blackouts, fits, and temporary loss of memory were predominantly physiogenic or entirely psychogenic in origin. But slowly developing changes in personality, habits, and interests, mild but prolonged depression, intellectual deterioration, and in some patients of hitherto unblemished character moral deterioration as well, involving trouble with the civil authorities, were more suggestive of encephalopathy than of functional disorder. Such changes were striking in patients with previous good personality (though they were also found in other patients), and were confined to those who had had a severe attack of C.S.F. with delirium. These changes more or less began during the initial illness (C.S.F.), and even after extensive inquiries no obvious psychological factors were discovered to account for such symptoms. The evidence for regarding these patients as suffering from an encephalopathy appears, therefore, to be fairly convincing.

Table showing Changes in Personality after C.S.F.

Previous Personality	No.	Details of C.S.F. (D = Delirium)		External Stress	Symptoms Continuous	Psychiatric Disorder	
						Neurosis	Probably Organic
Good	27	Mild	6	4	3	6	—
		Severe, with D	14	3	12	5	9
		Severe, without D	7	2	6	7	—
Fairly good	19	Mild	3	2	1	3	—
		Severe, with D	5	2	5	2	3
		Severe, without D	2	—	—	2	—
Poor	14	Mild	6	5	6	6	—
		Severe, with D	5	3	3	1	4
		Severe, without D	3	1	2	3	—

It would seem that some patients who have apparently recovered from a severe attack of C.S.F. with impairment of cerebral function during the illness may continue to complain of symptoms, some of which appear to be predominantly psychogenic and others most probably physiogenic.

Symptoms of Meningococcal Encephalopathy

Changes in Personality

More or less profound changes in the total personality in children have been mentioned by several writers—chiefly Pette, Pfeiffer, and Redlich, in their handbooks on psychiatry. Moroseness in children previously of a placid and cheerful disposition and in persons with a hereditary or personal history of nervous instability, irritability, and outbursts of passion have been mentioned by Rolleston and Ronaldson (1940).

Various changes in personality were predominant features in most of our patients, especially those (in Group 1) who before the C.S.F. were known to be well-organized and stable persons with plenty of initiative and drive. In general they appeared to have lost the *joie de vivre* and become diffident, and were inclined to spend more time in the comparative security of their homes, moping about and doing practically no useful work. Those who had resumed their work were inefficient, and even the lightest task seemed to be an effort. Employers reported that some of these patients were constantly grumbling, and yet others were frequently asking for concessions from superiors or help from work-mates and relatives.

Intellectual Deterioration

In children, mental enfeeblement, difficulties in learning, and even dementia (Brain, 1940) have been mentioned by several writers. Goeppert points out that in an epidemic in Norway 3.7% of 539 patients showed severe mental deterioration, and after an epidemic in Upper Silesia most of the survivors who could be followed up over a considerable period were reported to have become more irritable and poorer in their scholastic achievements.

The majority of our patients showed some degree of intellectual deterioration. They complained of forgetfulness and of difficulty in calling up old associations and in recalling names, dates, and figures *quickly*. While speaking to their friends they sometimes could not then recall their names, though they could do so after some time. This was probably due to impairment of visual recognition and recall. Forming new associations was an effort, and there was considerable difficulty in planning ahead quickly.

When given a battery of psychological tests (Halstead, 1943) visual memory, as tested with pictures, stories, and reproduction of designs from memory, was faulty, and there was evidence of displacement of major details or confusion. Auditory memory (repeating words, sentences, and stories) seemed fairly good. Retention was short, and there was a substantial drop in the amount recalled after 10 minutes. In some patients there was no improvement even after repeated readings of the same material.

Making mistakes, confusion of details, and bringing in inventions were quite common. Disturbed attention, poverty of associations, and slowness of thinking and planning were also apparent during occupational therapy in the workshops attached to the hospital when the patients had no reason to suspect they were being tested.

Case 1.—A male aged 23 was admitted on April 13, 1943, for investigation—? schizophrenia. He came from a well-to-do family, had a normal childhood, and had been very popular at school, where he was captain of the cricket and football teams. After getting his school certificate with seven credits he became a teacher in a preparatory school, and in 1938 was commissioned in the Forces, where he got on well until an attack of C.S.F. in 1941: During convalescence he could not recognize his father for several weeks, and later complained that his memory was bad. When allowed up he used to get lost. At first he could not remember what he had read and although in this respect he improved after a few weeks he still had difficulty in recalling temporary or unfixed events. Eventually he was invalided out with a 100% pension. After his discharge from the Service he went to a preparatory school as house master and tried to teach mathematics and science, but had memory difficulties: he could remember things he knew long before the illness—e.g., elementary mathematics—but had difficulty in learning new things; he forgot engagements, and others had to help him He tried hard to do new problems in his mathematical work, but owing to loss of memory, headaches, and tiredness, he finally had to give up teaching about the middle of 1942. Next he tried an easier job as progress chaser at an aircraft factory, but was incompetent, and on medical advice was discharged in six weeks. He then remained at home for about eight months, when he used to stay in bed until 11 a.m. and showed no desire to do anything He did not know whether he required work or rest. Finally he left home and went to stay with his uncle (a retired Army officer), who took him to a psychiatrist. The latter raised the question of schizophrenia, and referred him to this hospital. On admission he complained that his memory difficulty had caused him to be incompetent at teaching and factory or any other work. He described his difficulty as a feeling of blankness when he had to deal with a new situation quickly. The harder he tried the greater was the blank, and he felt as if he was in a maze. He also had difficulty in planning ahead quickly, though he could do it *very slowly*. When given a battery of special tests devised by Halstead (1943) his impairment seemed to be mainly intellectual—i.e., in the higher processes His learning ability was poor, his retention was short, and his recal after a second reading of the same material showed no improvement. His vocabulary score was equivalent to an I.Q. of abou

130. He had no financial or other obvious stress to account for his symptoms. Wassermann and electro-encephalogram—N.A.D. During his stay his attitude improved, and he was discharged with advice to do work at a lower intellectual level.

Case 2.—A male aged 21 was admitted on March 16, 1942, for investigation of headaches, loss of memory, depression, and behaviour disorders. There was nothing significant in his family and early history. He was happy and contented, and got on well with his friends and work-mates, who all liked him. "One could not have wished for a better boy." After a severe attack of C.S.F. in 1937 his personality seemed to have undergone a complete change. He had moods quite often, when he was really hateful—he snapped at everybody, the dog seemed to be continuously under his feet, and everything was wrong. As soon as he came in from his work his mother could tell whether he was in a bad mood or not. These moods seemed to last for the rest of the day on which they started. Since his illness he had also complained of severe headaches and intolerance of noise. He could not even bear the clatter of the china when the table was being laid. His memory had been very bad since the C.S.F.; sometimes when he went to work in the morning he would ask his mother to mind something for him during the day, but he would have entirely forgotten this by the evening, and would be asking her what she had done with it. He could even forget where he had put something a few minutes before, and be looking for it in the wrong room. On several occasions he failed to get out of the bus on the way home from work and passed the end of his own road. On one such occasion he found himself in a locality he did not know at all, so that he was forced to ask a policeman where he was. He had also suffered from attacks of amnesia. The first attack occurred about 4 to 5 months after recovery from C.S.F. While on his way home from his factory he suddenly lost his memory and wandered about aimlessly until the next day, when he was recognized by one of his friends, who took him home. About a year later, while sitting with his brother in a picture theatre, he suddenly got up and walked out. After about 15 minutes he "came to" and realized what he was doing. There have also been disturbances of sleep. He used to sleep in a large room with his two brothers, each in a single bed. On one occasion he got up in the night and, going downstairs, opened the front door and went out. The noise made by the banging of the door wakened one of his brothers, who followed him and persuaded him to return to his bed. When his brother pointed out that it was too early and too cold to go out he said it was time to get up. On another occasion he got out of his bed and into that of his brother. The latter did not wish to disturb him and so let him remain, and they both spent the night in one bed.

He had also complained of mild depression, and had been spending more time at home, seldom going out in the evenings. On account of his forgetfulness his work deteriorated and he had frequent changes of jobs. On Feb. 8, 1942, he had another fugue, and was found wandering with loss of memory. A psychiatrist who examined him found his memory defective and his powers of attention, retention, and recall all impaired. During his stay here he was depressed and retarded. After discharge from this hospital on April 9 he stayed at home for a month, then took up a labouring job, but found that the jar of using a pickaxe brought on headaches and in a few days gave this up. After some unemployment he was persuaded to go into a war factory where his two sisters were working. He travelled to and from work with his sisters and worked in the same room, but after about five or six weeks was discharged as inefficient. His subsequent work record continued to be unsatisfactory.

Moral Deterioration

Disorders of conduct similar to those following encephalitis have been reported by Voisin and Paisseau (Kinnier Wilson, 1940) in children who survived the Paris epidemic of C.S.F. n 1910. Mendaciousness and deterioration of character similar o those described in a boy by Kinnier Wilson (1940) were triking features in some of the patients.

Case 3.—A male aged 29 was admitted on Feb. 19, 1943, on account of deterioration of personality. He came of a good family and was popular at school, where he captained the football team. After leaving school he was a cinema operator for 14 years. At 6 he had a severe attack of diphtheria, and since then he appears o have had occasional moody attacks, when he would prefer to be alone. Otherwise he is reported to have been sociable and happy-go-lucky. At the outbreak of war he volunteered for the Army, and after 18 months' service became a L/Sgt. One of his brothers was killed at Dunkirk, another at Coventry during an air raid, and a third in an explosion at a munition factory. In spite of this he eems to have done fairly well until he had an attack of C.S.F. in Oct., 1942, since when his personality has undergone a complete change. He was found guilty of several breaches of discipline, and never returned from leave at the correct time, and in most cases on his return said that he had been suffering from amnesia. His officer stated that it was impossible to place any reliance on him, that it was found necessary to keep him with another N.C.O., and that as he required to be under constant supervision he was therefore not fit to carry out normal duties, which included solitary sentry duty on the gun. His O.C. also remarked that he seemed on the whole to be a man of good type and intelligence, and if cured of his present trouble would probably prove to be a useful and efficient soldier. On account of his steady deterioration he was warned on many occasions and given an opportunity to relinquish his stripes, which he refused to do. However, in Dec., 1942, he broke into a shop and stole about a pound of sweets, which he immediately distributed among his friends. He says he did it on a sudden impulse without realizing what he was doing, as the sentry on duty was not far from the shop. He was subsequently convicted of stealing and sent to a civil prison for 21 days. On the expiry of his sentence he was again A.W.O.L. and was found wandering in the fields. He was then examined by an Army psychiatrist, who referred him to this hospital.

On admission he complained of attacks of confusion, absentmindedness, forgetfulness, headaches, fear of accepting responsibility, lack of control over sudden impulses, loss of libido, and depression. He appeared lacrimose, despondent, and full of apprehension. He complained bitterly that since the illness a change had come over him. Because of this and his complete impotence while home on leave his wife had threatened to leave him. He pointed out that during the periods A.W.O.L. he did not go home, but wandered aimlessly and slept in the fields (this was confirmed by independent report), as he felt a desire to avoid all human beings. During his stay he slightly improved, and was given a posting under the War Office Annexure Scheme, but within about three months he had relapsed and was admitted to another hospital.

Case 4.—A male aged 25, a quiet, cheerful, and well-adjusted professional violin-player, had a severe attack of C.S.F. with delirium in Jan., 1941. During convalescence he began to complain of constant heaviness in the head, with frequent frontal headaches, impairment of memory, disturbances of sleep, undue tiredness, fainting attacks, and persistent depression. His relatives and friends noticed gradual changes in his character and habits. Whereas before the illness he used to spend about five hours daily playing the violin, he now seldom spent more than 10 minutes. Before the illness he used to read two or three books a week, but now he could read short stories only. Acquaintances stated that he had short lapses of memory, and while talking to them could not remember their names. It was reported that he had become mendacious and was inclined to say nasty things in a sarcastic way about his friends, which surprised them, as they had always known him to be a quiet likeable chap who never offended anyone before. He seems also to have done several odd things. For instance, one night he woke up at 2 a.m. and got out of bed to go down for breakfast. On two or three occasions he "collapsed" and was apparently unconscious.

In a slightly unstable individual a severe attack could be followed by deterioration of character and temper, disorders of conduct, and antisocial behaviour.

Case 5.—A male aged 24, admitted on July 28, 1942. Though inclined to be highly strung, he was fairly well adjusted in civil life. Since a severe attack of C.S.F., for which he was three months in hospital, he had been continuously depressed and irritable. He had been unmanageable in his home and also in his unit, where he had been punished for frequent breaches of discipline. He was in trouble also with the civil authorities for disorderly conduct and antisocial behaviour. During his stay here he was dejected, fidgety, and difficult to handle on account of his destructive tendencies. He was untidy, faulty in habits, and inclined to use obscene language, and spat all over the place.

Some of the patients also complained of blackouts, fits, and attacks of confusion, which were at first thought to be hysterical in nature, but which from the evidence of the E.E.G. appeared to be attacks of petit mal or grand mal. Convulsions may have been due to involvement of the cortex, as pointed out by Grinker (1937), or to internal hydrocephalus (Baker, 1934). Jacksonian attacks may be due, as suggested by Dopter, to areas of meningitis which act as irritants to the cortex (Rolleston and Ronaldson, 1940).

Case 6.—A male aged 31 had an attack of C.S.F. in 1940. During convalescence he complained of continuous pressure in the head with frequent headaches on the left side and depression. After three months he tried to resume his previous work but could not, and changed to a lighter job. About nine months later he had a blackout, then twitching and involuntary movements of the right arm and hand, followed by temporary paralysis and recovery. Though some of his symptoms persisted in April, 1941, he enlisted in the Forces (as a volunteer), hoping to shake off some of his depression, but during training had another blackout followed by brief paralysis of the right arm and hand, which caused him to drop the rifle which he was holding. Soon after this he went to sea and seems to have tried his best for several months, but on account of symptoms he reported sick and was returned to shore, where he was given light duties. As he found even these too strenuous, on the advice of the M.O. he was given a light job as a runner, but complained bitterly that he could not do it unless he had a bicycle. When a bicycle was obtained he grumbled that the work was too much for him. For nearly four months he was on sick parade almost every morning. His O.C. stated that at one time he was "well behaved, well disciplined, well turned out, and conscientious," and that he was steadily deteriorating. His relatives also complained about the change that had come over him.

On admission he said that during some of his blackouts he felt dazed, and vague and indistinct figures moved rapidly in front of him ("dreamy state" of Hughlings Jackson). An E.E.G. showed abnormal waves from the left temporal and occipital lobes.

Sexual Anomalies

It has been pointed out that temporary impotence and inhibition of spermatogenesis may occur after administration of sulphonamides and that these disabilities seldom last longer than a few days (Cohen, 1941). Several of our patients complained of loss of sexual desire and impotence lasting several months, and this condition is apparently not the result of chemotherapy, as similar changes were present in some of the patients who had their illness in childhood and who had not been treated with sulphonamides (Pai, 1944).

Case 7.—A male aged 31, happily married, with two children. Following C.S.F. in March, 1941, he lost all heterosexual desire, became impotent with his wife, and gradually began to be bothered with homosexual (passive) fantasies and impulses, with increasing difficulty in self-control. He got worried over his impotence, and the stress of close association with other men resulted in anxiety symptoms regarding fears of giving way to his unhealthy cravings and of the consequences. Finally he sought refuge in alcohol, which made his condition worse and aggravated his depression.

Depression

Nearly every one of our patients complained of mild but prolonged depression without feelings of guilt or self-reproach. They avoided their fellow-beings, lost interest in favourite hobbies, and were disinclined for any form of employment, whether gainful or not. They could not be bothered even to talk to people, and had no patience for any form of recreation or entertainment. The depression was not intense enough to cause fits of crying, and none admitted having ever entertained thoughts of committing suicide—a useful point in distinguishing this condition from neuroses, in which patients often burst out crying and sometimes threaten to commit suicide.

Headache

The great majority of these patients complained of constant heaviness in the head, with frequent attacks of headache. It is difficult to say whether this headache is due to organic changes in the meningeal vessels, to a minor degree of internal hydrocephalus (Baker, 1934), or to the process of disintegration of the personality pattern. Possibly alterations in personality may lower the threshold for pain or cause external stimuli (which ordinarily do not cause pain) to be interpreted as potential threats to the personality, giving rise to the sensation of pain. Hence their frequent remark, "Any noise gives me headache."

Case 8.—A male aged 28, with no previous history of neurotic traits or ill-health, had a severe attack of C.S.F. in April, 1939. It was reported that before this illness he was a very easy man to live with and tried hard to make his wife happy. Since his illness his wife felt she was living with a different man. He was full of complaints about his headaches and used to spend his nights sleeping in a chair in the sitting-room. One day, being unable to bear the pain, he deliberately knocked his head against a wall, and next day had a swelling on his forehead. When questioned by his wife he confessed what he had done.

A few of the patients complained of vague phobias, but in four of these cases specific obsessional trends emerged for the first time since the C.S.F. These features were merely different aspects of the personality changes.

While convalescing from C.S.F. a barber with 11 years' experience developed a phobia for razors, and was obsessed with the idea that if he handled one he might not be responsible for the consequences. Another patient was afraid to sleep in his bed (lest he should not wake up in the morning), and in consequence spent the nights dozing in a chair.

Irritability, aggression, suspicion, and paranoid reactions met with in post-confusional states were either absent or insignificant in our patients, who, generally speaking, appeared to be mildly apathetic. Nevertheless, when faced with tasks which they could not tackle a few showed symptoms of mild anxiety and irritability, due no doubt to frustration.

Discussion

Consciousness is necessary for the full functioning of one's responses to the demands of society. This pattern of behaviour constitutes to a great extent one's personality. When consciousness is disturbed, as in confusional or delirious states, the cognitive, emotional, and volitional functions are impaired, resulting in temporary disintegration of the personality pattern—hence such symptoms as incoherent speech, disturbances of bladder function, and disorders of conduct. When, therefore, changes in the personality pattern persist for some time it would not be unreasonable to assume that some damage remains to those parts of the brain which govern, among other things, the cognitive, emotional, and volitional faculties, or that restoration of these functions has been delayed.

It is becoming increasingly clear that some patients who apparently recover from C.S.F. show a more or less definite syndrome, though individual symptoms may vary in intensity and degree in different patients. These symptoms would appear to progress up to 10 to 14 months and then remain more or less stationary. Whether these changes are the result of damage by the meningococcus or the result of slow vascular changes it is difficult to say. Possibly other factors, such as chemotherapy, biochemical changes, or vitamin deficiencies during the course of the illness, may be at work, either singly or in combination.

Conclusion

In the absence of definite knowledge of the causative factors prophylactic measures cannot be suggested, but certain lines of procedure may be adopted while dealing with patients who during C.S.F. suffer from disturbances of consciousness. As soon as possible (and before the patient leaves the fever hospital) the patient's psychiatric and socio-economic problems should be reviewed, if necessary with the help of a psychiatrist and a psychiatric social worker. By this means a good deal may be done in the way of preventing purely neurotic superstructures. Where evidence of neuro-psychiatric disorder has emerged, although it may be unprofitable to try to label an individual symptom as predominantly psychogenic or predominantly physiogenic, it is clearly essential to decide whether the total picture is suggestive of a functional disorder or of an organic process. In the case of the former, appropriate treatment may restore a patient to his previous functioning level. When there are reasons to suspect an organic process the psychiatrist should assess the patient's efficiency, placing emphasis on his residual capacities rather than on his disabilities and he should be advised and encouraged to work at levels at which he is likely to achieve success. In the early stages this should be done under supervision. Vague advice to "do light work and take plenty of rest" is worse than useless, and has been responsible not only for much unemployment but also for the development of avoidable secondary neurotic reactions.

Summary

Studies were made of 51 patients who complained of neuropsychiatric symptoms after apparent recovery from cerebrospinal fever in adult life.

In the majority of these patients the psychiatric disorder was predominantly psychogenic and the symptoms were similar to those seen in other patients suffering from neurosis.

Of 24 patients who had had a severe illness, with delirium, 16 showed a definite syndrome which was suggestive of an organic process, with perhaps slight functional overlay in a few instances. Case histories have been given illustrating the changes in personality, intellectual or character deterioration, and tendencies to invalidism which were prominent features in these patients.

Persons with no hereditary or personal tendencies to neurotic breakdown may after an attack of C.S.F. acquire a disposition to neurotic illness.

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PSYCHIATRIC CASUALTIES IN A WOMEN'S SERVICE

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ittle has been written of the war neuroses as they affect the omen's Services. From a joint personal experience of nearly ,000 such cases, we believe that some features of interest rise, and that a brief analysis of our material and of the actors leading to breakdown in this minority of the W.A.A.F. opulation may have some importance, not only because of he economic and social issues involved but also in relation o the general theory of the war neuroses.

We are unable to give figures showing the respective incidence f psychiatric disability among men and women in the Service, nd it seems unlikely that such figures will become available uring the war. Many medical officers of mixed units state hat there is an appreciably higher incidence in women. The ccompanying Table shows the diagnoses in two groups of onsecutive psychiatric cases seen.

Diagnosis	Cases among 250 Consecutive Airmen Referred	Cases among 250 Consecutive Airwomen Referred
nxiety states	100	65
ysteria	56	105
sychopathy	70	53
ental defect	8	18
sychosis	12	7
ther psychiatric conditions	4	2

Mental Defect

These cases represent about 7% of the airwomen in our eries invalided on psychiatric grounds, and 44% of the group ere referred because of executive difficulties. We would tress that, at all levels, usefulness in the Service depends more n emotional stability than on intelligence quotients. Two-hirds of these defectives were emotionally unstable, and over hree-quarters had very poor civil employment records. Never-heless some of them do useful work under Service conditions, nd in this they are materially assisted by the existence of ork suited to their intellectual level : they are less likely to e pushed into the technical training which so often leads o rapid breakdown in male defectives.

The few psychotic airwomen seen were not invalided direct, ut were admitted to hospital, and, defectives and psychotics xcepted, the remainder of cases invalided are classified as nxiety states (16%), hysteria (50%), and psychopathic states 34%). It is with these groups, comprising about 90% of our sychiatric invalidings, that this paper is chiefly concerned.

Psychoneurosis

A striking feature is the preponderance of hysterical reactions n the female cases, seen in the table of cases referred and even ore marked in the invalided group.

In general, the clinical features of the psychoneuroses are similar to those found in men, but an important symptomatological difference was noted in that the somatic expressions of emotional disturbance were less common among females, who tended to show an overt emotional upset rather than one masked by physical symptoms. Thus nervous dyspepsia, a common psychosomatic illness in men, is rarely seen in women. When psychosomatic symptoms do occur in the latter they tend to be of a vague type and frequently take the form of headaches, ill-determined emotional faints, "rheumatic pains," backaches, or gynaecological complaints especially related to menstruation. Similarly, major conversion symptoms, fugues, and amnesias are rare among W.A.A.F. personnel suffering from hysteria. It would appear that the socially acknowledged and permitted emotionalism of women allows of a more direct expression of adaptive and emotional difficulties, and that this renders prolonged and inconvenient physical symptoms superfluous. Men, on the other hand, submit to a sterner social and emotional code. They have, therefore, a greater need to preserve their self-esteem by the development of a more complex disguise or escape mechanism.

At the extreme end of the scale a small number of highly unstable young women showed an acute and usually transient breakdown, often hysterical but sometimes schizoid in type. This usually occurred shortly after joining the Service, and represented a complete failure of adaptation. Similar cases were seen in men, who were invariably, however, of low intelligence bordering on the level of high-grade feeblemindedness.

In aetiology domestic factors were important, and were found in a third of all anxiety states in both sexes. A fairly common finding, also in both groups, consisted of feelings of frustration, amounting in some cases to paranoid reactions, which cleared up when an obvious environmental difficulty could be overcome.

Psychopathy and Temperamental Instability

The classification of "psychopathy" covers two distinct groups of cases. First there are the true "constitutional" psychopaths of the predominantly inadequate or predominantly aggressive types. These usually give a psychopathic family history, and have a past record of gross personality difficulties and maladaptation dating from early life. The inadequate and feckless is the commoner type, personified by the shy, over-protected, and often socially "superior" female with interests and activities limited to the immediate family circle. Typically the only or the youngest child of elderly parents, and with a history of minor neurosis, she often stated that she joined the Service on medical advice. Such women are apt to make much of minor ailments and to fail in adapting to communal life, routine work, and the absence of special consideration.

Examples of the aggressive group, who show irresponsibility, unscrupulousness, and rebellious antisocial activity, are not rare. These patients are frequently vivacious, attractive, and intelligent products of parental overspoiling, whose egocentricity is often expressed in conduct disorder or hysterical symptoms in the face of unpalatable regimentation. They are, however, a menace to unit morale and discipline, and, in women at any rate, the Service usefulness of either group is slight.

We have arbitrarily separated from the classical psychopathies a group of temperamentally unstable individuals which is numerically as great, and clinically as important from the Service standpoint, as the psychopaths. While it is obvious that if seen in civil practice these would be classified as psychopathic personalities, their pre-Service social history shows little evidence of maladaptation although their personality structure shows clear indications of psychopathic instability. In civil life, living at their own level, such individuals have been able to compensate their predisposition, and a breakdown with neurosis or conduct disorder of an aggressive or rebellious-type occurs only on exposure to the unusual demands of Service life.

Members of the classical psychopathic groups are usually invalided at an early stage, and it is from the temperamentally unstable group that the "problem cases" of the W.A.A.F. are principally drawn. They are problems from the executive and medical points of view, for while they show gross conduct disorder and ruthless determination in pursuit of their own ends, there is little abnormal to be detected on an ordinary psychiatric examination, and their diagnostic labelling comes to depend upon the history of repeated disciplinary offences, and the failure of repeated disciplinary measures to deter them. In this respect, however, it is to be noted that, while in dealing with men the attainment of some measure of social responsibility can be assisted by disciplinary action, the disciplinary powers in a women's Service are so much less stringent as to be inadequate in many cases, and it is therefore found in practice impossible to push these cases as vigorously and to such effect as can be done with men of a similar type.

Predisposition

In dealing with large numbers of these cases it became obvious that predisposition to neurosis was of considerable importance in aetiology and also in prognosis. By "predisposition" is meant a measurement of the degree of liability of the individual to break down in a neurotic pattern when exposed to stress. In general terms it is assessed by means of a historical survey of personality structure, previous reaction to stress, and hereditary indebtedness. The assessment rests upon the established clinical observation that a subject who has reacted neurotically to past situations is likely to react in similar fashion to present and to future stress. In this connexion 86% of a series of 100 consecutive psychoneurotic and psychopathic members of the W.A.A.F. seen by us showed severe or moderately severe predisposition, and 80% of a similar series of 100 airmen were also graded in this degree of predisposition.

In contrast, control groups of 100 cases of organic neurological disorder in each of the sexes showed only 20% of subjects severely predisposed to neurosis, despite the fact that the control groups included a proportion of cases of epilepsy and migraine, both of which are commonly associated with nervous instability.

In a previous paper (Ballard and Miller, 1944) we have drawn attention to the fact that 48% of airwomen as opposed to 10% of airmen referred with neuropsychiatric complaints were invalided from the Service. It is obvious that the reason for this difference lies not so much in a quantitatively greater amount of predisposition as in qualitative differences in the faults of personality structure, which together constitute predisposition. It is probable, also, that specialists tend to discard members of the W.A.A.F. more readily than they do airmen. We feel, however, that this trend is largely due to an inherent recognition by specialists of greater instability and less adaptability among women. There was a greater tendency among airwomen to lack persistence, which had led to a poor work record in civilian life in 62% of members of the W.A.A.F. as compared with 46% of airmen.

Psychosexual immaturity with poor socialization, sexual maladaptations, over-dependence on parents, intrafamilial ties or friction, and marital failures were found in 73% of W.A.A.F.s but in only 39% of airmen. These trends were important in the production of separation anxieties of all types (home-sickness, family or marital conflicts) and were conducive to the occurrence of neurotic solutions for, and escape mechanisms from, their difficulties. Among the female psychopaths and temperamentally unstable, 28% were "only children," with a record of spoiling and fostered egocentricity: in the equivalent male group 11% were "only children." In the same groups 28% of women as compared with 16% of men were below average intelligence. Traits of emotional instability were found in 73% of the female cases and in 54% of the male series.

There are other important contributory factors in our series: a positive psychiatric family history occurred in 60% of all cases in both sexes, while 41% similarly showed poor health records. These factors, with others analysed, showed general close approximation of incidence in both series. A further important operative factor in the W.A.A.F. lies in the psychobiological significance of service in the armed Forces, implying as it does the subordination of traditional female values and primary biological functions in the compulsory interruption of the reproductive career at its optimum period.

It would therefore appear that adaptive failure is more likely to occur in women on account of the traits of immaturity and emotional and occupational instability. Because of these traits, attempts to drive such women by disciplinary means are likely to result in further neurotic manifestations. We do not, however, believe that discipline should not be used in these cases, and we are of the opinion that if effective disciplinary measures were available in the handling of merely unruly and temperamentally unstable women their conduct disorders would be reduced or better controlled and invaliding would be more closely confined to the psychoneurotics, true psychopaths, psychoses, and the remaining psychiatric casualties. It is the combination of ineffective discipline with qualitative difference of predisposition which accounts for the higher rate of invaliding in women.

Discussion

In relation to the general theory of the war neuroses the incidence in serving women raises some interesting questions. The war of 1914–18 saw the abandonment of the view that the aetiology of these conditions was physical, and replaced it with the psychological view that they arose from conflict between the instincts of self-preservation and self-respect based on the standards of the herd. This conflict had its origin in fear—fear of death or of physical injury. Such a conflict undoubtedly exists under battle conditions, and in these circumstances is perhaps almost universal. Of itself, however, it hardly serves to explain why some break down while others deal satisfactorily with the conflict, nor does it account for the large proportion of war neuroses unrelated to battle stress

While, then, this was at any rate a psychological explanation and a step forward, it has become increasingly evident in this war that such a conflict is by no means the only or even the central factor in most war neuroses in Service personnel The relative infrequency of neurotic breakdown in civilian populations exposed to great physical danger in their familia surroundings, the incidence of typical war neuroses in base troops unexposed to physical stress of any kind, and the occasional occurrence of suicide in such personnel, without the stress of imminent physical danger, all indicate the inadequacy of this hypothesis.

Further investigation has emphasized the importance of predisposition and total personality in determining the nature and degree of neurotic reactions to war conditions, demonstrating the roots of these neuroses rather in earlier faults of personality development than in the immediate situation Scarcely any of the airwomen in our group who broke down with neurotic illness had faced any physical danger; indeed most of them had lived under safer conditions than their sisters at home, yet they broke down with symptoms similar to, if not identical with, those shown by personnel exposed to combatant stress.

Fairbairn (1943) has recently emphasized the emotiona immaturity of the neurotically predisposed individual and his over-dependence on family surroundings, and has drawn attention to the role of home-sickness and separation-anxiety in leading to breakdown in these subjects. Such factors are certainly prominent in a high proportion of the cases under discussion, which illustrate also the closely related influence of unit morale on the incidence of neurotic breakdown. The unit of good morale, whether it be an operational aircraft squadron, a crack regiment, or a ship's company, provides a sense of emotional security and of "belonging" akin to that of the family in its warmth and spirit. Among much of the R.A.F. ground personnel and in the W.A.A.F. this factor is difficult of achievement. A system of individua postings tends to break up the emotional ties which hold together unit morale and, in addition, such events not infrequently provoke emotional upsets in many airwomen prone to the development of strong individual emotional ties of both a heterosexual and a homosexual nature.

Summary

Experience of a large series of cases of neurotic breakdown in a women's Service indicates the paramount importance of predisposition to neurosis. The emotionally immature and over-dependent in particular, stand up badly to separation from home, and anxiety arising on this score is an extremely common factor. The higher incidence of frankly emotional and hysterical disturbances, the less frequent and qualitatively different psychosomatic reactions, and the

problem of psychopathy and conduct disorder in women are noted, and an attempt is made to show the relation of this material to the general problem of the war neuroses.

We wish to thank Air Vice-Marshal C. P. Symonds, C.B., and Air Commodore R. D. Gillespie for encouragement and criticism in the preparation of this paper.

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LUDWIG'S ANGINA

BY

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AND

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Ludwig's angina, if not promptly recognized as such, is often fatal. This symptom-complex of a floating tongue with submandibular cellulitis is not uncommon among East African native troops, and during the last 30 months we have had to treat 20 such cases. It is the purpose of this paper to direct attention once again to the cardinal signs which herald the onset of the syndrome and to outline a system of management which has proved satisfactory and, in our experience, has appreciably reduced the mortality.

The higher incidence among native troops may be due to several factors. Kekwick and Wright (1945) have recently demonstrated that low-grade vitamin C deficiency is prevalent, and it is possible that this leads to a decreased resistance to oral sepsis. The African also has a well-recognized liability to coccal infections, and submandibular cellulitis may be just another manifestation of this tendency. Further, the native shows a hesitancy in seeking dental treatment until he suffers from marked disability, and in some cases this neglect has nitiated the condition.

Where the focus of infection in Ludwig's angina is dental the third lower molar is most commonly the tooth involved, for he following reasons. The inner alveolar plate is thinner han the outer, thus facilitating the spread of infection deep o the cervical fascia and myelohyoid muscles. Again, despite the fact that the African is more prognathous than the European, here is sometimes insufficient room for the complete eruption of the third lower molar. This partially erupted tooth is consequently more prone to pericoronal infection. Alternatively, he infection may be periapical in origin, arising from any of he lower teeth.

An intermediate stage in the pathology is an acute alveolar abscess in the case of periapical infection or a pericoronal abscess in the case of a partially erupted third lower molar. t is imperative to recognize the differential diagnosis between an uncomplicated alveolar or pericoronal abscess and one in which the sepsis has spread into the deep structures of the loor of the mouth, for in the latter stage intraoral drainage by extraction of a tooth or removal of a gum-flap will not provide adequate drainage once the pus has tracked forward n the slanting trough of the myelohyoids, and prompt external drainage is essential. For this reason, where such a spread s a possibility, it is important that the patient should be seen by both a surgeon and a dental surgeon, and that subsequent reatment should be carried out in the closest collaboration.

The cardinal signs (Fig. 1) are:

1. *A Floating Tongue.*—An inflammatory process with or without ormation of pus in the floor of the mouth, firmly embraced by he myelohyoids and deep cervical fascia, causes the tongue to be levated, and in severe cases extruded. Intraoral oedema is pronounced, and in some cases reaches up to the necks of the teeth. Dyspnoea and dysphagia may result from oedema or from pressure on the trachea and oesophagus.

2. *Submandibular Cellulitis.*—This is a diffuse and tender swelling beneath the jaw which may cross the midline of the neck. It must be emphasized that it is extremely dangerous to withhold treatment while awaiting fluctuation, for the patient may succumb to toxaemia or respiratory obstruction before pus is formed, and it is essential that pressure on the deep structures be relieved by sectioning the deep cervical fascia and one or both myelohyoid muscles. Others have reiterated that when the tongue is elevated and there are signs of a submandibular cellulitis the patient is suffering from Ludwig's angina. The diagnosis of the lesion is the indication for operative treatment. Delay is dangerous, and in our opinion surgical intervention is urgent when these two signs are manifest.

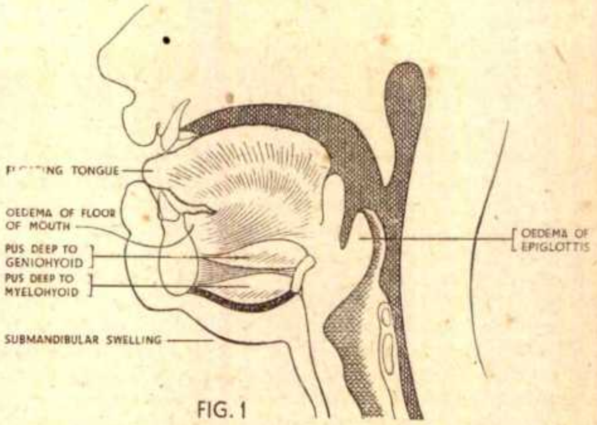

FIG. 1

Surgical Preparation

It is of paramount importance that a tracheotomy set should be available in the theatre, and should accompany the patient on his return to the ward. It must remain there for 24 hours, or longer if indicated. This simple precaution is not superfluous, and must never be omitted from the surgical routine. The choice of anaesthesia is determined by the facilities available. We have found local analgesia to be unsatisfactory because of its inability to allow adequate dissection. Ethyl chloride is hazardous in the extreme because of the tendency to spasm of the laryngeal muscles. Where full hospital facilities are at hand the safest method of anaesthesia is by endotracheal nitrous oxide and oxygen, to which a small quantity of ether may be added. Where such facilities are not at hand we have found light chloroform analgesia to be the safest method, preceded by adequate premedication, but, as in any form of anaesthesia, the most important factor remains the skill and experience of the anaesthetist.

Operation

A curved incision is made about one inch below the mandible, extending from a point below the third molar to the midline, or across the midline if indicated. This is deepened to the level of the myelohyoid, which is sectioned. Frequently pus has spilled over the posterior border of this muscle and is found superficial to it, but provided the origin of the inflammatory process is not in the submental glands, section of the muscle is indicated. A drain is introduced, but instead of merely draining the space it is passed on through the floor of the mouth, emerging between the lingual border of the mandible and the tongue (Fry *et al.*, 1942). The part of the tube that is lying in the submandibular structures is fenestrated (Fig. 2).

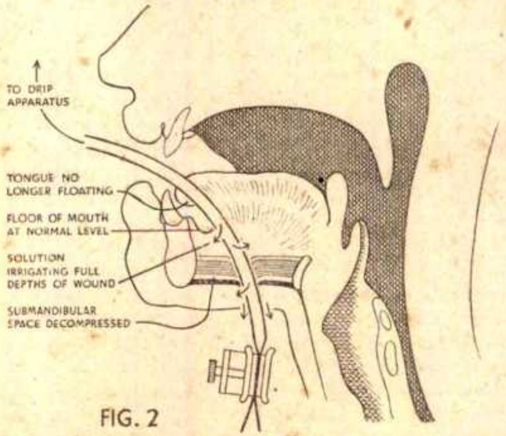
TO DRIP APPARATUS
TONGUE NO LONGER FLOATING
FLOOR OF MOUTH AT NORMAL LEVEL
SOLUTION IRRIGATING FULL DEPTHS OF WOUND
SUBMANDIBULAR SPACE DECOMPRESSED

FIG. 2

The proximal end of the tube is brought out through the mouth and fixed with adhesive plaster to the side of the cheek. The distal end is anchored to the skin at the site of the incision. Vaseline packing is gently tucked into the incision, and the tube is occluded by a clamp at its distal end. If the condition has had a dental origin the extraction of the tooth involved completes the operation.

Post-operative Care

Chemotherapy in the form of sulphonamide drugs is used as a routine auxiliary treatment. Gas-forming organisms often predominate in the infection, and in at least two of our cases gas under tension has escaped on incising the deep cervical fascia. We have therefore used hydrogen peroxide 1/10 as an irrigant. It seems likely that zinc peroxide suspension would be more efficacious, but its availability is limited. During the patient's waking hours there is a continuous slow drip of irrigating solution introduced through the proximal end of the tube. This escapes from the openings in the tube and allows the region to be gently irrigated throughout its various layers (Shepherd, 1940). The fluid coming out of the incision around the sides of the tube presents some difficulties, as it tends to drip down the side of the neck, but with diligent and zealous nursing care it may be collected in a kidney dish hung on the patient's neck, or a close-fitting jaconet collar.

When continuous irrigation has not been convenient we have compromised with 100-c.cm. irrigations every four hours, after which the clamp is removed and the tube functions as an ordinary through-and-through drain. After 48 hours the general and local improvement is sufficient to consider shortening the tube. It is cut away flush with the buccal mucosa and shortened about half an inch. If further irrigations are indicated at this stage, they are most easily carried out by introducing a small catheter beside the drainage-tube and syringing hydrogen peroxide through it. The drainage-tube is removed on the fourth to sixth post-operative day, and a vaseline dressing, changed when necessary, completes the post-operative dressings.

Although all these incisions have healed by slow granulation and subsequent epithelization, a linear scar results, and no cases have required excision for cosmetic reasons.

Summary

Possible reasons are outlined for the relatively high incidence of Ludwig's angina among East African native troops.

The diagnostic signs that make surgical intervention imperative are stated.

A system of management is described effecting free drainage and submandibular decompression followed by a drip irrigation.

We wish to record our thanks to Brig. R. P. Cormack, O.B.E., D.D.M.S., East Africa Command, and Col. D. Bell, O.B.E., E.A.A.M.C., for permission to publish this paper; and to acknowledge the co-operation of S/Sgt. F. Finch, R.A.M.C., for the production of the accompanying diagrams.

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INGUINAL HERNIA IN THE MERCHANT NAVY

AN ANALYSIS OF 200 CONSECUTIVE CASES

BY

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The incidence and cure of hernia have attracted renewed and critical attention from the point of view particularly of the associated disability in men of the fighting Forces. Detailed observation and docketed conclusions have been made possible by the concentration of large numbers of men under an organized and centralized medical service. Inguinal hernia has been made the subject of a critical review by Brig. Harold Edwards (1943), who deals with it comprehensively but also with special reference to Army statistics and military considerations. In the Army, selection of cases for operation is determined by the answer to the question whether operation will make the man a more efficient soldier. In the Merchant Navy—not ranked as one of the fighting Services—the question is the mor vital one of going to sea or not.

Classification

To emphasize particularly the age at operation, the larg number of cases requiring supplementary repair, the larges portion of direct hernias, and the early age at which direc hernia occurs, the 200 cases under review have been classifie numerically into the following groups:

Type of Hernia.—Oblique, 97; direct, 103.

Age at Operation.—53 cases were over 45, 38 were over 50, 19 wer over 55, and 9 were over 60.

Recurrent hernias dealt with in this series numbered 22. Of these 18 were direct and 4 were oblique. Four of these recurrence followed a previous filigree operation, and occurred thereafter: 1 a 10 months, 1 at 6 years, 1 at 12 years, 1 at 25 years.

Primary direct hernia occurring at the age of 40 and under, 2 cases. Earliest age at which direct hernia was found, 23 years.

Number of cases dealt with by filigree repair, 130. The firs operation was performed on Feb. 19, 1941, and the last on June 26 1944.

For the purpose of comparison with procedure in the recognized fighting Services a brief analysis will be based upon tha embodied in an Army Medical Department Bulletin on Inguina Hernia, issued by the War Office in Feb., 1943. Therei it is stated that over 12% of inguinal hernias recur after operation, and this recurrence rate is regarded as representative o British surgery as a whole; the factors concerned are considered to be: (1) surgical skill and experience of the operator (2) selection of cases for operation; (3) operative detail (4) post-operative management.

Analysis of Cases

1. In connexion with this factor all the cases have bee operated upon either by me or under my direct supervision.

2. *Selection of Cases for Operation.*—Under this heading th Memorandum excludes the following categories as being unsui able: (*a*) small bulges in men of inferior abdominal musculature; (*b*) large scrotal hernias in pot-bellied subjects of poo physique; (*c*) large recurrent hernias in similar subjects (*d*) large hernias in men of low category because of othe disorders. Among the 200 cases on which this analysis is base will be found instances included in the first three categorie and, in fact, discrimination on these lines has not been exei cised, for it is a cardinal principle that no case is rejected o account of the local condition. With regard to category I am in agreement with this reason for rejection, but actuall no such case has been met with. As I have previously state (Cole, 1941), the operability rate in my hands, taking all case into consideration, is 90% at a modest estimate.

3. *Operative Detail.*—Under this heading it is stated that 75 of recurrences after operation for indirect hernia were indirec Authorities such as Page (1934), Block (1933), Ogilvie (1937 and Gallie and Le Mesurier (1924) have agreed that by far th greatest number of so-called recurrences after operation fo oblique hernia are direct in form. It is clear that in this mas reproduction of the original condition (75%) responsibility mu be attributed to factors either non-operative or operative to minimal extent in the collected series of the quoted authoritie Prior to the series under survey, and over a period of 20 year recurrent hernias numbering approximately 400 have bee observed, and the mode of recurrence has been so often dire that this predominance has never been questioned. The sma number of recurrences in the present series bears this out, fo it will be observed that of the 22 recurrences included 18 we direct and only 4 oblique. Recurrences, the Memorandu states, are commonest after the Bassini operation or one its modifications. With this my own practice records agreement, for I have not performed a Bassini operation for man years. I further agree with the recommendation that "n type of operation which interferes with the normal muscul apparatus of the inguinal canal should be practised for uncomplicated indirect hernia in the young soldier"; and in th connexion it is the age of the patient that counts and not th nature of his employment.

Apart from this simple type of hernia occurring in the your man, some supplementary method must be employed to repla or reinforce the failed inguinal canal. This applies to the ong-standing oblique hernia, for the control of which a truss has frequently been employed for varying periods up to several years, and to all cases of direct hernia.

The supplementary measures recommended for use in the Army involve the employment of fascia in various ways. The supplementary procedure adopted in this series of cases is that of silver filigrees. No case has been subjected to this procedure unless the indications have been perfectly clear. In other words, 130 of the 200 cases have been of such a nature that cure could not have been expected without resort to this or some other method of supplementary repair.

Textbooks are in substantial agreement that the treatment of direct hernia is modified by the fact that this type of lesion usually occurs in elderly men. I believe that direct hernia at earlier ages occurs more frequently in men of the Merchant Navy than in other walks of life. Whether this be so or not, t is significant that of the 200 cases operated upon 103 have belonged to this category, that 27 of these have come to operation at or under the age of 40, and that direct hernia has been found at the early age of 23. In connexion with the question of age, it is noteworthy that 53 hernias in this consecutive series occurred in men of over 45. I suggest that in none of he three recognized fighting Services would men of such an age apply or be referred for operation with the sole objective of resuming or maintaining their active and hazardous participation in the prosecution of the war.

Sepsis.—The Memorandum previously cited refers to "sepsis n hernia wounds." "Sepsis," it states, "is relatively common." n this consecutive series sepsis has been entirely absent except or an occasional transient superficial affection of the skin margins. I attribute this to the fact that the so-called non-ouch technique has been the ideal aimed at. Skin towels are nvariably used, handling of the tissues in the wound is reduced o a minimum and in most cases rigidly excluded. This technique has been facilitated by the routine use of the central-yed or double-pointed needle (Cole).

4. *Post-operative Management of Filigree Cases.*—Following filigree operation patients are confined to bed for three weeks. Normal activities are gradually resumed until full work is underaken at the end of four months. No systematic post-operative xercises have been prescribed.

End-results

Return to Duty and Morbidity.—It is significant that all ases operated upon have been returned to the reserve pool, nd, so far as I know, have resumed their duty at sea. Moridity even has been negligible. In only one case was return o duty delayed beyond the normal period. This was due to he occurrence of femoral thrombosis on the opposite side some weeks after operation.

Recurrences.—Of the 22 recurrences in this series four ccurred, as noted, after a primary filigree operation. Repair n each case was by additional filigree, with uniform success nd return to work.

Filigree Recurrences in the Merchant Navy.—In the 10-year eriod 1930–9, 202 recurrences were met with out of a total f 2,015 operations, and of these recurrences only 12 followed filigree operation. The number of filigree operations performed in this period was 448. The filigree operation has been rgely confined to the Dreadnought Hospital for many years, nd it is not unreasonable to suppose that cases of recurrence ollowing its performance would return, be returned, or be ported. It might be suggested that the 12 recurrences met ith in 1930–9 were partly applicable to a preceding period hen few such operations were undertaken. This objection answered by the fact that in the preceding five years—1925–9 -287 cases were dealt with by this method. In view of the igh operability rate and of the fact that the operation is served for cases that demand some supplementary method of pair, a high group incidence of recurrence might well be xpected. The figures cited clearly suggest that the recurrence te attaching to this operation is remarkably low.

The method of filigree repair has been accorded a recognized ace in current surgical practice in the pages of the most cent—third—edition of *Modern Operative Surgery*, and the editor, Prof. Grey Turner, in a short historical survey states that "the lapse of time is showing that this plan has attained more success than has been acknowledged."

Details of the technique will be found in an article contributed by me to the *British Journal of Surgery* (Cole, 1941).

Illustrative Cases

1. Second Officer, aged 27. Six months' history. Right inguinal hernia. Operation March, 1942. *Small direct bulge.* Repaired by two filigrees.

2. Navigating Officer, aged 27. Right inguinal hernia, *gradually coming on for six years,* with more rapid increase lately. Operation Nov. 16, 1942. Conjoined tendon very poorly represented. Hernia presented as *diffuse direct bulge.* Deep epigastrics tied. Repaired by two filigrees.

3. A big stout man, aged 60. Irreducible left inguinal hernia. Operation June 16, 1941. Sliding hernia of the sigmoid. Repaired by two filigrees. Thereafter hernia developed on right side (a tribute, surely, to the efficacy of the left-sided repair). Operation June 26, 1942. Direct bulge. Repaired by two filigrees.

4. Master, aged 52. Weight 12 st. 8 lb. Saddlebag type of sac. *Diffuse direct bulge* of the posterior wall, continued behind epigastric vessels into the cord. Epigastric vessels tied. Repaired by two filigrees.

5. Quartermaster, aged 54. Left inguinal hernia of 10 years' duration; right inguinal hernia of 9 years' duration. Wearing truss for 9 years. Operation Aug. 31, 1942: *Direct* left inguinal hernia repaired by two filigrees. Sept. 14, 1942: *Direct* right inguinal hernia repaired by two filigrees.

6. Steward, aged 51. Six months' history. Chronic cough. Right inguinal hernia. Operation June, 1942. *Direct bulge.* Lipoma of cord excised. Repaired by two filigrees.

7. Tug driver on the Thames by night and day, aged 59. A big stout man of 14 st. Right inguinal hernia for 20 years, at first reducible, but lately becoming irreducible. Operation only alternative to giving up his employment. Operation Nov. 27, 1941. Large oblique sac to which omentum was adherent and of which 4½ lb. was ligatured and removed. Repaired by two filigrees. Has gained over 2 st.—16 st. 8 lb.—and has forgotten about his hernia. In a letter received Aug. 25, 1944, he states: "I have never felt better. I am still at work, and have not lost a day's work since you discharged me. I have felt no effects of my hernia." This has been confirmed since by personal contact.

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Medical Memoranda

A Fatal Case of Tetanus despite Toxoid

Active immunization against tetanus was introduced into the Army in 1939, Boyd (1938) doing the preliminary work. The present practice is to give a primary inoculation of two 1-c.cm. doses of tetanus toxoid spaced six weeks apart, and 1 c.cm. thereafter yearly as a recall dose. All available figures (Bensted, 1940; Smith, 1941) confirm that good protection is given thereby, but individual exceptions may occur as in the comparable immunization against diphtheria. Knowledge of the duration of protection rests at present, however, almost wholely on laboratory studies. A number of non-fatal cases of tetanus despite toxoid have been described, but reported fatal cases are rare (Boyd and Maclennan, 1942; McGill, 1943; Norman, 1943).

CASE REPORT

An Anglo-Indian aged 40 came under treatment on Feb. 7, 1944. for prolapsed, inflamed, and ulcerated piles. These were ligatured and excised ten days later under stovaine analgesia. On Feb. 26, seven days after the operation, uncontrollable jerking of the legs began, and on Feb. 29 spasms of the abdominal muscles and fever followed. Next day the neck and jaw were stiff, and infrequent short opisthotonic spasms began. On March 2 fully developed tetanus was present, with severe spasms, each lasting a second or two, and recurring every half-minute or less.

Specific treatment consisted of 1 c.cm. of tetanus toxoid, and of 1,010,000 i.u. of serum spread over the next four days. Avertin and intravenous nembutal were used symptomatically. He died on the eighth day of the disease (March 5), and, apart from bronchopneumonia, the necropsy revealed nothing. The operation wounds were quite healed. His pay-book showed that he had received two tetanus toxoid inoculations, one each on Oct. 18 and Dec. 18, 1941.

COMMENT

Clearly no massive amount of antitoxin was produced here, and the inference is that the immunity resulting from his prophylactic inoculations was slight or absent. Inoculations with tetanus toxoid cause antitoxin to appear in the circulation, but, more important, they also sensitize the reticulo-endothelial system, so that subsequent toxoid or toxin results in a rapid rise in circulating antitoxin. Data regarding the minimum protective level of antitoxin are based upon animal experiments, figures ranging from 0.001 to 0.1 i.u. of antitoxin per c.cm. of serum being given. A primary two-dose inoculation of toxoid rarely produces more than 0.1 i.u. of antitoxin per c.cm., whereas a recall dose later on causes a marked rise (2–50 i.u.). This level falls steadily thereafter, but is readily raised again by further recall doses (Wolters and Dehmel, 1943).

Hence it is unlikely that a high level of circulating antitoxin was ever established in this case, and in the ensuing 26 months it must have fallen very low. There is therefore no need to postulate any original failure to form antitoxin, or any original absence or subsequent loss of reticulo-endothelial sensitivity, in order to explain the fatal outcome.

Although not proved bacteriologically, the clinical course suggests that the anal region was the source of the infection, and that the tetanus bacilli were introduced at the time of the operation. Such a hypothesis puts the incubation at seven days, which accords with his rapid death. Possibly it would have been better to delay operating; the current practice (Naunton Morgan, personal communication) is that with inflammation, thrombosis, or ulceration of internal haemorrhoids, operation is not undertaken for about six weeks.

A recall dose of toxoid a week before operation might well have protected this patient, and it is suggested that this would be a reasonable precaution in such cases.

My thanks are due to Brig. W. Foot, *M.C.*, for permission to report this case.

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The Demonstration of Schüffner's Dots in Benign Tertian Malaria

Although the demonstration of Schüffner's dots is not necessary for the recognition of *Plasmodium vivax* infections, the inexperienced malariologist will be more satisfied if these are seen. The method described has been in use for some months, and has so far never failed to demonstrate the dots; it depends entirely on the control of the *p*H of the staining solution at *p*H 7.0, for an identical procedure carried out at *p*H 6.4—that usually advised for blood films—fails entirely.

The stock buffer of *p*H 7.0 is M/2 phosphate, containing 2 molar proportions of the disodium to one of the monopotassium salt. 29.85 g. of $Na_2HPO_4.12H_2O$ (or 19.85 g. of anhydrous salt) and 5.67 g. of KH_2PO_4 are dissolved in water and diluted to 250 c.cm.; this solution is nearly saturated, and keeps indefinitely at room temperature in a glass-stoppered bottle containing a few drops of chloroform. For use, 5–15 drops of stock buffer are placed in a test-tube and about 15 c.cm. distilled water is added. Giemsa solution is prepared by adding 1 drop of Giemsa stain (Gurr's R 66) to each c.cm. of dilute buffer, and is used within 30 minutes of dilution.

A thin blood film is allowed to dry, fixed in Leishman's stain for 15–60 seconds, and the stain diluted with about two volumes of dilute buffer. After 10–15 minutes the stain is poured off, any precipitate removed by rinsing in Giemsa solution, and Giemsa solution left on for 20–30 minutes; the film is rinsed in buffer solution, blotted, and dried. Schüffner's dots are so prominent that they are more easily seen than the malaria parasite.

The quantities of each solution and the times of staining are not critical, but the times given are minima, for it is very difficult to overstain. Similar results can be obtained by several hours' staining in Giemsa at *p*H 7.0, but not with Leishman's stain alone. Several batches of Leishman's stain provided by the L.C.C. Pathological Service have proved entirely satisfactory.

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Reviews

THE ELECTROCARDIOGRAM

The Electrocardiogram. Its Interpretation and Clinical Application. By Louis H. Sigler, M.D., F.A.C.P. (Pp. 403; illustrated. $7.50 or 42s.) New York: Grune and Stratton; London: William Heinemann.

The Electrocardiogram by L. H. Sigler is an interesting book This rather technical subject is made more easily understoo because it is presented in a sensible manner. There is a full reference as possible to the physiological aspect of th abnormality under discussion, so that as early as possibl a link is established with the first foundations of clinica knowledge. The whole subject has now been in existence lon enough for it to be possible to give a short historical accoun of the growth of knowledge and formation of ideas on th various topics. This helps to keep matters in correct perspective. The pathological changes in the myocardiu which underlie abnormal curves are well described wher this is possible. There is also a full clinical descriptio of each subject, so that the book is far from bein merely an academic discussion, but keeps the practica application in view. For anyone unacquainted with electrocardiography, study of the first three chapters will provide sound introduction, for the basic principles are clearly described The complicated subject of the electrical axis is well set out Sections are devoted to changes in the curve due to artefacts which are traps for the inexperienced. The effects of bod build and drugs and chemicals are included. The arrhythmia are dealt with in the usual classification. An excellent accoun is given of the various types of bundle branch block an of other miscellaneous varieties of abnormality in the QRS There is a chapter on the abnormalities of the coronar circulation, and two others on acute and chronic coronar insufficiency. These are all very good. Trauma of the hear receives full discussion; also myocarditis, in which is include pericarditis. An informative chapter on the various importan precordial leads concludes the book.

The illustrations are very complete, and nothing seems t be omitted. They are fully documented from the clinica aspect. Unfortunately they appear as direct positive print and are sometimes rather faint and indistinct. It is particularl satisfactory that progressive changes in curves are well shown A full and up-to-date list of references ends each chapte The exposition is for the most part clear. The author doe not hesitate to put forward his own theories, but alway finds place for a fair discussion of debatable points. Her and there are some slips, among which the "tetralgia" o Fallot needs correction. This useful book can be recommende to anyone starting to learn the subject, and to the expert fo reference.

OLD AGE IN HEALTH AND DISEASE

Old Age. Some Practical Points in Geriatrics. By Trevor H. Howell, M.R.C.P.Ed. (Pp. 50. 4s. 6d.) London: H. K. Lewis and Co. 1944.

The somewhat sudden realization that we are an agein community has caused more interest to be taken in the scienc and art of geriatrics. The special value of Capt. T. H. Howell contribution to the subject is that it is based on his own exper ence as deputy physician and surgeon at the Royal Hospita Chelsea, which gave him ample opportunity of studying o age in health and disease. Degeneration, chronic infection and ischaemia are the predominating troubles of the age Attendants upon them tend to coddle their victims and t regard them as lacking in common sense: "they forget th old age is not always synonymous with delicate health an stupidity. . . . Anything tending to self-pity must be avoide . . . it makes a poor tonic for old folk." At the Roy Hospital, Chelsea, it is noteworthy that the fittest veterans a the men who keep their own plot of garden and who enj a game of bowls. (It has been well said that the Psalmist declaration concerning threescore years and ten has bee responsible for much premature senility; for ageing is oft a matter of the mind.) The author's observations do n support the statement often made that temperature either ris or remains at the normal level among the aged; he found a tendency for it to fall after 70. On the other hand, a systolic blood pressure above 160 mm. is common, and among the oldest patients the fittest were those with a high pressure, which is needed to counteract the arteriosclerosis that becomes more pronounced with age. A high blood pressure, marked thickening of the arteries, cyanosis, cardiac murmurs, and enlargement of the heart Capt. Howell found to be compatible with a relatively normal range of senile mental or physical activity. But a vague or muddled state of mind in a patient previously lucid, if accompanied by a fall of blood pressure, is a sign of progressive cerebral ischaemia with an invariably fatal prognosis. In general, diminution of tone is the earliest sign of a turn for the worse in an elderly patient, affecting first the striped and then the plain musculature.

A practical and helpful little book.

THE TUBERCULOUS PATIENT AT HOME

The Care of Tuberculosis in the Home. By James Maxwell, M.D., F.R.C.P (Pp. 105. 7s. 6d.) London: Hodder and Stoughton.

From a book by this distinguished physician much is expected, and in a period when the concept of sanatorium treatment for all tuberculous patients has been modified by a shortage of available beds, the need for sound home treatment is indisputable. Not only the patient but his anxious wife, apprehensive friends, and alarmed relatives need all the information we can give. Often it is easier to bring to the patient understanding of the best policy towards the disease through others than by direct advice. The teaching in this book is sound, and the author knows tuberculosis so well that it is a pity he does not reveal the same intimacy to the reader. The clinical lecture is worth hearing, but the teacher never descends from the platform, and one misses in his chapters an appreciation of certain subtleties that occur between the patient and his disease in the course of tuberculosis. Nevertheless the author's advice is unexceptionable.

The account given in the last chapter on antituberculosis administration is too vague to enable the ordinary reader to form a clear conception of what the community has done to combat tuberculosis in the last thirty years. The good material, authority, and sound intentions of this book are marred by heir inadequate presentation.

SELECTION OF PERSONNEL

Large Scale Rorschach Techniques. A Manual for the Group Rorschach and Multiple Choice Test. By M. R. Harrower-Erickson, Ph.D., and M. E. Steiner, M.A. (Pp. 419; illustrated. $8.50 or 47s.) Springfield and Baltimore: Charles C. Thomas; London: Baillière, Tindall and Cox.

his book records the application of the Rorschach tests to roups. It can be done by displaying the ten standard ink lots on lantern slides, each member of the group writing his esponse, or by providing each member with a booklet with lanks for responses. Records were made of spontaneous nswers by several groups, but their interpretation was found o need the services of skilled Rorschach specialists, and this ook up much time. To save this a multiple-choice ethod was used—i.e., ten possible interpretations f a blot were given and the subject asked to dicate the one which most appealed to him, or to ive the order of all in order of preference. It is ought that, at least in skilled hands, this method ay be useful in determining potential psychiatric asualties in any group. The method may also be useful in ifferential diagnosis of psychiatric cases. This book will be f interest to all those concerned with selection of personnel, subject which is likely to become increasingly important in e future.

Notes on Books

actical Wound Treatment, by Mr. EDWARD AKESTER, is a first-aid ook illustrating the use of the "pad and bandage" as issued to all rvices. Gale and Polden Ltd., of Aldershot, publish it at 1s. 6d. y post 1s. 8d.). The presentation is concise, clear, and convincing, d the simple line drawings are excellent. Dr. J. L. Barford ntributes a short foreword commending the work and testifying om personal experience to Mr. Akester's skill in the teaching of st aid at the Surrey County Council Rescue School, Leatherhead.

One or two small criticisms may be made. The author does not seem to mention anywhere the elementary and self-evident method for the temporary control of arterial haemorrhage—namely, actual digital pressure by thumb or finger upon the bleeding spot. It is difficult to understand why the face is not delineated in Fig. 21. Although the pamphlet is a little too large for the male coat pocket it is one that could well be carried by every first-aid worker.

Mr. WILFRED SHAW's *Textbook of Gynaecology* (J. and A. Churchill; 24s.) is now published in its fourth edition; both the second and third were reprinted. The text has been carefully revised, with additions on endocrinology and chemotherapy, together with the addition of 16 new diagrams. This work will continue to be one of the most popular textbooks available on the subject.

Miss A. E. GLENNIE and Miss J. L. H. KEUNEMAN continue their useful task in compiling the *Index to the Literature of Food Investigation* under the auspices of the Department of Scientific and Industrial Research. Vol. 15, No. 3, December, 1943, including items 965 to 1445, has now been published by H.M. Stationery Office at 4s. 6d., and is arranged on the usual lines.

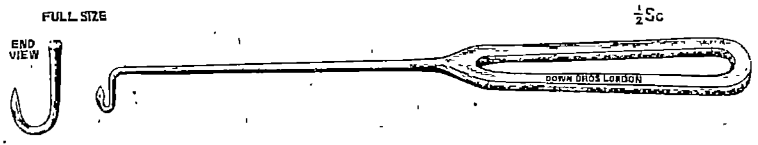
Dogs Against Darkness, by DICKSON HARTWELL, is published at 16s. by Rich and Cowan. Though from our early days most of us have seen blind beggars with their dogs it is only in the present century that canine intelligence has been seriously studied, and the modern guide dog is the result. Dogs are being used by the Police and Army to an increasing extent and as conductors to the blind. The end of this war will see several thousand sightless young men ready to take up a living, and this book is a timely and valuable help towards aiding them to regain their independence of movement; but it is to America, thanks to the passionate devotion of Mrs. Dorothy Eustis, that we owe the scientific development of these special dogs. In England there is an active "Guide Dogs for the Blind Association" established at Leamington Spa. As the book shows, the initial stages of training require unlimited patience. The education of a dog covers a period of three months—obedience exercises, guide work, and the all-important "educated obedience"—e.g., refusing to lead its owner against obstacles or stopping him from crossing a street unless he can safely do so. The illustrations depict blind men striding along confidently through heavy pedestrian traffic, relying on their intelligent and faithful canine companion. Sir Ian Fraser in a foreword urges the importance of this Guide Dog Movement—a great boon to the blind.

Preparations and Appliances

A NEEDLE FOR FEMORAL HERNIOTOMY

Mr. J. COSBIE ROSS, F.R.C.S., Liverpool, writes:

The results of Lotheissen's method of repairing femoral hernia are so satisfactory that the "lower" operation has been gradually superseded. For the same reason fascial repair is generally unnecessary. There are, however, technical difficulties in performing Lotheissen's operation, usually due to two factors: 1. Obesity of the abdominal wall, making it necessary to place the suture at the bottom of a deep, narrow wound. 2. A massive deposit of extraperitoneal fat which tends to foul the needle point.



There is no room to manœuvre the needle in the narrow cleft-like wound when attempting to insert the suture in Cooper's ligament. Even a small-size half-circle needle is too broad for manipulation in such a case. Some years ago I designed a needle (see Fig.) which overcomes this difficulty. The usual half-circle needle is converted to a narrow half-oval which can be handled in a most confined space. When the suture has been thrust through Cooper's ligament one end is drawn up to the surface by means of a blunt hook.

I have used the needle in over a hundred operations and have been satisfied with both the ease and speed with which the repair can be completed. Incidentally, it is, I think, an advantage to include the lower border of the conjoint tendon and the fascia transversalis in the suture apposing Cooper's and Poupart's ligaments.

The needle was made for me by Messrs. Down Bros., who have ensured that the eye is large enough to take a substantial suture.

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SHOULD MEASLES BE TREATED IN HOSPITAL?

In the past two decades the policy of increasing the available beds for the care of measles in isolation hospitals has been adopted by many local authorities on the grounds that the serious complications of the disease, particularly bronchopneumonia, may best be prevented and treated in hospital and that fewer beds are nowadays needed for the isolation of scarlet fever because of the continued mildness of the infection. During the biennial measles epidemics in London before the present war many thousands of measles patients were admitted each season to the L.C.C. fever hospitals, and a progressive reduction in case fatality,[1] mostly attributable to bronchopneumonia, from 7.0% in 1927–8 to 3.8% in 1935–6 would seem sufficient justification for hospitalization on this large scale. However, measles has shown in the past half-century a remarkable decline in severity, so that deaths, allowing for changes in the child population, are now about one-quarter of what they were as recently as 20 years ago.[2] The most important contributory factors to this sharp fall have probably been improved standards of nutrition and hygiene and, since 1936, the use of sulphonamides for the treatment of secondary bronchopneumonia and sepsis. The reduced incidence of serious lung complications lessens the need for hospital treatment, and it is possible that the patient with uncomplicated measles may be better off at home.

In recent years the commonest complication of measles nursed in L.C.C. hospitals has been otitis media.[1] The mucosa of the upper air passages after attack by viruses like those of the common cold, influenza, measles, and even rubella,[3] is particularly susceptible to secondary bacterial infection. The risk of acquiring such infection is obviously much greater in a hospital ward, where there already are many streptococcus-infected patients, than in the home, where exposure to a streptococcus carrier will be fortuitous. In the 1914–18 war measles complications—e.g., pneumonia, empyema, and otitis media—were frequent and severe among American troops nursed in hospital, and were largely due to the haemolytic streptococcus. Further, the likelihood that the streptococcus was being transferred from patient to patient in hospital was indicated by an increase in streptococcal-throat carriers from 11.4% on admission to 56.8% 8 to 16 days later.[4] Conclusive proof of streptococcal cross-infection in a measles ward was first provided by Allison and Brown,[5] who, using streptococcus typing as they had earlier done in scarlet-fever wards, found a secondary-infection rate of 51.2% and an incidence of 19% of suppurative otitis media as a result of streptococcal cross-infection. Their results were confirmed last year by Wright, Cruickshank, and Gunn,[6] who found that, despite an 18.2% carrier rate of various streptococcal types among new admissions to a measles ward, secondary bacteriological infection (73.3%) and suppurative otitis media (18.3%) were attributable to the spread of a single streptococcus type. Thus, in addition to the exposure to a heavily infected environment, the hospital patient is also at the mercy of streptococci that may have acquired the capacity of invading human tissues. Even sulphonamide prophylaxis and therapy may be impotent, for Wright and her colleagues found that their epidemic strain was sulphonamide-resistant.

In a further examination of the problem (see page 285) Joyce Wright has applied the knowledge gained from a detailed bacteriological and clinical investigation in one measles ward to a critical analysis of the complications occurring among measles patients admitted to one hospital during the 1942–3 epidemic. On the justifiable assumption that otitis media occurring after the fifth day in hospital was mostly due to cross-infection, irrespective of a previous history of middle-ear disease, 13.3% of 478 patients acquired this infection in hospital, whereas early otitis media, possibly due to an organism already present on admission, occurred in only 3.6% of cases. The incidence of otitis media in this series showed little difference in children up to 9 years of age, but 11 of the 14 mastoidectomies were done in children under 3 years of age; and children under 1 year were particularly liable to develop severe complications. A point of some importance was that secondary infection dropped sharply in April and May, when, with warmer weather and longer days, natural ventilation was better, while with the waning of the epidemic, bed-spacing could be increased. The temptation to add a few extra beds to a ward during the height of an epidemic must be strenuously resisted by hospital authorities, for in the end it serves no good purpose. Complication rates are increased, the average stay in hospital is prolonged, isolation accommodation is overtaxed, and the turnover of patients is slowed down rather than accelerated. Even with little overcrowding Wright has shown that cross-infection among measles patients in one hospital in one season resulted in an additional 432 weeks in hospital at an estimated cost of over £2,000. Early discharge may seem one way of avoiding the hazard of secondary infection, but as nearly half the cases become bacteriologically cross-infected in the first week, and over three-quarters by the end of the second week, the early-discharged child may be sent home to develop otitis media there rather than in hospital.

This frank analysis of the effects of admitting cases of uncomplicated measles to hospital needs the most careful consideration of practitioners, medical officers of health and hospital authorities. Obviously in wartime, when mothers are employed on war work, many young children with measles cannot easily be nursed at home. If for that reason, or because home conditions are bad, or the child is seriously ill, the patient must be removed to hospital the hospital administrator must take all possible precautions to minimize the risk of cross-infection. Most important of these are adequate bed-spacing (144 sq. ft. per bed) and optimum ventilation. Good ventilation, with windows partially bricked up, may not be easy just now, but Florence Nightingale's dictum that "windows were made to be opened" is not preached or practised enough. Next in importance is probably dust-suppression measures. Though the importance of dust-borne infection and the practicability of oiling floors and bed-linen as an antidote have lately been questioned[7], a cross-infection rate of 18.6% and an otitis incidence of 2.8% in an "oiled" measles ward, compared with figures of 73.3% and 14.3% respectively in an unoiled ward, indicate that this method of control deserves extended trial. Oiled floors alone are not effective, but a practicable method of oiling bed-linen has been described in our columns.[8] Other important prophylactic measures are the removal from the measles ward of children with suppurative complications and reserving isolation accommodation for young children, particularly those under a year, and those with a previous history of ear-discharge. Most practitioners are aware of the desirability of home nursing of measles wherever practicable; fewer, perhaps, know that when measles is introduced into a household by a child at school the pre-school children may, after a prophylactic injection of 5 to 10 c.cm. of adult serum, develop an attenuated attack which reduces to a minimum the risk of complications. Convalescent measles serum, of which supplies are limited, should be reserved for the protection of sick and very young children. This subject is fully dealt with in an excelent review of the disease by R. E. Smith.[9] A new development is Cohn's globulin fraction, containing natural antibody, concentrated 10 to 30 times, which in remarkably mall doses has already been used successfully in America or both the prevention and the attenuation of measles.[10] Thus measles should soon become, what in the past it has ometimes been erroneously called, one of the minor maladies of childhood.

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[1] L.C.C. Report on Measles Epidemics, 1935-6, London, 1938.

[2] Martin, W. J., *British Medical Journal*, 1942, **2**, 540.

[3] Hamburger, M., *J. infect. Dis.*, 1944, **75**, 58.

[4] Cole, R., and MacCallum, W. G., *J. Amer. med. Ass.*, 1918, **70**, 1146.

[5] Ann. Rep. C.M.O. Ministry of Health, 1936, Appendix A.

[6] *British Medical Journal*, 1944 **1**, 611.

PAIN, FEAR, AND FATNESS

ymptoms were succinctly defined by James Mackenzie s disturbed reflexes. Often antedating physical signs, ey may point to the seat of the disturbance while it is till in the recoverable stage. A recent symposium[11] on eir analysis and interpretation emphasizes their importance. Of all the symptoms which cause patients to seek edical aid the commonest are pain and fear. The estimaon of pain is elusive, not only because it is purely subctive, but because it may be referred elsewhere than to e site of the trouble. Referred pain is, however, fairly ell understood, thanks to the classical researches of ackenzie, Ross, and Henry Head. More difference of pinion has existed as to the sensitivity of the deeper strucures to painful stimuli; but most observers agree with urst that this depends on whether the stimulus is the appropriate one and that tension is the most effective cause in a hollow viscus. This accords well with the more recent observations of Sir Thomas Lewis on accumulation of metabolites as a cause of pain. Half a century ago Michael Foster in his Rede Lecture on "weariness" indicted metabolites as a cause of fatigue, and Lewis has postulated the liberation of some chemical substances as the cause of painful sensations in the skin. Now he extends this idea to include Foster's in an interesting manner. A fundamental observation of his, in conjunction with Pickering and Rothschild,[12] must be quoted to make this clear. They applied pressure to an arm by a blood-pressure cuff and noted the occurrence of intolerable pain 70 seconds after exercise was begun. When the exercise stopped short of causing pain, no pain subsequently occurred, although arterial occlusion was continued and anoxaemia was thus maintained. Thus it would appear that during exercise pain-producing metabolites are formed, which anoxaemia alone does not do. The inference was drawn that accumulation of metabolites in tissue spaces may be responsible in general for the production of pain. Katz[13] and others applied these findings to the causation of cardiac pain, the ischaemia of the myocardium (which must continue its activity) leading to accumulation of metabolites, whether momentarily as in angina, or prolonged as in coronary thrombosis. Muscular tension, suggested by Hurst as a cause, is capable of a similar interpretation. It may be observed that this theory seems the more probable on two grounds. Now that we know, thanks to Loewi and to Dale, that there are chemical intermediaries between the nerve-endings and the tissue on the efferent side, it would not be surprising if the same rule held on the afferent side. Again, Wilfred Trotter in his Huxley Lecture pointed out that naked sensory nerve-endings, such as in the cornea, carried only painful sensations, while the various forms of touch corpuscles allowed of discriminative sensations which had a higher threshold than that of naked endings, but which on more powerful stimulation gave rise to pain. It is clear that a chemical pain-producing substance would affect a naked nerve-ending more quickly than one wrapped up in a protective covering, but, given sufficient liberation of such a substance, it could soak through the covering, thus exciting pain. Nor does all this conflict with Adrian's discovery that nerve fibres carrying painful sensations are of smaller calibre and slower to convey impulses than other sensory fibres. On the basis of these and other observations the symposium throws new light on the causes of pain, whether in head, chest, abdomen, or joints; it also brings a new interpretation of the effect of rest on pain and explains why pain persists after cessation of the exciting cause.

Though fear often drives the patient to the doctor, it may keep him away lest his suspicions may be confirmed. Thanks to the work of W. B. Cannon and others, we now realize how fear can be translated into a number of physical symptoms due to emotional excitation of the sympathetic nervous system, which call for careful analysis by the physician in order to detect their real cause. Another problem often facing the practitioner is fever without physical signs, the difficulties of which are fully discussed. The plan here adopted lends itself less satisfactorily to the discussion of such topics as jaundice and melaena, where the objective element is more obtrusive. The closing discussion on obesity, however, contains many points of interest.

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[7] Mitman, M., *British Medical Journal*, 1945, **1**, 71.

[8] Harwood, F. C., Powney, J., and Edwards, C. W., ibid., 1944, **1**, 615.

[9] *Guy's Hosp. Rep.*, 1944, **93**, 8.

[0] Stokes, J., Mavis, E. P., and Gellis, S. S., *J. clin. Invest.*, 1944, **23**, 531; dman, C. W., Jennings, C. G., and Janeway, C. A., ibid., 1944, **23**, 541.

[1] *Clinics*, Vol. II, April, 1944, No. 6. (Subscription £4 10s. yearly for six lumes; one number issued every two months, beginning June each year.) B. Lippincott Company.

[12] *Heart*, 1929–31, **15**, 359.

[13] *Amer. Heart J.*, 1934–5, **10**, 322.

American physicians and life offices have always taken a gloomy view of the prospect for the obese, but in this climate the "fair round belly" not infrequently survives into the "lean and slippered" stage. Herein it is laid down as an axiom that "a plethora of calories is the explanation of obesity, all the protestations to the contrary notwithstanding," for the law of conservation of energy must apply here as elsewhere. But it is admitted that the difficulty remains of explaining why on the same diet one individual remains thin and another puts on weight. This difficulty is increased when it is found that the basal metabolic rate of a fat man is higher than normal. True, this is attributable to the fact that his surface is larger, but it also implies that he is using up more energy, and still remains fat. To talk of "lipophilia" is reminiscent of the "dormitive" property of opium, and is no explanation at all. That a disturbance of the hypothalamus may be associated with gross obesity is now recognized, but it is still difficult to explain how this operates. Of the various hypotheses here put forward, two deserve further consideration. In some cases a disturbance of water balance may originate in the hypothalamus and, acting through the pituitary, lead to retention of water in the tissues. In others there seems to be overproduction of insulin, which leads to ingested carbohydrate being assimilated too rapidly. As the capacity for storage of glycogen is limited, the remainder is converted into fat. In such subjects there is at first a tendency to show a low level of blood sugar and increased tolerance for sugar. This theory would explain the well-known fact that the obese subject is liable to glycosuria in later life—when the overworked pancreatic islets become exhausted. There are in some cases other endocrine and psychological factors which need not be considered here, but it seems to us the final advice that has to be offered to many of these patients is that the choice lies between being stout and well or being thin and ill—a discouraging outcome from so much research.

TRAINING OF PSYCHIATRISTS

The second interim report of the Committee on Psychological Medicine of the Royal College of Physicians of London begins by pointing out the inadequacies of the requirements for the present diploma in psychological medicine. The committee recommends instead a five-year course of study and clinical and laboratory work after one year in a general hospital as house-physician; this period would allow for the diversity of experience that is now necessary for the psychiatrist, and is intended, as the report points out, to try to prevent the tendency for psychiatry to be split up into a series of specialties, the practitioners of each of which tend to drift apart and to have little in common in their points of view. No course, however comprehensive, can cover everything in a completely satisfactory way, and perhaps the main thing to be regretted in the recommendations is that it was not thought possible to assign more time than three months to the study of psychology, the principles and methods of which are of both general and particular value for the psychiatrist as well as the non-medical psychologist. The committee is well aware that such a curriculum as it suggests can be brought into effect only gradually, and also that the embryo psychiatrist may have some difficulty in financing himself during the period. It hopes, however, that it may be possible to arrange this during the greater part of the time he holds paid appointments. The old question of uniformity in the standards demanded by the various examining bodies is also dealt with, and the R.C.P. report in itself should have considerable influence in bringing about a satisfactory solution of this problem.

IS TUBERCULOSIS SPREAD BY DUST?

The correspondence about the risk incurred by girls, particularly if they are Mantoux-negative, of acquiring tuberculosis in the nursing of tuberculous patients raises the question of how this infection may be spread in hospital wards. At the end of last century Flügge and his associates showed how difficult it was to infect guinea-pigs by inhalation of dried sputum, whereas animals exposed within a yard of a coughing tuberculous patient could be infected more easily. Since then more than one investigator has tried to infect guinea-pigs by exposing them for days or weeks in tuberculosis wards, usually with negative results. Yet in view of recent evidence of dust-borne streptococcal infection the possibility of acquiring tuberculosis by the inhalation of infected dust from floors and blankets must be looked into again. Attempts by some investigators[1] [2] to isolate living tubercle bacilli from the dust of tuberculosis wards have yielded surprisingly poo results, as opposed to the experience of Cornet and others The chances of success turn upon the viability of th tubercle bacillus, the amount of ventilation and daylight and probably to a less extent on the temperature an humidity of the ward. Sunlight has long been accepted a rapidly bactericidal to tubercle bacilli in exposed sputum Smith[2] has shown that unfiltered daylight is also an activ bactericide against dried tubercle bacilli, so that in "th dosages in which they may be spread by trained patient in well-run institutions they probably do not survive i infectious quantities more than a few hours." In hi experience dried tubercle bacilli in varying dosage survived the bactericidal action of a north light for periods o four hours to five days, whereas in the dark they remaine viable for one to five months. Garrod[3] has lately prove that daylight through glass is also bactericidal. Thus th well-lit, well-ventilated ward is unlikely to facilitate th spread of dust-borne tuberculosis.

Another argument that may be used against the chance of dust-borne tuberculosis is based on the finding that onl very fine particles, of the order of 5 μ diameter, can b aspirated directly to the alveolar space.[4] Thus if tubercl bacilli must reach lung parenchyma before they can initiat infection, coarse dust particles would, even if contaminate with bacilli, be filtered off in the upper air passages. However, Lurie[5] has shown that guinea-pigs and highly susceptible rabbits may be infected from cage-dust and can b protected against this by a screen of ultra-violet light. is possible, therefore, that fine dust—e.g., from blanke —may be a source of infection to the nurses. If this b so it might be advisable for nurses to wear efficient mas when making beds in tuberculosis wards. Alternativel the bed-linen and floors of the wards could be treated wi oil.[6] But the main source of infection is probably t fine droplets expelled by the patient during coughing a loud vivacious talking. Coughing is remarkably rare in the well-run sanatorium for early cases. It is much more common in the chronic tuberculosis wards of a general hospital, where the risk to probationer staff is probably greatest. Much more could and should be done to eliminate this source of infection by training the patient to avoid unnecessary coughing and to use his handkerchief to prevent the dissemination of infected spray. As some of our correspondents point out, the risk of infection in tuberculosis wards can best be minimized by instruction of nurses in the probable sources and modes of infection and by the maintenance of high standards of hygiene for patients and staff alike.

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[1] Bogan, E., and Dunn, W., *Amer. Rev. Tuberc.*, 1941, 43, 435.
[2] Smith, C. R., ibid., 1942, 46, 334.
[3] *British Medical Journal*, 1944, 1, 245.
[4] Hatch, T. F., *Aerobiology*, 1942, p. 102.
[5] Lurie, M. B., *J. exp. Med.*, 1944, 79, 559, 573.
[6] Harwood, F. C., Powney, J., and Edwards, C. W., *British Medical Journ* 1944, 1, 615.

SOVIET GRAMICIDIN

Penicillium notatum and other fungi are not the only kind of micro-organism producing a substance highly lethal to other species and capable of use as an antiseptic. It is now nearly ten years since Dubos extracted such a substance from cultures of an aerobic sporogenous bacillus, *B. brevis,* and called it gramicidin, from its remarkable lethal action on the Gram-positive pyogenic cocci. This substance was later found to contain two elements: one to which this action was mainly due, and another, tyrocidine, which also killed Gram-negative bacteria and was more toxic to mammalian cells. It is now thought that the two should be used in combination, and such a product is now available commercially under the name of tyrothricin. There have been favourable reports on its use as a local antiseptic for a variety of purposes. Meanwhile, G. F. Gause and M. G. Brazhnikova of the Institute of Tropical Medicine, Moscow, have examined several hundred strains of aerobic sporogenous bacilli cultivated from Russian soils, and discovered one which produces an antibacterial substance, to be named "gramicidin S" (Soviet gramicidin), which differs from tyrothricin, though it is of similar composition and action. The properties of this substance and its clinical use have now been described in both the American[1] and English[2] medical press. Extraction from cultures is a simple process furnishing a high yield of a single readily crystallizable substance, having a much higher melting-point (268–270° C.) than either constituent of tyrothricin; like these substances it is a polypeptide, but differs in the number and proportion of its amino-acids. It contains a high proportion of leucine—a fact of some interest in that S. W. Fox *et al.*[3] have been studying isomers of leucine with a view to determining the nature of the action of antibacterial polypeptides. They find that *d*-leucine inhibits *Lactobacillus arabinosus,* whereas *l*-leucine is a factor required for the growth of this organism—a relationship strongly suggestive of the sulphonamide type of effect.

Gramicidin S acts on a wide range of bacteria, including Gram-negative species, and is very highly active—more so than tyrothricin—against staphylococci. Experimentally it has been shown to have a prophylactic action against gas gangrene; it would have been interesting if some other antiseptics had been employed in these tests for comparison. Clinically it has been used successfully in both the prophylaxis and treatment of wound infections, and in treating osteomyelitis, empyema, and certain skin infections. Its toxicity is about equal to that of tyrothricin, which means that it is suitable only for local application, though the injection of a fairly large quantity into a closed cavity, such as an empyema, has evidently no ill effects. Has this kind of biogenic antiseptic any future, assuming that penicillin, which vastly excels it in some of its properties, will soon be freely available? The answer seems to be that it has one certain and one possible advantage over penicillin. The former is its action on Gram-negative bacilli (*Proteus* and *Bact. coli*; no data mentioned for *Ps. pyocyanea*), since against these penicillin is powerless. The possible advantage is greater local persistence owing to its high degree of insolubility; whether this in fact occurs cannot be deduced from the available information.

MEDICAL MISSIONS

Some interesting figures about medical missions are given in a report under the title of *Manpower in the Twentieth-Century Church*[1] which was presented not long ago to the Assembly of the Church of England. The author, Canon J. McLeod Campbell, general secretary of the Missionary Council of the Assembly, states that before the war, taking all Protestant denominations, 900 missionary doctors were at work, one-third of them women. Of this total 282 were from Great Britain and 416 from North America. This small band of medical missionaries is outnumbered by the doctors who, under the auspices of missionary societies, are serving in their native countries; the indigenous force numbers some 1,350. There are fewer Western missionary doctors in China than Chinese, and fewer Western doctors in India than Indians. The same holds true of nurses. Over 1,200 nurses have gone out from Western countries, but the number of nurses (one-third fully qualified and the remainder student nurses) who are on missionary service in their native countries is ten times as great. African nurses are in a majority of 1,025 to 400 Western nurses in Africa. The growth of indigenous medical missions is all to the good. The medical missionary may well be content to see his labours taken over by doctors from the people whom he has served.

The same report discusses the incentive to medical missionary work. The choice presented to the ordinary layman as between the continuance of his secular calling and a missionary career may be a hard one, but it is not unduly complicated. On the other hand, the medical man may well reply to his conscience that his services are needed at home, especially during the present shortage, where they are of the same quality and value and urgency as in the mission field. The testimony of various medical missionaries is cited in this report as to the adventure of their calling, the richness of clinical experience which it offers, and the opportunities for research. No doubt all that is true, but it is an insufficient incentive. The real motive must be a profound sense of service. One medical missionary in Nyasaland is quoted as saying, "Dirty, lonely, unpleasant, uncomfortable service, the mission hospital stands for that. We are primarily practical workers to demonstrate Christianity in action in daily work." Medical missions may be expected to appeal to an increased number of medical men and women returning from the war. The only counsel that can be given them is that they must be sure of the reality of individual vocation.

The Medical Research Council has appointed Prof. A. A. Miles, F.R.C.P., of the Chair of Bacteriology at University College Hospital Medical School, to its staff at the National Institute for Medical Research from Oct. 1, 1945, with a view to his becoming Director of the Department of Biological Standards on the retirement of Sir Percival Hartley, F.R.S., next year.

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[1] *War Med.*, 1944, **6**, 180.
[2] *Lancet*, 1944, **2**, 715, 716, 717.
[3] *J. biol. Chem.*, 1944, **155**, 465.

[1] Published on behalf of the Missionary Council of the Church Assembly by the Press and Publications Board, 2, Great Peter Street, Westminster, S.W., at 2s. 6d.

THE EDINBURGH OUTBREAK OF SMALLPOX, 1942

BY

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I have recently received, through the courtesy of the M.O.H. for Edinburgh (Dr. W. G. Clark), the official report on the outbreak of smallpox which occurred in that city towards the end of 1942. There has been so little major smallpox in this country during the past 40 years that any important outbreak is worth reporting upon fully, and this has certainly been done as regards the one in question; for although the total number of cases was only 36, the report extends to 90 closely printed pages, and few material aspects of the outbreak or of the great vaccination drive which attended it have been omitted. The report is a model of careful writing and a painstaking record of the great amount of administrative work entailed.

Brief Outline of Outbreak

The outbreak began at the end of October and terminated at the end of December. It was practically all over in a matter of nine weeks. Dr. Clark and his staff deserve hearty congratulations on achieving such a highly satisfactory result. The outbreak was presumably linked with the one which had occurred in Fife in, August–October and which was just coming to a close. That in turn was presumably linked with the, ship-borne outbreak in Glasgow earlier in the summer, though in neither case could any direct connexion be discovered.

The first of the Edinburgh cases occurred in a patient in the Edinburgh Royal Infirmary—a miner, aged 46, who had been a patient in the institution since Oct. 5. He sickened on the 23rd and the eruption appeared on the 27th—22 days after his admission. It is clear, therefore, that he must have been infected while in the Infirmary. It is noteworthy that this man had been vaccinated in infancy and again during the war of 1914–18, and had good foveated scars. Although a moderately severe case, it was modified in character. It was diagnosed as chicken-pox, and as such was transferred to the Edinburgh City Hospital, where that diagnosis was at first tentatively accepted. The case was not finally diagnosed as smallpox until Nov. 1.

On Nov. 1 a second case—that of a boy, aged 12, who from Oct. 15 to 29 had been a patient in the same ward at the Royal Infirmary as the first case—was admitted to the City Hospital with smallpox. He had sickened on the day on which he had been discharged from the Infirmary, and the rash had appeared on the 31st. The boy had never been vaccinated and the attack proved fatal.

During the first week in November further cases of smallpox occurred in three medical students who were attending the Royal Infirmary, and in six patients in the convalescent home to which patients are transferred from the Infirmary. There were three other cases in patients who had been recently discharged from the convalescent home, thus making a total of 14. It seems clear that all these cases were traceable, directly or indirectly, to some source of infection in the Royal Infirmary. The report suggests as the most probable explanation a "missed" case, but though careful search was made no such case could be identified. Assuming that the source of infection was a "missed" case—and certainly this is the most likely explanation—it was probably a very mild modified case with trivial symptoms and a few insignificant spots, occurring in a vaccinated subject (possibly another medical student), such as has so often been the cause of outbreaks of smallpox in the past.

The Mass-vaccination Campaign

Once the presence of smallpox in Edinburgh was recognized the usual routine measures for dealing with the disease, which have now become universal in this country and which have proved so remarkably successful if efficiently carried out, were put into operation. But the authorities decided that this was not enough. They had before them the example of the neighbouring city of Glasgow, where, a few months earlier, a mass-vaccination campaign had been carried out on a very great scale, and, *as it was then assumed*, had promptly brought the outbreak in that city to an end. Certainly, within a week or two of launching the campaign all further cases of smallpox in Glasgow had ceased. The personal attitude of the M.O.H. for Edinburgh is indicated by a passage in his preface to the report, where he writes: "The protection afforded by vaccination renders specific inoculation the sheet anchor in controlling the disease in the presence of an outbreak." Accordingly, without losing any time, and without waiting to see whether the routine measures taken were likely to control the outbreak, a mass-vaccination campaign of the whole general population—with all that such a measure inevitably entails in the way of painful arms, temporary illness, interference with work, general upset, and widespread scare, even risk of a certain number of deaths—was decided upon, and on Nov. 8 22 vaccination centres were opened in various parts of the city.

Was the Vaccination Campaign Really Necessary?

The object of the present article is to suggest that this serious step was not really necessary or called for. For an outsider to make such a suggestion is of course a thankless and seemingly ungracious task, but if the example of great cities like Edinburgh and Glasgow is allowed to go unchallenged it is only to be expected that other places where one or more cases of smallpox may happen to occur will be encouraged to do likewise.

As regards Glasgow, the matter has already been dealt with (*B.M.J.*, 1943, **1**, 288), and it was then shown that the outbreak in that city was really over before the vaccination campaign was even started, and therefore that no claim that it was the campaign which brought the outbreak to an end can be substantiated. It is now suggested that the same consideration applies to the Edinburgh outbreak also.

The relevant facts, as stated in the report, were as follows: From Nov. 1, when the first case was diagnosed as smallpox, up to and including Nov. 7, 14 cases of the disease had been discovered, all, as we have seen, apparently connected with an undiscovered source of infection in the Royal Infirmary. The mass-vaccination campaign was actually started on Nov. 8, but we are not told when the decision to take this drastic step was really arrived at. In view of all the arrangements which had to be made, one may assume that it must have been decided upon some days prior to Nov. 8, when the number of cases which had occurred would be less than 14. Four cases had been admitted to hospital on Nov. 7, three on the 6th, and three on the 5th. It looks, therefore, as if the decision must have been arrived at almost at the very outset, when only some half-dozen cases or less had occurred. The authorities were, of course, quite right to treat the outbreak as serious; and in the old days, before modern methods of control were possible, when there was no notification of disease, practically no hospital isolation, and no skilled sanitary staffs—not even medical officers of health—such an outbreak would probably have become a widespread epidemic. But what really did happen in this outbreak which we are now considering? If we classify the 36 cases into weeks according to the assumed date of infection (the dates are given in Appendix I of the report, calculated as being 14 days before the appearance of the rash) we get the following table. (By taking the date of infection rather than the date of removal to hospital one gets a truer picture of the progress of an outbreak, as it cuts out the time-lag between the date of infection and the date when a case can be recognized as smallpox.)

Smallpox Cases arranged in Weeks according to Date on which Infection was Contracted

Week	Cases Infected
1 (Oct. 12–18)	2
2 („ 19–25)	14
3 („ 26–Nov. 1)	7
4 (Nov. 2–8)	2
Vaccination campaign started on Nov. 8	
5 (Nov. 9–15)	5
6 („ 16–22)	0
7 („ 23–29)	4
8 („ 30–Dec. 6)	1
9 (Dec. 7–13)	0
10 („ 14–20)	1
Total	36

Will any unbiased person looking at this table seriously suggest that it affords support to the contention that it was the vaccination campaign which brought the outbreak to a close so speedily and satisfactorily? Compare it with a similar table for other outbreaks—e.g., that in the Home Counties in the early part of 1944, where no comparable vaccination campaign was undertaken—or with the one at Glasgow, which, as has been shown, was over before the campaign began; or with the one in 1903 in Leicester, where, in a practically unvaccinated population, the weekly number of cases fell from 48 to 22, 14, 10, 4, 2, 1, in successive weeks. I submit that in all probability an almost identical result would have been attained if the Edinburgh vaccination campaign had never been embarked upon. Indeed, one cannot help thinking that if only the campaign had been deferred for a week or ten days it would never have been launched at all.

Objections to a Vaccination Campaign

It is not as if vaccination were a trivial operation comparable, say, with immunization against diphtheria. On the contrary, it entails definite illness in a substantial number of cases. The report states that it was not possible to assess the proportion of vaccinations which were attended by "severe" reactions, but from what we know about vaccination, even when performed under the most favourable conditions, we may assume that the total number was considerable,* and doubtless entailed a good deal of interference with work as well as much personal suffering. The psychological effect of a mass-vaccination campaign is also an important factor which should not be ignored. Then there is the risk, now definitely recognized, of that serious complication, post-vaccinal encephalitis. The Edinburgh campaign resulted in 22 such cases, with 8 deaths. The total number of deaths due to vaccination was 10. Incidentally, the number of deaths due to smallpox was 8, only two of these being in unvaccinated subjects.

There would still seem to be some who think that in dealing with smallpox their motto should be, "The more vaccination the better." Years ago I remember being told that the control of smallpox could be summed up in three words—"Vaccinate, vaccinate, vaccinate!"; also that "every individual you can get vaccinated is a brand snatched from the burning." The "sheet anchor" simile was very popular in those days. But, when all is said, it cannot be denied that vaccination is only the lesser of two evils. Surely, then, our motto ought rather to be, "The *less* vaccination the better, so long as we can achieve our object, which is the effective control of smallpox."

In a paper read at a health congress 42 years ago (Exeter, 1902) I wrote these words, which perhaps are worth repeating:

> "It must never be forgotten that vaccinia is, after all, a disease, and those of us whose profession it is to prevent disease should be ready to abandon it at the earliest possible moment consistent with the public safety. The control of disease by the substitution of one disease for another, whilst it may be expedient, can never be regarded as an ideal method."

It only remains to say that the total number of persons vaccinated during the Edinburgh campaign was estimated at 254,000, to which must be added an estimated number of 20,000 vaccinated earlier in the year as the result of the scare caused by the limited outbreak in Glasgow. As, however, the population of Edinburgh is 440,000 there were still a very large number of unprotected persons remaining in the city, even allowing for those (mostly young children vaccinated in infancy) who were already protected by recent vaccination. Therefore, if the outbreak had "wanted" to spread there would still have been plenty of susceptible material for it to work upon.

Postscript.—It is interesting to note that of the three medical students who fell victims to the disease one had been vaccinated in infancy, another had been vaccinated in infancy and again in 1927; while the third had been vaccinated in infancy, again in his school days, and a third time in 1940–4. In this last case the "sheet anchor" seems to have dragged somewhat! A cynic might suggest that another metaphor would be more appropriate.

WITH THE F.A.U. IN CHINA

The work of the Friends' Ambulance Unit where fighting is hardest and where living conditions are the most difficult is too often taken for granted. It is right, therefore, that we should be reminded from time to time of the work the Unit does behind many battle fronts, and one such reminder has just reached us in the form of a report on the medical work of the F.A.U. with the Chinese Army in 1944, from which the following facts have been taken.

Military Medicine and Surgery

Some 40 members of the F.A.U., including nine doctors and nine State-registered nurses of American, British, and Chinese nationalities, have provided a number of medical and surgical teams in the field as part of the Chinese Red Cross programme. At the beginning of 1944 there were three teams—at Yungping, Yenshan, and Tengchuan. The first of these, at a divisional field hospital at Yungping, was to begin with mostly concerned with treating medical cases. During the first three months of the year over 7,000 out-patients were seen, and some 250 in-patients. Later the division went into action, and the team moved with it to do first aid and emergency surgery close to the fighting line. The need for maximum mobility in country without roads meant travelling with a minimum of personnel and medical equipment. Living conditions were often very primitive, and the fact that the campaign was conducted during the monsoon did not improve matters. In one month 435 casualties with wounds in all parts of the body were treated. More exact figures of the work of this particular unit are not available owing to campaign conditions when the team acted as a C.C.S. during the siege of Tenchung.

Another team, numbering at times some eighteen members, including three doctors, was stationed at an intermediate hospital at Paoshan, which for some time was the principal receiving centre for a large sector of front. All surgical cases were referred to the team for examination and treatment, and although it was not possible to keep more than a percentage for operation, those likely to suffer serious aggravation of wounds by evacuation to the rear were admitted. In a two-week period in May 548 cases were admitted, of which 97 were kept for treatment; 75 operations were done during this period, chiefly for fractures and for removal of foreign bodies. During June 2,739 cases passed through the hospital, 208 of which were kept for observation. There were 138 operations. *X*-ray examinations numbered 130, not including those done in the theatre for the reduction of fractures, etc. In July the figures were 2,195 cases seen, 238 kept for special examination; operations 165, for fractures, extraction of foreign bodies, wound débridement, amputations, and rib resections. In August and September there was the same story of a stream of surgical cases being dealt with expeditiously by this team until October, when the numbers were somewhat fewer. A report of this unit's work for the remainder of the year is not yet available.

Surgical mechanics are now an integral part of the Unit. Three are engaged in making such things as artificial limbs, splints, special equipment for orthopaedic surgery, instrument sterilizers, washing equipment, delousing plants, hot-water systems, and in repairing instruments of all kinds—safety valves, power plants, operating tables, microscopes, and *x*-ray machines.

Medical Care of Civilians

Another side of the work of the F.A.U. in China is the medical care of civilians in districts without adequate facilities. One team was sent to a small town in South-West Yunnan, where the local hospital badly needed help. Here the incidence of malaria of all types was as high as 80%; indeed the incidence of diseases of all kinds was higher and they were more severe than in any other area of which the F.A.U. had had experience. The chief difficulty was, of course, communications. The quickest transport was over pack trails, and the journey took at least two weeks; the dispatch of supplies and the replacement of personnel were therefore problems of the first magnitude. To equip and supply even a small hospital under these conditions would have been an expensive and difficult undertaking, so that most of the work was confined to out-patients, many being visited in their own homes.

In reply to other appeals for help the F.A.U. sent a team to staff a hospital at Kutsing and also to start one in Tenchung after this place was reoccupied by the Chinese. The staff sent to Kutsing included two doctors, one or more trained nurses, a laboratory technician, and a business manager for work in the hospital. Although this arrangement was made for two months only, it has been extended by agreement to two years. The hospital is the only place between Kunming, 100 miles to the west, and Anshun, 250 miles to the east, where facilities exist for major surgery for other than United States Army personnel.

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* H. J. Parish (*B.M.J.*, 1944, **2**, 782) analyses the results of 214 specially observed vaccinations in adults (Wellcome Laboratories staff) performed by the "multiple pressure" method, which it is claimed gives less severe reactions than the methods usually adopted in this country. He found that 9.8% had severe reactions. The total number of persons vaccinated in the Edinburgh campaign is given as 254,000, but this included some 58,000 children under 15 who had already been once vaccinated and in whom, therefore, severe reactions would be unlikely to occur. Deducting these we are left with 196,000. If we apply Parish's 9.8% to those figures we get 19,000 as the approximate number of persons who had severe reactions in the Edinburgh campaign

Mr. R. B. McClure directs the policy of the F.A.U. in China, and spends much of his time visiting the teams and directing their work.

MUNICIPAL SPECIALISTS

The inaugural meeting of the Association of Municipal Specialists was held on Jan. 19 at County Hall, London, with Dr. H. Joules in the chair. There was an attendance of more than 100. Dr. H. Joules was elected president, Dr. B. Barling treasurer, and Mr. G. F. Stebbing secretary. It was agreed that the objects of the Association should be as follows :

1. To improve the practice of medicine in all its branches in municipal hospitals.
2. To improve the status and promote the general interest of specialists employed by local authorities.
3. To provide opportunity for discussion on matters of professional interest and policy.
4. To promote good relations between specialists employed by local authorities and specialists working in voluntary hospitals and elsewhere.
5. To encourage professional communications between members and to arrange clinical or other meetings which may be considered to further the objects of the association.
6. To form regional branches of the association when the council considers them desirable.
7. To co-operate or amalgamate with, or become affiliated to, any other association or body not formed for purposes of profit, whether incorporated or not, whose objects are altogether or in part similar to those of the association.
8. To promote or oppose any legislative or other measures affecting any matters connected with the interests of the association.
9. To do all such other things as are incidental or conducive to the attainment of the above objects or any of them.

Communications to the Secretary should be addressed to 12, Manchester Square, London, W.1.

Reports of Societies

TREATMENT OF BREECH PRESENTATION

Among the papers read and discussed at the January meeting of the Section of Obstetrics of the Royal Academy of Medicine in Ireland was one by Prof. J. F. **Cunningham** on the treatment of breech presentation.

Prof. Cunningham said that, for the mother and baby, the risks were greater than in vertex presentation. Before undertaking the delivery of a breech, especially in a primigravida, the obstetrician should have a complete and accurate knowledge of the important facts and details of the case. Careful observation of the progress of labour was also necessary. In breech presentations that persisted late into pregnancy certain causative factors should be looked for. He then discussed the mechanism of labour and the difficulties that might arise. If a breech presentation was discovered in the last few weeks of pregnancy, there was a choice of one of three procedures : (*a*) it might be left as it was and delivered as a breech, (*b*) it might be converted to a vertex, or (*c*) it might be delivered by Caesarean section. He discussed in detail the indications for each of these procedures. The slight risks of external cephalic version were more than compensated by its advantages. In his description of the conduct of breech delivery Prof. Cunningham mentioned the choice of anaesthetic, the method of delivery of the uncomplicated breech, the breech with extended legs, the impacted breech, and the breech with extended or nuchal arms. His practice was to give 5 units of pituitrin when the breech was about to be born in order to maintain the rhythm and force of the pains when they were most required. If the arms were extended it would be found easier, as a general rule, to deliver the anterior arm entirely first. The posterior arm might be delivered first in certain circumstances, but rotation of the body to bring the anterior arm posterior should not be done. Where difficulty arose in delivering the head, the application of forceps was considered safe. The forceps should not be removed until the head had been completely delivered.

General Discussion

The **President** (Dr. A. W. Spain) was in agreement with most of the things said. At Holles Street if they saw a breech presentation after the 32nd week version was performed. When a breech was fixed deeply in the pelvis of a primipara they frequently failed in the version. He agreed with Caesarean section when there had been long sterility. Dr. N. **Falkiner** considered that to extract a breech not impacted in a primigravida, without complete knowledge of the pelvic brim, was a hazardous undertaking. Dr. E. A. **Keelan** discussed the question of an anaesthetic when doing version. He did not think chloroform safe when given to a patient not in labour. Dr. T. M. **Healy** emphasized the point about the rotation of the baby in endeavouring to bring down the arms : any form of rotation should be avoided. He also agreed that version should be avoided in patients who had had adequately large babies by the vertex. He thought that the beginner would get into trouble if he delivered the anterior arm first in the ordinary case, where the baby was very large.

Dr. R. G. **Cross** stressed the importance of pelvimetry before version when the mother was a primigravida. He had been taught that external version under anaesthesia was contra-indicated, except in a young primipara with a degree of contraction of the pelvis, diagnosed by *x* rays, which would justify a trial of labour with a view to vaginal delivery. Why not give her progesterone instead of an anaesthetic ? Complications were apt to follow external version. He did not recommend the use of pituitrin by students before the placenta had left the uterus. Dr. F. W. **Doyle** pointed out that in the old days they were taught to convert a vertex presentation into a breech. Placenta praevia was often associated with breech presentations and he discussed the danger of causing post-partum haemorrhage. Dr. T. G. **Gallagher** held that the number of accidents to baby or mother in breech presentations was small and the dangers were exaggerated. He stressed the point that no attempt should be made in breech presentations to deliver the arms until the angle of the anterior scapula appeared in the symphysis, and that it was most important to have the occiput well down under the symphysis to deliver the head. Dr. **Margaret Nolan** said she had three times seen a uterus ruptured in consequence of giving pituitrin ; the babies died and one mother was lost. Dr. G. C. **Dockeray** thought pituitrin a dangerous drug and did not recommend its use by students.

Nova et Vetera

PRISONER-OF-WAR MENTALITY

Major Ellis Stungo, R.A.M.C., writes from C.M.H., Deolali, India Command: Apropos recent articles and correspondence in the medical press on "the prisoner-of-war mentality" the following extract from a diary published in London in 1788 may be of interest. This account relates to British officers captured by Hyder Ali and his son, Tippoo Sultan, in the Mysore Wars. The majority were taken prisoner at the Battle of Pollilur and incarcerated in the dungeons of the Island of Seringapatam.

> "While we were in this gloomy state of mind and ready to sink under the pressure of melancholy and black despair, behold, within the walls of our dismal dungeon, a Brahmin sent from Tippu Sultan, with a formal intimation of the final conclusion of peace—and that our irons were to be knocked off the next day. The emotions that sprung up on receiving this intelligence were so strong and lively, and raised to such a point of elevation and excess, as almost bordered on pain. The whole prison resounded with the frantic voice of a sudden as well as excessive joy and exultation. This tumult having in some degree subsided, though we were incapable of entire composure and rest, a proposal was made, and most readily embraced, to collect all the ready money in our possession, without the least regard to equal shares or proportions and to celebrate our approaching deliverance with some plaintain fritters and sherbet—the only articles of luxury we could then command, on account of our extreme poverty.

"By nine o'clock at night supper was announced, consisting of 50 dozen plaintains and a large chatty [pot] of sherbet. Every one being seated on the ground, the repast was received with utmost satisfaction. Toasts were drunk as long as our chatty stood out; and such was the agitation in our minds, that there was not one of us who felt the least inclination, or, indeed, who possessed the power to compose himself for sleep. We now waited with the utmost impatience for the return of the day and were impressed with a strong desire that our irons might be knocked off immediately.

"But to our great mortification, about seven in the morning, there arrived only one armourer. Every one struggled to have his fetters knocked off first. Promises, threats, bustling and jostling: every expedient that could be imagined were put into practice, in order to obtain that which would come unsought for in the course of a few minutes, or hours at least. The same men who had suffered the rigours of imprisonment, and the menace of a barbarous policy, with invincible resolution and patience as well as with mutual sympathy for years, were so transported by the near prospect of liberty, that the delay of a few moments seemed now to be more insupportable than even the tedious languor of our long, most alarming and anxious confinement."

Correspondence

Ovariotomy or Caesarean Section?

SIR,—Recently (Feb. 9, 1945) I gave an address on Caesarean section to the students of St. Andrews University, and when it came to a consideration of ovarian cysts complicating pregnancy I advocated that ovariotomy should be performed in preference to Caesarean section, no matter whether the operation was performed months, weeks, or days prior to labour or even during parturition. My object in writing now is to ascertain if this is the usual practice adopted by my colleagues, for I know that some stress the possible occurrence of intraperitoneal haemorrhage from the stump if ovariotomy be the operation chosen.

One of my former house-surgeons, who was candidate for a higher degree in obstetrics and gynaecology, performed ovariotomy three weeks before full term in a case where a dermoid cyst filled the pelvic cavity. This he did on my advice, when I assisted him at the operation. The examiner laid stress on the possible occurrence of haemorrhage from the stump, and stated that Caesarean section was preferable.

In the two maternity hospitals with which I am associated—namely, the County of Lanark Maternity Hospital at Bellshill and the Maternity Hospital, Motherwell—we have had six cases in the year 1944 where ovarian cysts complicated pregnancy. As I have been in active obstetric and gynaecological practice now for over forty years I have had ample opportunity of operating on this type of case, and in all, with one exception, ovariotomy was chosen in preference to Caesarean section, and in not one instance did haemorrhage occur from the stump. In the case where Caesarean section was performed the child was in a state of acute distress, as the patient had been in labour for two days owing to the obstruction caused by the ovarian cyst. It seems to me, therefore, that the risk of intraperitoneal haemorrhage has been exaggerated, and that the chance of this complication is less than that of rupture through a uterine scar in a subsequent pregnancy. In younger patients it is most desirable that the uterus should not be wounded. In all cases where ovariotomy had been performed shortly before delivery, forceps was applied during the second stage to ease strain on the abdominal wound. Rupture of the uterine scar in a subsequent pregnancy is a danger which must be borne in mind, and it may prove fatal before surgical aid is forthcoming.

I adopt ovariotomy for preference despite the fact that my experience of the Caesarean section operation is extensive and fortunate, as may be realized from the following record; for at the two hospitals mentioned above I find that 226 Caesarean sections were performed between Jan. 1, 1943, and the date of my lecture. There was only one death in the series, and that was in a case of placenta praevia where post-partum haemorrhage came on four hours after the operation. Post-partum haemorrhage should be considered as a menace in every case of placenta praevia. It is my belief that in a case of placenta praevia the classical operation should be selected in preference to the lower-segment operation. In this series of cases referred to I find that the lower and upper segment operations were performed in equal numbers in the hospital at Motherwell, while at Bellshill approximately one-third were lower-segment operations.

These cases were not selected. In many instances the patients were extremely ill. In one case the membranes had been ruptured for a week, and she had been in labour all the time; in two other cases a similar state of affairs had existed for five days. In one case of placenta praevia the patient lost such an enormous quantity of blood that it appeared in the corridor, having flowed across the labour-room floor. This patient was so ill that I performed the operation in her bed, and I attributed her recovery greatly to the administration of pentothal as an anaesthetic by the drip method. This method of anaesthesia was also chosen in a severe case of concealed accidental haemorrhage where the patient failed to respond to every restorative treatment. In none of the cases of concealed accidental haemorrhage was hysterectomy performed, as I consider that in such instances shock is one of the main dangers. No matter how damaged the tissues of the uterus appear, their recuperative powers are astonishing.

I would be interested to hear the opinion of your readers who are engaged in obstetric and gynaecological practice as to their method of dealing with cases of ovarian cyst complicating pregnancy, for evidently treatment by Caesarean section is a method recommended by some eminent authorities.—I am, etc.,

S. J. CAMERON.

Bellshill, Lanarkshire.

Investigation of Oestrogens in Cancer

SIR,—The Royal Society of Medicine has recently arranged for a scientific committee composed of the following Fellows of the Society to investigate the effects of oestrogens in cancer

Prof. E. C. Dodds (chairman), Dr. Alexander Haddow (vice-chairman), Dr. Frank Ellis (hon. secretary).

Sectional Representatives.—Experimental medicine and therapeutics, Mr. A. L. Bacharach and Dr. K. M. A. Perry. Obstetrics and gynaecology, Mr. Malcolm Donaldson and Mr. James Wyatt Pathology, Dr. W. E. Gye and Dr. R. W. Scarff. Radiology, Dr. Ralston Paterson and Prof. B. W. Windeyer. Surgery, Mr Rupert Corbett.. Urology, Mr. F. McG. Loughnane and Mr. Clifford Morson. Co-opted: Mr. G. B. Stebbing and Dr. A. B. Bratton, and Dr. K. Mather as statistical adviser.

The advisability of forming such a committee was considered by the Council of the Royal Society of Medicine after a preliminary investigation by the Radiological Section at 15 radiotherapeutic centres of the effects of stilboestrol in more than 100 cases of cancer of the breast (*Proc. roy. Soc. Med.*, 1944, 37, 731).

At its first meeting the committee decided to concentrate attention on carcinoma of the prostate, breast, and oesophagus, to confine the investigation to dienoestrol at two prescribed dosage levels, and to ask that records be kept on forms based on those of the National Radium Commission approved for use in the Ministry of Health's scheme for cancer. It was further decided that to avoid statistical difficulties the decision regarding the dose of drug to be used should be by random selection

This letter is inserted on behalf of the committee so as to provide an opportunity for members of hospital staffs who might wish to co-operate in this investigation to communicate with the undersigned.—I am, etc.,

F. ELLIS,
Hon. Secretary, Scientific Committee

1, Wimpole Street, W.1.

Penicillin: Price and Manufacture

SIR,—Dr. J. W. Shackle refers (Feb. 17, p. 232) to an article in the daily press quoting a case that had had about 900,000 units of penicillin and stating that the cost of this was £400. Dr. Shackle rightly demands that such an inordinate charge should be justified, believing that there is no valid excuse for the cost to be as much as one-tenth of the amount.

Dr. Shackle and your readers will probably be interested to learn that this cost is in excess by 1,000% and more of the price paid to those member companies of the Therapeutic Research Corporation producing penicillin under contract with the Ministry concerned, the plants of which members manufactured some 90% of the total quantity of penicillin manufactured in Great Britain during 1944. The cost of production in each of those plants and in all others is determined by the Ministry concerned after a cost investigation made in accordance with the usual procedure in relation to Government contracts. The precise cost varies, of course, from one plant to another due to the variations inherent in a biological process. There is not, and cannot be, any "penicillin ring" in this country to monopolize manufacture or to fix prices, whether inordinate or not, while a Government Department continues to take the entire output of all large-scale plants at a price determined for each plant by a cost investigation.

The machinery of the Therapeutic Research Corporation has facilitated close collaboration between its member companies in research to develop manufacturing processes for penicillin, but contracts to manufacture and supply to the Ministry have been placed with individual member companies and not with the Corporation. Several other firms in this country, in addition to member companies of this Corporation, are manufacturing or will shortly begin to manufacture penicillin under Government contracts, and while there has been close collaboration between the member companies of this Corporation and other manufacturers and academic workers, by exchanging and discussing information on research and development to assist in securing maximum production of penicillin for the nation in the least possible time, there has never at any time been any attempt by any of the firms to fix the price to be charged to the Government.

The Therapeutic Substances Act and Regulations ensure that there can be no monopoly, as commonly understood, in the manufacture of penicillin. It is open to anyone, firm or individual, to apply to the licensing authority for a licence to manufacture penicillin for sale, and provided the applicant satisfies the authority as to his competence to manufacture, and to control the purity and safety of, the product there is no reason to believe that a licence would be refused.

Despite the fact that Sir Henry Dale, President of the Royal Society and chairman of the General Penicillin Committee, told a press conference on Oct. 20, 1944, that "there is no substance in the talk about 'trade rings' in the manufacture of penicillin," suggestions that such "rings" exist in this country continue to be made, and we trust the information now given in this letter may once more assure your readers that there is no truth whatever in such suggestions.—I am, etc.,

FRANK HARTLEY, B.Sc., PH.D.,
Secretary, Therapeutic Research Corporation of Great Britain, Limited.
99, Aldwych, London, W.C.2.

Shock Therapy and Conditioned Reflexes

SIR,—Two very interesting résumés have appeared in your annotations "Neurone and Mind" (Feb. 3, p. 157) and "Shock Therapy and Conditioned Reflexes" (Feb. 10, p. 191). These two should be read together as they are complementary. It is always difficult to think of human behaviour in terms of the Pavlovian conditioned reflex, but if we can conceive of the engram as a complex of conditioned reflexes (laid down at an early age under the influence of emotion) and human behaviour as a complex of engrams, the relationship certainly becomes simpler. Prof. Berry pointed out: "Importance is attached not only to the mere existence of engrams but also to their proper order and sequence of their activities."

In the course of development of the child many patterns of behaviour (engrams) are laid down. Some become basic patterns and continue to be active throughout life; these are elaborated more and more to meet the greater demands dependent on the expansion of interests, while the others are relinquished willingly or with regret according to the affective value which they held for the individual. There are, during the course of development, many patterns which are in themselves contradictory, but not when taken in their context.

In the annotation on shock therapy and conditioned reflexes it is shown that shock will recondition a reflex in the absence of the conditioning factor. This certainly does throw a flood of light on this form of therapy and opens up avenues for speculation.

Can we assume that the effect of shock will be to recondition those patterns which at the time of their initiation had greatest affective value for the child and mobilize to a less degree those which are less concerned with the "vital interests"? This would seem to be the case, for it is known that shock therapy is most effective in the field of the psychoses, where the fixation point, or fault in development, is found to be at a very early age in the infant's relationship to his mother before the development of a cognate consciousness: the mother has never become for him a wholly good object which he can grasp and retain. From this is developed the fantasy of the "bad frustrating" mother, which, if left unaltered by reference to external reality, becomes a barrier to social development and tones the world as bad and hostile. It would appear that this reconditioning effect of shock has been to re-establish that first primitive good object relationship as it is of the greatest vital importance to his integrity.

It might be interesting to speculate that the effect of shock as a conditioner of reflexes varies in a direct ratio to the affective significance of the engrams involved. Unfortunately so far it would appear that there is no means of directing shock as to which series of engrams we should like reinforced. It should be possible, however, to evolve a form of therapy in which the "recall" properties of shock are combined with the selective facilities of the more orthodox psychological approach.—I am, etc.,

Bishop's Stortford. D. N. HARDCASTLE.

Therapeutic Sterilization in Mental Hospitals

SIR,—The Select Committee on Sterilization recommended in 1934 that operations for sterilization undertaken therapeutically for psychiatric reasons should not be performed in mental hospitals, as it was inadvisable that such a procedure should become associated in the public mind with these institutions.

It would be instructive to learn through the medium of your *Journal* what is the practice in this connexion in mental hospitals at the present time. The recommendation of the Select Committee appears to have indicated a "pre-treatment era" attitude towards the mental hospital. To-day, ten years later, a great deal of therapeutic work proceeds in our mental hospitals, and three queries arise in one's mind:

1. Ought *any* psychiatric therapeutic procedure to be placed outside the province of the mental hospital? Is there any basic difference between a salpingectomy in a patient whose fear of having further children is a potent factor in her mental breakdown and a prefrontal leucotomy in a patient whose depressive tendencies may cause him to take his own life?

2. If the answer to the above is in the negative, are not mental hospitals prolonging the days of their professional isolation by sending their patients to general hospitals for sterilizing operations? Is it not time the mental hospitals furthered their own cause by performing such operations on their own premises?

3. Why should the performance of such operations react unfavourably on the public attitude towards the mental hospital while apparently it does not do so in the case of general hospitals?—I am, etc.,

Carmarthen. A. M. SPENCER.

The Psychiatrist and the Psychologist

SIR,—I was interested in the annotation on psychiatrist and psychologist (Feb. 17, p. 229). It strikes me, however, that it is misleading in that it seems to imply that distinction between them is based upon a medical qualification, and that a trained psychologist who takes a medical qualification is thereby deprived of his status as a psychologist. This is a point which affects a large number of us. Many psychiatrists are also trained psychologists, and we resent, naturally, any suggestion that we cannot be both.—I am, etc.,

Plympton. H. W. EDDISON, M.D., D.P.M.

Supervision of Mental Defectives

SIR,—I am indebted to Dr. J. Johnston Mason (Feb. 3, p. 164) for supplementing my recent article by giving comparable figures for mental defectives from Brentry Colony. I feel that both sides of the picture are of equal importance, and serve to stress my appeal for assistance in finding suitable jobs for mental defectives, if necessary adequately subsidized, so that they may become as nearly as possible independent members of the community. Clearly the present increased employment of mental defectives is due to the labour shortage, and when the labour market becomes normal, then these men will once more become entirely dependent on the State unless some action is taken now to safeguard their future.—I am, etc.,

Gloucester. J. S. COOKSON.

Present Practice of Diphtheria Immunization

SIR,—It is disturbing to read in Dr. J. L. Blonstein's article on a wartime nursery (Feb. 17, p. 230) that out of 50 children under the age of 5, all immunized against diphtheria, 23 showed a positive reaction to the Schick test. Twenty-one of these had been immunized at "clinics," but there is no reason to suppose that immunization at a clinic would be less effective than that done elsewhere. We are not told (1) the age of the positive reactors; (2) whether a Schick test had been performed upon them three months after the immunization; (3) whether the mothers had been given a certificate (as is the practice in some boroughs) to show that the whole procedure was satisfactory at the time it was carried out. Nor are we told in which group of children the two cases of diphtheria occurred, and whether these were mild or severe cases.

Those of us engaged in infant welfare work and private practice are urged to carry out both immunization and propaganda, but reading an article with the above facts makes one wonder whether the present practice is as satisfactory as it should be, or whether a further Schick test should be carried out, say, at the age of 3, in addition to the test which is usually done three months after immunization. It would be interesting o hear the views of those who undertake this work on a large scale.—I am, etc.,

London, N.W.8. EVELYN MACLAGAN.

Retention of Urine

SIR,—During my time at Nagpur it was one of my duties to arrange for the training of medical licentiates at the Mayo Hospital. These students, both graduates and undergraduates, had to be taught how to relieve retention of urine in the male without causing unnecessary damage to the urethra. Many of he cases of retention of urine which came to the hospital were of a difficult and serious nature owing to the prevailing neglect of proper treatment of gonorrhoea. I found Phillips's filiform bougies and follow-through catheters (obtainable from Messrs. ynard, Paris) invaluable for many cases. Unfortunately, gum-lastic articles do not keep well in the climate of the Central Provinces, and they are difficult to sterilize in the out-patient department. It was with great interest that I read the note by Mr. Milroy Paul in the *Lancet* of Sept. 7, 1935, on his urethral bougie and catheter combined:

> "This set of bougies was made to my design by Messrs. Down Bros., London, to obviate the necessity for passing a metal catheter n dealing with that common emergency, acute retention of the rine from stricture. The bougies have the shape of Lister's bougies nd, in addition, a narrow channel running through their long axis. he bougies have proved very satisfactory in practice, as they are assed more easily than a metal catheter owing to their greater eight, better balance, and their bulbous ends, and I also prefer to se them instead of a metal catheter in cases of enlarged prostate, here occasionally it is necessary to use a metal catheter to relieve cute retention."

I was about to order a set when I read the note by Mr. Harold Dodd in the *British Medical Journal* (July 13, 1935) on his ister's bougie and dilating sound with Béniqué's curve:

> "In a ten-years experience of dilatations of urethral stricture I ave found that certain obstructions can only be negotiated by a ister bougie, while to pass others the curve of a Béniqué instrument is necessary. In using the otherwise excellent French bougie e absence of the graduated shaft and of the weighted handle of the ister pattern was repeatedly felt, and out of this arose the idea combining the two instruments in one in order to secure the lvantages of both. A graduated set, made for me by Messrs. Down os. and Messrs. Lewis Brothers, has the peculiar curve of the niqué bougie, with the olive-headed tip, neck, tapered shaft, eighted handle, and sizes of the Lister instruments. I have used it gularly for eighteen months and have found that it fulfils its purse well. It usually 'falls in,' the dilatation is gradual, and it is fective in passing a tortuous urethra. In addition, it is very useful r determining the patency of the common bile duct into the odenum, and for stretching the ampulla of Vater."

Messrs. Down Bros. have prepared for me, out of polished nickel-silver, which is slightly heavier than steel, a set graduated from 5/8 to 15/18 combining the ideas of Mr. Harold Dodd and Mr. Milroy Paul. (A spigot and stylet are also supplied.) These central-channelled sounds are easily sterilized, and as they are not plated in any way the danger of causing a slight tear in the mucous membrane of the urethra is obviated. They can, preceded if necessary by the smaller sizes of Mr. Harold Dodd's bougie, be used for relieving most cases of acute retention of urine and are suitable for dilating almost every kind of stricture. After the sound has been passed and before it is withdrawn the bladder can be filled with antiseptic solution, thus ensuring that the urethra is subsequently flushed with a cleansing substance.

Cases of retention of urine due to stricture used to reach the Mayo Hospital after a number of ineffectual attempts had been made outside to relieve the condition. If such a case is at all toxic I have found that it is advisable to institute continuous drainage of the bladder, inserting, by means of a trocar and cannula, a de Pezzer self-retaining suprapubic catheter. The self-retaining catheter is left in position until all signs of toxaemia have disappeared and until the stricture has been dilated to size 8/11 English gauge or until the patient begins to pass urine naturally, which he usually does.—I am, etc.,

F. R. W. K. ALLEN.

Injectable Liver Extracts

SIR,—Dr. H. W. Fullerton (Feb. 10, p. 197) refers to his experience of liver extracts possessing little or no potency, and states that the establishment of an official unit of activity would bring to an end the marketing of such extracts. He broadens the issue raised in our recent article (Jan. 20, p. 75) by suggesting that one method of standardization be adopted internationally. While we agree that the adoption of different standards in different countries would be unfortunate, the failure to adopt any standard at all would in our view be even more unfortunate.

In our paper we defined a unit of activity based on the more usual method of clinical testing in this country, which depended on the response obtained over the first fortnight of therapy. This period of therapy is approximately the same as that used in the *U.S.P.* method of assessing activity. We would expect that appropriate comparative tests would show the two units to be approximately equivalent, but we feel that the injection of the whole test dose at the commencement of therapy bears a much closer relationship to actual clinical practice than does injection of smaller doses at more frequent intervals. While it would seem convenient to express the potencies of liver extracts in terms of units, such as we have defined, we feel it is desirable at least that such agreement should be reached as will permit the potency of every batch of every liver extract on the market to be expressed in terms that allow of clear comparison. This requires general agreement as to conditions of test and criteria of satisfactory response. If this can be achieved it will provide a very important measure of protection to both the doctor and the patient against both inactive extracts and misleading statements by manufacturers.—We are, etc.,

W. B. EMERY,
W. J. HURRAN.
Greenford, Middlesex.

Civilian Respirator as Anaesthetic Mask

SIR,—With reference to the comments of Dr. Margaret Joad (Feb. 10, p. 199) and Drs. F. G. Etheridge and F. M. Sandford (Feb. 17, p. 234) on the civilian respirator anaesthetic mask, I should have stated that the mask would not support without some sagging the heavy double tubing of the latest anaesthetic apparatus. For the time being I have been content to anchor this double tubing to the pillow, and use the shortest possible single lead to the face-piece. The resulting increase of dead space is unfortunate, but I cannot admit to any visible evidence of a CO_2 "build up," and the mask most certainly does not leak.

However, I agree the expiratory valve is too distant and should, and of course easily could, be put in its proper place at the junction of tube and face-piece. After induction, anaesthesia has been maintained in a closed circuit.—I am, etc.,

Bedford. F. S. VAUGHAN.

Barotrauma

SIR,—In the annotation on barotrauma (Feb. 10, p. 190) the work of Armstrong and Heim is described as "the foundation of accurate knowledge of the physiology of the Eustachian tube in aviation, though the work was published only seven years ago." The pioneer work was done more than twenty years ago by Sydney Scott, whose outstanding paper, "The Ear in Relation to Certain Disabilities in Flying," was published in the Special Report Series of the Medical Research Committee, No. 37, Reports of the Air Medical Investigation Committee, VIII and IX, in 1919.

Some honour is due to the prophet, even in his own country. —I am, etc.,

London, W.1. F. W. WATKYN-THOMAS.

Deaf Aids

SIR,—I have read with interest the letters from Mrs. E. M. Barlow (Jan. 27, p. 130) and Mr. E. T. Jordan (Feb. 17, p. 237). I can sympathize with Mrs. Barlow. I, too, have been deaf many years and use a deaf aid without which I should be entirely lost. I keep three aids, but recently two have had valve failures. In the older one, the valves, H.11 and L.11, are, I believe, not now procurable, and I was on the point of getting my suppliers to alter it to a later type. Ten days ago, however, my second aid had a valve failure, and the firm tells me that they can do nothing because they cannot get the valves (in this case a 2-volt Hivac).

I have no fault to find with the firm. Their instruments and servicing are excellent, although there is an inordinate delay in getting things done—e.g., seven to ten days to replace a cord, the work of perhaps five minutes. They say that the position with regard to valves has been difficult for the past twelve months and that now they haven't a single value left. This, too, in spite of urgent representation to the Board of Trade. I have written to the Secretary of the B.M.A. asking him if the Association could make urgent representation to the President of the Board of Trade. After all, the social handicap of deafness is quite difficult enough without having added to it the prospect of being unable to carry out one's duties.—I am. etc.,

Fareham. ERNEST SHAND.

Mag. Sulph. for Infantile Gastro-enteritis

SIR,—The article on infantile diarrhoea and vomiting by Drs. M. B. Alexander and Y. Eiser (Sept. 30, 1944, p. 425) and the leading article on infantile gastro-enteritis (p. 439) traverse a most important subject in a comprehensive and interesting manner.

For the sake of completeness the treatment of this disease by fractional doses of magnesium sulphate may be helpful. When I was on the honorary staff of the Johannesburg Hospital during the last war I was at one time in charge of all the children's wards before the establishment of a separate children's hospital, so that ample opportunity was afforded for watching the results of treatment. The mag. sulph. treatment of infantile gastro-enteritis was first instituted in Johannesburg by the late Dr. E. P. Bauman, who was held in high esteem as a children's specialist. I obtained such good results with this treatment that it was introduced into all my wards as a routine procedure in all cases of infantile gastro-enteritis.

The principle of the treatment is the administration of fractional doses of, say, 2 to 5 grains of magnesium sulphate every one, two, or four hours, according to the age and condition of the patient. It was recognized that, whereas in large doses mag. sulph. was aperient in its action, in very small doses it acts as an astringent. When necessary, other better-known treatments were combined with the giving of mag. sulph.—such as a preliminary dose of ol. ricini, the withholding of food and giving of much plain water, together with saline transfusion when required. Intestinal lavage in severe cases was also helpful, but the small patients were never left to pass the enema themselves; it was siphoned off by the rubber tube kept in the rectum, so saving the strain and tenesmus that often accompany the voiding of an enema.

The results were almost universally successful, except in cases that were too advanced when admitted to hospital. Mild cases that were treated as out-patients were also, as a rule, very satisfactory in the results.—I am, etc.,

Durban, S.A. L. ERASMUS ELLIS.

Erythrocyte Sedimentation Rate in Infective Hepatitis

SIR,—In his article on "The Erythrocyte Sedimentation Rate in Infective Hepatitis and in Malaria" (Jan. 6, p. 9) Lieut.-Col. P. Wood states that about 85% of cases of infective hepatitis have an E.S.R. below 10 mm. p.h. in the first 10 days. Our experience confirms his findings. Sporadic readings in 31 cases in the first 12 days had a range of 2-8 mm. p.h. The mean value was 3.87, the standard deviation 1.916, and the coefficient of variability 47.9. Readings in 63 cases between the 13th and 30th days had a range of 3–29 mm. p.h. The mean value was 10, the standard deviation 5.89, and the coefficient of variability 58.9. Several readings in 8 cases gave the following results:

1. 7th day–6 mm. p.h.; 13th day–13 mm.
2. 11th day–2 mm. p.h.; 17th day–7 mm.
3. 10th day–5 mm. p.h.; 18th day–8 mm.
4. 10th day–2 mm. p.h.; 17th day–18 mm.
5. 10th day–4 mm. p.h.; 20th day–16 mm.; 30th day–10 mm.
6. 11th day–6 mm. p.h.; 21st day–14 mm.; 30th day–10 mm.
7. 9th day–7 mm. p.h.; 14th day–29 mm.; 17th day–25 mm.; 28th day–16 mm
8. 12th day–4 mm. p.h.; 16th day–9 mm.; 30th day–5 mm.

—I am, etc.,

P. ROBINSON,
Central Mediterranean Force. Capt., R.A.M.C

Artificial Insemination

SIR,—Having seen the name of this College referred to i correspondence on the above subject, I write to inform you an your readers that this matter has been discussed by the Counci of this College and will be further discussed at the next meeting. After that the Council hopes to publish its views.—I am etc.,

Royal College of Obstetricians
and Gynaecologists.
W. GILLIATT,
Deputy Honorary Secretary

SIR,—In his letter (Feb. 17, p. 236) Sir Charles Gordon Watson uses these words: ". . . pseudo-adulterous practice and that these result in illegitimate babies for all time." Sir Charles is not the first, nor do I suppose he will be the las to fall into such error. Apparently it cannot be contradicte too frequently. The babies to which he refers would be bor in wedlock and would therefore be legal in every sense of th word.—I am, etc.,

Herne Hill, S.E.24. KENNETH MCFADYEAN.

SIR,—The letter of Dr. M. G. Eggleton (Feb. 17) calls fo some comment. She refers to "emotional reaction," and t the "narrow-minded puritanism, or bigoted catholicism" c some of the correspondents. May I suggest that in an age i which so many moral standards are obscure, and everyon tends to become his or her own infallible authority on ethic it is not surprising she should ascribe to others the sam confused state of mind she herself enjoys. Ethics is but th science of conduct, and as such is not founded on emotio but on knowledge—the knowledge of man's duty to his fello man. It is unfortunate for the modern age that ethics is o of the few sciences in which there is no progress; what w wrong a thousand years ago is still wrong to-day, and alwa will be, at least for those who believe that this world has purpose, and whose philosophy of life is not that of pragmat humanism.—I am, etc.,

Felton, Northumberland. E. A. WELSH.

Final M.B. of London University

SIR,—We hear daily over the wireless of the sympathy a help that are going to be extended to all ex-Servicemen. It is pity that the University of London does not feel the sa sentiments, and is by its new regulation deliberately plac them at a disadvantage as compared with their more fortun successors.

The regulation in question announced that candidates in t Final M.B. will be credited with the subjects in Part III in whi they pass and re-examination in these subjects will be excus

On further inquiry I find that this only applies to those who have been students throughout the war years and are now beginning to sit their finals, and not to those who may have passed in these subjects early on in the war, spent most of the war in the Services, and now wish to finish off their degree.

I should be most grateful if you would kindly give this letter some of your valuable space, as perhaps it will encourage others, with more pull than I, to do what they can to alter this lunatic state of affairs.—I am, etc.,

D. S. PORTER.

The Young Married Doctor

SIR,—To the correspondence on the young married doctor may I add some lines based on experience as a full-time State servant with the Ministry of Pensions, which may give some pointers to what may be expected under a State hospital service.

First it should be realized that the convenience to a hospital in having its medical staff on the premises is very real, to such an extent that the staff is in danger of exploitation on that account. No doctor can be expected to mortgage his whole life to a hospital, but, in fact, that is what often happens. Although the nursing staff are usually resident they are not expected to be on call the whole 24 hours, and there seems no reason why a charter of conditions cannot be negotiated for hospital officers not less favourable than those given to the nursing staff under the Rushcliffe report, the domestic staff under the Hetherington report, and, last but not least, those enjoyed by shop assistants under the Shops Acts.

As regards accommodation for married doctors, I consider rooms in the hospital building most unsuitable for normal married life for reasons which are obvious (cooking, privacy, family, etc.). The best solution is for the governing bodies to buy or erect houses in the immediate vicinity of the hospital, each self-contained and connected by telephone to the hospital. These could be let at a low rent to such of the staff (medical or executive) who desired them. In letting such houses priority would be given to the medical staff, in that they would be permitted to do any emergency call duty if they occupied such houses adjacent to the hospital. With this is bound up the question of emergency duty. One person does duty in turn in a Ministry hospital for 24 hours, sleeping in during that time. This is light where there are seven or more medical officers, but it is no joke when there are only two or three, for it cuts everely into nearly every week-end, since it is not permissible to eave the premises for a moment. Yet for this service medical officers get no more leave than the clerical staff, who work only rom Monday morning to Saturday midday, and enjoy all the ustomary public holidays.

Provided such houses are situated as described the medical officers could well do their emergency duty at home, on the lear understanding that they will be available on their allotted nights. In practice this might mean that contact was more quickly and easily made with the M.O., for the difficulty someimes of finding a person in the hospital premises is well known. Yet officialdom is stubborn and insists that medical officers leep in; in one case permission was refused a man to be on uty (on the telephone) at his home, which is separated from the ospital by a field. Conversely, *where it is insisted that M.O.s* keep in during their emergency duty there should be no restricons requiring them to live within a certain distance of the ospital.

As regards hospital pay the Ministry has scales comparing avourably with other employing authorities, but even so there hould be a minimum of £500 p.a. after qualification. We hear lot about proposed reforms after the war, but surely the time now, when all commodities are so expensive. Is no consideraon to be given to the years of unremunerative labour, and es, to fit one for the task? There is also the principle of equal pay for equal work" to be considered. Nobody would eny that an experienced employee is of much more value than raw recruit, but to strike the balance afterwards is more fficult. Value is not in direct proportion to age. Yet even e present Joint Industrial Councils have correlated employees' ages with age. All this is going on now, and the Governent is understood to desire fixed minimum wages in the rious industries to be settled before the end of the war. The me, therefore, for considering hospital pay is only too ripe.

Finally I might add that personal files are kept at headquarters for each medical officer, in which all the correspondence regarding him is preserved. Because of this certain small concessions or criticisms may not be made as the M.O. concerned does not wish the item to be "spotted" when his promotion is under consideration.—I am, etc.,

"TEMPORARY CIVIL SERVANT."

A Faculty of Ophthalmologists

SIR,—The announcement of the formation of the Faculty of Ophthalmologists (Feb. 3, p. 160) appears to me to come at an inopportune time. To increase the number of organizations to watch over ophthalmologists' interests is to invite division of effort and confusion of thought.

I do not like the Faculty's proposal to have two kinds of members. We want to encourage the younger men, and the suggestion that only six members of council are to be elected by the associate members—that is, those of two to five years' standing, and others of more seniority, who are not on the staff of a hospital of arbitrary size—while the older members elect 15 is undesirable. How can the Faculty be fully representative if it excludes the part-time ophthalmologist, whose numbers are, indeed, far higher than those of the full-time practitioner? It is from these "part-timers" that we must expect much help in the proposed National Health Service, for without them we shall be unable to put forward a scheme for a medical examination for every patient, for which the Government has expressed a desire.

"United we stand, divided we fall." The Ophthalmic Group of the B.M.A. is surely best constituted to be the guardian angel. It is democratically elected, and all electors are of equal status, whether practising ophthalmology wholly or predominantly, and is, therefore, fully representative. Let all ophthalmologists rally round the B.M.A., attend the regional meetings, and put their views and desires before their representative on the Ophthalmic Group Committee. By so doing we present a united front to the Minister of Health when the time comes.—I am, etc.,

Edinburgh. C. R. DUNCAN LEEDS.

Cecil Joll Memorial Fund

SIR,—We, colleagues and friends of the late Cecil Joll, feel that some recognition of his distinction in the science and practice of surgery should be put on permanent record. This, we suggest, might take the form of an annual lecture or prize essay sponsored by the Royal College of Surgeons of England, as shall be determined by the President and the Council, of which Cecil Joll was an active member. Contributions from all those in sympathy with this object should be sent to: The Manager, National Provincial Bank, Marylebone High Street, London, W.1, marked "Cecil Joll Memorial Fund."—We are, etc.,

ELIZABETH BOLTON JENNER HOSKIN
DANIEL T. DAVIES CEDRIC LANE-ROBERTS
HORDER LIONEL E. C. NORBURY

The Services

The following appointments and mentions have been announced in recognition of gallant and distinguished services in the field:

C.B. (Military Division).—Major-Gen. W. C. Hartgill, O.B.E., M.C., late R.A.M.C.

O.B.E. (Military Division).—Major (Temp. Lieut.-Col.) B. W. Rycroft, R.A.M.C.

M.B.E. (Military Division).—Capt. T. B. McMurray, R.A.M.C.

Mentioned in Dispatches.—Brig. (Temp.) R. A. Hepple, O.B.E., M.C., late R.A.M.C.; Cols. (Temp.) T. Menzies, O.B.E., and T. Young; Lieut.-Col. (Temp.) J. P. Parkinson; Lieut.-Col. (Acting) D. L. Owen; Majors (Temp.) L. S. Rogers, M.B.E., and O. S. Williams; Capts. D. Collins and J. R. Rickett, R.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Died.—Capt. Basil Reid Caygill, R.A.M.C.

Died on active service in Australia.—Surg. Lieut. Malcolm Joseph Clow, R.N.V.R., who was awarded the Albert Medal in gold in 1943 for his gallantry in saving others when H.M.S. *Ibis* was left sinking after an air attack off North Africa.

Obituary

F. W. EURICH, M.D.

Emeritus Professor F. W. Eurich, famous for his work on anthrax in Bradford, died at Dibden Purlieu, near Southampton, on Feb. 16. He held the chair of forensic medicine in the University of Leeds for over 24 years, was consulting physician and consulting pathologist to the Bradford Royal Infirmary, and had been specialist medical referee to the Home Office for anthrax, and aniline and lead poisoning.

Frederick William Eurich, son of Richard Eurich, was born in 1867, and studied medicine at the University of Edinburgh, graduating M.B., C.M. with honours in 1891, and won the gold medal for his M.D. thesis in 1897 after postgraduate work at Heidelberg, Frankfort, Berlin, and elsewhere. Having served as assistant medical officer and pathologist to the Lancashire County Asylum at Whittingham he became bacteriologist to the City of Bradford and to the Bradford Anthrax Investigation Board, and worked for many years on the visiting staff of the Royal Infirmary and the Royal Eye and Ear Hospital. The Anthrax Board had been set up by the Home Office in conjunction with the Bradford Chamber of Commerce, and Dr. Eurich was appointed to carry out investigations, not without considerable danger to himself, on the various wools and hairs, and in the end he found a method of killing the bacillus in any sample without detriment either to the material or to the worker. Forty years ago the whole Bradford district was vitally concerned in the menace to its workers from wool-sorters' disease, and Dr. Eurich, by disclosing sound preventive measures and by introducing improved treatment of the disease when contracted, brought about effective reduction in incidence and fatality. When he retired in 1937 a public presentation was made to him at a farewell dinner held in the Midland Hotel, Bradford, and a few weeks later he received in Manchester the medal of the Textile Institute for his research into anthrax; on each occasion many tributes to him were paid by representatives of the wool trade. He was the author of papers on diagnosis, treatment, and control of industrial anthrax published in the *Lancet* and the *British Medical Journal,* and contributed the chapter on anthrax to the Medical Research Council's encyclopaedic *System of Bacteriology* published in 1930. A member of the B.M.A. since 1897 until he retired a few years ago on account of failing sight, he served as vice-president of the Section of State Medicine and Medical Jurisprudence at the Annual Meeting at Aberdeen in 1914, and vice-president of the Section of Medicine at the Bradford Meeting in 1924. Both the Bradford and the Leeds and West Riding Medico-Chirurgical Societies made him an honorary member.

J. B. D. writes:

The death of Dr. Eurich caused great regret in Bradford. Though he had retired from practice eight years ago, his works still remained fresh in the memory of his colleagues and the public at large, and none had been a more notable citizen when resident in their midst. The son of a German merchant who settled in Bradford, he was born in Saxony, but brought when a few months old to England. He received his early education at the Bradford Grammar School in the time of Dr. Keeling. Thence he went to Edinburgh. In Bradford he was appointed assistant physician to the Royal Infirmary in 1899, and succeeded Dr. R. H. Crowley as full physician in 1907. On his retirement from the acting staff in 1927 he became consulting physician. He was elected to the chair of forensic medicine at the University of Leeds in 1908, retiring therefrom in 1932, with the title of Professor Emeritus.

Eurich's earlier fame was founded on his activities as bacteriologist to the Anthrax Investigation Board, set up in 1905. His work for this committee was long and arduous, examining specimens of wool and hair and making thousands of cultures. Within a few years there was a considerable decline in the number of deaths, and eventually a Government disinfection station at Liverpool was established, enabling imported wool to be disinfected before reaching the workers. The disease is now rare in the district. As a physician his services were in great request over a wide area, and his opinion on a case was much valued. He worked with tireless energy. With a good general knowledge, both clinically and by incessant reading, of medicine, his forte was neurology. Therein he was an expert. He was in his element in solving the problem presented by an obscure nerve case, and never rested till he had made a diagnosis, almost invariably correct. A member of the Society of Friends, his chief characteristic was his altruism: he would cheerfully spend hours on cases in which there was no scintilla of fee or reward, and after his retirement from the full staff held a weekly clinic at his rooms for patients too poor to pay his fee. Much interested in delinquency, he performed valuable service by his examination of delinquents referred to him by Dr. Coddington, the learned stipendiary magistrate for Bradford. The latter in a tribute said, "He was a pioneer in the application of medical and psychological knowledge to the question of delinquency as opposed to psychiatry, which by itself is not so powerful an instrument for good." On his retirement from active practice he was entertained to dinner by the medical men of the district and the Textile Trade Societies, who severally made him presentations. He was also awarded the Textile Institute's Gold Medal, a rare honour for one not actively engaged in the trade. He leaves a widow and five children, the elder son being Richard Eurich, the well-known artist. His memorial will be his ungrudging labours for his fellow-men.

ASTLEY V. CLARKE, M.D.

We regret to announce the death on Feb. 21 of Dr. Astley V. Clarke, who had been for many years a leading figure in Leicestershire and Rutland, and took an active part in the work of the British Medical Association, both locally and at headquarters.

Astley Vavasour Clarke, son of Julius St. T. Clarke, M.S., F.R.C.S., was born at Leicester on Feb. 7, 1870, and from Oakham School entered Caius College, Cambridge, where he took his B.A. in the Natural Sciences Tripos of 1892. He went to Guy's Hospital for his clinical course and graduated M.B., B.Ch. in 1895, proceeding M.D. three years later. After a year as house-physician at Guy's and some postgraduate study abroad he began practice in his native town and was elected to the visiting staff of the Leicester Royal Infirmary, becoming eventually honorary consulting physician and consulting radiologist. The outbreak of war in August, 1914, found him already a lieut.-colonel in the R.A.M.C. (T.F.), and he served as A.D.M.S. to the North Midland Division and afterwards administrator of the 5th Northern General Hospital, Leicester, with the rank of colonel, A.M.S. After the war he became honorary consulting physician for the East Midland Region or behalf of the Ministry of Pensions, and for four years was medical director of the Frith Home of Recovery for neurasthenia cases under that Ministry.

Dr. Astley Clarke's record of public service in the City an County of Leicester is most impressive. He was a Deput Lieutenant of the County and an alderman and Justice of th Peace for the City; he also helped largely to found Universit College, Leicester, and was a vice-president and the chairman o its council. He had served as a member of the City Counc and as chairman of its Health Committee, as president of th Literary and Philosophical Society, and as chairman of th City General Hospital. He was County Controller of th Leicester V.A.D., a member of the Leicester and Rutlan Territorial Association since 1910, and had been High Sheri of Rutland. One of the moving spirits of the Leicester Publi Medical Service, he acted as honorary treasurer from it inception in 1912, and in recognition of this was presente with his portrait in oils at the close of 1938. Particularly i the early and difficult stages of the formation of the firs Public Medical Service in the country his untiring work an his advice were of inestimable value to the local professio and also to the community. He had been chairman of the loc Division of the B.M.A. and president of the Leicester Medic Society.

Dr. Astley Clarke joined the B.M.A. in 1897 and first repr sented his Division at the Swansea Meeting in 1903; he w honorary Local General Secretary for the Leicester Meetin two years later and served for a period on the Central Counc He held office as vice-president of a Section at three Annu Meetings: Haematology and Vaccine Therapy (1909), Electr therapeutics and Radiology (1911), Medicine (1926). At hea quarters he served on the Hospitals Committee continuous from 1920 to 1929, and for three years on the Private Practi Committee; he was also a member of the General Medic Service Scheme Committee, and of a number of subcommittee iore particularly the Public Medical Services Subcommittee, n which his experience at Leicester gave great weight to his pinion.

His main recreation in the by-hours of an arduous and many-sided working life was the discovery of village antiquities, and e had one of the finest collections of them in the country, ncluding agricultural and household implements. He wrote a hort history of Lyddington, the Rutland village where he had is country house.

H. MASON LEETE, M.D., B.Hy., D.P.H.

r. Harold Mason Leete, medical superintendent of the Hull ity Hospital, the Tuberculosis Sanatorium, and the Evan raser Hospital, died after a brief illness on Feb. 15 at e age of 50. Educated at St. Bees School, he went to tudy medicine at the University of Durham College of ledicine, Newcastle-upon-Tyne, qualifying M.B., Ch.B., and I.R.C.S., L.R.C.P., in 1917. Having chosen public health as is specialty he obtained the D.P.H., became a Bachelor of lygiene of the University of Durham in the following year, nd in 1921 proceeded to the M.D. After serving as house-physician and house-surgeon at the Royal Victoria Infirmary, ewcastle, he went to the Edinburgh City Sanatorium as esident medical officer in charge and ten months later was ppointed senior medical assistant and bacteriologist at the dinburgh City Hospital for Infectious Diseases. In 1920 e joined the staff of the M.O.H. of Birkenhead and was rimarily engaged on tuberculosis, infectious diseases, and acteriological work. His interest in the diagnosis and treatment of cases of infectious disease deepened with the passage f the years, and his contributions to literature on bacteriological technique and clinical findings were always carefully repared and concisely expressed. While at Edinburgh he id research on the Schick test in diphtheria and published e first English paper on the subject in the *Lancet* of an. 24, 1920. In 1924 he published a paper jointly on an utbreak of typhus fever in England.

Since coming to Hull in 1930 (writes N. G.) he engaged on valuble research work upon gravis diphtheria, and has materially added o our knowledge of this important subject. An expert clinician, a killed bacteriologist, and an able administrator, Dr. Leete has proved imself to be an admirable medical superintendent. Beloved by his atients, especially by the children, he was held in high regard by is professional colleagues, who invariably attended his clinical emonstrations in large numbers. The loss of his son while serving ith the R.A.F. in North Africa was a serious blow to him. We, is colleagues in the Public Health Department and on the hospital affs, mourn the loss of a dear friend and the medical profession a istinguished graduate. Dr. Leete was at the time of his death a ember of the council of the East Yorkshire Branch of the British ledical Association and of the council of the Hull Medical Society. incere sympathy is extended to his widow and daughter.

FREDERIC HERBERT STURDEE, F.R.C.S.Ed., died at his home Little Walsingham, Norfolk, on Feb. 2. He received his edical education at St. Thomas's Hospital and qualified I.R.C.S., L.R.C.P. in 1896. He subsequently held appointments as fourth medical officer at the Sussex County Hospital, ssistant medical officer at the Chelsea Infirmary, and senior ouse-surgeon at the Great Northern Hospital. He obtained e F.R.C.S.Ed. in 1901. He started in general practice the me year at Little Walsingham and for 44 years served evotedly and with unusual skill a large part of this rural rea. His only passion in life was surgery, and he was a aster of the art. He played a great part in the foundation f Wells Cottage Hospital in 1910, and from its foundation as honorary surgeon. He was a skilled operator, and very any people owe their lives to his skill alone. He dedicated is life to the service of others and to surgery, and if ill-health early manhood had not prevented it he would have made a reat name in a wider field. He was a great man in the best ense of the term, and everyone who knew him loved him. le died, as he would have wished, in harness. He had been a ember of the B.M.A. for over forty years.—E. W. H.

Dr. **HENRY FRANK CURL**, who practised for many years at Vokingham, Berks, and was mayor of the borough ten years go, died suddenly at Overstrand, Norfolk, on Feb. 10. He egan the study of medicine at Cambridge, and after taking his B.A. degree went on to the London Hospital, qualifying M.R.C.S., L.R.C.P. in 1906. He held successive appointments as house-physician and house-surgeon both at the Poplar Hospital and at the Prince of Wales's Hospital, Tottenham, and joined the B.M.A. in 1909. At Wokingham Dr. Curl was medical officer to the Fire Brigade, to the Lucas Hospital, and to the Cinematograph Trade Benevolent Fund Convalescent Home; he was also physician to the Royal Merchant Seamen's Orphanage at Bearwood.

Dr. **FRANCIS DUDLEY** died suddenly at his home in Newton Abbot, Devon, on Feb. 13. He had suffered from recurring anginal attacks and from a painful arthritis of the hip-joint for the past year, but was apparently improving, and the news of his passing came as a shock to his many friends. He was born on Aug. 9, 1873, in the town of Tipperary, Ireland, where his father, the late Henry Dudley, M.D., practised, and was educated at Christ's Hospital, London, and at Horsham. He proceeded to the medical school of Trinity College, Dublin, and qualified as L.R.C.P.&S.I. and L.M. Rotunda in 1896. After assisting his father for a short time he came to England as A.M.O. at the Lancashire County Mental Hospital, Whittingham, and then, in 1897, to a similar post at the Cornwall County Mental Hospital, Bodmin, where he spent the rest of his active professional life, being appointed medical superintendent of that large institution in 1914. He retired in 1931 after 34 years' service, and then went for several voyages as ship surgeon. On his return he settled with his family in Newton Abbot, and at the outbreak of the present war joined the Home Guard as a private and dispatch rider, and later acted as M.O. to the battalion. He was a member of the B.M.A. and of the Royal Medico-Psychological Association from whose meetings he was seldom absent. Dr. Dudley was a man of powerful physique, and in his youth a fine athlete and an expert swimmer and diver. He had a passionate love of the sea, and some of his happiest days and nights were spent with the Cornish fishermen. He had an inexhaustible store of tales and ballads of his native land and of his adopted county of Cornwall, and was an excellent raconteur. His open, handsome face, with those kindly eyes and humorous mouth, and the air of optimism and happiness which radiated from him, made him a welcome guest everywhere, and will never be forgotten by his host of friends. The most generous and unselfish of men, tolerant, kindly, and understanding, with a perfect genius for friendship, he was the ideal medical superintendent, and his patients adored him. No man of my acquaintance better fulfilled the Masonic "grand design of being happy and communicating happiness." *Atque in perpetuum, frater, ave atque vale.* Dr. Dudley married Miss Josephine Pomeroy of Bodmin, and she and their daughter survive him. All his old friends will sympathize with them in their irreparable loss.—W. S.

The death of Dr. **JOHN DOUGLAS HOPE FRESHWATER** at the age of 68 took place recently at Worthing. On leaving Cambridge, where he graduated as B.A. in 1899, he did his clinical years at St. George's Hospital and qualified as M.B., B.Ch. of his University in 1903, and M.D. in 1912. Postgraduate study in dermatology and syphilology at Berlin, Paris, and Aix-la-Chapelle filled in a few years; later he became M.R.C.P. and returned to St. George's as physician to the skin department and director of the V.D. clinic. He was also appointed dermatologist to the L.C.C. and physician to the Western Skin Hospital. He was among quite the earliest dermatologists to realize the value, indeed the necessity, of an *x*-ray installation in the treatment of various skin complaints; and this prescience brought him, deservedly, a reputation both among his colleagues and among the public at large. On retirement from St. George's, where he had been lecturer in dermatology in the medical school, he became consulting physician for diseases of the skin to the hospital. Though of strongly built frame, Freshwater was not constitutionally a strong man.

Dr. W. Radcliffe (Wivenhoe, Essex) writes: Your obituary notice of Dr. T. **HARRISON BUTLER** omits to mention one of his most remarkable accomplishments, for he was without doubt the leading amateur designer of small yachts in the country. His name became a hall-mark which has made little ships from his board much sought after around our coasts and abroad. He was a master draughtsman, and an experienced shipbuilder said to me that one of his designs was the most beautiful drawing he had seen. He also led the way in the more theoretical side of boat design, and his great experience was such that the editors of the yachting press called upon his services as a judge and critic of other designers' work, and he was always ready and anxious to encourage others in the hobby he had so much enjoyed himself.

Dr. P. Catherine Evans writes: Many surgical tributes by eminent members of the profession have been paid to the late Mr. Cecil A. Joll. But may I, an old student and a most grateful ex-patient, write a few words of appreciation on behalf of that vast number of thyrotoxic patients who owe so much to him and his staff for a return to normal health and strength. Those who have not suffered from thyrotoxicosis may not realize the mental as well as physical stresses and strains which have to be borne by the patient. Cecil Joll had that great gift of inspiring complete confidence, trust, and optimism in his patients, and this gift, combined with his superb surgical skill, made him the ideal surgeon for such cases. We are indeed grateful to him for his life's work and we deeply regret his untimely end.

The following well-known medical men have died abroad: Dr. Benjamin Franklin, instructor in surgery at the University School of Medicine, Philadelphia, aged 53, of acute lymphatic leukaemia; Dr. Ovidio Meira, one of the leading orthopaedic surgeons of Rio de Janeiro, aged 64.

Medical Notes in Parliament

Tuberculosis among Returned Prisoners-of-War

On Feb. 20 Mr. Hogg asked the Secretary of State for War what special steps had been taken to diagnose and treat cases of tuberculosis among returned prisoners-of-war. Sir James Grigg: All returned prisoners-of-war are given a careful general medical examination as soon as possible after their return to this country. In cases in which there is the slightest reason to suspect the presence of tuberculosis they are referred for specialist examination, and, if necessary, for appropriate treatment in military hospitals and certain E.M.S. hospitals until such time as they can be transferred to civil sanatoria, with which the Minister of Health is concerned.

Mr. Hogg asked if, having regard to the increased danger of tuberculosis among prisoners-of-war, it would be practicable to arrange for them to have an x-ray examination when they came back to this country. Sir James Grigg said that the Government was considering what further steps it could take. He was not sure whether sufficient equipment and medical skill were available now to test all the men, but the Government was asking the Germans, through the Protecting Power, to give us a list of the latest date on which our prisoners were examined by x rays in Germany. That might help in getting a further line on the medical condition of these men.

Dr. Summerskill asked whether, as the Minister of Health had said there were 4,000 tuberculous persons awaiting admission to sanatoria, Sir James Grigg could assure the House that no returned prisoner-of-war or ex-Serviceman was among the 4,000. Sir James Grigg said he did not notice the answer, but he had been in communication with the Minister of Health about the admission, as a temporary measure, of some of these tuberculous cases to E.M.S. hospitals.

Salaries of African M.O.s

Mr. Riley on Feb. 14 asked what opportunities there were for native African assistant medical officers to qualify as full medical officers, and whether an initial salary of £96 per annum was adequate for a man who had studied medicine for a number of years and qualified as a doctor. Col. Stanley said the building up of medical schools in Colonial Territories was a matter to which he attached great importance and on which the Asquith and Elliot Commissions would no doubt make recommendations. He was consulting the East African Governments as to the salaries of these assistant medical officers. The Government had already considered the subject.

Drug and Lunacy Administration in Northern Ireland

Miss Ellen Wilkinson moved on Feb. 16 the second reading of the Northern Ireland (Miscellaneous Provisions) Bill. She said that, under the Therapeutic Substances Act, 1935, therapeutic substances must not be imported into Northern Ireland unless the Ministry of Home Affairs was satisfied that they conformed to the required standard. The Bill contained a clause which would enable the Governor of Northern Ireland, with the consent of the Secretary of State, to transfer these functions to the Ministry of Health and Local Government. Another clause of the Bill provided for the winding up of the Lunacy Fund, which had been established to defray the expenses of the Lunacy Office in Ireland. It was made up of percentages charged on lunatics' estates and certain other fees. In England expenses of lunacy administration were borne by the Exchequer. The clause provided for the same practice to be followed in Northern Ireland.

The Bill was read a second time.

Notes in Brief

Sir Walter Womersley, in reply to Mr. Messer on Feb. 15, said standardized tests were conducted by aural specialists at each Ministry of Pensions Regional Office to determine the most suitable type of aid-to-hearing appliance for deaf ex-Service and civi pensioners. In addition to the one at Manchester University, there were special clinics at certain of the London hospitals, which were consulted in individual cases of difficulty.

A case reported as smallpox in Anglesey was in a serving soldier in a military camp. The Army medical authorities found that it was not a case of smallpox.

The latest returns show the number of beds provided by local authorities in England and Wales for tuberculosis as approximately 29,000, and the number of patients on waiting lists for institutiona treatment as approximately 4,500. The major difficulty, Mr. Willink says, is staff.

The Nurses Act received the Royal Assent on Feb. 15.

The Family Allowances Bill was introduced on Feb. 14 and has been printed.

Discharged soldiers in civilian life can claim National Health Insurance benefit for sickness that could be attributed to malaria suffered during their military service, subject to the normal statutory conditions for title to benefit being satisfied.

Medical News

A meeting of the Medical Society of the L.C.C. Service will be held at St. Stephen's Hospital, Fulham Road, S.W., on Thursday, March 8, at 2.30 p.m., when members of the staffs of St. Stephen's and St. Mary Abbots Hospitals will demonstrate cases.

The Royal College of Nursing has arranged a conference on "The Nurses' Responsibility in the Control of Venereal Disease" to be held at the College, Henrietta Place, W., on Thursday, March 15 at 6 p.m.

A meeting of the Pathological Society of Great Britain and Ireland will be held in London, at St. Thomas's Hospital Medical School on Friday, March 23, and Saturday, March 24.

The Ophthalmological Society of the United Kingdom proposes to hold its annual congress in London on Friday and Saturday, April 13 and 14, at the Royal Society of Medicine. There are two subjects for discussion: the first, at the Friday morning session, is "The Ocular Sequelae of Head Injuries"; the second, at the Saturday morning session, is "Plastic Repair of the Lids." Part of the Friday afternoon session will be devoted to a joint clinical meeting with the Ophthalmological Section of the R.S.M. On account of the difficulty in obtaining hotel accommodation in London, those who require it should make their arrangements in good time.

For the benefit of teachers, societies, and others, the British Medical Students' Association (B.M.A. House, Tavistock Square, W.C.1) has published, with the help of numerous other organizations, a catalogue listing almost all the available documentary films on medical subjects, with details of cost of hire, running time, and size and the names of the distributors of the films. The price of thi guide is 1s.

A sum of £1,657 has been subscribed by the A.R.P. Wardens o London districts A to D, and on Feb. 10, in the Tudor Room of Zeeta's Restaurant, Putney, a cheque for this amount was handed to Mr. J. R. Lancaster, chairman of Putney Hospital, to endow a bed in memory of 14 of their comrades killed by enemy action. Mr. Lancaster said that so large a donation, apart from bequests, had never been received by the hospital since its foundation in 1912 with 20 beds. Since that date the building had been much extended, so that in 1943 no fewer than 1,400 patients were treated in the wards. In addition to endowing a bed the Wardens' gif would be sufficient to defray the expense of a short-wave diathermy set.

The Association for the Study of Diseases of the Chest was formed on Jan. 26 at a meeting at Manson House, Portland Place, where there were 53 people present. The Association consists of physicians, surgeons, pathologists, radiologists, anatomists, and physiologist primarily interested in diseases of the chest. The following officer were elected: *President*, Mr. A. Tudor Edwards. *Vice-presidents*, Dr. Geoffrey Marshall and Dr. Roodhouse Gloyne. *Hon. Treasurer*, Prof. Barnard. *Hon. Secretary*, Mr. P. R. Allison. *Editors*, Dr. Clifford Hoyle and Mr. Norman Barrett. *Executive Counci* Mr. William Armstrong, Mr. H. Morriston Davies, Dr. Robert Coope, Mr. R. C. Brock, Dr. J. L. Livingstone, Dr. M. Nosworthy, Mr. G. A. Mason. The objects of the Association are (1) the stud of diseases of the chest and (2) the publication of a journal.

The Queen has consented to the appointment of Princess Margaret s president of the Barnardo Helpers' League in succession to the ite Princess Beatrice. The League was founded in 1892 by r. Barnardo himself to provide a medium by which the young eople of the British Empire might render friendly service to the hildren in Dr. Barnardo's Homes. It has over 2,000 branches and 3,000 members in Great Britain, with many associated groups in lew Zealand, Australia, and other parts of the Empire.

Mr. and Mrs. E. C. Stonehouse have undertaken to give £10,000 o the Clayton Hospital, Wakefield, towards the building of a new hildren's ward in memory of their son, Lieut. Michael Stonehouse, ho was killed while serving his gun during an air raid on Liverpool 1941.

One of several plans now being worked out to improve medical ervices in the West Indies is a scheme to establish a maternity ome in Barbados for the training of midwives. The scheme will e financed by a free grant of £24,000 under the Colonial Development and Welfare Act, 1940.

EPIDEMIOLOGICAL NOTES

Discussion of Table

n *England and Wales* the incidence of measles continued to rise, ,588 more cases being reported than in the previous week. The otal for scarlet fever rose by 65, and for acute pneumonia by 3. There were 52 fewer notifications of dysentery.

The biggest rises in measles notifications were : Yorks West Riding 858, Staffordshire 403, Middlesex 364, Derbyshire 317, Warwickshire 266, Essex 245, and London 241.

Two new outbreaks of dysentery were reported during the week : Cornwall, Wadebridge R.D., 44 cases ; and Suffolk, pswich C.B., 15. London reported 39 cases, Lancashire 31, Middlesex 23, Essex 23, Northumberland 20, Yorks West Riding 19, Buckinghamshire 15, and Cambridgeshire 10.

In *Scotland* rises over last week's totals were recorded as follows : acute primary pneumonia 47, whooping-cough 26, scarlet fever 17, cerebrospinal fever 11, diphtheria 5 ; there were 51 fewer cases of measles. Notifications of cerebrospinal fever were the highest of recent months ; Glasgow reported 18 cases and Edinburgh 10. The incidence of dysentery remained unchanged ; Edinburgh had 27 cases, Glasgow 26, and Stirling 20.

In *Eire* the incidence of diphtheria continued to fall, although the disease is still widespread, the 66 cases appearing in thirty-nine areas. Two outbreaks of dysentery were reported during the week—Waterford C.B. 14 cases, and Waterford, Kilmacthomas R.D. 6.

In *Northern Ireland* scarlet fever notifications fell by 23.

Statistics for Scotland, 1944

The birth rate has risen continuously since 1940, the rate of 19.2 per 1,000 being the highest since 1930. Infant mortality was 65 per 1,000 live births—the same as in 1943, and 8 below the five-years average. Maternal mortality was 3.1 per 1,000 live births—the lowest rate on record, and only half the rate for ten years earlier. The general death rate was 12.9, which is 0.7 below the five-years average. The death rates from all forms of tuberculosis—79 per 100,000—and from respiratory tuberculosis—59 per 100,000—remained at the same level as in 1943. The marriage rate—7.4 per 1,000—was 1.9 below the average for 1939–43, but only 0.2 below the pre-war average, 1934–8.

Statistics for Glasgow, 1944

The birth rate remained high—22.2 per 1,000. The infant mortality rate—95 per 1,000 births—was 13 more than that for 1943, the rise being caused by the autumn outbreak of gastro-enteritis. In 1944 this disease was responsible for 698 deaths of children under 2 years of age, compared with 342 deaths in 1943. Maternal mortality—4.2 per 1,000 births, and the lowest recorded in the city—is about 50% greater than the recent rates for the whole of England and Wales. The general death rate was 13.9 ; for 1942 and 1943 it was 14.0 and 14.1. Deaths from respiratory diseases dropped to 1,312, compared with 1,559 in 1943, and were the lowest ever recorded in Glasgow. Deaths from pulmonary tuberculosis, 1,119, were 67 above the total for 1943 ; the number of registered cases of pulmonary tuberculosis, 2,757, were 21 fewer.

Week Ending February 17

The notifications of infectious diseases in England and Wales during the week included : scarlet fever 1,497, whooping-cough 1,530, diphtheria 427, measles 19,167, acute pneumonia 1,206, cerebrospinal fever 73, dysentery 357, paratyphoid 1, typhoid 11. Deaths from influenza in the great towns numbered 55.

No. 6

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Feb. 10.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for : (a) England and Wales (London included). (b) London (administrative county) (c) Scotland. (d) Eire. (e) Northern Ireland

Figures of Births and Deaths, and of Deaths recorded under each infectious disease are for : (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	94	5	37	4	4	62	—	17	6	2
Deaths		1	2				1	—		
Diphtheria	402	18	117	66	11	687	31	184	148	34
Deaths	5	—	—	1	2	13	—	2	2	1
Dysentery	324	39	104	22	3	220	31	78	—	1
Deaths				—	—				—	—
Encephalitis lethargica, acute	1	—	—	—	—	2	—	1	—	—
Deaths		—					1			
Erysipelas			40	6	1			52	14	2
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				9					9	
Deaths	56	6	8	8	4	50	14	8	22	3
Measles*	20,627	814	417	41	131	1,245	217	157	354	2
Deaths	14	—	6	—	3	1	—	—	2	—
Ophthalmia neonatorum	63	3	15	1	1	81	7	17	—	—
Deaths										
Paratyphoid fever	2	—	—	2 (B)	—	5	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	1,449	95	18	7	3	909	63	18	10	9
Deaths (from influenza)	67	13	9	1	1	51	6	4	—	2
Pneumonia, primary			334	28				225	28	
Deaths		55		20	19		63		14	11
Polio-encephalitis, acute	—	—				—	—			
Deaths		—					—			
Poliomyelitis, acute	5	—	2	—	—	6	2	—	—	—
Deaths		—					—			
Puerperal fever		2	8		—		2	16		—
Deaths										
Puerperal pyrexia‡	133	11	12	2	1	171	12	11	3	2
Deaths		1								
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,466	68	180	22	38	1,870	125	201	37	69
Deaths	2	—	—	—	—	1	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	6	1	1	3	3	6	—	2	3	2
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,516	70	136	74	17	2,009	148	159	43	23
Deaths	14	1	4	4	1	11	2	1	3	—
Deaths (0–1 year)	514	41	70	44	40	405	54	63	63	15
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	6,565	923	828	320	210	4,970	813	639	275	144
Annual death rate (per 1,000 persons living)			18·8	20·6	§			14·7	18·0	§
Live births	7,002	712	819	350	238	6,620	816	879	391	274
Annual rate per 1,000 persons living			16·4	22·6	§			17·9	25·5	§
Stillbirths	218	19	30			224	24	31		
Rate per 1,000 total births (including stillborn)			35					34		

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* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Yaws and Immunity to Syphilis

Q.—*Does yaws confer partial or complete immunity against syphilis?*

A.—The general consensus is that yaws confers a very substantial, if not a complete, immunity against syphilis.

Incidence of Breast-feeding

Q.—*Is it true that modern women are becoming less able to breast-feed their children? If so, is there are correlation between this and the increasing use of general anaesthesia in labour?*

A.—It depends on what is meant by being "less able" to breast-feed. If it is the inherent ability of modern woman to lactate, an automatic process initiated by an endocrine mechanism and maintained by suckling, which is in question, then surely in this respect she is as well equipped as women in the past—and even better, for her general health is likely to be on a higher level. If modern woman could be divorced from modern conditions of life, there is little doubt that she would nearly always succeed in breast-feeding. Under rural conditions a far higher proportion of women (it has been estimated at 95%) breast-feed their children than do women living in a city.

Although the reason for discontinuing breast-feeding is often recorded as "insufficient milk," suggesting a possible intrinsic deficiency on the part of the breasts, the *primary* causes are often extrinsic, such as: return to domestic work with insufficient help in the home (50%); bad management on the part of nursing and medical attendants; over-anxiety of the mother about her child's progress, with the means for artificial feeding readily available; no desire to breast-feed, mainly for convenience and selfish reasons, etc. During the war an increasing number of women are being confined under the artificial conditions of hospital rather than in the more natural atmosphere of their own homes; the shortage of nurses makes it impossible for them to devote enough time to the individual instruction of the woman during the early days of breast-feeding; the absence from home of the husband, causing anxiety in itself, also leaves the woman with greater domestic responsibilities and worries.

Not all published work supports the contention that there has been a big decline in breast-feeding if the present is compared with the remote past, and a further decline in the last 20 to 30 years. J. C. Spence (*British Medical Journal*, 1938, **2**, 729) concluded that the incidence is declining, but M. Robinson (*Arch. Dis. Childh.*, 1939, **14**, 529) found that among women attending welfare clinics it was approximately the same throughout the twenty years 1918–37. The British Paediatric Association instituted an inquiry in Birmingham covering the years 1938, 1941, 1942, and concluded there was no evidence to show that, up to that time, war conditions had had any effect on breast-feeding (*Lancet*, 1943, **1**, 78).

There is no reason to believe that anaesthesia during childbirth has any effect whatever on lactation. Even if some analgesic drugs make the baby drowsy during the first 24 hours and this interferes with suckling during that time, it is insufficient to affect lactation.

Drunkenness and Suicide

Q.—*Do really drunk persons often attempt or commit suicide? I have just had to deal with a very drunk and depressed man, who vigorously stated his desire and intention to kill himself because of domestic worries. I do not consider him a psychotic.*

A.—The threats of the drunken need not be taken very seriously, but they should not be ignored. Suicide is quite frequent in addicts of all kinds. After dealing with the emergency, the man should be interviewed when in a state of sobriety and the degree of depression and its causes then gone into. It may then very likely appear from the sincerity of the man's manner that he is genuinely depressed, that he took to drink to drown his sorrows, and that lurking at the back of his mind is the idea of suicide, coming to open expression when alcohol had removed some of his inhibitions.

Urticaria Caused by Exposure

Q.—*A married woman of 33, accustomed to weather of all kinds, has recently developed urticarial wheals on her face after brief exposure to cold, and particularly to wind. They occur to a lesser extent in the fissures of the elbows and knees, and the forearms, thighs, and hands. She describes a feeling of heat and irritation, then numbness, as though the affected parts were frozen. The wheal stage lasts about 10 minutes, and the cold stage until she comes into room atmosphere, when it rapidly passes. In the later stage the face appears bloodless, and the affected tissues are slightly swollen and hard to the touch. The condition is a hindrance to the pursuit of her calling as a riding mistress.*

A.—The unusual condition described above may be an example of urticaria brought about by cold. The mechanism seems similar to that which causes paroxysmal haemoglobinuria, with which it is sometimes associated, a blood-carried dermolysin becoming fixed to the skin cells when the temperature is reduced, and "lysing" them when the skin is warmed, setting free H-substance, by which the wheal formation is caused. The distribution on the face and flexures corresponds to a relatively common form of eczema which may urticate and resemble true nettle-rash; but the description of the eruption—i.e., wheal formations without any accompanying eczematizations—seems to exclude an eczematous reaction of this kind. The occupation of the patient and contact with horses perhaps require further investigation.

There is no more difficult problem than the investigation and treatment of urticaria. Although less than half of the cases come into the group of allergic diseases, nevertheless non-specific desensitization may be tried, by whole-blood injections or by intramuscular injections of peptone. In others, small doses of sedatives or dilute hydrochloric acid after meals prove helpful. The application of zinc cream to the exposed skin has sometimes a protective effect. The duration of the disease is not mentioned, but it would seem to correspond with the recent cold spell.

Testosterone for Chronic Mastitis

Q.—*In the reply to the question on chronic mastitis (Feb. 3, p. 172) it is stated that conservative treatment should include the administration of hormones in suitable cases. Which hormones are indicated, and in what type of case is hormone therapy likely to be most effective?*

A.—In the type of mastitis in which both breasts feel shotty and tender, in which pain and tenderness are worse at menstrual periods, and in which there may also be abnormality of menstruation itself—commonly menorrhagia—hormone treatment is often effective. Testosterone ointment can be used with benefit; and when given by inunction there is not sufficient of the substance absorbed to produce the undesirable effects which may follow larger doses of testosterone.

Calcium for Rickets

Q.—*Is there any evidence that intravenous or subcutaneous injections of collosal calcium or calcium borogluconate are of value in the treatment of rickets?*

A.—There is no evidence that the intravenous or subcutaneous injection of calcium compounds is of value in the treatment of rickets, which is a disease due to vitamin-D deficiency. No amount of calcium in the absence of sufficient vitamin D will cure rickets. If, however, there is any evidence of deficiency of calcium as well as of vitamin D, it is advisable to supplement the diet with the former, best given orally as calcium phosphate grains 10 daily.

Loss of Spatial Orientation

Q.—*A man aged 75, previously in good health, had while bending down an attack of momentary impairment of consciousness followed by loss of vision. Ten days later he was found to have bare perception of fingers; there is a general restriction of the peripheral field of vision, almost a bitemporal hemianopia. He has lost his sense of spatial orientation (he cannot point to the door though sitting in his accustomed chair in his own room, and he cannot visualize the relationships between his cottage and the other buildings in the hamlet in which he has lived all his life). The nervous system is otherwise normal; there is no astereognosis; the disks and fundi are normal except for slight arteriosclerosis; and the blood pressure is 180/110. Could you tell me where his lesion is most likely located and what is the prognosis for recovery of vision?*

A.—The loss of spatial orientation gives a clue to the location of the lesion in this case. This symptom is always the result of a lesion in the parieto-occipital region, usually on the left side in right-handed persons, though some forms of disorientation may be produced by a lesion of the same area in the right hemisphere, and there is evidence that the most severe spatial disorientation is produced by bilateral lesions. A lesion of the left parieto-occipital region would be likely to produce a right homonymous hemianopia and would not explain the loss of vision in both temporal fields. The most likely explanation in the present case is that there was a previous patch of vascular softening in the right parieto-occipital region causing a field defect which had passed unnoticed until a fresh lesion on the left side caused the spatial disorientation and added to the visual-field loss.

Regression to Infantile State

Q.—*A little girl just under 2 years old pulls out a lump of her hair, screws it in a ball with her hand, sucks her thumb, and at the same time rolls the hair with the remaining fingers. She also does this with any lumps of fluff that may be handy, such as bits of a blanket, cotton-wool, etc. She is a normal healthy child, and only does this when alone in her pram or in bed, in spite of other attractions such as toys.*

A.—This (or similar activities) is a common practice among children. It is simply a recapitulation of the infantile state at the breast. The infant at the breast not only sucks the nipple, but often "kneads" the breast with its hands, which is probably a biological movement of squeezing the milk out of the breast. This child, deprived of the breast, is indulging in breast activities with breast substitutes—the thumb for the nipple, the hair for the breast (it is often a silk handkerchief or a satin quilt—anything, in fact, that has the soft, smooth feel of the breast). It is characteristic that this activity takes place when she is alone or in bed—that is to say, when inactivity facilitates a regression to the infantile life. It is best to do nothing at all rather than do anything to annoy the child, which will make her cling all the more to the "breast" of which she feels deprived; and she will probably grow out of it. But the gradual substitute of some other loved object like a teddy bear will facilitate the break-away.

Obesity after Parturition

Q.—*A primipara aged 23 whose periods were previously irregular (28–36 day cycle) gave birth to a healthy child 6 months ago. She was unable to breast-feed it. When lactation failed after 5 days she had a short course of stilboestrol. Her periods returned after 3 months but her cycle has been even more irregular (40–50 days). She has gained 1 st. since parturition. Should endocrine therapy be undertaken?*

A.—This seems to be a case of anterior pituitary deficiency, as evidenced by the scanty periods, rapid gain in weight, and the failure of lactation. It would be well to exclude a pituitary tumour by an x-ray examination of the sella turcica. It must be remembered, however, that irregular menstruation is frequently a feature of the first year after parturition, even in the absence of lactation. The most urgent symptom in this case seems to be the rapid gain in weight. The patient should be put on a diet consisting strictly of 1,000 calories until the weight has returned to normal. Small doses of thyroid may also be helpful. It is often found that when the metabolic disturbance is corrected in this way menstruation also becomes normal. If this does not occur in this case, it would be worth while to try the effect of small doses of stilboestrol—say, 2 mg. a day for one week in every four. Success may also be achieved with anterior pituitary hormones, and a preparation which combines the anterior pituitary follicle-stimulating hormone with luteinizing hormone from pregnancy urine has proved useful in many cases. As an alternative, small doses of *x* rays to the pituitary and ovaries often give good results. In the dosage employed for this purpose the treatment seems to be safe in the hands of experts.

Intercourse after Caesarean Section

Q.—*What time interval should elapse between (a) classical Caesarean section, and (b) lower-segment Caesarean section, and sexual intercourse—i.e., if post-operative recovery is satisfactory?*

A.—In an answer to a recent question on the resumption of coitus after natural delivery (*B.M.J.*, 1944, **2**, 874); the opinion was expressed that for the average case it is reasonable, and permissible, without risk one month after delivery. After Caesarean section the incision in either the upper or the lower segment heals rapidly, and its presence does not alter the position to any great extent. In the lower-segment operation, however, the cellular tissue in front and at the side of the supravaginal cervix is opened up, and small haematoma formation and low-grade cellulitis at that site are always possible. These may be slight and not sufficient to give rise to any clinical signs, but an early resumption of coitus might cause an exacerbation. There is, therefore, something to be said for deferring coitus for a longer time after lower-segment than after upper-segment Caesarean section (say, 6 weeks and 4 weeks respectively). When such a time has elapsed the most important consideration is the general well-being of the woman, and it is only to be expected that it will take longer for her to become strong and fit after Caesarean section than after normal delivery. This, however, is not always the case and there are wide individual variations. It is difficult to generalize on such a matter, and every case must be judged on its merits. Perhaps the best guide is the woman's own desire; so a patient could be told that after 4 or 6 weeks coitus is safe, and thereafter she should follow her natural inclinations.

Gold, Jaundice, and Tuberculosis

Q.—*I have been giving small doses of a gold compound for 6 months to a woman aged 33 with pulmonary tuberculosis and diabetes mellitus. She had a severe attack of infective jaundice (two other cases in the same house). What interval should elapse before resuming the gold compound? She is an intelligent woman and controls her diabetes completely with insulin and diet.*

A.—When jaundice occurs during antisyphilitic treatment it is generally agreed that arsenicals may be resumed when the patient has been free from all signs of jaundice and disturbed function of the liver for at least a month—i.e., about three months after the acute attack. Gold is probably less hepatotoxic than arsenic, and the same rule might therefore be applied in the present case

Sterility after Orchitis of Mumps

Q.—*A man now aged 34 years had mumps with severe orchitis in 1938. He has been married for 6 years and is anxious to have a family. His testes are small and atrophic, and examination of the seminal fluid shows complete absence of spermatozoa. He states that his testes were of normal size previous to having mumps. Is it likely that he will ever have a family? Would he benefit by hormone treatment, and if so, what?*

A.—It is unlikely that this patient will ever be able to have a child, even if he submits to long and expensive treatment. At the present time we have no hormone which is very successful in stimulating the activity of the tubules, and those which are being employed are usually very expensive. I would advise this patient to accept the fact that he is sterile.

Erythrocyanosis Crurum Puellarum Frigida

Q.—*Will you discuss the aetiology and treatment of the disfiguring condition known as erythrocyanosis crurum puellarum frigida?*

A.—The deformity is almost entirely confined to women, and especially young women, and consists of a permanent chilblain-like erythema of the ankles and legs. Parkes Weber attributed the condition to a change of fashion—short skirts and thin stockings—and it is a fact that it first appeared when this new mode of dress was adopted. Many explanations have been offered, but probably the constant change in the temperature affecting an extremity seems the most plausible; on the other hand, the erythema persists throughout the summer. As the most logical remedy—the wearing of warmer and longer garments—is never adopted, the next best is probably infra-red light and massage. Ganglionectomy is likely to fail, and is at best only of temporary benefit. The number of different forms of treatment recommended is evidence of their general inadequacy

"Under the Influence"

Q.—*A doctor may be asked to examine a person alleged to be under the influence of drink (a) who is known to him, and (b) who is a complete stranger. What constitutes a sufficiency of medical evidence in court to ensure conviction in a case of drunkenness? What clinical examination and investigation must be made by the doctor to enable him to present a case which will withstand the attack of cross-examination?*

A.—It is immaterial, from a legal standpoint, whether the practitioner knows the person to be examined or not, but if private information likely to affect the issue has been acquired in the confidential doctor–patient relationship it is advisable that he should refuse to undertake the examination.

It is asked what medical evidence will secure conviction in a case of drunkenness. If the person is drunk there is usually no difficulty in arriving at a definite conclusion, but the case is otherwise when he is charged with being "under the influence of drink to such an extent as to be incapable of having proper control of a vehicle," as is the case under the Road Traffic Act, 1930, in which only a moderate amount of drink has been taken.

There is no specific sign or symptom of alcoholic intoxication It is a gradual process and varies in different individuals to a remarkable extent. Diagnosis depends upon the consideration of a number of signs and symptoms, no one of which by itself can be relied upon. These have been well described in the *B.M.J.* of Feb. 19, 1927 (p. 345), which the questioner should consult. In general, it will be found that there is a definite smell of stale alcohol in the breath, alteration of behaviour, slight difficulty in articulation, loss of memory for recent events leading up to the accident, tremors of the tongue, lips, or hands, hiccup, suffusion of the conjunctiva and watering of the eyes, difficulty in co-ordination shown by slight swaying in the Romberg test, fumbling when bending down to pick up a small object from the floor, clumsiness in manipulating small objects on the desk, a tendency to sway when turning quickly after walking across the room, clumsiness in handwriting. The blood pressure is usually reduced and the pulse rate increased, and the temperature tends to be subnormal. The pupil is sluggish in reaction. In addition to the observation of these tests a sample of blood should be taken for chemical examination if this is possible. If not, the urine should be examined. The amount of alcohol present in the blood or urine gives a precise indication of the amount in the body at that time and forms extremely useful corroborative evidence. Ordinarily, if there is anything approaching 0.15% of alcohol in the blood the person is "under the influence of alcohol."

Sedatives for Sudden Grief

Q.—*What is the best way of dealing with acute grief, caused, for example, by the sudden and tragic death of a husband? Should sedatives—e.g., bromides, chloral, phenobarbitone—be given immediately, or withheld until the initial mental shock has given place to realization? Is there any foundation for the saying, "She must weep or she will die"?*

A.—There can be no fixed answer to this question. If the capacity to bear grief is sufficient to do without drugs, so much the better. Loss of a night's sleep does no harm to a healthy person and may pave the way to healthy fatigue and forgetfulness. If, however, the sufferer asks for a hypnotic, there is no reason to withhold it. The best choice is a quick-acting barbiturate, such as nembutal grains 3 or medinal grains 10. The hypnotic, if used, should be given at whatever time after the blow the symptoms demand it. The full realization of tragedy may come to some persons at once; for others it may be delayed, so that a dazed state may precede the appearance of acute grief. The expression of grief in weeping, however, is not necessary for its healing. The hypnotic, when it is needed, secures not only the relief of anguish, but, what is more important, the sleep which is necessary for the fullest psychological adjustment in the day, and from day to day. Sedatives in the day-time are best avoided as interfering with the process of normal adjustment.

LETTERS, NOTES, ETC.

Case of Peritoneal and Pleural Effusion

Dr. H. C. MUKERJI (Maidstone) writes: Referring to a case of peritoneal and pleural effusion (Feb. 17, p. 245), may I suggest that one of the commonest pathologies for such a case is tuberculosis. I have at the present time a similar case in hospital. He is a man of 27, with tuberculous peritonitis, and the past *x*-ray films of his chest show bilateral pleural effusion, which cleared up in a month. Incidentally the amount of free fluid in his peritoneal cavity has also decreased perceptibly. This is not an isolated case. I am collecting a series of similar cases, and hoping to write them up in the near future. Lymphocyte count and animal inoculation of "fluid" in such cases are of great help.

Oxalated Blood for Cell Counts

Dr. S. F. MARSHALL (London, W.1) writes: I should like to support what Dr. C. J. C. Britton says (Jan. 20, p. 106) on this subject. There has been much unwarranted criticism of what is a very useful method. It is, of course, granted by all that direct collection of blood is the ideal, but where this is not possible one has cause to be grateful for this alternative. As Dr. Britton says, the usual cause of error is the use of excessive oxalate for the amount of blood sent, the so-called "knife-point" added to tubes being usually in the nature of half a teaspoonful. Where the correct amount is used the next common source of error is failure to shake the tube adequately at once by the person taking the blood, or again at the time of making the actual dilution for the count. Films should be made direct, and, where this has not been done, immediately on receipt. The polymorphs soon degenerate, whereas the lymphocytes appear hardier. The nuclei of the former become round and densely staining after a few hours, causing difficulty in distinguishing the two types. Incidentally I have found that the use of potassium oxalate alone—0.5 c.cm. of a 2% solution evaporated in an oven at 120° C. for 10 to 15 minutes in the blood tube—appears to cause no change in shape or size of the red corpuscles. I have carried out many hundreds of counts with this, one advantage being that blood urea estimation may be made on the same sample if needed. This amount of oxalate—10 mg.—is as before made up for exactly 5 c.cm. of blood.

Romberg's Sign

Dr. A. WATT (Grimsby) writes: As many must have noticed, the omission of any reference to vestibular afferents in the answer to the question on this sign (Jan. 20, p. 106) does not allow the complete physiological picture to be drawn. Whereas this does not affect the reply to the first part of the question, it does nevertheless render incomplete that given to the second, as certain pathological possibilities are not thereby allowed for. In health, three groups of afferent impulses provide the intelligence which the brain draws upon to order the maintenance of posture. These are: (*a*) kinaesthetic impulses (joints, tendons, etc.) and deep pressure from the soles of the feet; (*b*) visual sensation; (*c*) impulses from the semicircular canals. Provided always that the afferent pathways and the structures actuated thereby are functioning, only two of these three groups are necessary. In the event of contradictory information from the three being received (as, for instance, experimentally, or in attacks of vertigo, etc.) the relative strength of the stimuli decides whether the response shall be the maintenance or loss of posture. The sufferer from tabes, etc., falls on carrying out Romberg's test as he is left with *c* only. But a positive Romberg's sign would also be given by an individual who had lost *c* through disease, having to rely on *a* alone. Thus the sign merely demonstrates that *a* or *c* is missing, and to decide which a further test becomes necessary. Any method of disturbing the semicircular canals will suffice—for example, the well-known one of instructing the patient to walk around an upright walking-stick held by him on the ground with his forehead resting on the handle. After five turns he is asked to stand upright with his eyes open. The tabetic, etc., will immediately fall, in fact may have been unable to complete the test, whereas he whose vestibular sensation is already cut off by disease will remain erect, having *a* and *b* to guide him. Theoretically this test might well replace Romberg's, but in practice it is cumbersome and great care is required in assessing the number of rotations necessary, as after ten even a healthy person will fall, since the vestibular then become the strongest of the contradictory stimuli.

Intravenous Anaesthesia for Torn Perineum

Dr. W. B. GOUGH (Birmingham) writes: I should like to add to your answer in "Any Questions?" (Jan. 20, p. 104) on intravenous anaesthesia for the torn perineum. I have tried local analgesia and for that matter analgesic doses of trilene or chloroform or no anaesthetic, and without two reliable assistants have found it impossible to be certain of getting that good exposure which is essential to a proper repair. I have, however, used evipan or pentothal 0.5-g. doses in some scores of cases with complete satisfaction to myself and the patient, even when only a relative or even no assistance is available. I do not defend this except on grounds of expediency, nor would I advise it to one inexperienced in intravenous anaesthesia, though I believe it to be quite safe. The secret is twofold. Have the patient in the lithotomy position using an obstetric helper with spreader, and then, providing there is no contraindication, give 0.5 g. as rapidly as possible; failure to do this will necessitate a larger and therefore possibly dangerous dose. I have not had any anxiety about the patient's condition nor does the uterus seem to relax. For this reason I do not consider intravenous anaesthesia suitable for examinations, versions, or forceps deliveries unless the head is low and on the perineum. The baby does not seem to be more affected by this than by volatile anaesthetics.

Myocardial Degeneration

Dr. F. E. LOEWY (London, N.W.8) writes: I should like to add mercurial diuretics to the remedies recommended for the treatment of pulmonary oedema under "Myocardial Degeneration" (Jan. 6, p. 33). These cases often have congestion of lungs and liver only without any visible oedema. I am giving neptal, starting with 0.5 c.cm. intramuscularly, besides morphine and digoxin as soon as restlessness with cough and dyspnoea at night (cardiac asthma) indicates a rudimentary oedema of the lungs. Neptal injections are repeated and increased according to the effect on urine output and general condition. They can be given at intervals of one or two weeks for several years and form one of our best means of preventing cardiac asthma and pulmonary oedema.

Herpes and Varicella

Drs. R. HUNT-COOKE and I. E. D. MCLEAN write: The following note is submitted for record, showing the relationship between varicella and herpes zoster. A Covent Garden foreman porter aged 63, retired owing to bronchiectasis and cardiac debility, developed herpes on Jan. 1, 1945. The spots were typical herpes vesicles on an inflamed base, associated with severe persistent pain causing insomnia. The eruption and pain persist to the time of writing (Jan. 28). The distribution of the eruption is the skin over the right scapula extending round to the side and front of the chest, and affects the medial and posterior parts of the skin of the right arm. A girl aged 4½ years developed varicella on Jan. 24, 1945. On that day an eruption of irritative transparent vesicles appeared without other symptoms, sparsely affecting the head, face, trunk, and limbs. These dried and were succeeded by a few more vesicles two days later. This girl was living in the same house as the patient with herpes zoster. Her parents state that she had not been in contact with chicken-pox, and no local cases of varicella are known. This child is not at school and not attending a day nursery. The conclusion is that the varicella developed from the herpes zoster and the time interval was fifteen days.

BRITISH MEDICAL JOURNAL

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THE INCIDENCE OF PEPTIC ULCER AT ST. THOMAS'S HOSPITAL, 1910–37

BY

Sir HENRY TIDY, D.M., F.R.C.P.

Consulting Physician to St. Thomas's Hospital

Admissions for peptic ulcer to St. Thomas's Hospital between 1910–13 and 1922–37 are here examined to obtain an indication of the trends. The hospital was in military use during the irst world war, and records between 1914 and 1921 are not available or not satisfactory. Anastomotic ulcers have not been ncluded, nor have admissions for haemorrhage in which the diagnosis was not established. For the period 1910–13 the accuracy of diagnosis in the living may be doubtful. For the period 1922–37 most diagnoses were confirmed by radiographs, operation, or necropsy.

Periods of four years have been frequently used in order to obtain sufficient numbers for comparison. In 1910–13 admissions for peptic ulcer numbered 463, and in the sixteen years 1922–37 they numbered 3,336 (Table I). There are various methods by which the incidence can be recorded and charted o show the trends. By one method the actual numbers of admissions are compared, and this has the advantage of being easily followed. But accuracy of the trends and the relation of he trends to each other are dependent on the number of beds remaining reasonably constant and being approximately the same for the two sexes. For example, the total number of admissions in 1910–13 was about two-thirds of the later periods. Another method is to record the hospital admission rates—hat is, the proportion which admissions for the disease in question bear to the total hospital admissions. This method eliminates differences in the bed complements and numbers of admissions, and also gives an index which can be used for comparison between different hospitals. A difficulty of the method is to decide what admissions should be accepted for the denominator. It was decided here to omit admissions for pregnancy. A second point is that the incidence of peptic ulcer is very low under 20 years of age and total hospital admissions consequently contain a large block of dead weight in this age group. A further point is that the rates for the groups over 40 and under 40 years—the latter practically being between 20 and 40 years—should properly be calculated on the admissions in each age group. Few hospitals would be able to give such figures over a series of years without great labour. At St. Thomas's Hospital they are obtainable fairly easily between the years 1922 and 1929 (Table II). Admissions in the three age groups and for the two sexes do not differ grossly from each other. Hospital admission rates based on these age- and sex-group admissions thus show approximately the same trends and the same relation of the trends as when calculated on the total admissions for each sex, although the resulting index is necessarily different. It was therefore decided not to undertake the labour of counting such admissions. Hospital admission rates therefore, when here used, are calculated on total admissions at all ages for the sex concerned, omitting admissions for pregnancy.

The number of admissions, deaths, and hospital admission rates (H.A.R.) are recorded for four-year periods in Table III, subdivided for gastric ulcer and duodenal ulcer, sex, and age groups under and over 40 years. Annual admissions for males are recorded in Figs. 1 and 2 and for females in Fig. 3. Mean

TABLE I.—*Summary of Admissions for Peptic Ulcer*

	Admissions			Ratio ♂ to ♀
	Total	Male	Female	
1910–13:				
Gastric ulcer	319	114	205	0·6
Duodenal ulcer	144	138	6	23·0
Ratio G.U. to D.U. ..	2·2	0·8	34	(1·2)
1922–37:				
Gastric ulcer	2,189	1,580	609	2·6
Duodenal ulcer	1,147	1,025	122	8·4
Ratio G.U. to D.U. ..	1·9	1·5	5	(3·6)

Ratio of sexes gives the figure for males, regarding females as unity.
Ratio for G.U. and D.U. gives the figure for G.U., regarding D.U. as unity.

TABLE II.—*Annual Admissions by Age and Sex Groups*
(00 omitted. Includes all admissions except for pregnancy)

	Males			Females		
	Age Groups (years)			Age Groups (years)		
	0–20	20–40	40–	0–20	20–40	40–
1922	11	10	12	9	10	11
1923	13	13	13	11	13	12
1924	14	13	14	12	11	13
1925	15	14	14	12	14	14
1926	15	14	15	12	14	14
1927	14	15	15	12	13	14
1928	14	15	16	11	15	15
1929	13	17	17	12	15	16

1910–13: Annual admissions for males about 3,100; for females, about 2,800.
1930–37: Annual admissions for males, range 4,550 to 4,700; for females, range 4,150 to 4,350.

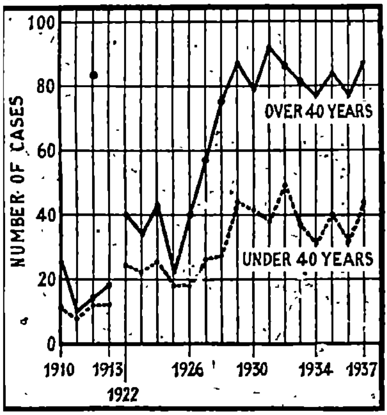

FIG. 1.—Males. Annual admissions for gastric ulcer.

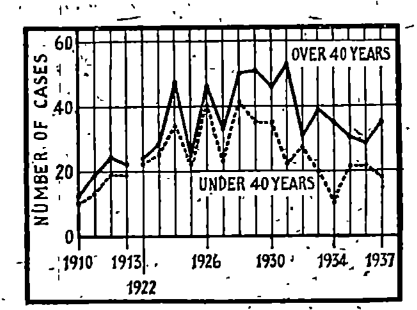

FIG. 2.—Males. Annual admissions for duodenal ulcer.

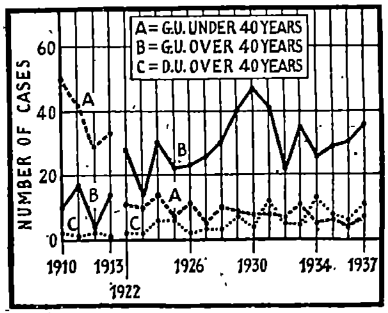

FIG. 3.—Females. Annual admissions for gastric and duodenal ulcer.

TABLE III.—*Peptic Ulcer: Admissions and Deaths*

	Period	Total Admissions	Under 40 Years			Over 40 Years			Hospital Admission Rates	
			Admissions	Deaths	Case Mortality %	Admissions	Deaths	Case Mortality %	Under 40 Years	Over 40 Years
						Males				
Gastric ulcer	1910–13	114	47	9	19	67	16	24·0	0·39	0·54
	1922–25	228	89	8	9	139	27	19·4	0·57	0·90
	1926–29	374	115	4	3·5	259	40	15·0	0·64	1·48
	1930–33	503	165	12	7·2	338	45	13·6	0·89	1·79
	1934–37	475	150	3	2	325	38	11·6	0·80	1·73
	Total 1922–37	1,580	519	27	5·2	1,061	150	14·1		
Duodenal ulcer	1910–13	138	61	9	15	77	27	35·0	0·50	0·62
	1922–25	233	110	7	6·4	123	14	11·5	0·72	0·78
	1926–29	321	140	3	2	181	24	13·0	0·80	1·04
	1930–33	272	103	9	8·8	169	18	11·0	0·55	0·90
	1934–37	199	70	4	6	129	15	11·6	0·38	0·69
	Total 1922–37	1,025	423	23	5·4	602	71	11·8		
						Females				
Gastric ulcer	1910–13	205	160	11	7	45	7	16	1·47	0·43
	1922–25	136	42	2		94	9		0·30	0·67
	1926–29	152	35	1		117	11		0·21	0·74
	1930–33	178	34	2		144	14		0·17	0·73
	1934–37	143	22	—		121	11		0·12	0·67
	Total 1922–37	609	133	5	4	476	45	9		
Duodenal ulcer	1910–13	6	1	—		5	1		0·01	0·04
	1922–25	21	5	—		16	1		0·03	0·11
	1926–29	23	6	—		17	2		0·04	0·10
	1930–33	33	6	3		27	2		0·03	0·14
	1934–37	45	14	1		31	3		0·07	0·16
	Total 1922–37	122	31	4		91	8	9		

Hospital admission rates are expressed as percentages of total admissions at all ages for the sex concerned, excluding pregnancy in females.

hospital admission rates for four-year periods also are recorded in a graph (Fig. 4), and give a general view of the trends over the period.

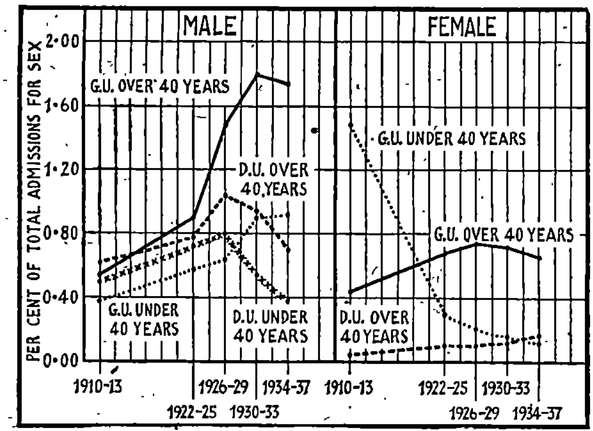

FIG. 4.—Hospital admission rates for peptic ulcer in four-year periods

General Features of the Trends of Admissions

The number of admissions, and the H.A.R. for gastric ulcer in males over 40, rose slowly from 1910–13 to 1922–5. It then rose so rapidly between 1925 or 1926 and 1929 that it more than doubled. Subsequently the rise ceased, but the level was maintained. While the rates for the four groups—viz., G.U. and D.U. under and over 40 years—in males were close together until 1925, this group now far exceeded the others. The trend for gastric ulcer under 40 years is not dissimilar to that for the older group, but the rises are less and the rates on a much lower level; the rise is slight until 1926, but there is then a fairly sharp increase to a maximum in 1929 or 1932, followed by a level rate or possibly a slight fall.

The trends for duodenal ulcer differ from those for gastric ulcer. The trends for the two age groups of D.U. are close together throughout, unlike those for G.U. There is an irregular rise in both age groups to a maximum about 1928–9. Subsequently there is a rapid fall, so that the H.A.R. in 1934–7 for the age group over 40 is only slightly higher than in 1910–13, while for the group under 40 it is definitely lower.

For females there is a spectacular fall in admissions for gastric ulcer under 40 years. While in 1910–13 it was the largest single group of peptic ulcer for either sex, it is now almost extinct. Gastric ulcer over 40 years in women showed a steady rise until 1930, but without the rapid increase seen in males and at a much lower rate. Admissions tended to fall again after 1930. Admissions of females for duodenal ulcer both over and under 40 years are very few. Both age groups show a slight, but only slight, increase. As with males, the rates in the two age groups are close together for D.U. and widely apart for G.U.

There are no other hospital statistics at present by which these results can be checked. They can be compared to some extent for certain periods with the course of the death rates for London (Administrative County), although unfortunately G.U. and D.U. are not separated in the Registrar-General's Returns after 1930 (Tidy, 1944). The death rates for London show a very sharp rise for G.U. in males over 40 years from about 1921, the rate being more than doubled by 1930 (Fig. 5). The death rate for D.U. also doubled in this period, but was throughout about half that for G.U. The rate for G.U. was still rising up to 1930, but the rate for D.U. ceased to rise after 1928. Subsequent to 1930 the combined death rate for G.U. and D.U. in this age group suddenly ceased to rise and became almost stationary.

Deaths for males under 40 years for both G.U. and D.U. are small in number, but the rate showed a slight increase for each between 1921 and 1930, then fell again, and the combined rate was the same in 1937 as in 1921.

For females, the death rate for G.U. under 40 years had fallen rapidly for several decades and was still falling in 1930. For G.U. over 40 years the rate rose 50% between 1921 and 1930. After 1930 the combined rate for G.U. and D.U. in this age group is stationary; as deaths from D.U. are almost negligible, the combined rate is practically due to G.U., which therefore could not have been rising. Thus death rates and admissions after the war both show a rapid rise for males over 40 years, which suddenly ceased about 1930. The rise and the rates in both are much greater for G.U. than for D.U., and the rise stopped earlier for D.U. than for G.U. Both death rates and admissions show a 50% rise from gastric ulcer in females over 40 years, ceasing in 1930, which does not appear in the death rates for England as a whole or for Scotland. The fall in females under 40 years is common to the whole of Britain for several decades, the most rapid fall being between 1900 and 1920. Thus where the trends of the death rates for London and of the number of admissions, or of the H.A.R. for St. Thomas's Hospital, can be compared, they are in reasonable agreement. The trend of admissions to the hospital is in closer agreement with the death rates for London than with those for England as a whole.

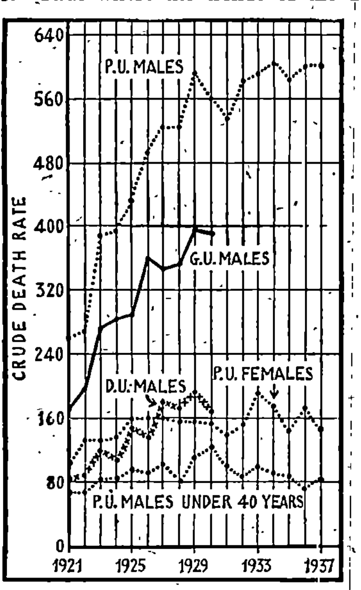

FIG. 5.—London (A.C.). Crude death rates over 40 years of age. Per million living in age and sex groups.

Ratio of Gastric to Duodenal Ulcer

The ratio has changed considerably in the course of 25 years, and consequently ratios based on a long period of years will be misleading. The ratios of G.U. to D.U. for all admissions in the four-year periods are respectively 2.2, 1.4, 1.5, 2.2, and 2.5 to 1. For the period 1910–13 the ratio was dominated by the prevalence of G.U. in young women, and the subsequent fall in the rate was due to decrease in this group. The later rises are due mainly to increase in G.U. and fall in D.U. in males. The trend of the ratios differs so greatly for the two sexes that these should be considered separately (Table IV).

TABLE IV.—*Ratio of Gastric to Duodenal Ulcer*

	Males			Females			Total Admissions
	All Ages	Under 40 Years	Over 40 Years	All Ages	Under 40 Years	Over 40 Years	
1910–13	0·8	0·8	0·9	34	160	9·0	2·2
1922–25	1·0	0·8	1·1	6·5	8·0	6·0	1·4
1926–29	1·2	0·8	1·4	6·5	6·0	7·0	1·5
1930–33	1·9	1·6	2·0	5·4	5·7	5·3	2·2
1934–37	2·4	2·1	2·5	3·3	1·5	4·0	2·5
Total 1922–37	1·5	1·2	1·7	5·0	5·0	5·2	1·9

1922–37: Females, all ages: $\chi^2 = 9{\cdot}13$, $n = 3$, $P = 0{\cdot}03$. For males, all ages, P is infinitesimal.

Figure of gastric ulcer is recorded, duodenal ulcer being regarded as unity. For numbers see Table III.

The ratio for males also varies with the age, rising progressively with each decade (Table V); but this result is based on the whole period 1922–37, during which various changes have occurred, the sum of which must be accepted with caution.

For the period 1910–13, in addition to the prevalence of G.U. in young women, it is noticeable that D.U. was in excess of G.U. for males in both age groups. For males over 40 years of age G.U. was slightly in excess of D.U. in 1922, and, after several years of equality, permanently became greatly in excess in 1927. For males under 40 years G.U. first and finally became in excess in 1929. An appreciable excess of G.U. over D.U. in males is thus a comparatively recent development in admissions to St. Thomas's Hospital, and the excess is still increasing, the ratios for all ages in the four four-year periods 1922–37 being respectively 1, 1.2, 1.9, and 2.4 to 1. G.U. was gaining over D.U. before 1930 because it was increasing more rapidly, and after 1930 because it was stationary while D.U. was falling.

TABLE V.—*Age Distribution of Peptic Ulcers and Perforations, 1922–37*

Age Group	Males							Females	
	Total Admissions		Ratio G.U. : D.U.	Perforations		Perforations % of Admission		Total Admissions	
	G.U.	D.U.		G.U.	D.U.	G.U.	D.U.	G.U.	D.U.
0–20	4	5	0·8	1	3	—	—	4	2
20–30	143	156	0·9	41	36	29	23	35	11
30–40	382	262	1·5	55	47	14·4	18	94	18
40–50	500	304	1·6	75	56	15	18	193	42
50–60	375	213	1·8	43	41	11·5	20	163	29
60–	176	85	2·1	25	22	14	26	120	20
All ages	1,580	1,025	1·5	240	205	15·2	20	609	122

Ratio of G.U. to D.U.: Figure for G.U. is recorded, D.U. being regarded as unity.

For females, G.U. has always been in excess of D.U., which is rare at any age, but the ratio has fallen from 34 to 1 in 1910–13 to 3.3 to 1 in 1933–6. The fall is principally due to the practical disappearance of G.U. under 40 years, but there may be a slight increase in D.U. Thus the ratio of G.U. to D.U. is rising for males and falling for females in both age groups. These changes are statistically significant.

Ratio of G.U. to D.U. in Private Practice

Physicians in the London area have been puzzled by the discrepancy between the ratios of G.U. and D.U. for private patients and hospital cases. Most physicians would agree that D.U. is considerably commoner than G.U. in consulting practice. There is a tendency to believe that private practice more correctly represents the ratio in the local population, and that for some reason hospital statistics are misleading. This view should not be lightly accepted. There are several factors which affect comparison between the two series.

1. Statistics of private patients are generally drawn from many years of practice, while the larger hospital statistics are usually from a few recent years. The statistics given here show how rapidly the relative incidence of G.U. in males has been rising recently among hospital patients in London.

2. Private patients are mainly drawn from a limited section of the community which falls largely into Social Class I (professional classes, etc.), while hospital patients are nearly all from Class III (skilled workers) to Class V (unskilled workers). The Registrar-General's Decennial Report, 1931, Part 2, gives the standardized mortality ratios for G.U. and D.U. for males of 20 to 65 years for the five social classes (Table VI). For Class I the rate for G.U. is 55% of the expected rate, for Class III 99%, and for Class V 127%. On the other hand, for D.U. there is no appreciable difference between the rates for the different classes. If these results apply also to the living, then D.U. in proportion to G.U. will be nearly twice as high in Class I as in Class V. (It must be noted that the actual ratios of G.U. to D.U. cannot be obtained by comparing the standardized mortality ratios for G.U. and D.U.)

TABLE VI.—*Standardized Mortality Ratios, Gastric and Duodenal Ulcers*

	Males: Age 20–65 Years				Married Women: Age 35–65 Years
	1921–23		1930–32		1930–32
	G.U.	D.U.	G.U.	D.U.	G.U. and D.U.
Social class I	72	126	55	101	53
„ „ II	87	109	76	106	98
„ „ III	96	91	99	99	99
„ „ IV	105	93	109	93	99
„ „ V	127	113	127	107	118

From the Registrar-General's Decennial Report, 1931, Part 2.

There are other factors which affect comparison of private and hospital patients, such as age and sex distribution, and the areas from which material is drawn. An urban population in England tends to have a higher incidence of G.U. than a rural area, and hospital patients are, in general, urban residents, while private patients are drawn from wider areas. Hence the ratios of G.U. to D.U. in private practice and hospital patients are not necessarily comparable.

Sex Incidence

The sex incidence differs so greatly for G.U. and D.U. that these should be considered separately. For each ulcer the ratio has changed steadily between 1910 and 1937, but in opposite directions, and the ratio for the two ulcers combined—i.e., for peptic ulcer—is of little value (Table VII). The relative incidence of males has been rising for G.U. and falling for D.U. Both changes are statistically significant. Ratios based on a long period of years may be misleading, and the common statement that the sex incidence remains constant at 3 males to 1 female gives an erroneous impression of constancy of the ratio in the two types of ulcer.

Table VII.—*Ratio of Males to Females*

	Gastric Ulcer			Duodenal Ulcer			Peptic Ulcer
	All Ages	Under 40 Years	Over 40 Years	All Ages	Under 40 Years	Over 40 Years	Total Admissions
1910–13	0·6	0·3	1·5	23	61	15	1·2
1922–25	1·7	2	1·5	11	22	8	3
1926–29	2·5	3	2·2	14	23	11	4
1930–33	2·7	5	2·2	8	17	6	3·7
1934–37	3·3	7	2·7	4·5	5	4·3	3·6
Total 1922–37	2·6	3·9	2·2	8·4	14	7	3·6

1922–37: G.U. over 40 years: $\chi^2 = 11{\cdot}47$, $n = 3$, $P = 0{\cdot}01$.
1922–37: D.U. all ages: $\chi^2 = 20{\cdot}30$, $n = 3$, $P =$ less than 0·01.
Figure for males is recorded, females being regarded as unity. For numbers see Table III

In the period 1910–13 there was little difference between the two sexes for peptic ulcer as a whole. D.U. was practically unknown in females, but in G.U. under 40 years women predominated, and formed the largest of all groups. The excess of females in this group disappeared between 1913 and 1921. The previous preponderance of this group and its rapid fall have influenced sex ratios for the last 50 years, as also the ratios for G.U. and D.U. While this group is now very small, the fall in admissions and in the hospital admission-rates can be recognized up to the last period, so presumably a few cases of the same type are still occurring. Since the disappearance of this group, males have been heavily in excess in all groups, especially at younger ages. The rarity of D.U. in women is noticeable. For D.U. under 40 years only 31 women were admitted in 1922–37, in contrast to 423 males.

Age Incidence

In the period 1922–37 admissions were highest in the decade 40–50 years, both for G.U. and D.U. and for both sexes (Table V). For females the proportion of admissions below 40 years is now less than in males, and the average age is higher (see Table II). The average age of admissions for G.U has been increasing in both sexes, but in males it has been mainly due to increasing numbers over 40 years and in females to decreasing numbers under 40 years. General estimates of age incidence based on long periods are of little value, for age incidences have been influenced by two factors which have been rapidly changing during the period under consideration. The most important is the practical extinction of the formerly predominant group of G.U. in young women. In 1910–13 and probably for some years subsequently the size of this group caused the mean age for peptic ulcer to be much lower in women than in men. In previous decades the difference was even greater. The disappearance of this group resulted in peptic ulcer in a short time becoming very rare in young women, causing a rapid rise in the mean age considerably above that for males. The rapid increase in G.U. in males over 40 years, and to a lesser degree in D.U., between 1920–30 raised the mean age for males, but it still remained below that for women.

Incidence of Perforations

In the period 1922-37 admissions for perforated peptic ulcer numbered 478. There were 263 perforations among 2,189 admissions for G.U., forming 12.1%, and 215 among 1,147 admissions for D.U., forming 19.1%. The difference between these percentages is statistically significant (7±1.31). We have no reason to believe that there was selection at any point in favour of perforated D.U. or, conversely, in favour of non-perforated G.U. On the data here available the difference may be held to indicate that D.U. has a greater liability to perforate than G.U. This is in accordance with the general belief of clinicians, but is a provisional suggestion on the present data. The differences between the percentages of perforations to admissions for G.U. and D.U. are significant separately for males (4.8±1.54) and for females (4.4±2.06).

Among males G.U. perforations numbered 240 and D.U. 205, and among females G.U. numbered 23 and D.U. 10. Males constituted 91% of admissions for perforated G.U. and 95% for D.U. This high proportion in males is not wholely accounted for by the greater incidence of peptic ulcer. Perforations form 17% of male admissions and only 4.5% of female. The difference in the percentages between the sexes is statistically significant both for G.U. (11.4±1.55) and for D.U. (11.8±3.74). There is no reason to believe that there was any selection which would influence these results. The difference may be held to indicate that, given an ulcer is present—either G.U. or D.U.—the liability to perforate is greater in a male than in a female.

Table VIII.—*Incidence and Mortality of Perforations*

	Period	Under 40 Years				Over 40 Years				Total Perforations
		Perforations		Deaths		Perforations		Deaths		
		No.	% Cases	No.	% Perfns.	No.	% Cases	No.	% Perfns.	
		Males								
Gastric ulcer	1910–13	10	21	3	30	17	25	8	47	27
	1922–25	17	19	1		28	20	10		45
	1926–29	19	17	—		40	15·6	15		59
	1930–33	34	20	6		39	11·5	12		73
	1934–37	27	18	3		36	11·2	12		63
	Total 1922–37	97	18·7	10	10	143	13·5	49	34·3	240
Duodenal ulcer	1910–13	10	16	5	50	43	56	27	63	53
	1922–25	23	20	4		21	17	5		44
	1926–29	27	19	3		46	25	4		73
	1930–33	18	18	7		22	13	7		40
	1934–37	18	26	2		30	23	7		48
	Total 1922–37	86	20·1	16	18·6	119	20	23	19·3	205
		Females								
Gastric ulcer	1910–13	19	12	6	31	7	16	6	90	26
	1922–25	1		—		3		1		4
	1926–29	—		—		4		1		4
	1930–33	2		—		5		2		7
	1934–37	1		—		7		5		8
	Total 1922–37	4	2	—	—	19	4	9	47	23
Duodenal ulcer	1910–13	—		—		1		1		1
	1922–25	—		—		1		—		1
	1926–29	—		—		—		—		—
	1930–33	2		1		2		1		4
	1934–37	2		—		3		1		5
	Total 1922–37	4	13	1			7	2		10

For number of cases (admissions of ulcers) see Table II.

The highest number of perforations in males was in the age group 40–50 years, both for G.U. and for D.U. (Table V). For females the numbers are too small for subdivision, but perforations are very rare under 40 years.

The proportion of perforations to admissions for males is the same in the two age groups for D.U. For G.U. it is higher under 40 years than over 40 years, and the difference is significant (5.2±1.92). Over 40 years the proportion has apparently been falling. The higher proportion of perforations to admissions under 40 years for G.U. is entirely due to the decade 20–30 years, which is nearly twice as high as any of the succeeding decades, between which the difference is not significant. Nor is the difference significant between any of he decades for D.U. This uniformity for D.U. throughout ife is consistent with other evidences given in this communication. So also is the distinction of G.U. into two age groups, but the indication here suggests that the dividing line is nearer 30 than 40 years.

There were 98 deaths among 445 male perforations, the case mortality at all ages being 22%. For G.U. the rate is 24.6% and for D.U. 19%. For D.U. there is no difference in the case mortality in the age groups. On the other hand, for G.U. there is a marked difference, being 34% in the older group and 10% in the younger, and the difference is statistically significant. A higher case mortality for G.U. perforations than for D.U. is well recognized, and also a rising case mortality with increasing age. The absence of increase for D.U. in the later age group is unexpected, and more data are desirable.

There were 12 deaths in 33 female perforations, only one death occurring under the age of 40 in the 16 years.

For the period 1910–13 perforation has a high case mortality, as would be expected. While statistics at this period must be accepted with caution, the number of perforations from G.U. in women under 40 years may be accepted as substantially correct, since this was a well-recognized lesion. In this group, among 160 admissions, there were 19 perforations with 6 deaths. This is the highest number of perforations in any group of G.U., but they form only 12% of admissions—a proportion lower than any other group. The view often accepted that this type of ulcer had a special tendency to perforate, with a high case mortality, is not supported by these figures. The differences between the groups are not significant. The large number of perforations from D.U. in males over 40 years in this period is noticeable, and the allocation for D.U. apparently is supported by the cases in which necropsies were performed. If this series is reliable a rapid change in the incidence of perforation of D.U. took place between 1913 and 1922 or in the type of ulcer, but although the change is statistically significant, further data are necessary.

Recurrence of Perforation.—For the period 1933–6, of the 392 admissions for G.U. in males, excluding admissions for perforation, 16 had previously perforated, and of 170 similar admissions for D.U. 9 had done so. Of the 70 admissions for perforated G.U. 3 had previously perforated, and of the 38 admissions for perforated D.U. 2 had perforated, none of these being fatal. The proportion of these earlier perforations is about the same in the two groups. No woman had previously perforated.

Duration of Symptoms before Admission

The duration of symptoms in males before admittance has been calculated from admissions to St. Thomas's Hospital for 1933–6 and, in order to obtain additional material, from a number of admissions to Army hospitals in 1941 (Table IX):

TABLE IX.—*Duration of Symptoms Previous to Admission (Males)*

	Age Groups (Years)				
	20–30	30–40	40–50	50–60	Over 60
Gastric ulcer:					
Under 4 years	56 (30)	46 (61	47 (56)	41 (39)	50 (28)
4–9 years	30 (20)	28 (37)	30 (37	31 (30)	17 (9)
10 years and over ..	10 (7)	26 (34)	23 (27)	38 (27)	33 (18)
Mean duration (years) ..	4½	6	6	6	6
Duodenal ulcer:					
Under 4 years	48 (124)	40 (112)	38 (45)	33 (14)	20 (3)
4–9 years	43 (112)	35 (110)	23 (27)	29 (12)	40 (6)
10 years and over ..	9 (25)	25 (73)	39 (46)	38 (16)	40 (6)
Mean duration (years) ..	4	6	7	7	8

Distribution of duration recorded in percentages for each age group. Actual numbers in brackets. Admissions for perforated ulcers are not included.

For G.U. the duration before admission does not increase after the age of 30. There is a material proportion with a comparatively recent onset even in the later age groups. For D.U. the previous duration tends to increase with age, and there is a higher proportion of lengthy durations and a progressive decrease in the proportion of short histories. It would appear that a high proportion of cases of G.U. met with in the later age decades have started after middle life and that the common course for younger patients is to recover either completely or sufficiently not to require subsequent hospital treatment. This is undoubtedly true for the type of G.U. formerly prevalent in young women.

Deaths and Case Mortality

The causes of death will not be considered here, other than the above references to perforation.

In the period 1922–37 there were 333 deaths in 3,336 admissions—a case mortality of 10% (Table III). The case-mortality rate varies greatly with the age, and to some extent with the type of ulcer and the sex. In the age groups under 40 years the rate is about 5% in each group, while over 40 years it is 12.3%. In women under 40 years only 9 deaths occurred among 164 cases. In the age groups over 40 years the case-mortality rate is higher for males (13.3%) than females (9.5%), and for G.U. (12.8%) than D.U. (11.2%). For males the rate is 14.1% for G.U. and 11.8 for D.U. The difference between males and females is significant (3.8±1.59); the other two are not significant.

Comparing four-year periods, the case-mortality rate from G.U. in males over 40 years has fallen steadily from 19.4% in 1922–5 to 11.6% in 1934–7. The difference between 19.4 and 11.6 is significant (7.8±3.5), but the differences between the four columns are not statistically significant to the χ^2 test. ($\chi^2=5.21$, $n=3$, $P=0.15$.) This, however, takes no regard for the order of the numbers in a progressive fall. This can be corrected by the formula $\frac{P}{\underline{|n+1}}$, where n is the number of columns as counted in the χ^2 test. This reduces the value of P from 0.15 to 0.006, which is significant. Hence it appears that the progressive fall is significant. Various reasons could be suggested for this, such as improved surgical and medical treatment. For D.U. there has been no fall in case mortality. The case-mortality rate for 1910–13 is considerably higher than for later periods. The rate for G.U. in females under 40 years is distinctly lower than for other groups, and supports the comparative mildness of this type of ulcer.

Discussion

Any attempt to follow the trend of peptic ulcer must consider G.U. and D.U. separately and also subdivisions for sex and age. The present communication solely applies to the London area. Even with this proviso, admissions to a single teaching hospital are not necessarily a random sample of the area. Until further data are available certain deductions are only provisional. Nevertheless the broader outlines here presented of the picture and of the trends may be useful. In certain groups the trends of the hospital admissions can be compared with the trends of the death rates for London and for England and are not inconsistent.

Two special factors influence the trend of peptic ulcer during the period of 1910–37. One is the rapid decrease of gastric ulcer in young women in the earlier years of the period, and the other is the rapid increase of gastric ulcer in older men between 1922 or 1925 and 1930.

The fall in the incidence of gastric ulcer in young women is confirmed by the trend of death rates for all parts of Britain. The decrease of perforations in this group has long been clinically recognized (Jennings, 1940), but it is evident from the trend of hospital admissions that such decrease is the result of a fall in the incidence of this ulcer and not due to a change in its liability to perforate. The fall for admissions, perforations, and death rates was largely completed by 1922, but still continued until 1937, and it greatly influences all long-period ratios of G.U. to D.U., males to females, and age incidences. This was the largest group of peptic ulcer until about 1914, but its fall probably began about 1900, its incidence in the nineteenth century having been even greater. The disappearance of this group establishes that some set of removable external aetiological factors can rule the incidence of one type of ulcer in one sex at one age period, and if this is true for one group of peptic ulcer it can be true for others. A further question which may be referred to here is the fate of this group of young women. They did not die, since the case mortality is low. Nor did the ulcers become chronic, for in the period 1910–13 there were 160 admissions under 40 years and only 45 over 40 years, and the young cases were not readmitted for recurrences. The only remaining substantial possibility is that the ulcers healed and did not recur.

A rapid rise in admissions for G.U. in males over 40 years started about 1925 and ceased about 1930, when the curve flattened out. A rapid rise in death rates in this group for all parts of England but greatest in London began about 1922 and ended about 1930. This group, both for admissions to St. Thomas's Hospital and for death rates for London, and also for death rates for England, had then outstripped all other groups of peptic ulcer.

Admissions for G.U. in males under 40 years also rose rapidly between 1925 and 1930, but there are certain differences between the two age groups. The rise is less marked. There is a wide interval between the curves for these age groups. The duration of symptoms previous to admission is comparatively constant throughout the two age groups, and suggests that the older group is not due materially to continuation of symptoms arising in the younger ages, but to new formations of ulcer. This difference between the two age groups for G.U. in males is even more marked in females, in whom the trends are clearly completely independent.

The trends of admissions for D.U. differ from those for G.U. Admissions in males are close together in the two age groups. There is a progressive increase in the duration of symptoms in the age groups, and an increasing proportion of cases with lengthy histories. Admissions for D.U. in males rose irregularly to a maximum about 1928–30. Subsequently there was a fall until the hospital admission rate finally was below that for 1910–13. Admissions commonly exceeded those for G.U. until 1926. The curve for G.U. over 40 years then finally passed the corresponding group and rose far above it. The curve for G.U. under 40 years passed D.U. under 40 years in 1929.

If the trends of admissions to St. Thomas's Hospital are a reflex of trends of morbidity in the population drained they suggest that the incidence of G.U. in males over 40 in the London area rose rapidly about 1925 and suddenly ceased to rise about 1930, though the maximum rate was maintained, while the incidence of D.U. in males rose moderately during a shorter period, but subsequently fell again to the level of 1910–13. Such trends and the recent great and increasing preponderance of G.U. over D.U. may be unexpected, but they are consistent with the trends of the death rates.

For females the only considerable group of peptic ulcer in recent years is gastric ulcer over 40 years of age. Admissions show a steady but moderate increase to a maximum in 1930, with a subsequent fall. This trend agrees with death rates for the London area, but neither England as a whole nor Scotland shows any rise in death rates. All other groups of peptic ulcer are now rare in women. The incidence under 40 years is low, and the mean age, which before 1913 was below that for males, is now higher.

The proportion of cases admitted for perforations varies in different groups. It is suggested that in the absence of evidence of selection a higher proportion indicates a greater liability to perforate. Differences referred to here are all statistically significant. The proportion is higher for D.U. than for G.U. in both age groups. For D.U. the proportion is the same in the two age groups, but for G.U. it is higher under 40 years than over 40 years. The case-mortality rate for all ages is higher for G.U. than for D.U. This is due to the high case mortality for G.U. over 40 years, which is three times greater than in G.U. under 40 years. The case-mortality rate for D.U. in this series is the same in both age groups. These differences between perforations in the two age groups for G.U., together with other differences referred to above, will be held to indicate the presence of different aetiological factors at different ages. For D.U. there are no such differences.

The proportion of cases admitted for perforation is lower in females than in males for both G.U. and D.U. Perforations in women are now rare. Thus it appears that in women not only is the development of ulcer now comparatively rare but, when present, an ulcer has a low liability to perforation. Possibly the factors which determine formation of an ulcer and perforation are not necessarily identical.

It is generally agreed that the aetiological factors of G.U. and of D.U. are different. Clinical evidence for this is accumulating. There are differences in the trends of the death rates for the two types in England and between England and Scotland, and differences in the standardized mortality ratios for the five social classes. Various differences in the two types for admissions, perforations, and case mortalities are recorded here. For G.U. there are also differences between the age groups. It may be suggested that there is more than one group of aetiological factors producing G.U., operating commonly at different ages and differently in the two sexes. For D.U. there are no such differences between the age groups, which suggests that the same set of factors operates at all ages but with widely different effects on males and females.

Psychoneurotic stimuli often appear to be the exciting cause of the development of D.U. and of the incident of perforation. As a sole factor this theory does not explain the rarity of D.U. in women and the even greater rarity of perforation. The severest air raids scarcely shook the curve of perforations in women, but they sent the curve for men sky-high. Nor is it consistent with the practical absence of D.U. before 1900 and its subsequent trends. Some independent predisposing cause is indicated. Psychoneurotic stimuli may pull the trigger, but some other hand has previously loaded the gun.

The external factors concerned in the development of gastric and duodenal ulcer cannot even be adumbrated here, but a study of the changing face of peptic ulcer and of its different aspects in various geographical areas may assist in their elucidation.

Conclusions

1. Admissions for G.U. in males over 40 years increased rapidly between 1925 and 1930, when the rise ceased but the maximum rate was maintained. Admissions under 40 years had a somewhat similar trend, but with much lower numbers. There are certain differences between the features of the two age groups.

2. Admissions for D.U. in males rose irregularly and moderately after the war until 1929–30 and then fell again to the level of 1910–13. Admissions in the two age groups under and over 40 years are similar in number and trends.

3. Admissions for G.U. in males have been in excess of those for D.U. since 1927, previously having been less, and the excess has been rapidly increasing. Under 40 years, G.U. first became in excess of D.U. in 1929.

4. The trends of admissions for G.U. in females are completely independent in the age groups under and over 40 years.

5. Admissions for G.U. in females over 40 years increased moderately until 1929–30, when the rise ceased.

6. Admissions for G.U. in females under 40 years formed the largest group of G.U. in 1910–13, but fell rapidly, and the incidence is now very low.

7. Admissions for women are very low for D.U. at all ages.

8. The trends of hospital admissions and of death rates for London (Administrative County) are reasonably in agreement.

9. The ratio of G.U. to D.U. is rising for males and falling for females.

10. The ratio of males to females is rising for G.U. and falling for D.U.

11. The ratios of G.U. to D.U. in hospital admissions and in private practice are not comparable.

12. The liability of an ulcer to perforate is greater in D.U. than in G.U., and greater in males than in females for both G.U. and D.U. For G.U. the liability is greater under 40 than over 40 years; for D.U. it is the same in both age groups.

13. The case-mortality rate of perforated G.U. is considerably higher over 40 than under 40 years. For D.U. it is the same in both age groups.

14. The factors stimulating the formation of peptic ulcers are different for G.U. and D.U. For G.U. they are not the same for the age groups under and over 40 years. For D.U. they are similar for both age groups, but have little influence on women.

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BLACKWATER FEVER IN WEST AFRICA

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For a period of 20 months we were stationed at a general hospital in one of the West African colonies. This hospital was situated in well-drained uplands, its precincts being practically free of the anopheline mosquito, but within two miles the hills descended into large areas of swampy ground where subtertian malaria was rife. Most of the cases of malaria and all the cases of blackwater fever treated in this hospital came from these areas. During the 20-month period 2,355 cases of subtertian malaria in British and Allied personnel were admitted, the majority being from the British Army. In the same interval 7 cases of blackwater fever were admitted. There were no deaths from either disease. These cases of blackwater fever are presented because it is felt that this disease is of special importance while British and Allied troops are living and fighting in countries in which it occurs, and because it is not very rare for individuals to develop it after return to the United Kingdom from the Tropics. Such a case, rapidly fatal, was seen by one of us. An account of the clinical features and treatment of subtertian malaria in British troops in West Africa has already been given by Hughes and Bomford (1944).

Blackwater fever is a disease characterized by a sudden intravascular haemolysis, with the liberation of oxyhaemoglobin in the plasma. From this, methaemoglobin and methaemalbumin ("pseudo-methaemoglobin") are formed. Oxyhaemoglobin and methaemoglobin are excreted in the urine together with acid haematin, these blood pigments imparting the typical porter or stout colour to the urine. Methaemoglobin, with its much larger molecule, is never excreted. The two most important characteristics of the disease—namely, the haemolysis and the anuria—will be separately discussed.

Relationship to Malaria

Blackwater fever is now universally regarded as a complication of malaria, especially of the subtertian form. Stephens (1937) was able to collect only 7 cases in which it was associated with benign tertian or quartan fever. A fatal case following *P. ovale* infection is quoted by Fairley (1939). It is met with in those countries in which subtertian malaria is hyperendemic, and, as it principally affects the white races in such countries, has long been the dread of Europeans on the West African coast, being in part responsible for the unhealthy and somewhat sinister reputation enjoyed by that part of the continent. It is interesting to note that in the 20-month period only 168 African soldiers were admitted with malaria, although the total African admissions for all diseases far outnumbered the British. The West African, if he survives malaria in infancy and childhood, becomes relatively immune to it. We heard of no case of blackwater fever in a native soldier, but there were several among the Syrian settlers in the colony. It is generally stated that the seasonal incidence of blackwater fever closely follows that of subtertian malaria. This has certainly been our experience in this small series. In this colony malaria was endemic throughout the year, but it reached its peak in July and August—i.e., at the height of the rains—and five of our cases developed blackwater fever in July, August, or September.

All our cases had had previous attacks of malaria (Table I). Case VII had had only one recognized attack, but had taken no suppressive quinine, and there was reason to believe he had been very careless over antimalarial precautions in general. His malaria had been treated at another hospital with 30 gr. of quinine daily for 2 days, 0.3 g. of mepacrine daily for 5 days, and 0.03 g. of pamaquin daily for 4 days. The haemoglobinuria developed on the day after completion of the above treatment. Case III had been treated in our hospital for the sixth attack of malaria with 10 gr. of quinine and 0.3 g. of mepacrine daily for 7 days, followed by 0.03 g. of pamaquin daily for 3 days. This patient was perfectly well when discharged, but he got wet through on the way back to his unit and was readmitted with blackwater fever the same evening. Three patients developed the disease during actual treatment for malaria in our hospital. In all of them the urine had been normal before the onset of the haemoglobinuria and had been kept alkaline. Thus, Case I developed it on the second day of treatment after a total of 60 gr. of quinine, Case IV also on the second day after 30 gr., and Case V on the seventh day after 150 gr. of quinine and an intramuscular injection of 0.2 g. of mepacrine hydrochloride. The latter was given as the temperature, which had almost settled, rose suddenly to 104° F., this rise probably corresponding to the onset of the haemolytic process. Haemoglobinuria followed two and a half hours after the injection. This patient was also receiving treatment for amoebic dysentery. These three cases, and also Case III, had not been thoroughly treated for previous attacks of malaria. We are of the opinion that the fact that blackwater fever may arise during what appears to be an ordinary uncomplicated attack of malaria has not been sufficiently stressed; there has been too great a tendency to regard it as developing only in subjects with malarial cachexia who have been resident in the Tropics a long time. Three of our cases had been in West Africa for less than one year. We were unable to recognize a "pre-blackwater fever" stage in any of those who developed the disease in hospital. Conversely, we saw many malarious patients in whom the cachexia and history of previous attacks led us to believe they were likely candidates for blackwater fever but who did not, in fact, develop it.

Clinical Features

A full account of these may be found in standard works. The most important biochemical and other details of our cases are summarized in Tables I and II.

TABLE I

Case	Age	Residence in W. Africa	Previous Attacks of Malaria	Suppressive Quinine
I	25	20 months	2	Regular
II	20	8 "	2	"
III	27	16 "	6	"
IV	31	11 "	7	"
V	23	19 "	5	Irregular
VI	36	18 "	5	Regular
VII	20	6 "	1	None

A rigor, said to be typical of the onset, occurred at the beginning of the illness in one patient only. Of the cases which developed blackwater fever during treatment for malaria, Case V, as already stated, showed a sudden rise of temperature with the onset of haemoglobinuria. In Cases II and IV the temperature also rose to 102° and 104° F. respectively. These three patients also showed a very abrupt rise in the pulse rate. Such an increase in the rate of the characteristically slow pulse of malaria is of importance, and should lead to an immediate examination of the urine for haemoglobin. Except in Case I, a rapid pulse of 100–120, of poor volume, was a constant feature in all the patients. The duration of the fever corresponded to the acuter stages of the disease, except in Cases III and IV, in which a fever of 99–99.5° F. was prolonged well into convalescence—the so-called "post-haemoglobinuric fever." Only Case I was afebrile throughout.

The jaundice, together with anaemia and cachexia, imparted a characteristic appearance which sun-tan rendered all the more striking. The general impression obtained was of great weakness; these men were disinclined to move, and a constant complaint was of feeling "very ill." In no instance was the liver palpable, although tenderness over it was elicited in three instances. In Cases II, IV, and VII the blood pressure was low during the first few days, readings of 96/40, 92/45, and 94/90 respectively being obtained. In Case VI the blood pressure, which was 108/66 on the second day of the illness, rose at the same time as the blood urea to 150/80 on the ninth day. A leucocytosis of 25,000 and 30,000 occurred on the first and fourth days respectively in Cases V and VII. Cases VI and VII developed a reticulocytosis of 5% and 9% respectively during recovery from the anaemia. Convalescence was prolonged, the average length of stay in hospital being 45 days. All patients were invalided to the United Kingdom with a recommendation that they should not again be sent to a malarious country.

The mortality varies from 25 to 50%, according to different authors. Findlay (personal communication, 1944) states that the mortality rate for the whole West African Command over a period of three years was 28.8%. We are indebted to him for permission to give this figure.

Haemolysis

In subtertian malaria a haemolytic anaemia occurs, but the reticulo-endothelial system is capable of dealing with the liberated haemoglobin, transforming it into haemosiderin and bilirubin, and only in the severer cases can free haemoglobin be demonstrated in the plasma (Stitt, 1942). In blackwater fever, however, the haemolysis occurs with such explosive suddenness that the renal threshold for haemoglobin is exceeded and this pigment appears in the urine. The cause of this sudden haemolysis is still unknown. The mystery is further increased when it is considered that severe cases of subtertian malaria, in which there is a profound anaemia and in which a large percentage of the circulating red cells may be parasitized, are quite common; and yet this is not the type of case which develops blackwater fever. Preceding and during the disease parasites are scanty in the peripheral circulation, often entirely disappearing early in the illness.

TABLE II.—*Details of Cases*

Case	Parasites in Blood	Red Cell Count and Hb %	Urine			Blood Urea Mg. per 100 c.cm.	Blood Transfusions	Intravenous Fluids	Remarks
			Hb Pig.	Alb.	Casts				
I	Scanty (1)	4,140,000 Hb 82 (4) 5,060,000 Hb 100 (8)	+ (1–2)	+ (1–2)	+ (1)	95 (4) 70 (7) 27 (13)	None	None	Mild case. No jaundice or vomiting
II	Absent	3,670,000 Hb 72 (2) 3,080,000 Hb 56 (4) 3,720,000 Hb 55 (6)	+ (1–2)	+ (1)	None	25 (3) 20 (4)	None	Sod. bic. soln. 30 oz.; N. saline 20 oz.	Moderately severe case. Slight jaundice; no vomiting
III	Absent	4,750,000 Hb 90 (2) 3,150,000 Hb 53 (4) 1,320,000 Hb 30 (9) 2,200,000 Hb 36 (11) 4,540,000 Hb 72 (29)	+ (1–5)	+ (1–8)	+ (4–11)	25 (2) 30 (5)	1 pint* (4) 12 oz.* (5) 15 c.cm.* (9) 1 pint (10)	Plasma 14 oz.; sod. bic. soln. 5 pints; glucose-sal. 6 pints	Severe case. Jaundice; vomiting; spleen palpable; loin pains
IV	Absent	4,210,000 Hb 80 (1) 3,280,000 Hb 60 (3) 3,900,000 Hb 60 (6)	+ (1–3)	+ (1–3)	+ (1–2)	45 (2) 30 (5)	None	Sod. bic. soln. 60 oz.; glucose-saline 20 oz.	Moderately severe case. Slight jaundice; vomiting; loin pains
V	Absent	3,200,000 Hb 63 (1) 3,140,000 Hb 62 (3)	+ (1–3)	+ (1–3)	None	37 (2) 30 (6)	None	Sod. bic. soln. 40 oz.; plasma 20 oz.	Moderately severe case. Slight jaundice; vomiting; spleen palpable
VI	Scanty (2) (3)	3,820,000 Hb 80 (1) 930,000 Hb 18 (5) 800,000 Hb 20 (7) 1,600,000 Hb 43 (10) 2,500,000 Hb 56 (35)	+ (1–3)	+ (1–15)	+ (1–13)	45 (3) 135 (6) 185 (11) 30 (35)	20 oz.* (5) 20 oz. (7) 40 oz. (8) 12 oz.* (11)	Sod. bic. soln. 67 oz.; glucose-sal. 40 oz.; sod. lact. soln. 40 c.cm.	Very severe case. Marked jaundice; severe vomiting; persistent hiccup; anuria 6th–7th day lasting 22 hours
VII	Absent	1,050,000 Hb 28 (2) 2,100,000 Hb 50 (4) 2,900,000 Hb 50 (7) 4,000,000 Hb 77 (15)	+ (1–4)	+ (1–7)	+ (4–5)	40 (3) 26 (5)	20 oz. (2) 20 oz. (3)	Sod. bic. soln. 60 oz.; glucose-saline 8 oz.	Severe case. Jaundice; vomiting; loin pains

Figures in brackets = days of disease. * Transfusion reaction.

For nearly a hundred years quinine has been considered a precipitating factor, and recently Cust (1943), Frewen (1943), and others have reported cases arising during quinine therapy, while Foy and Kondi (1938) state that the relation of the last dose of quinine to the onset of blackwater fever is so significant as to be more than casual. Fairley and Murgatroyd (1940) describe a patient with blackwater fever in whom four recurrent attacks of haemoglobinuria occurred, each precipitated by quinine. The relationship of the haemoglobinuria to the taking of quinine has already been mentioned in our cases. Yet the disease has occurred during treatment with mepacrine or pamaquin and in patients who have never received any quinine at all. In Case I haemoglobinuria returned after mepacrine treatment had inadvertently been started on the second day of the illness and disappeared as soon as the drug was discontinued. The part played by quinine in the aetiology is, of course, obscured by the fact that most patients with malaria are treated with this drug. In this connexion the statement by Findlay (personal communication, 1944), that the incidence of blackwater fever in the West African Command has considerably diminished since the substitution of mepacrine for quinine as a suppressive and as the therapeutic drug for uncomplicated malaria, is of great significance.

Other theories may be briefly discussed. Smith and Evans (1943) attempted to prove that the haemolysis is due to increased fragility of the red cells consequent upon lowering of the *p*H of the blood, but apparently made no actual observations in blackwater fever. They based their conclusions upon *in vitro* experiments with red cells suspended in saline buffered to different *p*H levels. Of more significance is the work of Maegraith, Findlay, and Martin (1943), who showed that normal human serum inhibited the haemolytic action of animal tissue upon homologous red cells. This antihaemolytic effect was reduced in sera from cases of blackwater fever, especially during haemolytic crises, suggesting that the haemolysis is due to a lack of an antilytic substance rather than to the presence of a lysin. This would appear to be a promising line of investigation. Fernán-Núñez (1936) thinks blackwater fever is an allergic reaction to the malaria parasite protein, and claims that persons liable to the disease show a positive reaction to the intradermal injection of non-infective suspensions of *P. falciparum.*

Cold seems to be a precipitating cause (Case III). There is here an analogy with paroxysmal haemoglobinuria, but in blackwater fever the Donath-Landsteiner reaction is negative.

The Anuria

Amongst other lesions the kidneys show blood-pigment casts in the tubules that are generally thought to be composed of acid haematin. Yorke and Nauss (1911) were able to produce renal obstruction by injection of haemoglobin into animals provided they were kept on a dry diet. They considered the obstruction was due to precipitation of acid haematin in the tubules from a concentrated urine. Baker and Dodds (1925), from similar experiments, considered that whether obstruction developed or not depended on the reaction of the urine. Obstruction occurred if this was acid but not if alkaline. Treatment of blackwater fever with alkalis, in an attempt to prevent anuria, became almost universal as a result of these experiments. Foy *et al.* (1943), in a review of the problem, point out that anuria in blackwater fever may develop in patients who have had a small haemolysis and who pass alkaline urine and, conversely, may not occur after a large haemolysis when the urine is acid. They also state that anuria is no less common since the introduction of alkali treatment. Maegraith and Havard (1944) share this view and emphasize the dangers of indiscriminate alkali therapy. Bywaters and Dible (1942, 1943), however, state that the renal lesions in cases of mismatched blood transfusion, crush syndrome, paralytic myohaemoglobinuria, and blackwater fever are very similar. In all these conditions pigment casts occur in the tubules, and although these observers do not consider they are the chief cause of the anuria, their cases of crush syndrome apparently benefited by alkali therapy. In addition to the pigment casts there is a catarrh of the whole nephron, falling with especial severity on the ascending loop of Henle and the second convoluted tubule. They point out that it is in these portions of the tubules that acidification of the urine probably occurs, and that the selective damage to these structures which can be produced by the injection of uric acid and acid sodium phosphate into animals has been attributed to this. They consider that the anuria in the above conditions is chiefly due to reabsorption of glomerular filtrate into the blood stream through damaged tubules. Maegraith and Havard (1944) state that the greatest damage in blackwater fever is in the distal convoluted tubule. As in blackwater fever an acidosis is usually present, the urine is highly acid, and the alkali reserve is lowered, there would appear to be a good argument in favour of alkali treatment. Those who state that it is of little value do not indicate whether this is still true if it is used early in the disease. We consider it should be used as early as possible—in fact, the urine of all our cases of malaria was kept alkaline as a routine. Thus Cases II, IV, and V had alkaline urine before the onset of the haemoglobinuria. In only Case VI did anuria develop, and then for a relatively short period. With care there is little danger of alkalosis, but alkalis should be stopped or be used sparingly if anuria or oliguria occurs, for there is then a danger of alkalosis even if the urine is still acid.

It should be emphasized that dehydration from excessive vomiting and sweating is probably an important factor in the production of anuria and oliguria in many cases. In Case VI, for instance, vomiting was unusually prolonged and severe. Loss of chloride in vomitus and sweat will, moreover, augment the danger of alkalosis from indiscriminate alkali therapy and will also increase the tendency to nitrogen retention. We thus consider that an ample fluid intake by oral and intravenous routes is just as important as alkali therapy, and, in addition to alkaline solutions, we used glucose-saline or normal saline to replace chloride loss (Table II). In all our patients save Case VI urinary excretion was kept abundant throughout the course of the illness by these means.

Treatment

The general treatment consists largely in skilled nursing, which in no other disease is of greater importance. The patient is often in a condition resembling shock, and death from circulatory failure is therefore a danger. Complete rest on a low pillow is necessary and the patient is forbidden to sit up or feed himself. In West Africa, cases diagnosed in units, unless close to the hospital, were not moved, but were treated in their own lines by a mobile medical team based on the hospital. A full description has been given of these teams by Findlay (1943). Large quantities of water and fruit juice with glucose should be given, and all other food except small amounts of milk or junket withheld until acute symptoms have subsided. The daily fluid intake by the mouth should be at least 8 pints. Proteins should be restricted until well into convalescence. Fluid intake and output charts should be kept. Individual symptoms such as vomiting, hiccup, and hyperpyrexia must be treated as they arise. In Case VI all attempts to arrest the distressing hiccup, including cocaine by the mouth, failed. For severe loin pains, atropine 1/200 gr. was of value in Case VII. Oxygen, nikethamide (coramine), adrenaline, and bed blocks must be available for circulatory failure. It is useful to keep successive samples of urine in test-tubes so that the reaction and the degree of pigmentation can be easily observed, while a red cell count and a haemoglobin estimation should be undertaken daily.

Blood Transfusion

This is necessary if a dangerous degree of anaemia develops after massive haemolysis, but considerable judgment must be exercised in individual cases in deciding when to transfuse. Blood should never be given if oliguria is present. It is stated that in blackwater fever the donor's cells are liable to haemolysis as well as those of the recipient. Consequently, cross-grouping is always necessary. In spite of this precaution two of our cases had severe reactions (Table II). In Case III attempts at transfusion were persisted in; the fourth, which was uneventful, undoubtedly saved the patient's life. This transfusion was given very slowly, a pint being administered in 4½ hours. In Case VI the first transfusion was continued in spite of a rigor, as the patient was moribund. The anuria which followed this was possibly precipitated by it. The absence of reactions and the non-appearance of haemoglobinuria during subsequent transfusions in this patient suggest that the failure of these to raise the red cell count was at least as much due to the normal haemolytic process of the disease as to haemolysis induced by the transfused blood. In Case VII we transfused early on the second day of the disease while haemoglobinuria was still present. One pint was given at the rate of 8 drops to the minute, being preceded and followed by one pint of 2% sodium bicarbonate solution. A similar procedure was carried out the next day, 10 oz. of blood being followed by one pint of sodium bicarbonate solution and then by a further 10 oz. of blood. In this patient, a rise of one million red cells per c.mm. was obtained in 48 hours in spite of continued haemolysis, and no reactions were observed. This method would appear worthy of further trial.

Prevention of Anuria

On diagnosis an intravenous drip of 2% sodium bicarbonate was set up immediately, 1 to 2 pints being administered fairly slowly—i.e., 1 drop every 2 seconds. A rate of three pints in 24 hours was never exceeded, but recourse was had to intravenous saline, saline-glucose, or plasma to keep the excretion of urine abundant and to replace chloride loss. At the same time, sodium bicarbonate 1 dr. four-hourly was given by mouth and as much bland fluid as the patient could be made to take. In the Tropics a urinary output of from one-half to two-thirds of the intake appears to be satisfactory in blackwater fever. In Case VI the injection of 20 c.cm. of a mixture of equal parts of saturated sodium bicarbonate and 3-mol. sodium lactate was tried, as recommended by Findlay (1942), because difficulty was experienced in maintaining alkalinity of the urine. This was without effect, probably because the kidneys were failing. The first specimens of urine passed after 22 hours' anuria were still acid. Possibly alkalis were pushed too hard in this case, but they nevertheless seemed to do no harm. This patient was, in any event, desperately ill. The treatment of established anuria consists in the application of heat to the loins, and dry cupping may be tried. In Case VI this was apparently successful. As already stated, alkalis should be discontinued.

In order to treat the accompanying malaria, a course of mepacrine, starting in small doses—e.g., 0.1 g. daily, gradually increasing to 0.3 g. daily—should be given during convalescence. It is probably best to give mepacrine even if no parasites are present in blood films—which is usually the case—as otherwise a malarial relapse may occur. Anaemia should be treated by good food and large doses of iron.

Summary

Seven cases of blackwater fever in British Service personnel in the West African Command are described.

The relationship of the disease to subtertian malaria and the mechanism of the haemolysis and the anuria are discussed. Special reference is made to treatment with blood transfusion, alkalis, and a large fluid intake. Evidence is produced to show that alkalis are probably of value in preventing anuria.

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DIAGNOSIS OF MALARIA IN WEST AFRICA

BY

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This paper is based upon experience of over 2,000 cases of malaria in white personnel at an R.A.F. hospital in West Africa. The type was almost exclusively malignant tertian. The vast majority of patients had not been exposed to infection prior to service in West Africa, and their stay was comparatively short. Drug suppression and antimalarial discipline were in force. Owing to a big drainage scheme and efficient screening, the infection rate, though not low, was less than in many places on the coast. Patients were nearly always admitted to hospital in an early stage of the disease. Pernicious cases were uncommon; only 9 of blackwater fever, 4 of cerebral malaria, and 1 of the choleraic type were seen, all of which recovered. No algid case presented. Chronic malaria was very uncommon; not more than 6 cases were seen.

M.T. malaria closely mimics many diseases; it is dangerous, and parasites are not always found in the blood. Treatment, therefore, often has to be on suspicion. However, it is possible to become a little obsessed with the diagnosis when malaria accounts for no less than two-thirds of medical admissions—with results which are not always happy. The following is an account of matters found helpful in diagnosis. Cases of malaria will be referred to as proved (or slide-positive) and clinical (or slide-negative), depending upon whether parasites were or were not found in the blood stream. Diagnosis was often helped by a short period of observation. Grave complications, however, are so liable to arise in seriously ill cases of malaria that treatment was not delayed in any serious febrile illness unless the clinical picture pointed definitely to a non-malarial disease. For routine purposes a temperature of 103° was taken as an objective dividing-line between seriously and not so seriously ill cases; these will be referred to as high- and low-fever cases respectively. In the great majority of low-fever cases it was found possible to reach a shrewd diagnosis within 48 hours; for the remainder, a working rule was adopted that antimalarial treatment should be tried when doubt still existed at the end of 4 days.

Pathological Diagnosis

Antimalarial therapy was started on finding a positive blood slide. Slides were taken on admission, before starting treatment, in all cases. The following trial was made to determine the optimal delay for blood slides in low-fever cases. Treatment was withheld in 136 virtually consecutive low-fever cases of suspected malaria—indefinitely in the first 71, and then for four days in 65. Blood slides were taken on admission, and night and morning. Ninety cases revealed parasites—66 in the first slide, 14 more within 24 hours, and 6 more within 48 hours; only 4 showed parasites at longer intervals. It was concluded that delay beyond 48 hours for this purpose was of little value. The figures are very similar to those in a series of 968 reported by Hughes and Bomford (1944) from another West African Service hospital. Slides were taken night and morning for 48 hours in high-fever cases even though treatment had been started, since it was found that parasites still appeared in an appreciable number of cases. In B.T. malaria parasites are most easily found on the rise of temperature in each rigor. Such typical rises are not common in M.T. malaria. Slides were taken in those which did occur, but parasites were by no means always found. Suppressive therapy was stopped while diagnosis was under consideration. It was started again as soon as malaria was thought excluded (i.e., a maximum suspension of 4 days).

Malaria parasites are harboured somewhere after an attack, possibly in the bone marrow. Until it is known that they cannot be found in the marrows of parasitized but symptom-free men a positive marrow smear cannot be accepted as diagnostic of active disease. Even were this the case, the number of blood-slide-negative cases of suspected malaria was far too great to justify the routine use of sternal puncture in West Africa. It was tried in a few such cases out of scientific interest, and parasites were sometimes seen.

Clinical Diagnosis

A number of clinical features were believed to assist in diagnosis. Splenomegaly was a very strong pointer. Other causes were rare. Admittedly 5% of 219 cases on the station had splenomegaly, and could be admitted with non-malarial illnesses, but this would hardly have accounted for more than 1 to 2% of admissions. The percentage, however, in febrile cases admitted to the medical wards was very much higher—approximately 25% of 406 consecutive cases. Tenderness of the spleen was virtually pathognomonic, and definite tenderness under the left costal margin, in the absence of a palpable spleen, came to be regarded as of great diagnostic value.

The anomalous behaviour of many cases of malaria superficially resembling other diseases was very helpful. Deterioration was of great assistance; the common non-malarial illnesses concerned in differential diagnosis (febrile catarrhs, simple enteritis, and dysentery) tended to recovery, and that fairly rapidly. Another valuable pointer was in the time relations between constitutional and local symptoms. In the usual non-malarial illnesses the onset might be with constitutional symptoms only, but local ones soon followed which persisted after disappearance of the former. In enteritis, for example, onset might be with 12 to 24 hours' headache, but the subsequent diarrhoea outlasted the headache by several days. In malaria, constitutional symptoms often preceded the local ones by days or persisted after their disappearance. The typical tertian periodicity of fever and symptoms was helpful when met, but unfortunately was not particularly common. Incidentally actual rigor was very uncommon and usually heralded blackwater fever. The combination of the symptoms of two non-malarial diseases, such as coryza and diarrhoea, was felt to indicate malaria. Two other points were of limited value. The degree of constitutional disturbance and the duration of illness might be incompatible with the non-malarial disease concerned. Thus a case with severe headache, a temperature of 105°, and coryza was hardly likely to be a febrile catarrh; such obvious cases were, however, exceptional.

The likelihood of malaria varied considerably between the various presenting symptom-complexes, and this was of much help in diagnosis. Very many cases presented with symptoms and signs of a general nature only. These included headache, backache, aching limbs, dry cough, vomiting, fever, splenomegaly, and herpes. They will be called constitutional cases. It was believed that all such cases should be regarded as malarial, positive slides or not, unless definite reasons appeared to the contrary. They were indistinguishable from proved cases. No common satisfactory alternatives existed; some form of heat exhaustion or an unknown virus was a possible cause, but little or no evidence existed for either. A number got worse or failed to recover until given antimalarial therapy. Others apparently recovered without, but of these an undue proportion returned shortly after discharge in frank attacks of malaria; splenomegaly was seen to subside without treatment in a case or two of this type. Constitutional symptoms might usher in many diseases which later declared themselves by local symptoms; such possibilities had to be excluded by a short period of observation.

An analysis of the symptom-complexes in 345 consecutive cases of proved malaria was rather instructive. Results (to the nearest 0.25%) are given in Table I. Four symptom-complexes accounted for 97.75% of cases. Constitutional symptoms only were found in the great majority. It was considered simply a coincidence that while coryza and productive cough and simple diarrhoea were the only other common symptoms, febrile catarrhs and a simple enteritis were the commonest diseases after malaria. Dysentery was found in only a handful of cases. Other syndromes occurred involving differential diagnosis from such diseases as pleurisy, acute rheumatism, appendicitis, cystitis, amoebic hepatitis, and conditions leading to coma. All these were uncommon, none occurring more frequently than 0.25%. It was obvious that while malaria *might* present in

TABLE I

1. Constitutional group (dry cough in 25%)	83·25%
2. Coryza or productive cough	9·25%
3. Simple diarrhoea	4·5%
4. Dysentery	0·75%

many guises its common forms were few. The analysis is very similar to a larger series (846) reported by Hughes and Bomford (1944).

A mildly statistical inquiry showed the proportion of all cases with coryza and productive cough, simple diarrhoea, and dysentery which were due to malaria.

The total number of cases and the numbers yielding positive blood slides, with these symptoms, were collected for some months. The next step was to estimate the cases of clinical malaria in each group. These estimates were obtained in the following manner. First, it was assumed that all cases with constitutional symptoms only were cases of malaria (unless definite evidence had shown to the contrary). The total numbers and the number with positive slides in this group had been collected over the same period; the proportion of proved to clinical cases was noted. It was then assumed that this proportion remained the same in cases of malaria with any other symptom-complex. Figures for the cases of clinical malaria in each group could thereby be obtained from the known number with positive slides; the proportion of cases due to malaria either in the whole group or in those with negative slides could then be calculated. The results are given in Table II. The proportions were worked out separately for high- and low-fever cases. Similar calculations were made for cases of follicular tonsillitis to determine the frequency with which the activation of latent malaria by a non-malarial illness might be expected in this neighbourhood. For obvious reasons, the results can only be taken as rough guides. Sampling errors may be present in the smaller groups. The second assumption may be erroneous. Correction of the possible error in the first assumption (namely, that some slide-negative constitutional cases were not due to malaria) would, however, strengthen most of the conclusions which were drawn. Nevertheless some results were highly suggestive.

TABLE II.—*Estimated Proportion of Cases with Respiratory Symptoms, Simple Diarrhoea, and Dysentery, due to Malaria, and of Follicular Tonsillitis complicated by Malaria*

Symptom-Complex	Total Cases	No. with Positive Slides	Percentage of Cases due to Malaria	
			Whole Group	Negative Slides
Constitutional high fever	172	145	6 out of 7 gave positive slides	
Constitutional low fever	315	168	Every other case gave positive slides	
Coryza or productive-cough high fever	23	13	65	21·5
Coryza or productive-cough low fever	120	21	35	21
Simple-diarrhoea high fever ..	20	10	57·5	16·5
Simple-diarrhoea low fever	119	11	18·5	10
Dysentery high fever	19	4	25	4·5
Dysentery low fever	63	1	3	1·5
Follicular-tonsillitis high fever ..	14	2	16·5	3
Follicular-tonsillitis low fever ..	33	—	++ against (none with positive slides)	

The following conclusions were drawn. Positive slides could be expected in most high-fever cases of malaria, but probably with much less frequency in low-fever cases. The activation of a latent malaria by a non-malarial illness was uncommon in the area. Cases with dysentery and negative slides were most unlikely to be caused by malaria. Cases with simple diarrhoea, low fever, and negative slides were unlikely to be so caused. On the other hand, malaria was a not uncommon cause in cases with coryza and productive cough, or of simple diarrhoea with high fever.

A therapeutic trial produced results of interest.

All cases in the groups with low fever and constitutional symptoms, coryza or productive cough, or simple diarrhoea were observed without treatment unless (*a*) slides became positive, (*b*) the temperature rose above 103°, or (*c*) they had failed to recover after 5 or 6 days. Those recovering fully were discharged without treatment. Twenty-four of the constitutional and 70 of the other two groups were re-examined at the end of three months. Three of the 24 but only 1 of the 70 had returned in frank attacks of malaria; in all 4 instances return was within one month of discharge. The incidence of such return was thus 9 times as great in the constitutional group as in the others. Incidentally, 2 of the respiratory and diarrhoeal groups had developed subclinical malaria (see later); nothing that was remotely suggestive of chronic malaria had developed in any.

The importance of malaria as a cause in the constitutional group of cases received confirmation. Unfortunate sequelae in the respiratory and diarrhoeal groups were most uncommon, though with the methods used in the trial a number of cases of malaria were undoubtedly discharged without treatment. It was concluded that if after more careful exclusion of malaria a case appeared to be one of febrile catarrh or simple enteritis it could safely be treated as such. The matter was not entirely academic, as much working time could be saved by accurate diagnosis.

Subclinical Malaria

This term was applied to a condition seen in ambulant personnel. The main complaint was of recurrent headache. Backache, aching limbs, and malaise occurred; the sense of well-being which followed treatment was a notable feature. Splenomegaly was present in about one-third of cases. Slight pyrexia probably occurred. The general condition was good and anaemia absent. Blood slides were usually, though not invariably, negative. The incidence was estimated at about 10% of men on the station. Response to antimalarial treatment was good. The absence of anaemia and the condition of the patients excluded the diagnosis of chronic malaria as usually accepted. Latent malaria suggests a symptomless parasitization. The term "subclinical malaria" was preferred to "incompletely suppressed malaria," which it was felt laid too much emphasis on control of infection by suppressive therapy, as opposed to that by natural immunity processes.

Its existence was inquired for as a routine in all cases admitted to the medical wards and, if found, led to a course of treatment before discharge. When doubt existed as to diagnosis, its presence was thought to favour malaria.

Affected ambulant personnel were treated by an increase in suppressive therapy.

Details of the clinical data upon which this account of "subclinical malaria" was founded will now be given. A number of these cases were seen, but only 61 were observed closely enough for their records to be worthy of analysis. 41 had had headaches more frequently than once a week, and were under observation for at least one month before and one month after treatment. Ten had had headaches between once a week and once a fortnight, and were observed at least two months before and two months after treatment. Relief was judged to have taken place in the first group if headaches occurred less than once a fortnight, but in the second group only if headaches had disappeared altogether. These 51 cases were given the ordinary hospital course of treatment. Seven of them relapsed after several months, and these and 10 others were placed upon increased suppressive therapy as out-patients. Periods of observation and criteria of relief remained the same. The results are given in Table III.

TABLE III.—*Results of Treatment in Subclinical Malaria*

	Total Cases	Relieved	Definite Improvement	Relief or Improvement	Little or No Improvement
Hospital treatment ..	51	32	13	45	6
Increased suppressive therapy	17	10	4	14	3

A Note on Treatment

Treatment was given as a routine for twice as long as it took for the temperature to fall to normal, with a minimum of 7 days. Mepacrine was administered from the start, 0.1 g. t.d.s. for a maximum of ten days. If longer courses were needed, quinine 10 gr. b.d. replaced mepacrine. Quinine 10 gr. t.d.s. was given in addition for the first 2 to 3 days for the sake of its better initial control. A five-day course was employed for cases considered likely to recover spontaneously. This short course was used in the hospital treatment of subclinical malaria. Routine suppressive therapy consisted of 0.2 g. mepacrine twice a week. In the ambulant treatment of subclinical malaria 0.1 g. mepacrine and 5 gr. quinine were given daily for two weeks; 0.1 g. mepacrine was then given 6 days a week, either temporarily or permanently. This flexible scheme of treatment was considered preferable to one in which a standard course was used for all cases. Such a course would have had to be a long one to cover the more serious cases, and the loss of working time would have been very considerable. Results seemed satisfactory.

Summary

An account is given of clinical and pathological points found helpful in the diagnosis of M.T. malaria. A condition occurring

in ambulant personnel is described, for which the term "subclinical malaria" is proposed. Specific treatment is also briefly described.

I have much pleasure in thanking the Director-General of the Royal Air Force Medical Service for permission to publish this paper. I am deeply indebted to many for help in the work. In particular I wish to thank Wing. Cmdr. W. P. Stamm for numerous useful suggestions, Fl. Lieut. R. D. Tonkin for assistance in the wards, Squad. Ldrs. R. J. O'Connor and M. Nelson and their able technicians for examining thousands of slides, and Sister M. Giles for suggestions about treatment. Finally a special word of thanks to Dr. Greer of the Colonial Service for constant advice and support.

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REMOVAL OF PROJECTILE FRAGMENTS AND IMMOBILIZATION OF WOUNDS IN FORWARD AREAS

BY

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Trueta has applied John Hilton's principle of rest to the treatment of war wounds, through the agency of the plaster cast. This factor, immobilization, and another one in the attainment of rest in wounds in forward areas—the removal of the causal projectile foreign body—form the subject of this paper.

The Projectile Foreign Body

Trueta (1944) quotes Friedrich as aiming at complete excision of wounds, removing bacteria by excising the contaminated tissues in a single mass, like a malignant ulcer. Even those who attempt to carry out this aim most faithfully (Yudin, 1943) cannot do so in most instances without imperilling vital structures. Trimming and laying open for drainage is the best that can be done in the vast majority of cases. Incidental to this is the removal of projectile fragments. "The length and direction of a penetrating wound are unknown till the projectile has been located, nor has the tract been laid open throughout its extent till it has been removed" (*Lancet*, 1944). The attempt to remove the foreign bodies which act as guides to those "very complicated cavities," wound tracts, will help to establish the true nature of the wound (revealing, for example, a severed nerve, a torn joint synovial membrane, or a crack fracture), hitherto unsuspected.

"Time spent on reconnaissance" by x rays is "seldom wasted." "A forward operating centre without an x-ray unit is incompletely equipped, and only under exceptional circumstances can the omission of this important accessory service be justified" (*Lancet*, 1944). The passage of shell or mortar fragments often opens areolar planes, splitting fascia longitudinally, which closes behind them. This split may well be missed in the initial operation on the wound, and unless skiagrams are taken the presence of the foreign body may not be suspected. Fatty areolar tissue, moreover, opens before the entering projectile fragments and closes behind them as if never penetrated, and the fasciculi of coarse fibres of the deltoid and gluteal muscles rearrange themselves after the passage of a projectile, rending a "blind" search uncertain of success. No surgeon can write complacently "Wound excised" on the patient's card unless he has had the patient x-rayed and the causal projectile demonstrated and removed. A blister or discoloured patch in the skin often acts as a guide for subcutaneous projectile fragments, and an incision there will reveal the foreign body and drain the wound tract. But deeper fragments have no such stigmata, and skiagrams are necessary. In the field the time required for accurate location as in hospitals at the base may not be possible. But views in two planes can always be taken, giving a sufficient guide.

A recent tragic case illustrates the complications that may ensue through leaving projectile fragments *in situ*.

Case History.—A C.C.S. orderly, wounded on March 17, 1944, in the C.C.S., was taken to the theatre two hours after wounding. He was found to have a shell wound at the outer aspect of the left thigh, through the superficial fibres of the vastus lateralis. Tl wound was considered tangential, and layer by layer its edges we trimmed and then left open. Routine sulphanilamide powde vaselined gauze, and a light plaster-of-Paris bandage were applie He was evacuated on March 19 in fair condition; no undue pa had been complained of. Lieut.-Col. W. M. Capper, O.C., surgic division of a general hospital, has supplied the further histor "Admitted March 20, 1944, obviously ill and in pain. Pulse 14 Left leg tender and swollen; dark-brown oedema extending up thig and over abdominal wall almost to umbilicus, and present i popliteal space also. Plaster removed. Local wound clean and n tender." After blood transfusion: "Operation. Wound explore locally and found to pass across thigh. There was escape of co siderable amount of gas. . . . A large F.B. (about 2 in. by 1 in was found in an abscess cavity behind the femoral vessels. P and anaerobic oedema had tracked up and down the femoral sheat and it was therefore present in the upper thigh and in the poplite space; sartorius, rectus femoris, and vastus externus were excise and part of the adductor magnus; he was too ill for amputatio In spite of parenteral sodium penicillin in large doses and A.G.C serum, the patient died on March 21."

The foreign body was unfortunately missed at the primary oper tion. Even in a wound considered merely tangential, a skiagra should have been taken. The attempt to remove the F.B., guide by the skiagrams—antero-posterior and lateral views—would ha opened the tract and given the required drainage in an are peculiarly liable to anaerobic infection.

In treating abdominal wounds the actual foreign body often ignored. "The discovery of foreign bodies in the cases is of little importance. They may be difficult to loca in the posterior abdominal wall, and time spent in searchi for them is wasted. They may also be difficult to distingui from fragments of bone where part of the spine or pelvic gird has been fractured in the tract" (Blackburn, 1944). But i the abdominal cavity, where vital structures are involved, t role of the foreign body, acting as a signpost directing the trac of the wound, is most important. If the attempt to see t foreign body and actually feel it in the open wound is n considered essential, the preliminary view of its shadow o an x-ray plate is most valuable. It gives a clue to the probabl viscera injured, and a guide to the position of the incision i the abdominal parietes.

In one campaign criteria for the removal of foreign bodi were when they were provoking pain, causing pressure o important structures, or aggravating sepsis (Mason Brow Dennison, Ross, and Divine, 1940). Sooner or later t majority—H.E. shell fragments, mortar, bomb, or grenade fra ments, pieces of projectiles from long-range artillery such "Anzio Annies and Archies"—give rise to trouble. The press on nerves and erode blood vessels. The poisonous natu of certain projectiles, moreover, must be remembered. Blaxlan (1942) describes a case of fatal phosphorus poisoning from bullet.

If embedded near sphincters or in joints the constant mov ment in these places greatly reduces the chance of the forei body being walled off by fibrosis. Not being walled off, t foreign body will act as a continual source of irritation a delay healing. At all times they are a potential source sepsis liable to acute exacerbation. Though the "primary metallic foreign bodies themselves may be sterile owing their heat (and the familiar blister in the skin overlying t fragment that has not quite perforated testifies to this freque high temperature), the "secondary" foreign bodies they car in—mud; bits of equipment—are teeming with organism "Many of the most serious complications of infection, pa ticularly secondary haemorrhage, can be traced to retain foreign bodies and the contaminated clothing around them (Donald, 1944). The search for the metallic foreign bodi visible in the skiagram will help to find these non-opaq "secondary missiles, such as clothing" (Law, 1944).

A prolonged hunt for foreign bodies in shocked patients unjustifiable, and the field surgeon leaves those in certain are —i.e., the thorax and the head—to his colleagues with speci facilities at their own centres. But in the general toilet wounds as many as possible must be removed. The sear is also advisable for psychological reasons, for patients inva ably want to know if the bullet has been removed, and a for the gory relics as souvenirs: extracted shrapnel demo strates to the patient that his treatment has not been skimped.

In compound fractures the examining finger almost certainly will not be able to distinguish between projectile fragments and loose portions of bone, but, as such bony fragments require removal, nothing is lost by removing the loose hard lumps found in the depths of such wounds. Special instruments—e.g., Bergonié's electric vibrator, D. A. Willis forceps (Hamilton Bailey, 1942)—are not available or required in forward areas; a long pair of artery forceps or bullet forceps are sufficient.

Immobilization

Transportation of wounded is an administrative task. Field surgeons must assist this by making their patients fit for transportation. In the Middle East campaigns 1940-3 "travel over rough desert tracks was generally regarded as the most serious ordeal for the badly wounded man" (Wilson, 1944). Methods of immobilization had to be learnt that would stand up to the gruelling test of a long evacuation line. Once again, with recent Allied advances, the same rules apply. In the rows of patients laid on stretchers in the tents of a staging unit the faces of men correctly splinted contrast strongly with the apprehensive haggard appearance of those in whom a loosely fixed Cramer wire splint or an insufficient plaster slab has utterly failed to prevent every jolt and bump shaking up their wounds. "I had a stiff journey, sir, as it went bouncing up and down," is the usual expression of patients, pointing to an unsplinted limb. Careful plaster technique pays on the line of communication: firm, evenly applied plasters are far more comfortable than crumpled, cracked, and ragged-ended efforts.

All *flesh wounds* of any extent should be adequately protected. A penetrating wound over the scapular angles or the point of the heel will become the seat of cellulitis unless carefully padded. Wounds of the flank need covering by a plaster plaque—not merely a many-tailed bandage, which rucks up so easily. Penetrating wounds of the shin region treated without *x*-ray facilities should invariably be immobilized in a plaster. Cracks in the tibia occur very often with modern projectiles, and, if immobilized, many hours of misery are saved before reaching a centre where a skiagram puts the diagnosis beyond doubt. In addition, reactionary haemorrhage from the crural arteries is apt to occur in calf wounds if these are not immobilized in plaster casts. Light plaster casts are also advisable to protect amputation stumps on their journey down, and now plaster corsets are recommended for abdominal wounds (H. Rogers, 1944).

Gunshot wounds of the vertebrae should be immobilized in a padded posterior shell. With partial injuries of the spinal cord, and when the cauda equina is involved, any chance there may be of recovery when the patient reaches a neurosurgical centre is irrevocably lost if no attempt is made to prevent further damage to the nerve tissue by broken laminae, fragments and foreign bodies. The risk of pressure sores in a well-padded plaster shell is a minor matter compared with this much graver possibility. The plaster may be a dorsal shell, extending as far forwards as the anterior axillary line at the sides and including the legs and feet to prevent foot-drop, or a lesser shell fixing the trunk only, if there are no neurological signs. A fractured spinous process travels much better in a posterior shell than lying on a stretcher merely protected by cotton-wool. When complete paraplegia is present, however, rigid immobilization is not so necessary, because irremediable damage has occurred; still, such a case will travel better in a well-padded plaster shell.

Fractured pelvic bones should be similarly fixed; a few turns of elastoplast and a rolled-up blanket on each side are most inefficient immobilizing agents in such cases.

"A striking feature of war injuries is the preponderance of wounds of the extremities" (Trueta, 1944). "All forward surgeons must be orthopaedists up to a point" (Donald, 1944). Limb wounds should therefore receive as much attention as more spectacular abdominal injuries. In a C.C.S. recently, over a period of 4 months, in 687 patients with 873 lesions, 717 were limb wounds—i.e., 82%. In another 3-months period, in 204 patients with 299 lesions, 237 were limb wounds—i.e., 79%.

In *fractures of the acetabulum and upper third of the femur*, often with large gluteal wounds, the Thomas splint is unsatisfactory, and a Whitman plaster should be applied. Two standard methods for fractures of the shaft of the femur are fully described by Buxton (1942, 1943). The complete "Tobruk" plaster—i.e., enclosing the limb in a plaster case and then fixing this in a Thomas splint by further plaster bandages—gives the best immobilization in cases with gross comminution. The "double cuff" method—i.e., a cylinder of plaster-of-Paris round the limb and bars of the Thomas splint, incorporating the adhesive strapping extension already applied—gives adequate immobilization in most cases. Rotation of the limb outwards in this method is prevented by rolls of cotton-wool on each side of the limb between it and the Thomas splint bars underneath the plaster. Some prefer strapping applied to the unshaven skin for better traction; but as secondary suture at the base is favoured by a clean-shaven skin shaving is preferable. In the cuff method, moderate tension is maintained on the fracture by inserting the usual "Spanish windlass" stick between the tapes or cord leading from the extension strapping to the end of the splint. A fixed extension after the principle of one method used at orthopaedic centres (Charnley, 1944) is therefore obtained. If the tapes are carried round the side bars of the Thomas splint before knotting over the end of the splint the effect of extension is largely lost. The foot and heel are generally left out in this method except when foot-drop is present owing to sciatic-nerve injury. Meticulous attention must be applied to the sling under the heel; if carelessly applied, and twisted, a pressure sore will form in 24 hours. The Thomas splint, slightly bent at the knee, is preferable to the straight splint in those appliances, as the knee-joint is thus kept in the optimum position of slight flexion.

Compound fractures of the tibia are immobilized in an above-knee plaster. This, however, in itself is not enough Such plasters have the knee slightly flexed. A pillow or folded blanket is required under this bend to prevent the limb rolling outwards and the main weight being borne on the heel. Such a pillow or blanket often shifts, and the heavy, slightly angled plaster then lies loose on the stretcher. The patient invariably tries to twist himself over on one side to let the leg lie outwards, flat. With other wounds present as well, this may be difficult or impossible. In any case, the patient lies in an awkward strained position. The problem is solved by placing the limb encased in a plaster on a Thomas splint supported by the method L. S. Rogers (1943) devised. A foot-piece of a large size is taken and plastered firmly to the splint with the circle end downwards. A piece of Cramer wire 2 ft. long is plastered across the base as a horizontal rest. With this support, which is a self-contained apparatus, the patient can be moved from a stretcher to a bed without disturbing the position. The limb is elevated in this method; "I consider this precaution [elevation] of the utmost importance in preventing oedema and consequent constriction" (Trueta, 1944). The contraindication to this method is when grave vascular damage has occurred—i.e., when the posterior tibial artery has been involved. Such cases require the limb to be below the heart level, to conserve the blood supply.

All *penetrating or perforating wounds of the foot*, with compound fractures of tarsal and metatarsal bones and phalanges, should be immobilized in plaster casts. Wounds dressed merely with cotton-wool and gauze become painful: the foot swells and the patient tends to hold it in an equinus position unless immobilized. Sepsis also is rendered liable, in spite of penicillin and chemotherapy, and secondary suture at the base is jeopardized. This applies especially to wounds of the tarsal bones, so liable to osteomyelitis. 100% of compound fractures of the os calcis arriving in South Africa (D.M.S. Middle East, 1943) required amputation. The plaster boot stopping half-way up the leg is not sufficient; unless the cast is carried up over the curve of the calf muscles to the level of the tibial tubercle it is quite insecure. A Cramer wire splint is a most unsatisfactory immobilizing agent, except for the most temporary occasions. It is too apt to work loose, as it cannot be moulded accurately to the limb contours like a plaster.

Compound fractures of the scapula, clavicle, and humerus should be immobilized in a thoraco-brachial plaster. Flannel bandages are not sufficient; they have a great tendency to unwind in this position with restless patients. The application of this plaster cast has been greatly facilitated by Jack's (1943) contrivance. The axilla is well padded. The humerus itself is immobilized by a "plaster from the nape of the neck down over the elbow and up to the axilla" (Buxton, 1942) and approximated to the side. The elbow is fixed at a right-angle and the forearm brought across the front of the lower chest. The forearm is immobilized by an ulnar plaster gutter extending to the heads of the metacarpals, with fingers free for full movements. The whole, including the shoulder on the affected side, is incorporated in a circular plaster round trunk and limb. A patient thus fixed can travel comfortably, and is more portable than in the aeroplane-splint position, with shoulder abducted to 90°.

Wounds of the carpus and forearm require padded split plasters, immobilizing the joint above and below the site of the fracture; the metacarpo-phalangeal joints should remain free. Metacarpal fractures, if not fixed with a firm dorsal slab but merely by a gauze bandage, will invariably arrive at base with the hand in an acutely palmar-flexed position—the worst possible for rehabilitation if not corrected immediately.

Wounded joints also need immobilization. Several severe reactionary haemorrhages have been observed from the deltoid muscle in wounds of that muscle also involving the shoulder-joint that were not placed in a thoraco-brachial plaster. When a foreign body is present in a joint, failure to immobilize is inexcusable. All penetrating wounds of the knee-joint should have strapping extension applied and the limb put in a Thomas splint. Any case in which the knee-joint has been aspirated should be similarly treated: a perfunctory plaster slab or Cramer wire splint is inadequate, and indeed inhumane.

Elevation of the limb in plaster limits oedema and constriction; often simple elevation in itself is equivalent to the administration of a sedative for relief of pain. It is safe, in addition, to pad and split plasters. "Don't use unpadded plaster casts in the early stage of treatment; even if it is proposed to split the cast and to elevate it, don't use an unpadded cast" (McIndoe and Watson-Jones, 1944). This applies especially to wounds of the hands; the rapid and extensive swelling of the dorsal subaponeurotic space with injuries as well as in whitlows makes splitting of a plaster enclosing the hand imperative. The splitting means not merely a division of the plaster cast by a slender knife-cut and not a partial splitting leaving upper and lower ends of the cast intact, but freely opening the cut at least 1/4 in. to allow for expansion the whole way down. An unpadded, unsplit plaster, enclosing the toes and forefoot for injuries there, should never be used. It is similar to the old Scottish instrument of torture "the boot," and a patient in one suffers accordingly. Splitting of the plaster cast itself may not be sufficient. Circular gauze bandages underneath the plaster must be cut, for when caked with drying blood they form constriction bands like iron rings.

Lack of immobilization may mean an endeavour to maintain free finger, toe, and joint movements. It has been noted that excessive splinting has done much harm during the war, especially through its effect in causing stiffness of the joints of the hand (Ritchie Russell and Harrington, 1944). But pros and cons of early movement, particularly in the treatment of fractures, recently under discussion again (Burns and Young, 1944), are not the concern of the surgeon in forward areas. Without immobilization the more immediate risks of shock, haemorrhage, and grave infections are run. Firm immobilization must therefore be one of the most important tasks of the forward surgical team.

In conclusion, one criticism of the plaster cast must be remembered: "The early stages of gas gangrene are easily overlooked or discounted, and the risk is increased by the modern closed methods of treatment" (Osborn, 1943). In a recent series of 44 cases of gas gangrene, however (MacLennan, 1944), in no case was the onset attributed to too tight a plaster. Keeping the warning in mind, the use of the padded split plaster is safe and sound.

I am grateful to Brig. F. A. R. Stammers for his advice and discussion over many of the problems discussed above. I am also grateful to Lieut.-Col. D. M. Mitchell for permission to record the above observations; to Capt. R. W. Ross for many suggestions; and to Pte. J. H. Foulds, R.A.M.C., for his painstaking and accurate recording of the case histories on which the above opinions are based.

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THE RISE IN INCIDENCE OF SCABIES IN A CLOSED COMMUNITY USING ORDINARY SOAP, AND ITS SUBSEQUENT FALL ON THE SUBSTITUTION OF 5% TETMOSOL SOAP

BY

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In a series of previously published papers Davey, Gordon, and Unsworth (1944) have shown that soap impregnated with tetmosol (tetraethylthiuram monosulphide) to the extent of 5, 10, or 20% cures a high proportion of animals infected with mange due to *Notoëdres*. The same authors and their colleagues (Gordon, Davey, Unsworth, *et al.*, 1944) proved that soap similarly impregnated with 20% tetmosol cured 80% of established human cases of scabies due to *Sarcoptes scabiei*.

In addition to proving the curative value of tetmosol soap these authors made a much more important observation, in that they proved that tetmosol soap completely protected animals against the acquirement of scabies due to *Notoëdres*. This fact, considered in conjunction with the remarkable curative properties of tetmosol soap when employed in connexion with human cases of scabies, caused them to make the recommendation that this soap should be used in infected communities to prevent the spread of the disease. The idea of employing such a universally used substance as soap as a vehicle for the sarcopticide has obvious advantages, for, if it could be shown that it protected against scabies and that little risk of dermatitis attended its use, the soap could be issued to the population without the necessity for parades or any other medical supervision. This method would be not only of great value in wartime but of still greater value in post-war Europe, when dealing with crowds of homeless refugees. At our suggestion Dr. Kenneth Mellanby (1945) carried out a test of the prophylactic and curative value of 10% tetmosol soap in a mental hospital where scabies was endemic. Of 1,213 patients who acted as controls, 1.8% were infected at the start of the experiment, 2.1% after six weeks, and 3.5% after 11 weeks, a total of 24 new cases having occurred in the community. Seven hundred and five patients, of whom 13.2% were infected, had 10% tetmosol soap issued to them in place of ordinary soap; at the end of six weeks the percentage of infected had fallen to 1.3, and was found to be at the same level after a further five weeks. In contrast to those using non-medicated soap, not a single new case had occurred. As a result of his investigations Mellanby came to the conclusion that: "These experiments show that tetmosol soap can act as a very efficient means of controlling scabies. It not only prevents the disease from spreading but also cures the majority of those who use it for a few weeks. There seems no doubt that its general employment would rapidly eliminate scabies from a community."

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* Working under a grant from Imperial Chemical (Pharmaceuticals) Ltd.

While Dr. Mellanby's experiment was in progress Gordon and Unsworth (1944) conducted a further series of experiments on the prophylactic value of tetmosol soap among animals exposed to *Notoëdres* infection, and showed that 5% tetmosol soap, when applied once daily in the form of a lather containing 0.9% tetraethylthiuram monosulphide (the concentration at which the drug would reach the skin in ordinary ablutions), completely protected rats against a moderate infection with *Notoëdres,* whereas 2% and 1% tetmosol soap, when used under similar conditions, protected only a proportion of the rats so exposed. As a result of these experiments they suggested that " 5 per cent. tetraethylthiuram-monosulphide when incorporated in soap represents the lowest concentration of the drug which is likely to confer complete protection from scabies when the impregnated soap is used once daily."

By the courtesy of Dr. Mellanby and the staff of the mental hospital concerned, we have been allowed to continue the scabies investigation, and below are given the results obtained from the use of 5% tetmosol soap.

The Test

A group of 400 patients who had previously formed part of Dr. Mellanby's control population of 1,213 were again examined by us seven weeks later, making a total observation period of 18 weeks without treatment. The patients were then re-examined after six weeks and after a further period of seven weeks. This group of 400 persons was therefore kept under observation for a total period of 31 weeks, during the last 13 of which they were using 5% tetmosol soap.

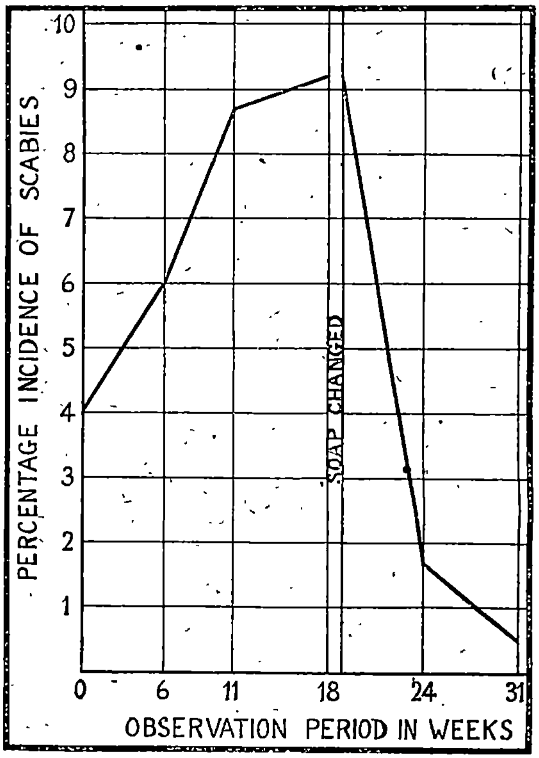
Before considering the results obtained by the use of 5% tetmosol soap in an infected community we wish to make one point clear. Examinations could be carried out only on the hands and arms and, in some doubtful cases, feet of the patients, a positive result being recorded only after a live mite had been demonstrated. Presumably owing to this partial method of examination a number of the cases recorded as negative were positive, although not on the hands and arms. This is shown by the fact that some cases without treatment were positive at one examination, negative at the next, and positive subsequently. It follows that the incidence of scabies on any date cannot be lower than that shown in the Table, but it may have been higher. It is important to note that our results with 5% tetmosol soap are directly comparable with those obtained by Mellanby (1945) when using the 10% strength, since the technique employed was the same.

The results obtained when using this method of examination on six occasions, conducted at intervals of approximately six weeks, are shown in the Table and in the Graph based on it.

Table showing Increase in Incidence of Scabies in a Closed Community at Various Intervals during a Period of 18 Weeks, and Therapeutic and Prophylactic Effects Following the Substitution of 5% Tetmosol Soap for Ordinary Soap

Soap	Time of Observation	No. of Weeks from Start	Total Persons Examined	No. Positive	% Positive	No. of New Cases During Each Period
Ordinary toilet	1st examination: 6–9/6/44	—	400	16	4	—
	2nd examination: 24/7/44	6	400	24	6	8
	3rd examination: 30/8/44	11	400	35	8·7	11
	4th examination: 19/10/44	18	400	37	9·2	2
Soap Changed						
Impregnated with 5% tetmosol	5th examination: 1/12/44	24	398	7	1·7	1
	6th examination: 22/1/45	31	392	2	0·5	0

It will be seen from the Table and the Graph that during the 18 weeks in which the community used ordinary soap the total number of cases of scabies rose from 16 (4%) to 37 (9.2%) and that 21 new cases were observed. During the subsequent 13 weeks, in which the community used 5% tetmosol soap, the number of cases fell from 37 (9.2%) to 2 (0.5%) and only one new case of infection was observed, this patient having contracted scabies some time during the first six weeks of using the impregnated soap.



Graph plotted from Table

Mellanby (1945), when recording the results of using 10% tetmosol soap in a community of 705 persons for 11 weeks, observed three cases of dermatitis, all of them among women. In the present series of observations 400 persons, all of them women, used 5% tetmosol soap for 31 weeks without any cases of dermatitis being observed.

Summary and Conclusions

The incidence of scabies in a closed community of 400 persons was observed over a period of 31 weeks, during the last 13 of which 5% tetmosol soap was substituted for ordinary toilet soap.

During the 18 weeks in which ordinary soap was used the incidence of scabies rose from 16 cases (4%) to 37 (9.2%) and 21 new cases of scabies were recorded. At the end of this period 5% tetmosol soap was substituted for ordinary soap, and during the remaining 13 weeks of observation the incidence of scabies fell from 37 cases (9.2%) to 2 (0.5%) and only one new case occurred. This case appeared during the first six weeks, no new case occurring during the last seven weeks of using the impregnated soap.

No cases of dermatitis were recorded among the 400 persons using 5% tetmosol soap for 13 weeks.

It is concluded that 5% tetmosol soap acts as a prophylactic and curative agent against scabies and is an effective means of controlling the disease in an infected community.

We are greatly indebted to Prof. H. A. Krebs, Director of the Sorby Research Institute, who allowed the volunteers at the Institute to assist us in carrying out the investigation. We have also to thank Imperial Chemical (Pharmaceuticals) Ltd., who, in collaboration with Messrs. Lever Bros. and Unilever Ltd., supplied us with the impregnated soaps used in our experiments.

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Medical Memoranda

Ischio-rectal Abscess Obstructing Delivery

The following case seems worthy of record because the condition must be rare:

A primipara aged 25 had been troubled with intermittent attacks of cystitis due to *B. coli* for the last three months of her pregnancy. The attacks were easily controlled by giving the patient 10 c.cm. of a 20% solution of calcium chloride in a glass of water twice daily. This treatment had been recommended to me by the late Sir E. Sharpey-Schafer, who found that this solution of calcium chloride rendered the urine acid (*p*H 5) and so inhibited the growth of B. coli.

With the onset of labour the patient complained of pain in the perineum at a point about " 7 o'clock " with reference to the anus. At this point there was a firm elastic swelling about the size of a golf ball. When the head came down on the perineum the patient was unable to exert any pressure to help delivery because the pain was so intense; and the swelling was making the perineum rigid and thus holding the head back. The swelling was an ischio-rectal abscess, and to avoid rupturing it I did an episiotomy on the left side of the vagina and delivered the head by forceps. Three days later the abscess was opened and drained after the vagina had been carefully shut off with sterile gauze. A sample of the pus yielded a pure growth of *B. coli* (R.C.P.Ed. Lab.).

Recovery was uneventful. A subsequent pregnancy in three years' time was perfectly normal, with no recurrence of the *B. coli* infection.

I am indebted to Prof. Learmonth, Department of Surgery, Edinburgh University, for his kindly interest in this case.

North Berwick. A. C. MALLACE, *M.C.*, M.A., M.B., CH.B.

A Case of Uterus Didelphys

The following case should be of interest on account of its rarity:

HISTORY

An unmarried girl aged 26, serving in the W.A.A.F., was admitted to an E.M.S. hospital complaining of dysmenorrhoea. Appendicectomy had been performed six years previously for acute appendicitis. She had amenorrhoea for six months after the operation, and since that time had suffered from severe dysmenorrhoea; otherwise her menstrual history was normal. Puberty occurred at 16; periods were regular 3/24 with the above exception. Her symptoms of dysmenorrhoea had been very distressing, the pain being of greatest intensity six hours premenstrually and lessening to some extent once the flow started. She described no other abnormal symptoms of particular note.

On examination the patient was seen to be well developed physically and secondary sexual characteristics were well marked. No abnormal physical signs were demonstrated. Vaginal examination under pentothal-gas-oxygen anaesthesia revealed the following points: Two intact annular hymena were present, together with two distinct vaginal canals, of equal size. The mucous membrane appeared normal. There were two distinct cervices, small but nevertheless not rudimentary. Both cervical canals were patent. A uterine sound was passed into each canal for a distance of 2½ in. in the direction of retroflexion, and failure to " click " the tips of the two sounds indicated the presence of a double uterus. Bimanual examination then revealed a distinct sulcus between the two uteri and that both were retroflexed.

Lipiodol injection of both sides, carried out with direct visualization under pentothal-gas-oxygen anaesthesia, demonstrated conclusively the existence of two distinct uterine cavities and also that on each side the Fallopian tube was patent. The lipiodol, however, escaped rapidly into the pelvic cavity and the radiographs were not very satisfactory.

REMARKS

The above is an instance of one of the extreme types of duplication of the genital tract due to failure of fusion of the Müllerian ducts in their whole extent, the defect having arisen early in development before their differentiation. The uteri were fused only at their cervico-vaginal portions, and even then fusion was incomplete. It represents, in fact, a true uterus didelphys, of which there are very few cases on record. The most extreme case, described by Gemmell and Paterson in 1913, in which duplication of the vulva and also of the urinary tract was observed, shows the end-results of failure of fusion of structures other than the Müllerian ducts; but the case I have described presents features of Müllerian origin only, though in a very complete form. In cases of uterus didelphys the hymen is usually single, but in this instance there was definite duplication. Otherwise the case does not differ essentially from those already on record.

It will be of great interest to follow the progress of this case and, in particular, to learn of the details of the first pregnancy.

I am indebted to Mr. G. S. Davidson, consultant gynaecologist, and to Col. G. M. Millar, medical superintendent, for granting me permission to publish this case.

FORBES W. HENDERSON, M.B., CH.B.,
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Reviews

MEAKINS'S PRACTICE OF MEDICINE

The Practice of Medicine. By Jonathan Campbell Meakins, M.D., LL.D. Fourth edition. (Pp. 1,444; illustrated. 50s.) London: Henry Kimpton. 1944.

Prof. J. C. Meakins rightly regards the practice of medicine as probably the most entrancing profession in the world, requiring as it does an understanding of and sympathy with all aspects of human life. The day of the family doctor is held by some to have passed away. This he thinks would be unfortunate, for the physician who knows the patient from birth has a perspective to which no one else can attain. Modern developments have improved technique and raised the average health of the community; but he asks, " Has it done so without the loss of a certain finesse and understanding of the human frailties and the helpful counsels of an old and trusted friend which made medicine a profession and not a trade?"

It is in this spirit the author conceived his textbook *The Practice of Medicine*, which has now reached its fourth edition. Naturally this new one is tinged by his war experiences as Brigadier and Deputy Director of Medical Services, R.C.A.M.C., leading to such topics as the crush syndrome, the hepato-renal syndrome, blast injuries, jaundice after administration of human serum, and the epidemic type. Each of these has as a matter of fact thrown important light on the pathology of the diseases of civil life. The sulphonamides and penicillin receive due consideration, as does malaria—now a world-wide problem in prophylaxis and treatment. Atypical or virus pneumonia has become a clinical entity. The study of traumatic shock, for which there has been such abundant opportunity, has clarified our concepts of disturbance of psychological balance, and thrown light on the sequence of events in burns and in dehydrating diarrhoea. All this has led to extensive revision in view of the new knowledge. Throughout we see the impact of military experience on civilian life.

Due emphasis is laid on the importance of diet and proper housing in the maintenance of health—and on the trend towards a preventive attitude. The other great factor in the forward march stressed by the author is the rapidly advancing concept and understanding of psychosomatic processes, for there is hardly a region of the body where this does not apply. Prof. Meakins has a decided belief in the value of visual impressions and has therefore enriched his pages with 517 illustrations, 48 in colour. It is an excellent if somewhat monumental tome of more than 1,400 pages. We may well ask, How much will examiners expect the student to remember?

OBSTETRICS AND GYNAECOLOGY

Combined Textbook of Obstetrics and Gynaecology for Students and Practitioners. Fourth edition. Revised by J. M. Munro Kerr, R. W. Johnstone, James Hendry, Dugald Baird, James Young, Donald McIntyre, E. Chalmers Fahy. With additional contributions by Charles McNeil and G. Jackson Wilson. (Pp. 1,208; illustrated. 42s., plus 1s. postage.) Edinburgh: E. and S. Livingstone. 1944.

This excellent combined textbook has been completely revised in its fourth edition and is now better than ever. It can be warmly recommended both to medical students and to general practitioners, and the price of 42s. is most reasonable. We would agree with the authors that a textbook of this type is not the place to discuss the finer points of surgical technique, nor is a volume written primarily for students the place to discuss the details of the more difficult problems of differential diagnosis and treatment in either obstetrics or gynaecology. Such topics have been skilfully handled throughout the book. The revised section dealing with analgesia and anaesthesia brings this subject up to date with references to cyclopropane anaesthesia, pudendal and parasacral blocks. The importance of the Rh factor in obstetrics receives due attention. Illustrations are for the most part excellent; but Fig. 224 depicts a type of episiotomy which it is doubtful whether any of the authors would perpetrate. One or two of the plates illustrating points of radiological interest are a little heavy. It is somewhat surprising to find pituitary extract in doses of 1 c.cm. being advised in the treatment of obstetric shock and in the control of post-partum haemorrhage, and one cannot help wondering whether the high mortality apparently associated with manual removal of the placenta in the experience of the authors might not have been due to the use of this drug under these circumstances. In discussing the treatment of the extended breech it is still advocated that a foot should be brought down early in the second stage, and many readers will feel that episiotomy is not given the place it deserves in the conduct of a breech delivery. Apart from these points of criticism the teaching throughout is conservative and orthodox. It is clearly expressed and well illustrated in a way which will appeal to students and doctors alike.

OPERATIVE SURGERY

Operations of General Surgery. By Thomas G. Orr, M.D. (Pp. 723; with 1,396 step-by-step illustrations on 150 figures. 60s.) Philadelphia and London: W. B. Saunders Company.

Textbooks of operative surgery fall roughly into two categories. The one, which may be called, perhaps not too aptly, academic, eaches the classical operations in detailed steps and is that most used in the teaching of the subject to students for examination purposes. The other type, of which *Operations of General Surgery*, by Thomas Orr, professor of surgery at he University of Kansas, is an example, gives a much scantier account of operative technique, but covers a very wide field and is less concerned with the classics. For this reason such books tend to be more absorbing to the student reader, who possibly gets the impression that he is exploring the exciting newer surgical fields without the irksome and tedious necessity for concentrating upon the "donkey-work" so essential to the acquiring of a sound surgical ability. To read these books s as delightful as listening to a good recording of Kreisler or Menuhin playing, without having one's attention unwillingly drawn to the painful scrapings of the violin aspirant as he applies himself over the weary hours to his practice exercises. Since the great majority of students will not practise surgery his method of approach may be quite proper; it is certainly more popular in the United States than here. For the budding surgeon, however, there is no short cut; he must rely upon the older fashion of book, of which luckily there are several excellent examples in our literature. Their rather heavy going can be relieved from time to time by reading a chapter or two of the former type.

In the volume under review the whole range of general urgery is covered in an attractive way; the many illustrations are of as high a quality as the text. We cannot help feeling, however, that in the matter of balance between the sections he author has not been entirely happy; there is a tendency o describe new and attractive procedures at length while omitting other matters of greater frequency and importance. As an example, adrenalectomy, thymectomy, and operative obliteration of the ductus arteriosus are described at length, but there is no account of the surgery of intracranial tumours or abscesses, of pituitary tumours, nor indeed is there anything o tell the surgeon how to enter the skull in these cases. Perhaps this lack of balance is best assessed by noting the space devoted to each section. Thus the whole of nervous surgery, ncluding the peripheral nerves, the spinal cord, and the brain, s dismissed in 24 pages, while the sympathetic system alone occupies 19 pages; in the thoracic section of 56 pages the losure of chronic empyema cavities takes no fewer than 2 pages.

The general standard of production of the book is very good, he semi-art paper used allowing excellent reproduction of the lustrations, but we think the author must revise the balance f the various sections in any future editions.

ENDOCRINOLOGY

Recent Advances in Endocrinology. By A. T. Cameron, D.Sc., F.R.I.C., F.R.S.C Fifth edition. (Pp. 415; illustrated. 18s.) London: J. and A. Churchill. 1945.

The fifth edition of this well-known textbook has been largely rewritten in order to pay more attention to the clinical aspects f endocrinology without increasing the size of the volume, hereby adding to its value to the practitioner. The principal ew points which the author stresses are the light that the use f radio-active iodine has thrown on thyroid function, the lose association between the parathyroids and the control of phosphate excretion, and the clearer knowledge of steroid hormone chemistry. He believes that the posterior pituitary produces only one hormone, and that Fröhlich's syndrome is not endocrine in origin, while renin produced by the kidney must be regarded as a hormone. Throughout insistence is laid on the use of accurately standardized preparations of known activity. This remains one of the best textbooks on endocrinology, and is all the better for retaining such a manageable compass.

Notes on Books

Malnutrition (Quaker Work in Austria, 1919–24, and Spain, 1936–9), by NORAH CURTIS and CYRIL GILBEY, is published at 2s. by the Oxford University Press, and it recounts the work done by missions sent out by the Society of Friends. The events in Austria and Spain left Europe hungry and with millions of children suffering from malnutrition, which is more intractable than famine. Famine happens to a whole community living in a definable area: therefore it is less difficult to know whom to feed. Malnutrition, however, with its lowered disease resistance, requires special supplementary diets for selected children in the birth-to-six-years range, so relief measures must be based on extensive individual inquiry and medical supervision. The vast experience of the Society of Friends has shown them the best methods of rehabilitation in undernourished families and disrupted homes. Quakers realize that the New World cannot be securely built save on the restored health of the peoples. This booklet tells how the Society deals with the problems. First it makes a survey, and this is followed by food relief, through welfare centres, distribution depots, and children's homes. The administrative centre works in co-operation with Governments and local authorities. Though in very condensed form much valuable information is given. The authors find that methods useful in one country are inapplicable in another and that malnutrition can be dealt with only by common-sense handling of each situation. The recent debate in Parliament, introduced by Earl Winterton, has proved the urgent need for more active consideration of post-war starvation.

Miss EVELYN C. PEARCE'S *Medical and Nursing Dictionary and Encyclopaedia* appeared originally in 1933 under a shorter title. It was written from great experience as sister-tutor for many years at the Middlesex Hospital and as an examiner of nurses. The author's intention was to give her readers a general view of the treatment and nursing of the disorders and diseases they would meet in their work, and assist them in preparing for the final State examination. In the course of revision at frequent intervals the contents have grown, and for the seventh edition (Faber and Faber; 12s. 6d.) a great deal of material has been rewritten and new information added. It is a very comprehensive book, and the fact that it extends now to well over 700 pages will hardly be realized at first glance. The slimming process has been accomplished by wartime methods of printing and production, but the type is clear and the paper reasonably opaque. As before, the nursing details are given in excellent fashion, and the book may be recommended with confidence.

A sixth edition of Dr. E. B. JAMIESON'S *Companion to Manuals of Practical Anatomy* has appeared three years after the fifth, and it well maintains the principal characters of the previous issues—namely, a concise statement of the essential elements of human anatomy dealt with in the main from the systemic standpoint; but where in the opinion of the author it has appeared advantageous to treat the subject from the regional standpoint he has not hesitated to include short general descriptions of the position and relations of the contents of such parts as the axilla or popliteal space, or the general anatomy of such regions as the suboccipital triangle, inlet of the thorax, perineum, palm, or sole of the foot. The 35 pages devoted to development require illustrations to render them easily understood by a beginner, and although without these the verbal description may serve more advanced students as a reminder of some of the principal stages in the formation of the embryo and its appendages, it is doubtful whether this short epitome of a large and important subject will be of much value, except for the purpose of revision. The *Companion* considered as a whole is a straightforward statement of the main facts of macroscopic anatomy, clearly expressed and remarkably free from errors. It is well produced in a convenient form, so that it can be carried in a pocket and studied at odd moments. The Oxford University Press publish it at 16s.

Dr. Lewis Smith, consulting physician to the London Hospital, who died at Criccieth on Sept. 17, left estate valued at £98,236. He bequeathed £20,000 to his wife, and, after other bequcsts, the residue on trust for her for life, and then £10,000 to the London Hospital Medical College, to provide a Lewis Smith scholarship in clinical medicine, and the remainder to the Royal Medical Benevolent Fund.

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CLINICAL SCIENCE AND MEDICAL TEACHING

At the end of the last war there was little doubt in men's minds about the best method of clinical teaching. The student was enjoined to work hard at his pathology, and he was told that if in addition he attended regularly in the wards he would have little difficulty in learning the art of medicine. In Osler's textbook descriptive medicine reached a peak from which it has steadily declined as textbooks have become more compendious and less vital, and MacCallum presented pathology with equal charm as the science of the reaction to injury. The circumstances which have disrupted this happy state of affairs are not far to seek. The first was the development of ancillary methods of investigation, particularly biochemistry and radiology. The second was the increasing tendency to specialization and fragmentation of the clinical field. The third was the advance from the therapeutic nihilism of Osler's generation to the therapeutic successes and prospects of to-day. The result is that after this second world war a radical revision of the curriculum seems desirable, but we have not yet reached agreement on how it is to be achieved. A number of general principles have been enumerated, more particularly in the Goodenough report, but difficulties soon arise when one attempts to deduce from them the actual details of a course. These difficulties are especially great if it is agreed, with the Goodenough Committee, that the medical course must be kept at a reasonable length. The decline in the birth rate and the financial stringency to be expected after the war are strong reasons for trying to get medical students qualified and on the *Register* within a period of 5½ years.

The Goodenough Committee unfortunately did not discuss the motives which cause students to take up medicine as a career and the incentives which inspire them at various stages of their course; nor does its report attempt a "job-analysis" of the physician's work, particularly in general practice. Psychological factors must obviously be considered in relation to the gap between pre-clinical and clinical studies which the Goodenough report is so anxious to bridge. The pre-clinical student is a university student, living in the academic world, attempting to learn to live the good life, to have a disinterested love of knowledge, and to share in the social and athletic life of a homogeneous community. The clinical student becomes an active member of a heterogeneous community in the contemporary world, and his outlook on life changes. He comes under the influence of teachers whose business is the healing of the sick rather than the acquisition of knowledge. His attention turns from ideas to people, and in nine cases out of ten his most powerful motive is to qualify as rapidly as possible. His enthusiasm for the pre-clinical studies in which he had hitherto found so much satisfaction fades for a time, and classes in applied anatomy and physiology are commonly felt to be a sterile academic exercise. If the psychology of the student stands in the way of the integration of pre-clinical with clinical studies, the psychology of the teachers and the nature of the material to be taught stand in the way of the correlation of the clinical studies, in particular pathology and preliminary medicine. The study of reactions to injury has usually followed the route of general pathology first and special pathology later, which is not necessarily the best approach to the patient. While it is easy enough to arrange special pathology in parallel with clinical studies of the same types of disease, it will be harder to co-ordinate the important first steps in general pathology and clinical science, both with each other and also with the pre-clinical studies which have gone before.

Another popular generalization is that clinical medicine must be more scientific and that emphasis should be placed on the inculcation of fundamental principles and methods, rather than on purely factual knowledge. It is not clear what these fundamental principles and methods are. The pathologist may interpret them as the methods of the experimental laboratory, the clinician as the exact analysis of the mechanism of symptoms. The methods which led Astwood and his colleagues[1] to the discovery of thiouracil are surely quite different from the methods by which Sir Thomas Lewis's pupils have analysed the nature and meaning of the eye changes in exophthalmic goitre.[2] The value of the experimental method in research is indubitable. What is in question is its adoption as the basis of clinical teaching. In other words, are we to attempt to maintain an active and progressive interest in the biological and physical sciences while the student is learning clinical medicine, or are we to concentrate on teaching the interpretation of symptoms in physiological and psychological terms? The former course would certainly seem to invite producing neither a good scientist nor a good doctor, for experience suggests that no one could satisfactorily carry out two such exacting disciplines at the same time. During the years in hospital it will take the student all his time to learn the grammar of clinical science, the applications of statistics, and the appreciation of the psychological factors in illness.

These thoughts have been stimulated by the publication by Sir Thomas Lewis of a book on *Exercises in Human Physiology*.[3] This book is based on the belief that just as the student has class exercises in physics or biochemistry so he should have class exercises in clinical science. Sir Thomas disarms criticism by not attempting to cover the whole field. The exercises are in fact based on his own work and deal mainly with the study of the circulation, the reactions of the skin, and the investigation of pain. A book by Sir Thomas Lewis is always a major event, and this one is especially important because it gives form to the vague idea of the inculcation of methods and principles, and it projects a bridge between the pre-clinical and clinical studies. Such a course would almost certainly require the help of clinical teachers, and this would ensure that the bridge between physiology and medicine was open to traffic. Only practical experience can show whether such a course would arouse the interest of the student and whether the gap between these exercises and the examination of patients was narrow enough for the transfer of skill and principles. The difficulties in the physiological approach to medicine are twofold. Only a proportion of signs and symptoms can be analysed physiologically, and those are often the gravest ones. It may be a fascinating exercise to classify different varieties of leukaemia or to analyse the symptoms of terminal heart failure in hypertension, but the student often finds it unreal and lacking in humanity. The second reason is that many of the commonest symptoms, particularly in the gastro-intestinal tract, are better analysed in psychological than in physiological terms; the organ's specific function is being used to express a tendency of psychic direction.[4] Nevertheless in a synthesized course of teaching it will probably be wisest for the student to begin with the physiological analysis of isolated symptoms, to proceed to the examination of systems and the consideration of the effects of disturbance of the function of organs, and to arrive finally at the study of the patient as a complete and sentient being. Sir Thomas Lewis has given the lead in the devising of such a course, and it remains for others to develop and expand it.

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[1] *Endocrinology*, 1943, **32**, 185.

[2] *Clinical Science*, 1944, **5**, 51.

[3] *Exercises in Human Physiology*, Macmillan, London, 1945. (3s. 6d.

HEALTH OF NEW YORK IN 1944

The review of the vital statistics of New York City by the Health Commissioner shows some interesting contrasts. The birth rate at 16.0 per 1,000 was 1.6 and 1.4 below the high levels of 1943 and 1942, but with these exceptions it was the highest rate since 1931. For the second consecutive year there was a rise in infant mortality, the rates for 1942–4 being 28.8, 30.2, and 31.2. Practically the whole of the increase occurred during the first month of life, and mainly between the ages of 10 days and 1 month, the causes responsible being diarrhoea and congenital malformations. The maternal mortality rate, at 1.8 per 1,000 live births, was the lowest ever recorded, and about one-third of the rate prevailing ten to fifteen years earlier. Another " all-time low " was provided by the small number of 242 cases of diphtheria during the year, with 7 deaths. The falling incidence of this disease may be justly attributed to widespread immunization. During 1910–19 the average number of cases was 14,282, with 1,290 deaths. From 1920 to 1929 the averages improved to 10,685 cases and 704 deaths. Notifications of whooping-cough at 2,809 cases and 34 deaths showed a fall of 25% from the low level of 1943 and reached the lowest figures yet recorded. It is not stated whether and on what scale whooping-cough vaccine was used prophylactically. Measles was slightly more prevalent than in the previous year, there being 21 deaths. At the beginning of the year the Health Department made available a certain amount of gamma globulin for infants and debilitated children exposed to measles. The incidence of scarlet fever was about 10% below that of 1943 but 20% higher than in the two previous years; 8 deaths were recorded. In common with many other areas of the U.S.A. there was a large outbreak of poliomyelitis in New York City, with 1,907 cases and 102 deaths. This was the largest number of deaths from poliomyelitis since 1931, when 504 patients died and 4,138 cases were notified. The other large recent outbreak was in 1935, with 2,054 cases and 91 deaths. The incidence of meningococcal meningitis, which rose to a high level in 1943, fell, but was still higher than in any other year since 1905. The numbers of cases for 1940–4 were 48, 118, 411, 1,406, 1,115. Deaths for 1944 numbered 195, giving a case fatality rate of 17%, compared with 50% a few years earlier before the introduction of chemotherapy. Notifications of typhoid fever remained at the same level as in 1942 and 1943, but the deaths rose from 5 to 14. The mortality from tuberculosis has never been so low before, the rates per 100,000 being 46.0 for all forms and 42.3 for pulmonary tuberculosis; but these figures do not represent the total mortality, as some 500 deaths of city residents occurred outside the boundaries of New York and are not included.

New low records were reached in the mortality from appendicitis, accidents, and suicide, with rates per 100,000 of 5.1, 45.7, and 9.2 respectively. The death rate from diabetes, which had risen from 25.7 in 1930 to 42.8 in 1943, fell to 40.8 per 100,000. The death rate from cancer—177.2—was the highest ever recorded. Improved diagnostic techniques and the ageing of the population are important factors in the rising trend of mortality from this disease, which has increased by over 50% during the past fifteen years; but there has probably been a real increase in cancer. Mortality from cardiovascular-renal diseases—495.1 per 100,000—was lower than in 1943, but otherwise it was the highest on record. The death rate of pneumonia at 45.2 was below that of 1943 but above the rates of 1941 and 1942. The cumulative effect of the varying mortality trends was to yield a total death rate of 10.3 per 1,000—0.6 below that of 1943, but with this exception the highest rate since 1937.

In the campaign against tuberculosis the Health Department introduced for the first time a tuberculin-testing of pupils in vocational high schools. The positive reactors —19% of the 11,950 tuberculin-tested students—were then examined by *x* rays, and 27 were found to have tuberculosis. All school-teachers and school employees are to be *x*-rayed. So far 3,000 persons in private schools have been examined, and arrangements have been completed to deal with the public and parochial schools. Since Pearl Harbour the increase in venereal disease has caused the authorities anxiety. The brunt of this falls on the 15-to-19-year-olds, in whom early infectious syphilis was 204% higher than in 1941 and 31% higher than in 1943. The incidence of early gonorrhoea has also steadily increased. A new treatment centre was opened during the year making twenty in all. These clinics dealt during 1944 wi
68,000 patients. Because of the extent of the prob
special efforts were made to obtain the co-operati
parents, teachers, and clergy in the various anti
campaigns. In view of the large outbreaks of pa
in England and Wales in the early years of th

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[4] Vorhaus, M. G., and Orgel, S. Z., *J. Amer. med. Ass.*, 1944, **126**, 225.

of the present very high level of dysentery in this country, the lectures and demonstrations arranged by the Health Board in New York for the numerous wartime restaurant workers are interesting. These covered "personal hygiene," "proper methods of food handling," and "restaurant sanitation," and were attended by over 2,000 workers. The department condemned almost 2,000,000 lb. of food as unfit for human consumption; perhaps the food situation in America allows of a higher standard than was possible in this country. An epidemic of rabies broke out in the spring, and a total of 34 dogs and 1 cat were affected during the year. One human case, which was fatal, resulted from a dog-bite. Over 27,000 dog-bites were reported to the Health Department—an increase of 4,000 on the previous year.

These are just some of the points of interest from the annual record of health and disease of one of the most important cities in the world, and once again we can only admire the promptitude with which the Health Commissioner gives an account of his stewardship for the year that is past. One impression that comes from perusal of these records is that the Americans are very much more "health-conscious" than we are, and that the American public responds much more readily to the ideas of preventive medicine put before them by an alert public health service. Perhaps it is that the American layman looks up to his doctor as a scientific technician who may be expected to know his own job. The British doctor does not seem to have the same prestige with the British public.

TOXICOLOGY OF D.D.T.

The new insecticide D.D.T. (2, 2, *bis*(*p*-chlorphenyl)1, 1, 1-trichlorethane) promises to be valuable in many fields. A knowledge of its toxicity to vertebrates and the probable hazard to man is most important. A number of independent toxicological investigations have been made, and the results of some of them are in print. A curiously common omission is the absence of statements about the purity of the D.D.T. used; commercial grades may contain anything up to 30% of impurities.

All investigators agree that D.D.T. is unlikely to cause dermatitis. In solid form it is not irritating to the skin, and even in strong solutions it produced only mild erythema in rabbits and nothing in man.[1] Absorption of D.D.T. through the intact or abraded skin of animals is very slight when the drug is applied as a dust (either neat or at 10% dilution). In various bland solvents, however, it is gradually absorbed and may cause intoxication. Even so, the acute lethal dose is high: D.D.T. dissolved at 10% in corn oil and applied in continuous contact under a rubber "cuff" failed to elicit symptoms in rabbits even at a dose of 940 mg. D.D.T. per kg. Solutions of 30% D.D.T. in dimethyl or dibutyl phthalate, however, brought on acute symptoms, but not death, at doses of 2–3 g. per kg. Daily repeated inunctions of these strong solutions were harmless to dogs (90 days), but killed rats, rabbits, and guinea-pigs after 5 to 10 applications of 4 c.cm. per kg. Smaller quantities (down to 0.5 c.cm.) produced chronic symptoms and often death after about 30 doses. Other workers[2] found D.D.T. more toxic; they report death of rabbits after about 20 daily applications of 50 mg. of D.D.T. per kg., dissolved in olive oil.

With regard to poisoning by mouth, there is again a big difference between solid D.D.T. (dispersed in mucilage) and D.D.T. dissolved in vegetable oils. The dangerous doses are much higher with the solid drug, presumably because of its non-absorption. With D.D.T. dissolved in oil, median lethal doses of from 150 to 750 mg. per kg were found for small laboratory animals.[2] [3] Goldfish have been killed by even lower doses (63–200 mg. per kg.) in oil solution.[4] The lethal action is erratic, which makes the precise limits of toxicity difficult to define. Chronic intoxication follows the addition of about 0.1% D.D.T. to the diet of small mammals and birds and may lead to death in a month or so.[2] [3]

The symptoms of D.D.T. poisoning are hyperexcitability and tremors, followed by depression and finally death. If the toxicant is removed at the stage of tremors, recovery ensues. With chronic poisoning there is loss of appetite and consequent emaciation, with increased susceptibility to various infections (which were often the final cause of death in the experiments). Post-mortem examination of intoxicated animals[5] [6] revealed little effect on the nervous system, despite the nervous symptoms. Most degeneration occurred in the liver after chronic poisoning. These toxicological findings are valuable in determining toxic limits and in indicating the most dangerous vehicles of D.D.T But it must be remembered that the doses employed are very large compared with those likely to be encountered in practice. If it is agreed that the most dangerous form is an oil solution it is reassuring to calculate that a 70-kg man would have to drink 200 c.cm. of a saturated solution in kerosene or 2 litres of a 0.5% fly spray in order to swallow the equivalent of the most cautious of the estimated lethal doses for small mammals (in this calculation the toxicity of the solvents is ignored). In the form in which D.D.T. would be met with by most people (as a dry powder or a crystalline deposit) it is practically harmless unless eaten regularly in small quantities. Despite the large quantities that have been manufactured during the past two years and distributed to the Services, and the continuous work on the stuff in numerous laboratories. we know of no case of human intoxication.

"ASIATICOCIDE" IN TREATMENT OF LEPROSY

The substitution of injections of soluble products of the fatty acids of chaulmoogra and hydnocarpus oils fo the oral administration of the nauseating oils themselve marked an advance in the treatment of leprosy, in spite of its failure in advanced cases and its smaller efficacy in the infective lepromatous form of the disease. A sulphon amide preparation, promin, has recently been reported by Faget *et al.*[6] to have given promising results by intravenou use over a period of two years. The discovery of a more effective curative remedy in all stages of the disease wil greatly facilitate the reduction, and eventual eradication of this ancient and justly dreaded scourge.

We have received, through the courtesy of the French Embassy in London, a copy of a dispatch from Madagascar giving a preliminary account of the discovery o a new remedy which is reported to have given remarkable results in the treatment of advanced lepromatous case of leprosy. In 1937 Drs. Boiteau and Grimes extracted new glucoside from an umbelliferous plant growing i

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[1] Draize, J. H., Nelson, A., and Calvery, H. O., *J. Pharm. exp. Therap.*, 1944, **82**, 159.

[2] Smith, M. I., and Stohlman, E. F., *Publ. Hlth. Rep. Wash.*, 1944, **59**, 984.

[3] Woodward, G., Nelson, A., and Calvery, H. O., *J. Pharm. exp. Thera* 1944, **82**, 152.

[4] Ellis, M. M., Westfall, B., and Ellis, M. D., *Science*, 1944, **100**, 477.

[5] Lillie, R. D., and Smith, M. I., *Publ. Hlth. Rep. Wash.*, 1944, **59**, 979.

[6] *Publ. Hlth. Rep. Wash.*, 1943, **58**, 1729.

Madagascar called *Hydrocotyle asiatica,* which in doses near a toxic level gave encouraging results in leprosy. In 1938 Bontemps, working in the leprosy laboratory at Antananarivo, discovered a new glucoside, which he called “asiaticocide,” which was much less toxic; but it was insoluble in water, slightly soluble in alcohol, and very soluble in pyridine. By further research Boiteau succeeded in obtaining a solution suitable for injection. Devanne and Razafimahery in their turn have ascertained the chemical nature of “asiaticocide,” and Boiteau and Grimes are of the opinion that it acts as a solvent of the waxy coating of the bacillus of leprosy, which then becomes very fragile and may easily be destroyed by the tissues or by an adjuvant drug. In this connexion it may be recalled that in 1923 Leonard Rogers[7] recorded a note on the defatting action of injections of chaulmoograte's and morrhuates on the bacilli of leprosy and tuberculosis, based on estimates of the lipase in the blood of patients before and after treatment. The results now reported from trials of the new glucoside include softening, breaking down of nodules, followed by cicatrization. Healing of whitlows and perforating ulcers and gradual improvement of anaesthesia and muscular atrophy are also said to occur. Still more remarkable is the claim that eye lesions are rapidly cured if treated before the posterior chamber is involved. It has not yet proved possible to prepare large quantities of the new remedy for extensive trials, and in view of the many disappointments of recent years full reports of trials already carried out and their confirmation by other workers must be awaited. The most hopeful features of the present account of the work is the success in breaking down leprosy nodules, and still more the clearing up of the hitherto intractable eye lesions.

SCOTTISH INFLUENCE ON CANADIAN MEDICINE

Dr. D. E. A. Cleveland of Vancouver contributes to the January number of the *Canadian Medical Association Journal* an interesting paper on Canadian medicine and its debt to Scotland. The first name he mentions is that of William Cullen (1712–90), pupil at Edinburgh of Alexander Monro *primus.* Cullen was instrumental in founding the Medical School of Glasgow, and during his long life held the chair of medicine both in Glasgow and in Edinburgh. Dr. Cleveland recalls that it was in Edinburgh that the modern conception of medical education first developed and flourished and a generation of great teachers grew up there, led by Cullen, who was one of the first to give clinical lectures in Great Britain. “The essence of the Edinburgh method was the teaching of students at the bedside in hospitals directly connected with the medical school. . . . The influence of Scottish medicine appeared on the Canadian scene as the eighteenth century was entering its second half. Many Scots came to Canada after the conquest to engage in medical practice, and soon many Canadians were going to Scotland for their medical training . . . the name of Edinburgh and Scotland became synonymous in the medical relationships of Canada. Not a few of the men who represented Scotland and Scottish medical training in Canada are prominent, not only in the medical history of Canada but in the record of public life in Canada.” The names of Adam Mabane, Andrew Fernando Holmes, and John Stephenson are identified above all others with the beginnings of medical education in Canada. As a result of the energetic action of Holmes and Stephenson the Montreal Medical Institute grew out of the Montreal General Hospital. In Montreal at that time there was the anomaly of a medical school which actively taught but could confer no degrees and a university which could confer degrees but had done no teaching. James McGill was a wealthy Montreal merchant and a native of Glasgow, where he had attended the university. McGill College (later McGill University), so named in recognition of his bequest, had its actual beginnings as a functioning organization in a medical school, with its first teaching faculty composed entirely of Edinburgh medical graduates. But the Edinburgh tradition did not find its sole repository in McGill, for Scottish medicine played a large and important part in the establishment of hospitals and medical schools in Quebec among Canadians of French origin and speech. Scottish nationality and teaching, predominantly of the Edinburgh flavour, entered richly into the medical endowment of other parts of Canada also. About a hundred years ago 6 of the 28 practitioners in Toronto and 13 of the 14 in Halifax had been trained in Edinburgh.

DOCTORS IN HOT PRINT

There is an idea in many lay minds that the doctor—or at least their doctor—is a man apart: a man leading a dedicated life and immune from the ordinary whims and passions of mankind. The compliment has some justification in fact. Good doctors, by the nature of their job, are working philanthropists and have to be more than tolerant of human weakness and vice and absurdity. But beneath that professional detachment and that kindly avoidance of individual censure there lurks a person with feelings and opinions of his own. The long day's work, the multiplicity of the claims upon time and thought, will keep them under, but they are not abolished. A small irritant may goad repressed emotions into violent activity. The history of medicine need not be combed out for examples beyond mentioning antiseptic surgery and anaesthesia in childbirth, and psycho-analysis and contraception in the last 30 or 40 years. Euthanasia was a private matter between the humane doctor and his tortured and doomed patient, but when it became a matter of open debate there was a temptation for doctors to become publicists. One function of a medical newspaper is to give a platform for the interchange of knowledge and opinion. Much of medical practice is concerned with unpleasant facts and with the problems of sexual behaviour, normal and abnormal. Doctors can't be squeamish. A medical editor might like to “keep his columns clean”; but there are many things—and one of them is artificial insemination—which must be discussed sooner or later. What we have to bear in mind—and risk the consequences—is that doctors are not only humane but human (“The maxim's tremendous but trite”). Scratch the professional surface and the man or woman may emerge in unexpected shape as a politician or a theologian. No unguarded phrase in letter or article will escape the watchful eye and eager pen of the enthusiast. The correspondence columns of this *Journal,* week by week, bear witness to that, and there are many other letters which do not appear in cold (or hot) print. We try to hold an even balance and to give every view a fair hearing: it is better to err on the side of free speech than to stifle discussion. But there are limits, not to editorial patience, which is theoretically inexhaustible, but to the patience of the general body of readers, and a time always comes when it is plain that a heated and inconclusive correspondence has run its full course and ought to be wound up bef the antagonists have torn each other to pieces and a quieter people are bored to death.

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[7] *British Medical Journal,* 1923, **2**, 11.

Reports of Societies

VETERINARY AND MEDICAL CONTROL OF MILK SUPPLY

A discussion on veterinary and medical control of the milk supply took place at a meeting of the Section of Comparative Medicine of the Royal Society of Medicine on Feb. 21. Dr. H. J. PARISH, president of the Section, was in the chair.

Limits of Supervision

Mr. H. T. MATTHEWS, superintendent inspector, Animal Health Division, Ministry of Agriculture, who said that his remarks were personal and not official, described the milk industry as undergoing a slow evolution. In spite of all difficulties, milk-producing farms were producing more milk than ever before and the public were consuming more. Over a ten-year period production was up by about one-third and liquid consumption by two-thirds. The idea that medicine or veterinary medicine, either or both, should control milk supply was reflected in legislation which was framed to prevent the sale of unsound milk, but owing to the fact that milk was an important food it had been customary to regard all stages in its preparation as falling within the medical province. This was carrying a reasonable principle to an absurdity. It was like asking the doctor to supervise the cornfield, the poultry farm, and the trawler. Many people would say that medical control of milk supply had failed to prove effective, but his point was that the word "control" was wrongly used. If veterinary surgeons had been placed in charge at the distributing end with authority to work all the way back to the farm it would have been more productive of all-round benefit, but it would still have been illogical. No scientist with his limited view-point could control from without.

Cattle diseases in terms of human risk had been virtually reduced to two—tuberculosis and brucella infection. Both these diseases were of such economic importance in agriculture that their control or elimination was called for quite apart from human health. Of the measures now in operation against bovine tuberculosis, routine herd examinations could not have a substantial effect on total incidence until conducted with greater regularity and frequency than present circumstances permitted. The more regular use of tuberculin was becoming established. Of the milk sold in England, that from attested and tuberculin-tested herds was approximately 8%, and the number of cattle in such herds was over 700,000 and was increasing. But he did not think that any great reduction in bovine tuberculosis was to be expected over a period of years. As for brucellosis, the recently introduced system of vaccination with the American strain of the organism was proving very popular, and it could not be long before there was a heavily vaccinated cow population. Nevertheless, the attack on both these diseases could not be pressed to its ultimate extent until the veterinary profession was recruited to greater strength. There was no good evidence that non-tuberculous mastitis in the cow contributed to human ill-health, while actinomycosis of the udder was a pathological curiosity, if it occurred at all. The new arrangement for the control of the milk supply which placed veterinary science at one end and medical at the other had much to recommend it, but there was need for an intermediate link, which was being provided by the milk-testing and advisory service of the Ministry of Agriculture now being built up.

Medical Control

Dr. W. A. LETHEM, senior medical officer, Ministry of Health, said that for centuries local authorities had paid much more attention to prevention of adulteration of milk by water than to safeguarding milk from the health point of view. When, last century, attention was turned to health, the regulations were framed with a view to the elimination of bad smells, which were thought to be a cause of disease; hence rules were laid down for the position and construction of cowshed drains and so forth—provisions still incorporated in the Milk and Dairies Regulations. There were 1,500 local authorities interested in milk, and many a rural district council was expected to control 600 or 700 farms, so that it was not surprising that an overworked inspector paid more attention to structural matters, which were easily seen and supervised, than to methods of milking and handling. After the last war the mistaken assumption was made that cleanliness meant safety. The introduction of T.T. and pasteurized milk was a step in the right direction, but unfortunately a third class, Grade "A" (later "Accredited"), was included, which consequently was thought to be safer than ordinary milk; the cows from which this milk came, while subject to periodical clinical inspection, were not tuberculin-tested, the milk was no safer than ordinary raw milk, and was found for some reason to have a higher percentage of diseased samples. Milk from tuberculin-tested cows was on the whole free from tubercle bacilli, though not necessarily from the organisms of undulant fever or mastitis. If bottled on the farm, thus avoiding the risk of human infection at a later stage, it was known as "certified," but such milk was expensive and little of it was sold.

The public still had the mistaken idea that sampling for adulteration, with an occasional prosecution, indicated that their interests were being properly protected. The phosphatase test was the only really efficient test of pasteurization. There was no rapid test for pathogenic organisms. Under a defence regulation the Ministry of Food had power to specify areas in which only pasteurized or heat-treated milk, T.T. milk, or accredited milk might be sold. The only really safe milk was pasteurized or heat-treated (apart from dried or tinned), but Parliament had shown reluctance to make pasteurization compulsory. Medical examination and certification of milk handlers were impracticable, though a medical officer of health could prohibit the handling of milk by any person whom he suspected to be suffering from notifiable infectious disease. Medical officers of health were hampered by lack of adequate legal powers. They could stop the selling of milk which was believed to be infected with any human notifiable infectious disease, but not (except to a school under their own control) with tuberculosis, undulant fever, and mastitis, and it was not an offence to sell such milk, even knowing it to be infected. In such cases the medical officer of health simply notified the Ministry of Agriculture, which proceeded to trace and remove the cows at fault. When it was remembered that it took at least a month to test a sample—and that several biological tests were often necessary—it would be realized why it often took several months before the cow was discovered, during which time the milk continued to be sold. When the sample was from a bulked supply, drawn perhaps from several counties and dozens of farms, the search became almost an impossibility. Dr. Lethem mentioned an instance where three human cases of undulant fever were traced to the same T.T. producer-retailer, who refused to have his milk even temporarily pasteurized, and on whose farm, in spite of every effort by the Ministry of Agriculture, contagious abortion was rife.

A Producer's View

Mr. CLYDE HIGGS said that the first step in efficient control was a great improvement in the standard of livestock. He confessed himself not very happy about tuberculin-testing. He knew of cases of animals which were reactors at one time and non-reactors at another. Until recently he had been one of the crusaders for clean, raw milk. He had used the argument that if Nature had intended milk to be pasteurized she would have arranged that it came pasteurized from the cow. But he had now changed his mind as a result of various complaints, and had installed a pasteurization plant. He had no wish to improve bad milk by pasteurization, but he did want to make his good milk better still.

Dr. RICHARDS, agricultural bacteriologist, Reading University, referred to the unenlightened outlook of a proportion of operatives engaged in milk production. The gospel was not being got over to them. They were not hygienically minded or aseptically minded. He also criticized the decrepitude and squalor of many farm buildings. Without good structural arrangements, good supplies of water and the like, it was impossible to maintain normal hygiene and good husbandry. A good deal of the energy which the authorities directed to the upgrading of herds should be given to the upgrading of operatives and working conditions.

Finally, on this aspect of the discussion, Mr. J. L. DAVIES of the Milk Marketing Board, declared that farmers in general would subscribe to the opinions expressed in that meeting. The old debates on pasteurization were over. The desire for the elimination of animal disease and the improvement of the efficiency of herds was common ground. The trouble was that so many people seemed anxious to bring in more control and restriction and to make more difficulties for the milk producer. The matter was one, not for controversy, but for quiet co-operation between the medical and veterinary professions and the farmers.

The Powers of an M.O.H.

Dr. C. Fraser Brockington (Warwickshire) considered that much more attention should be paid to the epidemiological side of the problem. The practitioner of epidemiological science in a community was, of course, the medical officer of health, but a good deal could be done to strengthen his hands. It seemed to him that the milk operative should be a much more skilled craftsman. There should be registration of operatives. Every person engaged in any milk processing should be registered annually and undergo an annual bacteriological examination. It was, of course, true that a person might be certified free from infection on Dec. 31 and get Sonne dysentery on Jan. 1, but an annual examination would avoid a good many of the epidemics of typhoid fever which were caused by carriers. Perhaps even more important was the education, by film and otherwise, of operatives in the technique of hygiene. There was no reason why farm operatives should not be trained to be just as clean in their habits as nurses. If raw milk was sold he wanted the medical officer of health to have power to go to the farm and inspect it, with the right then and there to order the milk to be pasteurized or to stop the supply.

Other speakers on the veterinary side included Mr. H. W. Steele-Bodger, who said that the only way to get clean milk of good quality produced in this country was by payment of bonus; Dr. W. R. Wooldridge, who said that the conditions for the production of safe milk would never be forthcoming unless the medical and the veterinary professions and the producers combined in an appeal to the Government to facilitate the necessary provisions for animal health, adequate water supply, electrical or other power on farms, and the various other services which were available to most of the community; Dr. J. T. Edwards, who commented on the shortage of local surveys; and Mr. Steward, who strongly urged a supplementary biological examination of milk, and declared that T.T. milk should also be abortus-free.

The President (Dr. Parish) asked whether it was too much to hope that after the war pasteurization would be made compulsory, and that in districts where pasteurizing plant was not at present available official intimation would be given to the public that milk must be boiled before its consumption was allowable.

Openers' Replies

Mr. H. T. Matthews said that real control was coming from within. It should not be imposed from without upon the industry. The trouble at present was an over-diffused control. A recent survey had shown that in four adjoining counties there were as many as 348 persons who, by statute, should interest themselves in the milk supply. The result was that those who had the power did not exercise it because of their other multitudinous duties. If there were medical officers who thought that there was opposition to pasteurization from the veterinary angle they could be reassured. Pasteurization for the purpose of making milk safe was a medical problem, not an agricultural one. But it was well to remember the cost of pasteurization, which was something like twopence a gallon, or over ten million pounds a year.

Dr. Lethem, also in reply, said that he did not know what new powers Dr. Brockington wanted. The medical officer had ample power to go on to the farm. It was the local authorities which had not sufficient power. They could follow back human cases when these occurred, but they had no power to follow back bad samples. He had been asked what powers the medical officer had to control milk intended for schools and for nursing mothers. No milk could be provided for schools unless the medical officer was satisfied that the milk was free from disease. The medical officer could, and in some cases did, prohibit the supply of milk to schools. There were schools to-day with no milk at all because the medical officer. rightly, had said that he was not satisfied. As for nursing mothers, there was nothing to compel them to drink a particular kind of milk, although if they went to maternity centres—and the same applied to antenatal centres—they would find the issue of milk to such centres controlled, and it was the medical officer of health's duty to decide whether or not to certify.

HEALTH OF FRENCH CHILDREN DURING AND AFTER THE OCCUPATION

A meeting of the Section of Disease in Children of the Royal Society of Medicine was held on Feb. 21, Dr. Helen Mackay presiding, at which statements were made on the condition of children in the recently occupied countries of Europe.

Dr. Robert Debré, professor of paediatrics in Paris, an honorary member of the Section, who was in France during the whole of the occupation, gave an account of the condition of French children. He described the calamitous results immediately following the breakdown of France in 1940 and the long-continued deprivation of food by reason of the requirements of the invader, the requisitioning of transport during the occupation, and the lack of sea-borne food owing to the Allied blockade.

The result upon the health of the children was reflected in various statistics. The weight of newborn babies at the Bordeaux maternity centre during 1941–2 showed a fall from the average, but in 1943, thanks to an improved diet for pregnant women, the birth weights returned to normal. He gave the following table for the birth weights taken at the St. Louis Maternity Centre, Paris, comparing a pre-war year with two war years :

Birth Weights

	No. of Births	Under 4 lb.	%	4–6 lb.	%	6–7 lb.	%	7–8 lb.	%	Over 8 lb.	%
1935 ..	2,289	85	3·8	553	24·4	914	40	557	24·4	180	7·8
1942 ..	1,878	91	4·8	540	29·4	750	40	401	21	96	5·1
1944 ..	1,984	76	3·8	564	28·6	820	39	420	21	104	5·5

One effect of the shortage of milk supply was an increase in the number of nursing mothers. In one Paris district 90% of the mothers nursed their babies, compared with 38% before the war. According to one survey the mother's milk had roughly the same food value as before except for a slight diminution in phosphorus. After six months, however, it was usual for these under-nourished mothers to be unable to continue feeding their babies. A noteworthy increase of haemorrhages of the newborn had been ascribed to insufficiency of prothrombin, due to lack of vitamin K.

Children's Rations

The rations established in 1941 for children up to 3 years of age were approximately adequate, or at least sufficient to prevent loss of weight, though the milk situation was difficult; what was known as whole milk was actually skimmed milk, leaving only 30% fat. Rations for children from 3 to 6 were also roughly equal to the minimum necessary, but the rations for children from 6 to 13 were well below the minimum, and a boy of 18, requiring 2,400 calories a day, was allowed only 1,600. Shortage of fats and animal protein was the most unfortunate feature of the children's rations, which in January of this year became even worse, the effect of war operations in the rural districts of France preventing the town populations from receiving country supplies. He added that until the "liberation" the food changes did not affect equally all parts of France, and rural areas like Normandy, Picardy, and Brittany were spared under-nourishment, so that when last year the Allied armies entered these regions the signs of lack of food were not apparent. Indeed, the distribution of synthetic vitamins to children, at least in the Paris district, had prevented the worst effects of vitamin deficiencies. Working in a large children's hospital in Paris he had not noticed any increase in rickets, and scurvy was as rare as it was before the war. In less favoured regions, however, such as Marseilles, the picture was different. There a systematic survey of children up to 3 years of age showed clinical signs of vitamin D shortage in 54%. Since the "liberation" the food situation, instead of improving, had grown worse. It was difficult to obtain supplies of meat, vegetables, fruit, and eggs, while milk for children over 1 year was no longer allowed.

A comparison of the weights of 23,000 children in the Seine district over a period of six months in 1941–2, compared with the pre-war average, showed that 65% during those six months had increased by from 2 to 3 lb., whereas before the war the increase was from 3 to 8 lb.; 22.8% had not put on any weight at all; and 12% had lost from 1 to 3 lb. in weight. The children of from 14 to 18 had mostly lost weight. The National Department of Statistics had published the results of school medical examinations of 23,444 children, and these showed a very general decrease in weight of from 2 to 14 lb., according to age, as compared with the average weights in 1938.

Among infants gastro-enteritis, caused by impure milk, had been more frequent than before the war, especially in Southern France and Marseilles. In older children and adults an increased amount of dyspepsia was found, due to too much roughage. The seasonal incidence of diphtheria and typhoid had sharply increased, and while there had been no influenza epidemic, there had been much bronchitis and pneumonia.

Tuberculosis Rates

The most serious problem, however, had been the increase in tuberculosis. There had been an increase in tuberculosis mortality of 11% in 1943 as compared with the average of the years 1935–8. In some counties the increase had been enormous—in Bouches-du-Rhône, which included Marseilles, 74%, and in the Var, which included Toulon, 69%. He showed the following table of the death rate from tuberculosis (all forms) per 100,000 inhabitants in two regions, comparing the figures for 1943 with those for a pre-war year:

Age	Paris Region		Eastern Region	
	1936	1943	1936	1943
4 and under ..	78·7	93·0	34·0	55·6
5–9	36·5	37·1	21·0	36·4
10 14	35·7	47·7	27·9	42·2
15–19	125·0	130·0	91·7	103·0
20–24	178·0	277·0	136·0	166·0

In conclusion Prof. Debré wished he could state that things were now better, but that was not so. The milk supply in the large towns in the Mediterranean districts had never been so bad. There was no improvement so far as meat and fats were concerned. Many fears were entertained as to what would happen when the prisoners-of-war and deportees, large numbers of whom were known to be tuberculous, returned, and also as to the future of the devastated districts. On the other hand, the birth rate was rising. In 1943 it was 159 per 10,000 inhabitants, compared with 145 in 1938.

At the same meeting a report of an interim character, not yet available for publication, was given on the condition of children in Belgium. Dr. A. CAWADIAS, as head of the Greek Red Cross, gave an account of the very serious position in Greece. He said that the last report he had received showed enormous increases in the incidence of tuberculosis and of nutritional deficiency diseases. Greece was receiving only 29% of the required calories.

Dr. HELEN MACKAY from the chair said she hoped that public opinion would be aroused to hasten the necessary measures of relief to these afflicted countries. She felt convinced that adults in Great Britain would willingly accept a cut in their rations if it would benefit the children of Europe.

The Council of the Incorporated Association of Hospital Administrators (12, Grosvenor Crescent, London, S.W.1) announces that, by special resolution of the members, the name of the association has now been changed to the Institute of Hospital Administrators. At the time of the fusion in 1942 of the two old-established organizations, the Hospital Officers Association and the Clerks and Stewards Association, with a view to the formation of a single professional institute, all were agreed—as first choice—on the name now adopted, the less suitable title being taken only because legal difficulties, now overcome, prevented the immediate adoption of the more appropriate name.

Correspondence

Gas Gangrene after Secondary Suture of Thigh Wound

SIR,—Mr. J. Hamilton Barclay's case of gas gangrene following secondary suture (Feb. 17, p. 218) interested me greatly. I agree that surgical progress is encouraged more by a record and analysis of our failures than of our successes, but I fear that the conclusions and impressions I draw from the case are not the same as his.

In the first place I cannot refrain from commenting on the primary treatment of the wound before it came under Mr. Barclay's care. It is indeed distressing that at a C.C.S. in the fifth year of the war a large shell wound of the muscles should be considered "not suitable for surgical treatment," and to require nothing more than local "sulphanilamide powder and vaselined gauze." That this was a recent wound, that it was contaminated with soil and was in a known gas-gangrene "danger zone" (the thigh) merely aggravate the case. In my opinion all the subsequent disasters can be traced directly to this initial failure to incise, explore, and excise the wound.

It is not surprising that the wound was dirty and greenish six days later when it came under Mr. Barclay's care. The subsequent chemotherapy improved the surface of the wound; but without doubt there was dead muscle deeper down, and the gas gangrene flared up when the wound was closed by suture. The subsequent response to treatment emphasizes this point. In spite of intensive chemotherapy and multiple incisions, the infection persisted until Aug. 25, when a large slough was removed; thereafter the patient improved rapidly. It is reasonable to suppose that his progress would have been more uneventful if the devitalized tissues had been excised before infection had become established.

Mr. Barclay draws the conclusion that this case "emphasizes the necessity for taking swabs not only from the surface but from the recesses of the wound" and gives his opinion that the organisms (of gas gangrene) had been lurking just beneath the surface. I agree that the organisms were beneath the surface, but they were not in healthy tissues; they were in dead or devitalized tissues, and it is these which constitute the real problem of wound treatment. No bacteriological investigation, in my opinion, can replace surgical exploration, and no war wound should be sutured unless at some stage, early or late, it has been explored and all devitalized and dead tissue removed. The one great lesson to be learned from this case is that there is no substitute for adequate surgical treatment of a war wound. Any attempt to *replace* surgery by chemotherapy and bacteriology must lead to disaster.

The recovery of the patient from a condition so desperate is indeed a tribute to Mr. Barclay's untiring efforts, and he should be congratulated.—I am, etc.,

Oxford. J. TRUETA.

Osteomyelitis after Bone-marrow Transfusion

SIR,—In their article on tibial bone-marrow transfusions (Feb. 17, p. 220) Drs. F. W. Gunz and R. F. A. Dean appear to assume that the occurrence of osteomyelitis must be due to the introduction of sepsis by the operator. I do not think this assumption is quite justified, and for the following reason.

Over the past two and a half years in the course of upwards of 130 marrow transfusions I have encountered osteomyelitis in five cases. But over the same period and out of about 100 cases similar in type I have also seen it five times in patients who had received parenteral fluid only by some other route (subcutaneous 1, intravenous 4), the difference between the two sets being that in the marrow cases the osteomyelitis occurred always at the site of the needle puncture, whereas in the others it was not confined to the tibia (mandible, humerus, femur, radius, tibia). This last case is of interest, for had Gimson's needle been employed it would have been unjustly blamed. The infant in question received three intravenous perfusions, but the gastro-enteritis was only completely checked when pus began to accumulate in the knee-joint, the baby then becoming constipated (a teaser for those who hold that gastro-enteritis may be caused by concealed focal sepsis). *Staph. aureus* was grown from the pus.

Is it not then likely that whereas the site of an osteomyelitis will be determined by the trauma of the medullary needle the fact of its occurrence at all is due to bacteria already in the blood stream looking for a suitable nidus? I have had the opportunity of discussing these events with an orthopaedic surgeon of wide experience, who tells me he has seen a number of cases of spontaneous osteomyelitis in infants recently and considers the disease to be on the increase. Putting these facts together I think it likely that staphylococcal septicaemia, either as cause or complication of infantile gastro-enteritis, is commoner than is generally recognized, the trouble being that *Staph. aureus* is such a vulgar creature that when found in culture he is apt to be called a contamination rather than recognized as a pathogen; and clearly many cases will not determine as osteomyelitis, pyo-arthrosis, etc., since babies are poor hands at making pus. There is one other point: if you are to have an osteomyelitis it seems better to have it in a bone already drilled for drainage. Three of my five cases recovered with only minor surgery.

I doubt whether wearing gloves does much to prevent sepsis. The (Gimson's) needle need not and should not be touched by the hand of the introducer at all. I think the danger lies in the later stages, when a faulty connexion may tempt unsterile fingers to fiddle with it.—I am, etc.,

The Grove Hospital, London, S.W.17 JOS. B. ELLISON.

Nutrition at Home and Abroad

SIR,—I have read the leading article on the above matter (Feb. 17, p. 227) and I must say I find nothing to criticize in the conclusion you quote as expressed by Dr. Magee and the *Times*.

In my own small town I have been keeping close watch on the condition of children of all ages. In 1941 I confess I was alarmed at the condition of the school-children, whose rate of growth and physical efficiency (as judged by performance tests) were significantly lower than the pre-war level, but we all know now that in 1940 and early 1941, owing to the submarine blockade, Great Britain was in a precarious condition as regards food, especially those foods containing first-class protein.[1] In late 1942 and early 1943 the rates of growth in weight and height regained pre-war levels, though strength and endurance lagged behind.[2] Later these also regained reasonable levels.

Regarding younger children, an investigation was made by Dr. Lewis Faning and myself[3] of the rate of growth of children under 1 year between July, 1940, and July, 1942; note the former date especially, for it denotes that part of the time covered by this investigation was one of the worst in the war for food sufficiency, yet in this period, owing, I believe, to definite steps taken by the Government to provide milk and vitamins for expectant mothers and infants, these babies did not fare as badly, for we found as follows. The average weight and length and the rate of growth in respect of both those indices were compared as regards children attending clinics in Glossop in the two periods 1933–6 and 1940–2. There was sharp differentiation between the findings for the two sexes. Males in the second or war period, in the early weeks of life, on the average weighed less and measured less than those in the first or pre-war period. But the average rate of growth for the 1940–2 series was the faster, particularly as regards weight, so that not only were they heavier and longer than the pre-war group at the end of the first year of life, but the average of all weighings over the whole year of life was significantly higher by 0.17 ± 0.07 lb. Females, on the other hand, showed no difference between the two series as regards average rate of growth or in weight. But in average length there was a significant difference of 0.35 ± 0.07 in. in favour of the 1940–2 series.

Recently I have just been making comparisons between the heights and weights of school-children in 1934 in the piping times of peace and in 1944 during the stress of war (when the Government arranged a fair distribution of all available food). I find as follows. In weight girls of 11 years were up to pre-war standard while girls of 12 and 13 years were significantly better than the pre-war standard. Boys of 10 and 11 (taken together) were above the pre-war standard, boys of 12 years, 13 years, and 14 years were also all significantly better than the pre-war standard. The average mean weight of the boys of 12 was 4 lb. more than their pre-war brethren, the boys of 13 almost 5 lb. more, and the boys of 14 about 8 lb. heavier!

The data given (and not of a clinical nature) so far as it goes would seem to verify the assessments of surveys made and mentioned in the *Journal*. I have never been very much in favour of clinical assessment alone for the nutritional state, but I have reason to believe that with experienced workers it can be valuable, though confirmation by more objective measures is desirable. If the *Journal* cared to give me space I could enlarge on this matter and also, I think, make some very definite suggestions based on some experiment for the improvement of any adverse nutritional condition of children which the leader writer seems to imply is now existent in Britain.—I am, etc.,

Glossop. E. H. M. MILLIGAN, M.D., D.P.H.

SIR,—In your leader on this subject (Feb. 17, p. 227) you state: "The question of the relief of Europe is critical." Yes; because (to quote Charlotte Brontë) "misery generates hate," and we British, who have more food, fuel, and clothes, will be blamed if we do not insist that a fair share of these shall be distributed to the "liberated areas."

The military authorities have not organized any nutritional teams, and psychologically it is very difficult for them to turn their minds to such projects. U.N.R.R.A. has not been allowed to function in Greece, Belgium, or France, and cannot function unless it is invited to do so. The supply of food, railway engines, and motor lorries to France, for instance, is a question of priorities. No one wants to prolong the war, but since no one can promise that it will be won in time to gather this year's harvest in Western Europe, we must not lose the peace in our fear of prolonging the war.

On doctors, who know how necessary food is, rests a special responsibility to use whatever political influence they have for the sake of a decent Europe and for the sake of our colleagues abroad, who bear a much heavier load of frustration than we while they watch their patients die of undernourishment.—I am, etc.,

West Kirby, Cheshire. CHARLES BRUNTON.

Haemolytic Disease with Incomplete Rhesus Antibody

SIR,—The discovery by Race in this country and Wiener in America of an "incomplete" or "blocking" Rh antibody was the subject of a recent note in your columns by Race and Taylor (Dec. 9, 1944, p. 756), who described Wiener's technique for detecting the antibody. It may be of interest to draw attention to a case of haemolytic disease originally observed 18 months ago and recently reinvestigated by this technique.

The affected child was the second pregnancy, the first child having been normal. The blood groups were: mother, B, Rh-negative, St-positive, MN; child, A, Rh-positive, St-positive, MN (MN groups were kindly determined by Dr. G. L. Taylor). The mother's serum was examined on several occasions after delivery and no satisfactory evidence of an Rh antibody was found. Using 26 group "O" bloods very doubtful reactions were observed with 2 only (both Rh-positive). Dr. G. L. Taylor, who also examined the serum at this time for Rh antibody, obtained similar results and doubted the specificity of the reactions.

As serological evidence of Rh iso-immunization was lacking it was thought possible that the responsible haemolytic antibody might be maternal anti-A augmented through iso-immunization by the foetal A antigen. When the mother's serum was titrated anti-A was found in great strength (titre, 10,000 for A_1 cells), and it was concluded that iso-immunization by foetal A antigen had occurred. Confirmation of this iso-immunization has now been obtained by examining a recent specimen of the mother's serum and finding that the anti-A titre is now only 1 in 128. Wiener, however, has suggested that when the antigens A or B are abundantly present in the foetal body fluids (these children are salivary "secretors") the foetus is protected from haemolytic disease due to the corresponding antibodies, since these are absorbed by the plentiful foetal antigen without damage to the erythrocytes. The child's saliva was therefore examined and A antigen found in strength; the antigen was also readily demonstrable in the child's serum.

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[1] *Food Consumption Levels*, H.M. Stationery Office, 1944.
[2] Annual Report S.M.O., Glossop, 1943.
[3] *Med. Off.*, Jan. 8, 15, and 22 1944.

The position then was this. Iso-immunization by foetal A antigen had occurred, but since the child was a secretor it was, on Wiener's hypothesis, immune to haemolytic disease from anti-A; Rh iso-immunization, though possible, lacked confirmation.

I have now re-examined the original serum by Wiener's technique, and the presence in it of an incomplete Rh antibody capable of inhibiting the agglutination of Rh-positive cells (Rh_2Rh_2 or Rh_2rh) by a standard Rh serum has been demonstrated; the incomplete antibody is still demonstrable in the recently obtained sample of the mother's serum. From this it is clear that Rh iso-immunization did in fact occur, and it seems probable that Rh antibody was responsible for the haemolytic disease. It is at any rate unnecessary to suppose that haemolytic disease due to anti-A occurred in a secretor contrary to Wiener's hypothesis.—I am, etc.,

Pathological Department,
North Staffordshire Royal Infirmary.
A. J. McCALL.

Climate and Mortality from Burns

SIR,—The article on "Some Social Aspects of Burns in Glasgow" by Drs. Brown, Lewis-Faning, and Whittet (Feb. 3, p. 144) brings out a remarkable point—viz., that the mortality from burns is lower in England and Wales than it is in Scotland. Can this difference in mortality be due to the higher temperature of the air in the southern countries, perhaps minimizing shock, which is the chief cause of death? It may be of interest to record that in Singapore, where the air temperature ranges between 72°F. and 92°F. the whole year, fatalities from scalds and burns occur seldom, even when the lesions are extensive, and deaths are noticeably much rarer there than in Britain.—I am, etc.,

London, S.W.1.
KENNETH BLACK,
Ex-Professor of Surgery, Singapore.

The Prophylaxis of Trench Foot

SIR,—In your issue of Feb. 24 (p. 270) there appeared an article on this subject by Dr. Raymond Greene. In his second paragraph he makes clear that his article is "a summary of the teaching which has been given to a large number of medical officers of the three Services in the war medicine courses at the British Postgraduate Medical School of the University of London." As a regimental M.O. on active service on the Western Front during the war of 1914–18 I experienced the difficulties associated with this problem; and, in view of the somewhat novel nature of some of the teaching in Dr. Greene's article and its apparent impracticability under active service conditions, one naturally wonders to what extent the three Services and the British Postgraduate Medical School are associated with, and responsible for, the views expressed.

For instance, what evidence (if any) is there for this introductory statement: "It is the army in retreat, low in morale and with its communications in disorder, that suffers most severely"? And how is that statement to be correlated with the recent incidence of "trench foot" among our troops serving on the Western Front?

After stating that "it is the duty of the medical officer to see to it that his brother officers understand the reasons for the rules, and are continuously alert for breaches of them," the author proceeds to make the following surprising statement: "The man who breaks the rules and gets away with it is not a hero but a lucky fool. Moreover, he is a stumbling-block to those who are less well adapted, and he should be treated as a criminal." These are indeed strong words, and one must assume that the writer has given serious consideration to their meaning and implication before they were penned. Are we to assume that this statement has been made with the approval of the three fighting Services and the British Postgraduate Medical School?

But what are these "rules" which may mean so much to sailors, soldiers, and airmen? Here are a few of them, culled from Dr. Greene's article:

"The clothing must be as nearly as possible waterproof. . . . It should also be windproof. . . . The boots must be loose, supple, well oiled, and preferably without toe-caps. . . . Socks should be undarned, and also loose. . . . Garters and sock suspenders should be forbidden, the socks being kept up by pinning them to the pants." Inasmuch as the soldier does not choose his own clothing, one concludes that the responsibility for breach of this "rule" rests with the War Office and not with the men who have to wear the clothing with which they are issued. The serving soldier, before becoming liable to be "treated as a criminal" or dubbed as a "lucky fool," is surely entitled to know whether representations have been made by the University of London, the British Postgraduate Medical School, or Dr. Greene that all Army clothing *must* be supplied in accordance with the above specification; and whether the Army authorities have declined to take the action recommended. From my experience of life at the Front there should not be much difficulty in forbidding garters and sock suspenders; but I can think of no valid reason why the veto should not be extended to include rings on the fingers and bells on the toes. With regard to the suggested pinning of socks to the pants, we must again assume that the august bodies responsible for this "rule" have given to it the detailed consideration it merits.

"It is absolutely necessary that wet clothes, especially boots, socks, and gloves, should be changed at every opportunity. Combatant officers are sometimes inclined to regard such an instruction as 'soft'; they must be overruled." Overruled by whom? One must assume "by non-combatant officers"; and it would be interesting to learn what advice Dr. Greene would give to a non-combatant officer about to overrule a combatant officer during operations on active service. (For instance, during recent operations on the Western Front when our soldiers, according to official admission, have been wading about waist-deep in water.)

"A good method of drying boots is to lay a 6-foot length of gas-pipe across a brazier, push one end into the toe of the boot, and blow air from the other end with a bellows. If the business end of the pipe is made like a toasting-fork many pairs can be dried at once." No doubt; but there are a few minor points in this operation which require some elucidation. For instance, at what stage in the proceedings is it considered that the brazier should be lit, if at all? Of course the blowing of "hot air" should not offer any great difficulty to the old soldier. I am rather afraid, however, that he might experience some difficulty in deciding which is the "business" end of the gas-pipe—the one which is made like (and no doubt would be used as) a toasting-fork. At this point I should like to submit for consideration a suggestion which might be given a trial. If the other end of the gas-pipe (which, for purposes of differentiation, might be called the "pleasure" end) were suitably hammered out and curved it might be found of great value in picking stones out of horses' hooves; for I assume that one of the few regiments which could put the above operation into practice would be mounted—e.g., the "Gas, Coal, and Light Dragoons (the Gasoliers)." In the case of infantry regiments I have the impression that the "Lower Sixth Foot (Heath Robinson's Own)" might find some more useful adaptation for the "pleasure" end. However, these are more or less domestic details which we must leave to the discretion of the officers commanding the units concerned.

"The men must be taught not to stand still, slumped into their boots. . . . They must lie down whenever possible, with their feet higher than their heads. . . . They must not sit on seats, boxes, or firesteps in such a way that the popliteal space is constricted. They must on no account bring their feet near to a fire if they are cold or numb, but warm them between a companion's hands or inside his clothes."

So what?—I am, etc.,

Leytonstone, E.11.
A. W. FORREST.

Erythrocyte Sedimentation Rate in Infective Hepatitis and in Malaria

SIR,—In the *Journal* of Jan. 6 (p. 9) there is an article by Lieut.-Col. Paul Wood on the erythrocyte sedimentation rate in infective hepatitis and in malaria. He found the E.S.R. below 10 mm. in one hour in 85% of cases of infective hepatitis during the first ten days, and above 10 mm. in about 85% of cases of malaria during the first ten days, all by Wintrobe's method.

In tropical regions there is great difficulty in differentiating between sandfly fever and malaria in the very early stages. Sometimes malaria parasites cannot be found during the first four or five days of a primary attack of malaria, and confusion with sandfly is very common. I intended to write a paper on this problem of early diagnosis, and to that end made some hundreds of estimations of the E.S.R. (also using a modified Wintrobe method) on cases later proved to be of either malaria or sandfly fever. I agree with Col. Wood on the elevation of the E.S.R. in malaria; even in the very early stages I found the average case of malaria was about 20 mm. In sandfly fever, however, I found the E.S.R. very rarely higher than 10 mm.; the figures for both malaria and sandfly are one hour's observation of the E.S.R. Confusion between sandfly fever and infective hepatitis is unlikely as jaundice in sandfly fever is almost unknown. I cannot produce the figures on which my opinion is based, but I have been using the method for some years and have grown to rely upon it. Infective hepatitis is not unknown in tropical regions, so the method may prove of use to the Services there.—I am, etc.,

FRANK MARSH.

Persia. Pathologist, Anglo-Iranian Oil Company

The Psychiatrist and the Psychologist

SIR,—The annotation in your issue of Feb. 17 (p. 229) points out the big strides which have been made in the field of psychiatry during the war, and shows the important dependence of psychiatry and psychology on each other. There are some points, however, which would be the better for amplification. Your article points out that the training of the psychiatrist and that of the psychologist have proceeded along very different lines. This is true to an extent in that the psychologist has had no medical or psychiatric training at all, whereas the psychiatrist, especially if he holds a diploma in psychological medicine, has passed examinations in psychology. The training for such a diploma has included experimental psychology, which is the main subject used by the psychologist in connexion with vocational guidance.

Your statement adds: "The psychologist may have suggestions to offer on the subject of treatment." Unfortunately many psychologists, who have no right to do so, give much more than suggestions; they, in fact, take charge of the treatment and make no attempt to place the patient in contact with a medically trained psychiatrist. The patient often gains the impression that the lay psychologist is not only a doctor of medicine but also a specialist in psychiatry, whereas he has had no training in either of these fields. The result is that many cases in the end reach the hands of the psychiatrist, and much illness which could have been avoided has been allowed to develop. Thus many patients have become much worse than might have been the case had they been placed earlier under proper treatment. Your article rightly states: "In recent years, particularly in the field of child psychiatry, psychologists have sometimes embarked on a treatment of individual patients without adequate medical supervision. It is to be hoped that the unsuitability of this arrangement will be recognized by psychologists themselves." No doubt it is recognized by them, but they do not make any attempt to handle the situation correctly. Moreover, some local authorities are content to support child guidance clinics in which psychiatric advice is not given. The only medical opinion available in some of these clinics is that of the school medical officer, who often has had no psychiatric training or experience. The lay psychologist is placed in charge of the treatment of children when this is not the proper work of a psychologist.

In the latest report of the Child Guidance Council a list is given of seventy-five clinics recognized by the council. Some of these clinics also hold sessions at more than one centre. But of the seventy-five, only fifteen are listed as Group 1 clinics—that is, clinics which comprise a complete team of qualified staff: psychiatrist, psychologist, and psychiatric social worker. In many of the other clinics the treatment is not under the direction of a psychiatrist, and yet a number of them are being subsidized by local authorities. Apparently no attempt has been made so far to prevent an increase of this arrangement by further local authorities. Surely the Ministry of Health should be advised that in future it must not supplement grants made by local authorities to clinics at which the treatment is not directed by a psychiatrist—that is, by a medically qualified specialist in psychological medicine, who has been thoroughly trained in all branches of psychiatry, including neurology and psychology, but who may not necessarily continue to be a member of the medical staff of a mental hospital.—I am, etc.,

London, W.1. RALPH A. NOBLE.

SIR,—May I plead for a little of your space to comment on the annotation on the psychiatrist and the psychologist (Feb. 17, p. 229), the general tone of which, while stating that British psychiatry has made "big strides," rather fails to justify the assertion.

It is in fact as hard to know just where to join issue with the annotation as to decide what point it intended to make. Perhaps the greatest violence to the facts is done in the sentence which runs: "Where the psychiatrist approaches the problem from the point of view of the morbid the psychologist approaches it from the point of view of normal variation." Such a statement is not only derisory but is a criticism of psychiatry, revealing a deplorable lack of familiarity with modern psychiatric approach and, specifically, with the work of Adolf Meyer, emeritus professor of psychiatry at Johns Hopkins, under whom many British psychiatrists have studied during certainly the past thirty years.

If meiosis be allowable, it is disquieting to find in such an authoritative periodical as the *British Medical Journal* the implication that Meyer's concept of human personality, first formulated nearly half a century ago, is unknown in this country. This can hardly be true; at any rate one hopes it is not true of British psychiatrists, but one would wish the general body of the profession to be spared exposure to false doctrine. One cannot expect space for a formulation of Meyer's psychobiology, but one would ask to be allowed to point out that Adolf Meyer's concept of man's nature and his views as to psychiatric training (with which, be it repeated, a very large number of British psychiatrists are thoroughly familiar) have formed an accepted element in the training at the Johns Hopkins Medical School since about 1911 and in similar medical schools since that date. Its integral and basic principle is that the student must inevitably be trained first of all in the recognition of what comes within the elastic limits of the normal, and must know how wide these limits are before he can be allowed to approach the problems of abnormal behaviour.

If the annotation be a fair sample of the reactions to war psychiatry then indeed one feels, as Prof. Meyer recently said, "the war exploitations become overrated" (personal communication). The annotation alleges that the psychiatrist "is working by a rule-of-thumb method"—one would like details—when he says that an individual is unsuited to become an officer, and that this diagnosis may be shown to be wrong by the individual actually proving satisfactory; it asks, however, for the admission of "the greater appropriateness of the psychological techniques of . . . personal [sic] selection," when, in fact, it is widely known that "psychological techniques of selection" are repeatedly falsified by the performance of the subject under non-experimental conditions. *Naturam expelles furca tamen usque recurret.* One's experience with psychiatrists and psychologists alike is that as their experience with tests increases their faith declines.

It is really regrettable to observe in the annotation the spirit of mind-body dualism. Until this antique concept is finally put away, until psychiatrists are as familiar, and known to be as familiar, with the so-called normal as with the so-called abnormal, and until all who have to assume responsibility for living human beings are medically trained, any "big strides" may well be taken in the wrong direction. One's admiration for the regaining of equilibrium in the last few lines of the annotation is tempered by a feeling that the balance was lost unnecessarily.—I am, etc.,

Edinburgh. W. M. C. HARROWES.

Nursing and Tuberculosis

SIR,—Letters recently published on the incidence of tuberculosis among nurses suggest that doctors are concerned at the incidence of infection, but that few realize the enormousness of the problems which complicate the picture. Patching up the threadbare places will not do: a new garment is required.

A sanatorium is not the place of choice for the work or training of any girl under the age of 20 at least. The conditions of work in many sanatoria are deplorable. Old-fashioned buildings, lack of a good diet with an especial shortage of vitamins, antiquated schemes of nursing technique, and the dual role of being both "a pair of hands" and a student-nurse at the same time, all play their part in making the work hazardous for any young girl. Elementary precautions—such as the wearing of protective masks for intimate nursing procedures and the recommendations of the Medical Research Council to limit cross-infection—are regarded as measures too revolutionary to be adopted.

To remedy the situation nurse-training as a whole must be reviewed. The Horder report recommends that the student-status of the nurse in training should be fully recognized; that, by means of Government grant to the schools of nursing and by assistance where necessary for the individual student, student-nurses should cease to be the employees of their hospitals and pay (as other students do) for their training. In this way alone can nurse-training be truly established. At present student-nurses are a form of cheap labour, many of the lesser-grade training schools relying upon a minimum of student-nurses to get the ward work (including the cleaning) done. Dr. T. E. Bostock, in his letter published on Feb. 10, is quite right. Incredible though it may seem, many student-nurses in hospitals all over the country are sent into the wards upon arrival in an entirely "raw" state—whether Mantoux-tested or not. Practice precedes teaching in the majority of hospitals, the nurses learning by trial-and-error. Tuberculosis contracted during training may be the direct result of insufficient precautionary teaching either in the ward or in the class-room, or as a result of poor environmental circumstances.

The student-nurse of to-day is expected to learn a great deal, but she must learn always under difficulties, since teaching comes last in the consideration of many hospitals. When the student-nurse is also a poorly educated girl (coming forward in response to an appeal) and can scarcely write English, the strain experienced in learning anatomy, physiology, and hygiene is profound. But the student-nurse is there not only to learn: she must also get the work done, and so she must study, for the greater part, in her off-duty time.

It is a moot point whether the sanatoria produce more cases of tuberculosis among their nursing staffs than the general hospitals. The practice of training young nurses in the sanatoria before they do their general training should cease. All conditions likely to produce tuberculosis should be removed from the nurse-training schools. Such conditions are worry (e.g., about examination subjects), overwork, exposure to cold, poor nutrition, and exposure of the Mantoux-negative to massive infection. The Mantoux test should be made *before* any nurse enters a training school (too often this test is made *after* a girl has already been in heavy contact with the disease). Negative reactors should not nurse the tuberculous, and should be watched most carefully throughout their training.

Few of the improvements most urgently required in nurse-training can be brought about by the nurses alone: consent to improved nursing measures, for instance, must in many cases be obtained from the medical staff. Full discussion between *working* members of the two professions is most urgently needed.—I am, etc.,

J. EYRE.

Aural Barotrauma

SIR,—The late Sir Humphry Rolleston once said in a lecture to his students at St. George's Hospital (*Clin. J.*, Aug. 29, 1900) as follows: "First of all with regard to the word 'ascites.' It is derived from the Greek word ἀσκός, meaning a wine-skin; ascites, or in its full term, ἡ ἀσκιτης νόσος, is literally the wine-skin disease—i.e., that in which the abdomen resembles a skin distended with wine. The adjective 'ites' [ιτης] also seen in tympanites is much the same as the termination -itis (ῖτις)—e.g., in iritis and peritonitis—and is a feminine adjectival termination agreeing with the word νόσος (disease) understood. It is interesting to note that the termination -itis, which now always implies 'inflammation of,' has only acquired this meaning secondarily because the disease *par excellence* of various organs is inflammatory."

It would be possible, therefore, to defend the term "otitic barotrauma," to which Dr. A. B. Alexander objects (Feb. 24, p. 276), on the ground that barotrauma is substituted for the suppressed word νόσος, but as otitic implies inflammatory by common usage, which is the important point, either otic or aural would be better. I suggest that aural is preferable, though it produces a mixture of Latin and Greek, but the expression aural syringe is used without compunction. On the other hand, Messrs. Allen and Hanburys would certainly be astonished and perhaps puzzled by the receipt of an order from a purist in the Ministry of Supply for a few thousand otic syringes. Editorial permission is therefore requested to thank Dr. Alexander and to adopt the term "aural barotrauma."—I am, etc.,

YOUR ANNOTATOR.

Artificial Insemination

SIR,—It would be impossible to answer all the letters on this subject, even if we were to confine our attention to those which followed the publication of our article. Moreover, as many of these letters contain nothing but abuse, it would be unprofitable to answer them. We can assure those who invite us "to look this business fully in the face" that this was precisely what we hoped would be done by everybody when we submitted our report. It was an invitation to the medical profession to express an opinion on what was admittedly a highly controversial subject.

It must be admitted that the results have been very disappointing. The scientific aspects of insemination have aroused no interest, and the whole subject has been summarily dismissed as immoral by many. It should be noted, however, that the most hostile critics have been those who, having no first-hand experience of this subject, have been able to give free rein to their imaginations. We can assure these writers that adoption even if there were enough children to go round, does no always provide an adequate solution to the problem of the childless marriage. Nor does insemination with donated semen in our experience have a disruptive action on the marriage We have, indeed, known many cases in which the birth of a child through insemination has proved to be the turning-poin in a marriage which would have undoubtedly come to grie but for this happy event. It is only those who have had no experience of insemination with donated semen who would condemn it outright as a solution for certain chosen cases. I is, of course, mischievous nonsense to suggest that, if donated semen is to be used, it might just as well be administered in the natural way. The taking of a lover introduces a new relationship which in the end may prove disastrous to the marriage.

Nothing is easier than to render the idea of insemination with donated semen ridiculous or abhorrent by means o exaggeration. To reduce everything to an absurdity by thi means is a well-known polemical device, and it is not surprising therefore, that the opponents of insemination have visualized human stud-farms, professional donors, and a number of othe absurdities. That insemination has its ethical aspects we ar the last to deny, but we are still unable to see on wha grounds some critics dismiss it immediately as unchristianlike Christian morality is based on the Gospels and on the teachin of the Early Church, and when this morality was formulated the possibility of artificial insemination was not even considered Disputation would therefore have to be based upon th interpretation of other interdictions, and the condemnation o insemination with donated semen is certainly not so immediatel manifest that the subject need not even be considered. Sinc some opponents of this method of treatment are much concerned with the sin of masturbation we hasten to assure them that this particular difficulty can be overcome. This being so they may be prepared to consider the end in view—the birt of a child—instead of being entirely preoccupied with the means Unfortunately, in this correspondence the moralists have bee so preoccupied with the means that they have generall forgotten this end. Finally, we would call attention to the fac that we are research workers who happen to be interested i this particular field of medicine. We have invited the opinio f our colleagues on a very important subject, and not attempted enforce our personal opinions upon them.—We are, etc.,

London, W.1. MARY BARTON.
KENNETH WALKER.
B. P. WIESNER.

SIR,—May I beg a little space in which to put forward a plea or reasonable toleration in this matter of artificial insemina- ion? It seems to me regrettable that all the old arguments that ave been used down the ages against any innovation in edicine should again have to be disinterred. Substitute naesthesia for artificial insemination in these letters of righteous ndignation and we resurrect the ghost of the furore that was reated when ether was first introduced. Can we not take a ore rational view without undermining the true Christian alues and sanctity of married life?

We can all agree that the childless marriage is a hollow hing—a plant which has wilted and produced no fruit. Those any unfortunate couples placed in this predicament must per- orce seek some substitute for the emptiness that cannot be illed by the fruits of their love. Adoption has hitherto been the ost widely practised substitute. It has obvious disadvantages, ot the least of which is the frequently poor genetic quality of he material presented for adoption. Artificial insemination ffers an alternative to adoption which has both advantages and isadvantages. Mother and child have the advantage of a hysical basis to their relationship; all three partners have to ace the fact of the substitute father. Obviously some couples an easily adjust to this situation where others might find it mpossible.

Those critics who accuse the woman of adultery, it seems to e, confuse the letter of the law with the spirit. They see no ifference between the intimacies of the bed-chamber and the ractices of the laboratory. Can we not allow each couple to ecide for themselves and allow them the privilege of decent otives in the seeking of a solution to their very tragic dilemma? urely it is hardly the physician's role to set himself up in oral judgment in such cases.—I am, etc.,

Chipping Ongar, Essex. F. E. S. HATFIELD.

SIR,—The correspondence in your columns regarding artificial nsemination illustrates the reluctance of even the scientifically inded to lift the blankets heaped upon procreational matters y religion, convention, upbringing, and kindred influences in rder to examine that human cauldron in the cold light of cience and reason.

Without entering into the merits of the case, for or against, t may be said that the subject is a facet of a problem which ooner or later humanity will have to resolve—namely, how to ive effect to the influence of heredity and breeding in the nterests of the improvement of the race. The prime emphasis laced by Nature on this essential is self-evident in every form f life; yet by man for men, and by men alone, it is ignored nd even combated. The problem is one of especial concern nd urgency to democracies, such as our own, where if the resent trend towards quantity rather than quality continues here is danger of racial degeneration and subsequent extinction y reason of their own liberal doctrines. We are taught that ll men are equal in the sight of God; hence we continue to reed any and every sort of rubbish, and call it His will and His work. If mankind gave as much attention to the breeding f men as they do to that of other forms of life, or even to the roduction, let us say, of the perfect motor-car, it might well e that the "kingdom of God on earth" would be advanced y thousands, perhaps millions, of years.—I am, etc.,

Wicksworth, Derbyshire. E. D. BROSTER.

Tapeworm in Freshwater Fish

SIR,—In the *Journal* for Feb. 10 (p. 199) Mr. T. E. Gibson eported finding in the peritoneal cavity of a trout 39 lerocercoids, which showed morphological characters similar o those described by Duguid and Sheppard (*J. Path. Bact.*, 1944, 56, 73). The trout had been caught on Sept. 24 in a Northamp- onshire reservoir, from which six dead trout had been picked p between Aug. 11 and 25. "During the period when deaths were being observed in the trout fifty grebe also died, but it is ot known whether or not the dead grebe were infected with *Diphyllobothrium*."

I examined an adult male great-crested grebe, *Podiceps cristatus*, which had been found dead on Aug. 16 on the same reservoir. The grebe was very emaciated and anaemic, with oedema of the lungs, subcutaneous and intermuscular tissues. The small intestine was acutely inflamed and very much distended by a cylindrical mass of eighty-two intertwined tapeworms; *Ligula intestinalis* (Léon, 1758), which were mostly immature, though one or two showed signs of adult features. The heads and necks of three of the *Ligula* had burrowed under the cuticular lining of the gizzard, the lumen of which contained a felted mass of grebe feathers mixed with shreds of water plant. The small intestine also contained some very small cestodes, which were too decomposed for identification; some small trematodes, *Petasiger neocomense* (Fuhrmann, 1927); and two female nematodes, possibly *Contracaecum ovale* (Linstow, 1907). I am indebted to Dr. H. A. Baylis for kindly identifying these worms.

Later I was informed by the manager that on Aug. 12 a number of grebes, believed to be native to the reservoir, seemed listless and off their food. Eighteen of them were picked up dead on Aug. 14. By Aug. 21 a total of forty-nine dead grebes had been found. Of the other species of birds on or around the reservoir (e.g., mallard, teal, lapwings) none appeared to be affected. Between Aug. 12 and 21 "some fish, mostly trout, about 3 to 4 lb. in weight, also died, most of them in bad condition. No careful examination was made of the trout, but a roach was seen with tapeworms in it." The reservoir, completed and filled 4 years previously, was shallow owing to drought. At the beginning of August the temperature of the water rose; on Aug. 17 it was 69° F. and on Aug. 21 it dropped sharply, after which date no more dead birds were picked up and the few surviving grebes appeared to have recovered.

I was impressed by the severity of the enteritis which *Ligula intestinalis* is capable of producing when examining a goosander drake, *Mergus merganser*, which had been found dead on a freshwater lake in October, 1935. Beyond a single trematode, possibly *Diplostomum parviventosum* (Dubois, 1932), the duodenum contained two adult *Ligula intestinalis* (Léon, 1758), which had produced acute haemorrhagic ulcerative duodenitis with secondary acute septic peritonitis.

From Bruno Hoffer's *Handbuch der Fischkrankheiten* (Stuttgart, 1906), Sprehn's *Lehrbuch der Helminthologie* (Berlin, 1932), and H. A. Baylis (*Vet. Rec.*, 1934, **14**, 1472) I gather that the first intermediate hosts of the ciliated hexacanth *Ligula* embryo are freshwater Copepods (*Cyclops and Diaptomus*). The second intermediate hosts (of the plerocercoid) are various freshwater fish, chiefly Cyprinidae. The final hosts have been identified as freshwater fish (carp, tench), and several species of birds which eat freshwater fish (divers, grebes, gulls, terns, herons, eagles, hooded crows, etc.). In order to clear up the identity of Mr. Gibson's plerocercoids I would suggest that they be fed to final-host birds. Even the domestic duck might well serve for such a repeat of Duchamp's experiments (1876) as referred to by T. S. Cobbold (*Parasites*, etc.; London, 1879). According to Cobbold the *Ligula* of the final-host fish do not attain sexual maturity. The sexually immature was termed (*vide* Hoffer) *Ligula simplicissima* (Rud., 1802), now, as Dr. Baylis kindly informs me, generally regarded as synonym of *L. intestinalis* (L., 1758). Thus by feeding the plerocercoids to goldfish Mr. Gibson could produce adult *Ligula* (if they are *Ligula*) more easily under laboratory conditions, but they would not enable him to complete the whole cycle of development. The duck appears to be the experimental host of choice.—I am, etc.,

London. TOM HARE.

Wilkinson's Ointment

SIR,—In the obituary of Dr. A. T. Wilkinson (Feb. 10, p. 201) your contributor remarks: "One-prescription of his had a curiously wide European reputation," basing this conclusion on the fact that some Manchester medical workers with the Russian Army in the last war "found that scabies was treated with what the Russians called Wilkinson's ointment, the formula of which was equal parts of sulphur and ammoniated mercury ointments and of benzoated lard. . . ."

I am loath to detract from the credit due to this distinguished physician, but suspect that some confusion may have arisen.

The preparation known as Wilkinson's ointment has indeed been very widely used on the Continent, especially Central Europe, for scabies and various chronic skin affections for a very long time, probably about 100 years. The American dictionaries of Dorland and of Stedman agree in ascribing it to *J. H.* Wilkinson, "English physician of the 19th century," and they both state that it is the compound sulphur ointment of their national formulary, and this is identical with ung. sulphuris co. *B.P.C.*—namely, sublimed sulphur 15 g., calcium carbonate 10 g., tar 15 g., lard 30 g., soft soap 30 g.

In the 1923 edition of the *B.P.C.* the synonyms of ung. sulphuris co. are given as Wilkinson's ointment and unguentum ad scabiem viennense. The *Extra Pharmacopoeia* gives Wilkinson's ointment as a synonym of ung. picis et sulphuris, a London Hospital formula of very similar composition. Volk and Winter's *Lexikon der Kosmetischen Praxis* (1936, Vienna: Springer) says it is a tar–sulphur ointment, and that "it is now mostly used in Hebra's modification as Hebra-Wilkinsonsche Salbe" as follows: cretae albae 5.0, sulfur. praecip. 7.5, ol. rusci 7.5, sapon. kalin., adip. suill. āā 15.0. They give as the "old prescription": cretae 8.0, flor. sulf. 12.0, ol. fagi 12.0, sapon. kalin. 24.0, adip. suill. 24.0. This implies that a Wilkinson's ointment with the latter formula was an established remedy in Hebra's day (1816–1880). It will be seen that at Hebra's death Dr. A. T. Wilkinson would have been only 27.

All these formulae agree in containing tar, sulphur, and soap. If, therefore, the Russians were really using a mixture of sulphur and ammoniated mercury ointment and benzoinated lard, it may be that this was a formula devised by Dr. A. T. Wilkinson. It is, however, unlikely that, mainly for the same disorder and under the same name, two ointments with different formulae, invented by different Wilkinsons, should have been widely used abroad.—I am, etc.,

London, W.1. W. N. GOLDSMITH.

Breathing and Coronary Circulation

SIR,—In your issue of Feb. 24 you included a letter from Dr. R. Halstead Dixon under the heading "Breathing and Coronary Circulation." In the text of this letter Dr. Dixon has inserted in the manner of a parenthesis a reference to one of Mr. F. Matthias Alexander's books, *Constructive Conscious Control of the Individual*, and both the substance of his reference *and* the subject-matter to which it is set in relation in the text give an entirely misleading conception of Mr. Alexander's work. In sending you his letter Dr. Dixon may have been motivated by the desire to do a service to work which has attracted his interest and to help his fellow practitioners and others; and you may have been motivated by similar desires in accepting his letter; but your combined actions, which have been based upon misconceptions and misunderstanding, have resulted in disservice to all your readers. Alexander's work deals with demonstrable truth, and no amount of misrepresentation can destroy it, for truth will out; but misrepresentation may delay its spread and hinder its application when and where it is most needed.

On Jan. 28 I submitted a letter to you under the heading "The 'Psychosomatic' Approach," which letter you rejected upon the grounds of lack of space. I sent a copy of my letter to Mr. Alexander, who replied that it was "excellent"—an expression which when used by him indicates that the subject-matter is founded upon a reliable conception of his work. Mr. Alexander's work deals with the re-education of defective sensory appreciation which is the means whereby misconceptions and misunderstanding are reached, and his work also deals with the manner of use of the self which is the means whereby all the actions—including "medical" actions—are conceived and guided.—I am, etc.,

Bolton, Lancs. MUNGO DOUGLAS, M.B., CH.B.

SIR,—Since my letter under this heading appeared on Feb. 24 Mr. F. Matthias Alexander has been in communication with me. I regret that he was misinterpreted, for which I apologize.—I am, etc.,

Ealing, W.5. R. HALSTEAD DIXON.

GIFT BY AMERICAN ANAESTHETISTS

In return for the hospitality which during the last two and a half years anaesthetists in the United States Forces passing through London have received from the Royal Society of Medicine, the American Society of Anaesthetists has presented for installation in the Barnes Hall at 1, Wimpole Street a 16-mm. cinematograph projector for sound and picture. The presentation was made on March 2 by Col. R. M. Tovell, U.S.A.M.C., who spoke of the appreciation of himself and his colleagues of the opportunity they had been given of listening to British medical men of renown and of making many valuable friendships. The gift was received by Dr. Frankis Evans president of the Section of Anaesthetics of the Society, with some appropriate words concerning the understanding and good fellowship which it commemorated. In his turn he handed over the apparatus to the President of the Society, Surg. Rear-Adml. Gordon-Taylor, for the use of the R.S.M. in general In accepting the gift Admiral Gordon-Taylor remarked on the contribution which American anaesthetists had made to the advancement of anaesthesia. A century ago Wells and Colton of Connecticut did pioneer work with nitrous oxide, while from Morton and the Massachusetts General Hospital came ether anaesthesia. Thirty years ago Gwathmey of Chicago introduced—or perhaps reintroduced, for it was first essayed by Pirogov, the great Russian surgeon, in 1847—the rectal channel for ether administration. He added that the charming generosity and liberality of the medical profession in the United States were well known to many of them, and he from personal experience, both as an individual and in a representative capacity, could testify to it. It was customary to raise monuments in stone or bronze to the honoured dead, but this gift was no barren or silent symbol; rather was it an eloquent and rhythmical reminder of a "lively anaesthetic entente," and, in a wider sense, of the faith and friendship and mutual sacrifice of the two great English-speaking peoples. They all trusted that this growing understanding between the two countries would be, not a temporary liaison, but a perpetual friendship.

The Services

The following appointment, awards, and mentions have been announced in recognition of gallant and distinguished services in the field:

M.B.E. (Military Division).—Capt. J. H. D. Millar, R.A.M.C.

M.C.—Capts. A. D. McKenzie, C. A. Richardson, and K. A. C Clarke; Lieut. J. G. Des Biens, R.C.A.M.C.

Mentioned in Dispatches.—Major (Temp.) R. Stuppel (killed in action) and Capt. D. B. Watson, R.A.M.C.

The following awards have been announced in recognition o gallant and distinguished services in North-West Europe:

Second Bar to the D.S.O.—Brig. (Temp.) H. L. G. Hughes C.B.E., D.S.O., M.C., R.A.M.C.

M.C.—Capt. (Temp. Major) W. J. Hay; Capts. G. M. Killpack G. P. Mitchell, H. N. Smith, J. M. Willcox; Lieuts. F. Hartley and W. M. Walker, R.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Killed in action in Burma.—Capt. Archibald Menzies Ogilvie R.A.M.C.

DEATHS IN THE SERVICES

The death has been announced of Col. JOHN CRIMMIN, V.C. C.B., C.I.E., I.M.S.(ret.), at Wells, Somerset, at the age of 85. H qualified in Dublin in 1882 and subsequently took the D.P.H He entered the Indian Medical Service in 1882 and distinguished himself during the Burma campaign of 1886–8, and when S.M.O. o the Karen Field Force during the forcing of the Nanko Defile h gained, in 1889, the first Victoria Cross to be awarded to an I.M.S officer. Later he entered the Bombay Medical Service and was por health officer of Bombay for a number of years and became wel known to many I.M.S. officers embarking for leave home as a genial Irishman. In 1901 he was awarded the C.I.E. During the war o 1914–18 he served on the North-West Frontier of India and becam Assistant Director of Medical Services, India. He received the C.B in 1913, was Honorary Physician to the King 1916–19, and retire in the latter year. Col. Crimmin resided for a time at Croydon but later moved to Somerset. He thus had a varied and distin guished career and will long be remembered by his many friends He was married and had two sons.

Obituary

D. CHARLES WELSH, M.B., CH.B.

The death took place very suddenly on Feb. 20 at Kippford in the Stewartry of Kirkcudbright of Dr. David Charles Welsh, who had retired from practice in Castle Douglas in June, 1944, after 40 years of active work in that town. He was born in 1880 at Innerleithan, graduated M.B., Ch.B. at Edinburgh in 1903 and began practice in Castle Douglas. He served with the R.A.M.C. in the last war from 1915 until the end, retiring with the rank of captain. Medico-political matters were of particular interest to him. As a member of the B.M.A. he completed two terms of office as chairman of the Dumfries and Galloway Division and later was elected president of the Border Counties Branch of the Association. The Castle Douglas Cottage Hospital was very near to his heart and benefited by his services, as it was through his untiring efforts that a very efficient *x*-ray plant was introduced and was operated by him as honorary radiologist until his retirement. In public work Dr. Welsh gave valued service to the community, being co-opted a member to the Castle Douglas Town Council in 1910 and at the next election was returned at the top of the poll, subsequently becoming Provost in 1912. At the time of his election he was the youngest Provost in Scotland. A member of the Scottish Episcopal Church, he was one of the Vestry of St. Ninian's Church, Castle Douglas, and, having considerable musical talent, frequently acted as organist. His public service also included the offices of vice-chairman of the Stewartry Branch of the St. Andrew's Ambulance Association, membership of the Castle Douglas Nursing Association, the Stewartry Insurance Committee, and local medical and panel committees. Dr. Welsh had a most kindly and sympathetic nature and was regarded with much affection by his patients, who duly appreciated his skill and unvarying attention. To his colleagues in the district he was a much-valued friend and gave unsparingly of his kindly help, which was often sought by them.

Dr. Welsh's death (writes A. C.) has profoundly affected a wide circle of patients and friends who had hoped he would regain the health and vigour which he had sacrificed in ungrudging service. Within a few years of coming to Castle Douglas he had entered into partnership with Dr. Robert Lorraine, an association which continued for nearly 40 years. The practice was an extensive one and Dr. Welsh gave unsparingly of his wide knowledge and experience. He was the "family doctor" in the highest sense of the term. His interests were many. Three stand out. He was particularly concerned with the Cottage Hospital and was the driving force in its development. He spared no pains in his successful efforts to keep it up to date, and he was responsible for both the installation and the working of its *x*-ray department. He was an enthusiastic member of the B.M.A., and his presidential address to the Border Counties Branch on "The Subcutaneous Injection of Oxygen and Carbon Dioxide" was published in the *B.M.J.* in 1932. His wise counsel in various committees was highly valued. The Voluntary Aid Detachment of the Red Cross found a very warm place in his heart. He was lecturer to the local branch from its inception in 1911 until his retirement, and he twice had the pleasure of seeing his team win the Caledonian Shield. His relaxations were few, but perhaps he most enjoyed being afloat on the Solway at the helm of his yacht, preferably with a few privileged passengers. His fishing-rod, too, was a loved companion. Fearless and outspoken, his sincerity and charm of manner always successfully coated the pill. The Stewartry of Kirkcudbright has suffered a loss that is irreparable. To Mrs. Welsh and her three daughters sincere sympathy is extended from a host of friends who held him dear and appreciated his sterling worth.

ALEXANDER FORBES, M.B., C.M.

Alexander Forbes, who died at Sheffield on Feb. 7, at the age of 80, was a man of more than local importance. He was one of the most influential general practitioners in the country. An Aberdonian, educated at the local Grammar School and University, he was rather late in qualifying. One reason was that during his student career he learned one day that a famous Peterhead whaler, the *Eclipse*, was delayed in port because the surgeon had been taken seriously ill; on the spur of the moment he shipped as surgeon.

In 1890 he took his M.B., C.M. and came to Sheffield, where he set up in general practice. He soon built up a large practice and won a seat on the City Council as a Conservative. After three years he did not seek re-election because he found the duties too time-consuming. He was the first advocate in Sheffield of meals for school-children. Although a member of the B.M.A. from 1892, it was not until the fight about the Insurance Act that he gained a great local reputation as a leader of the profession. The fight was lost, and the feeling in the profession was very bitter indeed, but Forbes was the heart and soul of a party of practitioners who determined to make the best of things and to try to get the best possible medical service for the city. He became chairman of the Panel Committee, whilst one of his old political opponents, the late Mr. Arthur Neal, became chairman of the Insurance Committee. Forbes could always appreciate the legal point of view and Neal the medical point of view; to the present writer the co-operation of two such political opponents has always appeared to be a shining example of what municipal politics ought to be. Forbes combined his local work, which was extremely onerous, with a seat on the Council of the B.M.A. and on the Insurance Acts Committee. He was also much in request as a member of or medical assessor to many of the tribunals and committees which were continually instituted to settle problems arising on range of service, prescribing, etc., and in this way played a great part in setting up the kind of "case law" which governs the administration of the Insurance Acts. His notably judicial mind was of the greatest service on these bodies. He was also for some time a member of the West Riding Panel Committee and various liaison committees and subcommittees which served to unite the profession in Yorkshire. For some years Forbes and Hillman of Wakefield served their profession together in Yorkshire and in London, and will be remembered together. Forbes was a regular attendant at Annual Meetings, being Representative of Sheffield on eight occasions.

Besides his work for the Sheffield Division of the B.M.A. Forbes held office as vice-president of the Section of Industrial Diseases at the Sheffield Annual Meeting in 1908, as secretary of the Section of Medical Sociology at Glasgow in 1922, and as vice-president of the Section of Medical Sociology at Portsmouth in 1923; he had also served on the Central Ethical Committee of the Association and several subcommittees. He represented the Local Medical Committee on the Court of Management of the Royal Sheffield Infirmary and Hospital, and was a member of the Onslow Committee on Hospitals.

He was a man of very alert mind and he retained his alertness to the end. Thus in 1938 he attended a postgraduate course at a Northern city and brought back to Sheffield a wonderfully detailed account of what had been taught there. He could pick up a new medical doctrine or get the gist of new knowledge in a remarkable manner. He took a very lively interest in Sheffield University, and was a leading spirit in the movement which resulted in the Panel Committee making a voluntary grant of £1,000 to the University for the equipment of its (then) new department of pharmacology. What was the chief characteristic by which we shall remember him? Certainly his unfailing kindness! During two wars, and during the intervening period, puzzled and anxious practitioners have taken their problems to him and have received advice and help. Censoriousness and righteous indignation had no part in his make-up, so he made no enemies in a long career during which he was often engaged in controversy. A. E. B.

The death occurred at his residence in Kingsmere Avenue, Belfast, on Feb. 4 of Dr. WILLIAM ROBERT HAYDEN. Born in 1872, he qualified as M.B., Ch.B., B.A.O. of the old Royal University of Ireland in 1905, and proceeded to the M.D. degree four years later. For almost forty years he was engaged in general practice in the Cliftonville district of Belfast, and gained for himself an enduring place in the affection of very many people. The fact that he himself had to bear the burden of a chronic disability seemed to make him the more anxious to bear the burdens of others, and to increase his sympathy for the sick and his understanding of the problems of disease. Modest and unassuming, he was a sound diagnostician, an accurate observer, and keenly interested in each new development of medical treatment. During the air raids of

1941. many hundreds of houses in his neighbourhood were destroyed, and he rendered magnificent service to the injured with a fine disregard of his own safety. Dr. Hayden is survived by his widow, two daughters, and a son, Dr. Ernest Hayden.—R. M.

It is now known that Dr. **Arthur Clement Stamberg**, O.B.E., of St. Helier, died in Jersey on Aug. 19, 1944. He had studied medicine in Edinburgh, London, Dublin, and Vienna, and graduated M.B., C.M.Ed. in 1892, after which he served as clinical assistant at the Royal Westminster Ophthalmic Hospital and as aural assistant at the Central London Throat Hospital. He joined the British Medical Association in 1894 and was a member of the British Institute of Radiology and of the Ophthalmological Society. He served with the R.A.M.C. in the last war and reached the rank of lieut.-colonel, and later was Deputy Commissioner for Medical Services under the Ministry of Pensions for the Channel Isles area. Dr. Stamberg published notes in these columns on ophthalmological subjects and also, in 1922, a paper "The Pensioner: A Clinical Study," when he was president of the Southern Branch of the B.M.A.

Dr. **John Robert Summers Park**, who had been part-time M.O.H. for Dukinfield for 38 years, died in retirement on Feb. 16 at Romiley, Cheshire, aged 84. He studied medicine at Owens College, Manchester, and St. Thomas's Hospital, qualifying L.R.C.P.&S.Ed. and L.R.F.P.S.Glas. in 1887. He started his professional career at Dukinfield in the following year, and in 1892 was appointed M.O.H. to the old local board. When Dr. Parks retired from public service at the end of 1930 the death rate in Dukinfield had fallen by 50%, the infant mortality was the lowest of any town in Cheshire, and the sanitary organization was beyond reproach. Tributes to Dr. Park's valuable work were paid by the Health Committee and by the Town Council in public session, and he received a presentation at a dinner in the town hall. He was for many years a member of the visiting staff of the Ashton and District Infirmary and the Children's Hospital, had been president of the Ashton-under-Lyne District Medical Society, and chairman of the local Division of the B.M.A. Dr. Park was a J.P. for Cheshire and an officer of the Order of St. John of Jerusalem.

Dr. **Benjamin Hugh Nicholson**, late of Colchester, died suddenly at Lynwood on Feb. 19 aged 85. He graduated M.B., C.M. of the University of Edinburgh in 1884 and followed this with postgraduate study in Vienna. He was for many years surgeon to the Essex County Hospital, becoming the senior member of the staff, and had been medical officer to the Post Office and the Orphans' Home, honorary surgeon to the Fire Brigade, and medical examiner for the Education Department; he also acted as medical referee for Colchester and District under the Ministry of Pensions. Dr. Nicholson joined the B.M.A. in 1896, served on the Central Council in 1908–9 and 1911–12, and represented his Division at the Annual Meeting at Swansea in 1903.

Dr. **Frederick Augustus Sharpe**, medical officer of health for Preston, died at Longton on Feb. 21. He was born in Leicestershire in 1881, and from Guy's Hospital graduated M.B., B.S.Lond. in 1905. He proceeded to the M.D. in State Medicine in 1910 and took the D.P.H. of Leeds. Deciding to make his career in the Public Health Service he became resident medical officer at Monsall Fever Hospital and assistant M.O.H. for Derby. In 1911 he was appointed M.O.H. for Chesterfield, and after four years there moved to Barnsley. He took up his duties as M.O.H., school medical officer, and tuberculosis medical officer for the county borough of Preston in 1920. Dr. Sharpe had been a member of the B.M.A. since 1909, and contributed to these columns on Oct. 24, 1924, a report on an unrecognized outbreak of smallpox in a community where the only control was the previous partial vaccination of the contacts and the fact that it occurred in institutions under discipline and observation. A colleague writes: The tragically sudden death of Frederick Augustus Sharpe at the age of 63 came as a great shock to his many medical friends. Only the previous day he had carried out his official duties apparently in his usual health. A native of Sileby, Leicestershire, he was educated at Loughborough and Chesterfield Grammar Schools and at Guy's. He was an ex-president of the North-Western Branch of the Society of Medical Officers of Health, and sometime member of the council of that society. In his work he was conspicuous for high administrative ability and for the soundness of his judgment. The outbreak of war imposed heavy burdens upon him and it was his task to establish the medical services in connexion with civil defence. Here his powers of organization found ample scope. His sense of loyalty, his geniality, and his ready wit were characteristics which endeared him to his friends and colleagues. The loss of his elder son, Capt. R. M. Sharpe, R.A.M.C., who was killed in action in 1943, was a grievous blow to him, but he bore it with calm fortitude. He is survived by his wife, a son serving abroad in the Royal Corps of Signals, and a daughter who is a bacteriologist. To them we extend our deep sympathy.

We regret to announce the death on Feb. 22, at the early age of 38, of Dr. **Norman Lloyd Price** of Clifton, lecturer on diseases of children in the University of Bristol, and honorary physician to out-patients at the Bristol Children's Hospital. He studied medicine at Bristol, took the English Conjoint diplomas and the M.B., Ch.B. degrees of his university in 1929, proceeded M.D. in 1934, and became M.R.C.P. in 1936. After serving as house-physician and casualty officer at the Bristol General Hospital he worked for a time as deputy medical superintendent of the Southmead Hospital, Westbury-on-Trym, and in addition to his other hospital posts was consulting physician to the Stoke Park Colony. Dr. Lloyd Price was a member of the council of the Section of Disease in Children of the Royal Society of Medicine and had published papers in the *Lancet* and the *British Journal of Surgery*. He joined the B.M.A. in 1930 and was an active member of the Bristol Medico-Chirurgical Society.

Dr. **Edward Percival Dickin**, for 33 years M.O.H. of Brightlingsea, Essex, died on Feb. 25. He studied medicine in Edinburgh and Paris, and at the Middlesex Hospital, graduated M.B., C.M.Ed. in 1893, and proceeded M.D. in 1899 after taking also the English Conjoint diplomas. Before settling in practice at Brightlingsea he had been house-surgeon at the Northampton General Hospital. He served during the last war with the rank of captain, R.A.M.C., as officer-in-charge of the medical division of a military general hospital in Malta, and for some years he examined in first aid for the British Red Cross Society. Dr. Dickin joined the B.M.A. in 1896, held office as chairman of the North-East Essex Division in 1930–2, and in 1936 was elected president of the Essex Branch. When he retired from the post of M.O.H. in 1933 he received from past and present members and officers of the Brightlingsea Urban District Council an inscribed silver salver, and public tributes were paid to his long and able services to the town and his devotion to his private patients. He was a Fellow of the Society of Antiquaries and published five years ago *A History of Brightlingsea: a Member of the Cinque Ports.*

To the distress of his friends and relations Dr. **Charles Macdonell Anderson** passed away at the age of 78. Dr. Anderson was born in India, the son of a colonel in the Royal Engineers who had been through the siege of the Residency at Lucknow. He was also the nephew of another Mutiny hero, Sir James Outram. He entered Edinburgh University, where he graduated in 1889; he then came to the London Hospital and took the M.R.C.S., L.R.C.P. in 1892. Like many others of his time he went abroad for postgraduate study at Vienna and Dresden. He graduated M.D. in 1896. and was assistant in the ear, nose, and throat wards of the Edinburgh Royal Infirmary. Coming south Dr. Anderson settled and practised for nine years in Faversham before moving to South Kensington, where he spent the rest of his life. He rapidly acquired a fashionable practice. During the last war he was in charge of the Lady Mary Maynell Hospital for Officers and the Red Cross Hospital, Grosvenor Gardens. He was mentioned twice in dispatches. Though failing in health he worked all through the "blitz" days. He was a man of sound judgment and even temper, never ruffled or put out in the most trying circumstances. He was a most likeable man with a large circle of friends. He will long be remembered as an excellent physician and a delightful friend.—D. C. L. F.

Dr. **Edward Stanley Robinson** (writes a correspondent) began practice in Stourport-on-Severn, Worcestershire, in 1893, and became one of the leading general practitioners in the county. He was in every way an ideal family doctor. His professional ability was of a very high order, and he was untiring in his devotion to his patients. His outstanding characteristic was his humanity and kindness, and he was equally beloved in the mansion or the humblest cottage. As medical officer of health for Stourport, a position he held for over 40 years, he was fearless and outspoken in his efforts for the improvement of the housing of the inhabitants and the general sanitary condition of the district. He took a keen interest in all matters affecting the medical profession, and was a very regular attendant at meetings, at which his remarks were always practical and moderate.

Surgeons who carried out research at the Buckston Browne Farm at Downe will learn with regret that Mr. E. J. Smith, the custodian of the Farmhouse, died on Feb. 23 in Farnborough Hospital, Kent, from cancer of the lung at the age of 55. He entered the service of the Royal College of Surgeons as college messenger in 1908 at the age of 18, later becoming an attendant in the museum of the College. He served through the war of 1914–18, and on demobilization was placed in charge of Room I, and thus had the care of anatomical preparations, osteological specimens, and a vast collection of human skulls, ancient and modern. He became a master of skull-craft, learned how to reconstruct and delineate the most crushed specimens. It was he who chiselled out of the solid rock the fragile fossil bones of the Mount Carmel child. Geologists and others brought fossil bones for identification; Smith ran them to their source with the intuition and acumen of a Sherlock Holmes. On the opening of the laboratories at Downe in 1932, the Council of the College appointed Smith to the custodianship of the Farmhouse, while Mrs. Smith was made its housekeeper. He entered the service of the College when William Pearson was prosector, the third generation of the Pearson family to devote its skill and loyalty to its service. Smith absorbed and continued the Pearsonian tradition. Although born and bred a Londoner, he took most kindly to village life and earned the respect of all he came in contact with by his modesty, reticence, and quiet intelligence. A service to his memory was conducted in the church of Downe on Tuesday, Feb. 27, and was attended by representatives from the College.—A. K.

The following well-known medical men have died abroad: Dr. James Addison Babbitt, emeritus professor in oto-laryngology at the University of Pennsylvania, aged 74; Dr. Jean Louis Faure, formerly secretary-general of the French Society of Surgery, aged 81; Dr. Graeme Monroe Hammond, emeritus professor of neurology and psychiatry at the New York Postgraduate Medical School and Hospital, Columbia University, aged 86; Prof. Fritz Seiler, formerly director of the Medical University Polyclinic of Berne, aged 69; Dr. William Thornwall Davis, consultant ophthalmologist to the Surgeon-General of the United States Army, aged 67; Dr. Nicolas Bendia, co-founder of the Colombia Red Cross and professor in the Bogota faculty of obstetrics, aged 75; and Dr. Max Bergmann, biochemist, member of the Rockefeller Institute for Medical Research, aged 58.

Medical Notes in Parliament

Child Immunization in Glasgow

On Feb. 20 Mr. Westwood informed Major Lloyd that the medical officer of health for Glasgow estimated that of the children of school age and pre-school age in Glasgow at Dec. 31, 1943, the percentages immunized against diphtheria were 60 and 23 respectively. Major Lloyd asked if the Minister would receive a deputation from the medical profession in Glasgow to discuss ways and means of improving the position. Mr. Westwood replied that the Minister was always willing to meet deputations prepared to put any case before him to improve health conditions of Scotland.

Foot-and-Mouth Disease Infection

On Feb. 20 Major Braithwaite asked the Minister of Agriculture whether, in view of the fact that the principal source of infection causing outbreaks of foot-and-mouth disease in this country was imported meat, and to provide guarantees against the sale of such diseased meat to the public, he would undertake, after giving due warning, that in future the import of meat would be prohibited from any country which had not taken satisfactory steps to eradicate this disease. Mr. Hudson said he had consulted the Minister of Health and the Minister of Food on this matter. He was advised that there was no evidence of danger to human health from the importation into this country of carcases from the countries in which foot-and-mouth disease occurred, although there was a serious danger to our own farm animals if they were allowed to come into contact with meat which might be infected. There would be difficulty about adopting the course proposed in the question at present.

Contributory Negligence in Cases against Doctors

Sir David Maxwell-Fyfe on Feb. 22 moved the second reading of the Law Reform (Contributory Negligence) Bill. The Bill, which has already passed through the House of Lords, would apply to accidents on land the Admiralty rule that if the person suing had contributed to the negligence he would still have a right to a proportion of the damages which he would have recovered if entirely free from blame.

Dr. Russell Thomas asked what would happen, under the Bill, in actions against professional men, such as actions against doctors for malpractice. Such actions now frequently failed. Many were brought on the off-chance of getting damages, or from malice. He had investigated a series brought during 30 or 40 years against doctors and found that in very few cases did the plaintiff succeed. Often the court condemned the plaintiff for bringing the action. The Bill would tend to increase the number of such actions. It would be easy to come to court and endeavour to show some degree of negligence. On the other hand the professional man could no longer win his case by alleging contributory negligence in the patient's application of treatment. Mr. Glenvill Hall said that if in the past doctors had been guilty of negligence and had got away with it, it was time the "racket" was stopped.

Sir David Maxwell-Fyfe said that in actions against professional men the question of contributory negligence seldom arose. The issue was whether there had been negligence or breach of duty on the part of the professional man. That took a deal of establishing, and there were few successful cases. He could not see that the professional defendant would be prejudiced in any way by the Bill.

The Bill was read a second time.

The Nation's Water Supply

On the motion of Mr. Willink the House of Commons on Feb. 21 read the Water Bill a second time. Mr. Willink said one of the purposes of the Bill was to provide an up-to-date substitute for the Waterworks Clauses Act of 1847, commonly known as the "Waterworks Code." Until now there had been no general revision of that code. This Bill gave powers to secure, by compulsion if needed, a combination of water undertakings. These were far too numerous. The Bill also tightened the provisions against pollution of water. Much of the national health was due to the work of the water undertakers in providing safe and ample supplies in the great towns. The nation was free from cholera and almost completely free in recent decades from typhoid. Between the wars the number of houses in the country without piped supplies had been halved, but one-third in the countryside still lacked such a supply.

Mr. Wootton-Davies remarked that there was no definition of pure or wholesome water. A dangerous chemical, chlorine, was to-day put into the water everywhere. He believed the practice was first to put in ammonia and then to neutralize that with chlorine. Had the Minister investigated the effect of those chemicals on lead pipes and brass taps? The Bill allowed wells to be sunk to depths less than 50 feet. Such wells merely tapped surface drainage and were a danger. He suspected that arsenical sheep-dips eventually got into the water supply. He suggested that the Minister should take powers to enforce the softening of water at the source. Mr. R. C. Morrison asked the Minister to make the sealing off of disused wells obligatory. Under the present law a well could be abandoned and left with all the slime running back into the underground water.

Committee on Children in Homes

Mr. Herbert Morrison announced on Feb. 22 the appointment by Mr. Willink, Mr. Butler, and himself of a committee on children who lacked a normal home life. The chairman is Miss Myra Curtis, principal of Newnham College, Cambridge. Other members include Dr. Somerville Hastings, chairman of the L.C.C.; Dr. J. C. Spence, professor of child health in the University of Durham; Miss S. Clement Brown, in charge of the Mental Health Course for Psychiatric Workers, London School of Economics; and Miss Lucy G. Fildes, Provisional National Council for Mental Health.

E.M.S. Hospital Expenses.—On Feb. 21 Mr. Willink told Sir E. Graham-Little that he had no evidence of a system alleged to exist in certain E.M.S. hospitals under the management of county councils whereby the steward benefited personally by keeping the expenses below a certain figure, which reduced the standard of food supplied to resident medical staff and patients. Therefore the question of action to alter this arrangement at hospitals in his jurisdiction did not arise.

Notes in Brief

Returns from local authorities at Dec. 31 last showed that 436 children in England and 112 in Wales were then awaiting institutional treatment for pulmonary or non-pulmonary tuberculosis

Universities and Colleges

UNIVERSITY OF OXFORD

David Whitteridge, B.M., B.Sc., formerly Demy of Magdalen College, has been elected to a Fellowship by special election. He is demonstrator in the University Physiological Laboratory, held a Beit Memorial Research Fellowship in 1940-1, and last year was elected Schorstein Medical Research Fellow.

UNIVERSITY OF CAMBRIDGE

The following have been approved for the degree of M.Chir.: J. M. Pullan, D. I. Williams.

UNIVERSITY OF LONDON

The title of Professor of Chemical Pathology in the University has been conferred on Dr. E. J. King in respect of the post held by him at the British Postgraduate Medical School.

University College Hospital Medical School

Two Goldsmid entrance scholarships, entitling the holders to the final course of medical study; one Goldsmid entrance exhibition, and a Filliter entrance scholarship in pathology, both entitling the holders to a reduction in the fees due for the full course of final medical study, are announced. All are tenable at University College Hospital Medical School, and entries must be received by the secretary of the medical school (University Street, London, W.C.1) by June 30. Fuller particulars may be had from the same address.

UNIVERSITY OF MANCHESTER

The Council of the University has appointed Ronald Epey Lane, M.B., F.R.C.P., to the Chair of Industrial Health in the University. The institution of the chair was made possible by a grant from the Trustees of the Nuffield Foundation.

UNIVERSITY OF EDINBURGH

The Cameron prizes in practical therapeutics for 1945 are to be awarded to Sir Alexander Fleming, in recognition of his discovery of penicillin, and Sir Howard Florey, for his work in making possible the clinical application of penicillin.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* during the week the incidence of measles fell by 1,460, and of acute pneumonia by 243. Notifications for dysentery went up by 33, those for scarlet fever by 31, for diphtheria by 25, and for whooping-cough by 14.

The incidence of diphtheria rose slightly in the south-west and Wales. In spite of the fewer cases of measles reported, several counties showed substantial rises. In the following counties notifications dropped by the numbers indicated: Lancashire 425, Warwickshire 277, Staffordshire 236, Cheshire 221, Glamorganshire 185, London 174, Essex 169; increases were reported as follows: Yorks East Riding 184, Somerset 129, Leicestershire 122, Surrey 90. Five cases of typhoid were reported from Kent, Bridge-Blean R.D.

Dysentery notifications remain high. There were two fresh outbreaks during the week—Oxford C.B. 24, and Southampton, Petersfield R.D. 22. Only 2 cases were reported from Cornwall, where 49 were notified in the preceding week. Other large returns were Lancashire 37, London 33, Middlesex 33, Essex 22, Devonshire 18, Gloucestershire 18, Derbyshire 14, Northumberland 13, Cambridgeshire 12.

In *Scotland* dysentery notifications were 36 higher than last week, scarlet fever 17, whooping-cough 15, and diphtheria 12. The increase in dysentery was due to 16 cases in Stirling County, and a rise in Falkirk from 20 to 42. The largest of the other returns were Glasgow 24, and Edinburgh 21.

In *Eire* diphtheria notifications rose by 25. A fall of 19 cases was recorded for measles, and of 14 for scarlet fever.

In *Northern Ireland* measles notifications fell by 15, but diphtheria rose by 7.

Week Ending February 24

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,544, whooping-cough 1,539, diphtheria 457, measles 23,216, acute pneumonia 1,118, cerebrospinal fever 76, dysentery 393, paratyphoid 6, typhoid 6. Deaths from influenza in the 126 great towns numbered 51.

No. 7

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Feb. 17.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	73	9	27	7	2	67	1	33	1	3
Deaths		1	1				1	2		
Diphtheria	427	18	129	91	18	689	29	188	158	28
Deaths	9	—	1	1	1	11	1	4	6	1
Dysentery	357	33	140	1	—	277	61	141	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	—	—	—	—	—	—	—	1	—	—
Deaths		—					1			
Erysipelas			53	10	4			39	18	2
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				9					6	
Deaths	62	8	4	17	9	55	13	9	12	8
Measles*	19,167	640	421	22	116	1,620	226	147	324	1
Deaths	16	1	1	—	—	1	—	1	1	—
Ophthalmia neonatorum	53	1	16	—	1	88	5	21	1	—
Deaths										
Paratyphoid fever ..	1	—	2 (B)	—	—	3	—	2 (B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	1,206	75	19	12	13	974	46	9	6	5
Deaths (from influenza)	55	11	8	4	1	38	9	7	1	—
Pneumonia, primary ..			317	20				199	23	
Deaths		47		17	15		33		21	11
Polio-encephalitis, acute	—	—				—	—			
Deaths		—					—			
Poliomyelitis, acute ..	1	—	—	—	—	8	—	—	—	—
Deaths		—					—			
Puerperal fever		2	19		—		4	10		—
Deaths										
Puerperal pyrexia‡ ..	149	5	12	2	1	167	5	14	—	4
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,497	47	197	8	44	2,063	115	216	32	60
Deaths	2	—	—	—	—	1	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	11	—	3	5	1	6	—	1	9	1
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough* ..	1,530	76	151	53	12	1,825	173	124	74	17
Deaths	14	2	2	2	2	9	2	—	1	1
Deaths (0–1 year) ..	456	39	55	45	44	401	50	61	47	46
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	6,014	909	815	276	189	4,984	769	653	259	169
Annual death rate (per 1,000 persons living)			18·5	17·8	§			15·0	16·9	§
Live births	6,907	764	835	340	257	6,466	749	910	409	308
Annual rate per 1,000 persons living ..			16·7	21·9	§			18·5	26 7	§
Stillbirths	210	13	28			226	32	29		
Rate per 1,000 total births (including stillborn)			32					31		

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* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

Mr. J. Z. Young, M.A., will deliver an address on "The Structure, Degeneration, and Repair of Nerve Fibres" before the Royal Institution, 21, Albemarle Street, W., on Friday, March 16, at 5 p.m.

The Faculty of Radiologists will hold a Diagnosis Section meeting at 45, Lincoln's Inn Fields, W.C., on Friday, March 16, at 2.30 p.m., when Drs. A. S. Johnstone and R. A. Kemp Harper will open a discussion on non-malignant conditions of the oesophagus. Other radiological meetings to be held in London about that date are: British Institute of Radiology, 32, Welbeck Street, W., March 15, at 8 p.m, when Mr. L. Dudley will speak on stereoscopic photography and radiography; R.S.M., 1, Wimpole Street, W., March 16, at 6 p.m., Dr. J. Wilkie on radiology of the small intestine.

A clinical meeting of the Tuberculosis Association will be held at Brompton Hospital on Friday, March 16, at 2.30 p.m.

The exhibition of specimens, photographs, and drawings of war injuries on view to members of the medical profession in the Council Room of the Royal Society of Medicine will be extended another week, up to and including Friday, March 16.

A private business meeting of the Association of Industrial Medical Officers will be held at the London School of Hygiene, Keppel Street, W.C., on Saturday, March 24, at 11 a.m. At 2.30 p.m. there will be a discussion on "Ophthalmological Problems and Visual Standards in Industry," to be opened by Dr. W. Jeaffreson Lloyd, Mr. Joseph Minton, and Mr. T. C. Summers.

The Duchess of Kent attended her first meeting as president of the National Association for the Prevention of Tuberculosis in the Great Hall of B.M.A. House on March 1. The occasion was the inauguration of a Sanatorium Matrons' Section, and the meeting was attended by some 150 matrons of sanatoriums in all parts of the country. Her Royal Highness was received by the Duchess of Portland, chairman of council of the N.A.P.T., Dr. R. A. Young, vice-chairman, and Dr. Harley Williams, secretary-general.

Dr. A. H. G. Burton has recently completed 25 years' service as medical officer of health for the town of Ilford. At a commemorative function, attended by the Mayor and those Aldermen and Councillors who had been closely associated with the work of the department during this period, the present and former members of his staff presented Dr. Burton with a gold fountain pen and cheque. As chairman of the proceedings, Dr. J. H. Weir, the deputy M.O.H., outlined the developments of the local public health services over the past quarter of a century. He mentioned that during this time, in addition to Dr. Burton's capable organization and administration of a successful and progressive health policy, he had made valuable contributions to medical literature by the production of upwards of 20 original articles. Many other appreciative references to his work for the town were made.

The *Scotsman* records an interesting medical event in Delhi on Jan. 20. Lieut.-Gen. Sir Alexander Hood, D.G.A.M.S., Lieut.-Gen. Gordon Wilson, D.M.S. in India, and Lieut.-Gen. J. B. Hance, D.G.I.M.S., are all alumni of the Edinburgh Medical School, and their presence in Delhi at the same time prompted the holding of the first Edinburgh Medical School's alumni dinner. The attendance at the dinner—45 alumni and guests—was fully representative of Indian and British medicine. Among those present were Major-Gen. Richardson, Director of Hygiene, War Office, and Air Vice-Marshal Grant, P.M.O. Air Force in India. Brig. J. S. Fulton took the chair and proposed the health of "The King-Emperor"; Brig. J. D. S. Cameron proposed the toast of "The Guests of Honour," to which all three replied; Khan Bahadur Dr. Dahman proposed the toast of "The Edinburgh Medical School," and Brig. F. A. E. Crew responded.

The King has approved the appointment of Mr. Percy Barter to be a Senior Commissioner of the Board of Control; and the Minister of Health has appointed Mr. Barter to be chairman of the Board, on the retirement of Sir Laurence Brock from the public service on March 31. From 1930 to 1939 Mr. Barter was secretary of the Board and then became a Principal Assistant Secretary in the Ministry of Health. He was secretary to the Committee on Asylum Administration (1921–2), to the Royal Commission on Lunacy (1924–6), and to the Royal Commission on Local Government (1928–9).

By December, 1944, the American Red Cross had sent 5,000 tubes of penicillin by air express to the International Red Cross Committee in Geneva to be used for American prisoners of war held in Germany, and additional shipments of medicines and medical supplies will be made.

We announce with deep regret the death this week of Viscount Dawson of Penn, who was convalescing from a serious operation. A memoir will be published next week.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Ununited Fracture of Femur

Q.—*What is the best treatment for an ununited fracture of the neck of the femur in a man aged 78? Five days after the accident, x-ray examination showed a simple fracture of the neck near the head. Two months after this there were no signs of union. Would collosol calcium or other injections be advisable? For some time after the accident the fractured bones appeared extraordinarily mobile, but in the last three months this mobility has greatly diminished.*

A.—When it was decided that pinning of this subcapital fracture was inadvisable, and that owing to the patient's age, general condition, and hemiplegia, no initial treatment other than sandbag support was indicated, it must at the same time have been decided to accept non-union as inevitable. No matter how long simple recumbency and sandbag support is continued bony union cannot be expected. Collosol calcium injections will make no difference; no other preparation will make any difference. But although bone union cannot be hoped for, the capsular contraction and fibrosis which accounts for recent diminution of mobility will give sufficient stability for the patient to be able to walk. It is sometimes advisable to fit a walking calliper splint at first. But in view of the fact that this man has hemiplegia on the opposite side it will probably be better to get him up without any splint or support, other than perhaps a simple flannel spica bandage, and teach him to walk with crutches. Later on he may be able to discard one or both crutches and walk with sticks. Some shortening may develop and necessitate a raised shoe.

The only alternative to this is to perform a bifurcation osteotomy, cutting the femur at the trochanteric level and displacing the shaft inwards so that it lies under the head of the femur. In this way telescopic instability is controlled and the patient would be able to walk still better. This is an operation of some magnitude; it involves immobilization in a plaster spica for two or three months; and it will almost certainly be inadvisable in a patient of this age and constitution. So far as the ununited fracture is concerned, surprisingly good function is often regained without any operation: the only problem with this patient is the association of an ununited fracture of one limb with hemiplegia of the other; nevertheless he should learn to walk.

Carotid Sinus and Carotid Syncope

Q.—*What is the carotid sinus? What are the symptoms of carotid syncope?*

A.—The carotid sinus is the name given to the slight enlargement of the common carotid artery at its bifurcation into the external and internal carotids. Its action is like that of the governor on an engine, and it serves to maintain the arterial blood pressure within normal limits. It is supplied by the sinus nerve, which is a branch of the glossopharyngeal nerve. The terminals of the sinus nerve are stimulated by a rise in blood pressure in the carotid sinus, producing reflex slowing of the heart, vasodilatation, and a fall in the blood pressure. This effect can often be duplicated by manual pressure on the walls of the carotid sinus in normal subjects. To induce the reflex, Weiss and Baker (*Medicine*, 1933, **12**, 297) recommend that the patient should be lying on his back, with his head elevated and slightly overhanging a support. If the head is then turned somewhat to one side, the sinus is usually located just below the angle of the jaw, corresponding to the upper level of the thyroid cartilage. Pressure is then applied towards the spinal column for two or three seconds. As the reflex develops more markedly when the patient is in the standing or sitting posture, others recommend that the pressure should be applied with the observer behind the standing or sitting patient. The effect comes on rapidly, and in some two out of three normal subjects a depressor response of

10 to 20 seconds' duration will be elicited. This stratagem will sometimes restore a normal heart rate in paroxysmal tachycardia.

States of pathological hypersensitivity occur in which pressure on the carotid sinus induces attacks of vertigo, syncope, and even convulsions. The lightest pressure, as during shaving or buttoning a collar, may be sufficient to provoke an attack. In some of these patients small tumours have been found pressing on the sinus, and in others there has been aneurysmal dilatation of one or both sinuses. The trouble is more common in later life and with hypertension, and is not to be regarded as psychogenic. In a suspected case the effect of anaesthetization of the carotid sinus with procaine should be observed. If this abolishes the attacks, surgical denervation may be recommended. (See also a reply given in the *Journal* of March 11, 1944, p. 380.)

Puberty Menorrhagia

Q.—*A girl aged 13½ years suffers from persistent menorrhagia. Her menses, which started a year ago, are regular. What treatment is advised?*

A.—Thyroid is often useful in the treatment of puberty menorrhagia. Begin with 1 grain daily and gradually increase the dose to the point of intolerance. Thereafter give a subtoxic dose daily for three months—irrespective of the time in the menstrual cycle. This treatment can be combined with calcium lactate or gluconate, 20 to 30 grains daily, also for three months. General measures, such as regular physical exercise, attention to the bowels, iron, and vitamin C, should also be kept in mind. Corpus luteum hormone can be administered only by injection, but if thyroid does not help, then try ethisterone 5 to 10 mg. t.d.s. by mouth, for seven days premenstrually and for the first two days of menstruation. If that fails, then methyl testosterone in a similar dose might be considered. Ergot preparations sometimes control the blood loss temporarily if given during menstruation, but are unlikely to have any curative effect. In any case there should be a natural tendency to spontaneous cure as the girl gets older.

Fullers' Earth

Q.—*I understand that "fullers' earth" consists of microscopic siliceous particles, both spicules and tubules, derived from the skeletons of water-deposited diatoms, and can therefore appreciate that a toilet powder made from it can be of benefit by virtue of its absorptive effects. Quite frequently, however, fullers' earth is blended with lanoline or similar materials to produce emollient preparations. In what way could the addition of the powder enhance the effect of such ointments?*

A.—A paste differs from an ointment because an amount of powder is incorporated in it; it is therefore less occlusive and less "heating." For this reason a paste is found suitable in many conditions where the more occlusive ointment would aggravate the congested and inflamed skin.

? Cavernous Angioma

Q.—*A man aged 36 has a small tortuous clump of varicose veins over the lower third of his left sterno-mastoid. He states it has been present since childhood without symptoms; but during the past two years it has become hard and painful on several occasions, and now the pressure of his collar gives him permanent discomfort. He shows no other signs of varicosity and is in good health. What are the probable causes of this condition and what treatment is advised?*

A.—The difficulty here is one of diagnosis, which cannot be made with certainty without seeing the patient. The abnormality has been present since childhood, and is therefore probably congenital. If this is correct, the condition is more likely to be a cavernous angioma than a true varicose vein. This view is favoured by the fact that it has on several occasions become harder and painful, for this change is known to occur in angiomata. If the patient is in good health and has no other similar lesion, we cannot be dealing with varicosity compensatory to blockage of deeper veins. If this view is correct, the best treatment would be excision.

Dupuytren's Contracture

Q.—*A man developed Dupuytren's contracture in his right hand at the age of 60 to 63. First signs of the same thing were observed shortly after his 67th birthday in his left hand. They have progressed very little in the following three years. Is there any known procedure for slowing down or checking their further development? Incidentally it may be of interest to state that the man's father died at the age of 63, having what was almost certainly Dupuytren's contracture in his right hand. The father was an accountant, the son a university lecturer.*

A.—There is no known method of checking the development of Dupuytren's contracture. The condition is due to a sclerosis and thickening of the palmar fascia, particularly affecting those processes which go to the ring and middle fingers. Its cause is unknown. Trauma and chronic recurring pressure may be exciting factors, and it may occur in several members of the same family, commonly in father and son. There is no satisfactory evidence to connect it with gout. At one time subcutaneous injections of thiosinamine (allyl sulpho-carbamide) used to be given with the intent of softening the fibrous tissue, but this proved of little or no value. Wearing a corrective splint at night might possibly slow the process, but it is hardly worth trying in a man of 70, for the condition is very slowly progressive and does not usually cause much inconvenience when of minor degree.

Bovine Tuberculosis

Q.—*Is it true that the incidence of bovine tuberculosis in children is higher in England than in the U.S.A., and is it true that in Great Britain less than 10% of the herds are tuberculin-tested?*

A.—Evidence favours the view that human tuberculosis due to the bovine bacillus is less frequent in the U.S.A. than in Great Britain. This evidence is, in part, based on the opinions of authorities from the U.S.A., and in part on figures of lower incidence of such conditions as tuberculous meningitis, in which bovine infection is common. Exact comparative figures do not, however, appear to be available.

The number of herds in Great Britain which are tuberculin-tested is comparatively small and certainly far below 10%. They fall into two groups—i.e., those which are dealt with as "attested" herds and those which comply with the designation of "tuberculin-tested." The attested herds are a very small proportion of the herds in the country. The "tuberculin-tested" licences on March 31, 1943, in England numbered 3,195, and on March 31, 1944, they were 4,630. These represent figures far below 10%. For example, in Somerset and Gloucestershire, two counties which have high figures for T.T. herds, the combined T.T. licences at the end of 1944 only represented about 6% of the milk-producing herds in the county.

Air Conditions and Chronic Bronchitis

Q.—*What effects have air conditions on chronic bronchitis? Is air-conditioning any use for chronic bronchitis if the patient can remain in the conditioned air during an attack?*

A.—Atmospheric conditions have a marked effect on chronic bronchitis: the bronchial mucous membrane is atrophic and therefore unable to deal satisfactorily with changes of humidity and temperature. Cold, especially damp cold, is unfavourable, but the optimum humidity varies in different types. A rarefied atmosphere is usually unsuitable for old patients, owing to associated emphysema.

Air-conditioning is very useful if the patient is able and willing to remain in the air-conditioned rooms throughout the winter, except when the outside conditions are favourable; this is seldom the case, and so its value is limited. Great benefit was obtained by one patient with tuberculous fibrosis and associated chronic bronchitis. In exacerbations it is of value from a symptomatic point of view, but if possible the aim should be to prevent these rather than to treat them.

Adiposis Dolorosa

Q.—*A middle-aged woman suffers from adiposis dolorosa. Could you suggest anything for her treatment?*

A.—There is no certain pathological basis for adiposis dolorosa, as distinct from other forms of hypothalamic-pituitary adiposity, but clinically the special feature, as indicated by the name, is the painful character of the fatty deposits and an associated miserable depressive outlook. The treatment of the latter is along psychotherapeutic lines, as can be undertaken by an understanding family doctor, and the treatment of the adiposity is conventional—namely, low-calorie diet, thyroid to the point of tolerance, and, if there is a water-retention element, ammonium chloride and mercurial diuretics.

Toxicity of Antiseptic Dyes

Q.—*Do dye preparations such as gentian violet have the effect of aniline dyes on tissues—i.e., local tissue necrosis? Is it safe or not, for instance, to mop out a sinus with a preparation of triple dye? Presumably all such preparations are being superseded by penicillin or sulphonamide powder.*

A.—This question seems to imply that gentian violet is not an aniline dye; it is. All the antiseptic dyes have some degree of tissue toxicity. This is not gross: they do no harm to skin, and the damage they do to exposed tissues is microscopical rather than anything which can be seen with the naked eye; it can, nevertheless, be shown that individual cells, such as leucocytes, are killed or inactivated by them. Gentian violet is less toxic than brilliant green. That gentian violet can do more good than harm, at least in a certain type of lesion due to a highly susceptible organism, is shown by its dramatic effect when applied (as a 0.1% solution in 50% glycerin) in thrush. Dye preparations should be "safe" enough in a sinus. Recent clinical studies with proflavine have shown that in chronic suppuration the tissues will withstand a higher concentration than can be applied to a fresh wound. Whether this treatment will do any good depends on the nature of the infection and other factors.

Oophorectomy for Chocolate Cysts

Q.—*What is the best treatment for a patient who has had double ophorectomy for chocolate cysts and is suffering from great increase i weight with resultant lack of energy?*

A.—If it can be assumed that the lesion underlying the chocolate-yst formation was endometrioma, then replacement therapy with estrogens should be avoided, lest it reactivate any islets of endo-ietrioma remaining in the pelvis, and defeat one of the objects of the peration. The primary treatment of the obesity should be a strict iet on the usual lines, and this could with advantage be reinforced uring the initial few weeks, and thereafter periodically, by limiting ie intake of fluid and salt and giving ammonium chloride grains 10 d.s. by mouth. As regards hormone therapy, thyroid is likely to e most useful; begin with 1 grain daily, and gradually increase the ose until the patient becomes intolerant; then maintain it at a ibtoxic level. Thyroid is particularly indicated if preliminary ivestigation shows that the basal metabolic rate is significantly ecreased.

Absorption of Calcium

Q.—*It is said that calcium is not adequately absorbed from the limentary tract, and that, to be effective, it must be given intra-enously. Is this true? Is calcium of value as an adjuvant in the outine treatment of pulmonary tuberculosis?*

A.—It is quite certain that some calcium is absorbed from the limentary tract. On a normal diet the urine contains 100 to 200 mg. f calcium a day, and this may be increased two- or three-fold by high dosage of calcium salts by mouth. It is also possible that ome absorbed calcium is excreted by the bowel. Nevertheless bsorption is slow, and to secure a prompt pharmacological action, s for the relief of spasm, it is generally necessary to inject calcium ilts intravenously or intramuscularly. The slow intravenous injec-on of 5 to 20 c.cm. of 5% calcium chloride solution or 10% ilcium gluconate is often effective in relieving the abdominal pain, iarrhoea, and tenesmus of intestinal tuberculosis. Apart from this iere is no indication for calcium in the treatment of pulmonary iberculosis. For rational therapy with calcium by mouth very irge doses must be given—e.g., 5 to 15 grammes a day of the arbonate, gluconate, lactate, or phosphate—and this would seem ierely an added burden on the overworked alimentary tract of the onsumptive patient.

Dermatitis Herpetiformis

Q.—*What treatment might effect a cure in a case of dermatitis erpetiformis of 14 years' standing which apparently followed a white leg"?*

A.—Dermatitis herpetiformis is a rebellious condition, and often iils to respond to treatment, although spontaneous recovery is ossible. There is no direct connexion between "white leg" and ermatitis herpetiformis. It is assumed from the question that :senic or whole-blood injections have been tried. Sulphapyridine i small doses over a limited period has a temporary effect.

Fluorine in Toothpaste

Q.—*In a leading article on fluorine and dental caries (*JOURNAL, *pril 1, 1944, p. 461) it is suggested that fluoride might with dvantage be added to toothpaste. Does the danger of mottled namel from excess of fluorine exist only during the growing period, r does it exist at all ages?*

A.—The danger of mottled enamel from an excessive intake of uorine occurs only during the growth period, and not after the ilcification of the teeth is complete.

INCOME TAX

Appointment: Travelling Expenses

H. H. holds a main and a part-time appointment. To carry out ie duties of the latter the use of a car is necessary. The inspector f taxes has refused to allow the car expenses as a deduction for icome-tax purposes. Is this correct?

⁂ Yes. The cost of travelling to the place where the duties are erformed is not allowable if the earnings in question are chargeable tax under Schedule E. (This does not apply to travelling between vo places of employment if the expense arises out of a single ppointment.)

"Pay-as-you-Earn" Deductions

K. employs two "casual" workers—a woman cleaner and a part-me secretary. Neither of them receives remuneration amounting to)s. a week. Is he under any liability to deduct tax or report any articulars to the income-tax authorities?

⁂ No.

Deduction for Premises Owned and Occupied

"CAMFORD'S" house is rated at £105 gross and £81 net. On which amount should he calculate the deduction to be made from his profits for the professional use of the property?

⁂ The difference between the "gross" and "net" values represents the allowance for maintenance expenditure. The usual practice is to base the Schedule D deduction on the *net* value of the premises, and to claim as a further deduction the actual cost incurred from time to time on repairs, redecorations, insurance, etc., of that portion of the premises used for professional purposes. Cases may occur where by arrangement the practitioner deducts the *gross* value each year and, presumably, does not claim the actual expenditure, but such an arrangement is not legally correct nor is it likely to be satisfactory in the long run.

Cost of Assistant's Board and Lodging

J. D. has claimed £2 12s. 6d. per week as representing the cost of boarding his assistant in his own residence; the inspector of taxes considers 35s. per week adequate. Should he appeal?

⁂ It is not possible to give definite advice on a matter which depends so much on the particular facts of the case. Probably the best test is to calculate the over-all cost of running the establishment and divide it according to the number of residents—excluding the domestic staff and making any appropriate allowance for differences in quality of accommodation, etc. Unless a substantial amount of unrationed food is provided, the rationing system acts as a check on the rising expenditure on food.

Expense of Professional Course

"A1" completed a special course in hygiene and obtained a certificate which was necessary for the position he holds as assistant school medical officer. Is the expense of attending the course, etc., allowable as a deduction for income-tax purposes?

⁂ No. The courts would regard the expense as in the nature of capital outlay, the benefit from which would accrue in the future, and not as incurred in carrying out the duties of the office.

LETTERS, NOTES, ETC.

A Protective for Minor Burns

Dr. F. SUGDEN (Newbury, Berks) writes: I had an interesting experience a fortnight ago when one of the analytical chemists employed by Messrs. Suntex managed to burn his fingers with boiling liquid paraffin. Not only was it boiling but actually on fire at the time—so much so that he had to put his hand under the cold tap to put out the flames. Forthwith he dipped his fingers into a solution of plantation rubber latex and came along to see me the next day. The thin coating of rubber appeared to be air-tight and so transparent that one could see quite well the damaged skin underneath. The patient told me that the pain ceased after two hours. As everything seemed very satisfactory I determined not to disturb the dressing until the 12th day, when I found the skin, though tender, completely healed, and the patient proceeded to carry on with his work without further dressings being applied. I have been supplied with a small quantity of latex solution and I propose to try it out further on minor burns.

Cause and Treatment of Stitch

Mr. A. HOLLMAN (medical student, University College Hospital) writes: Having been a victim of "stitch" many times whilst cross-country running, I have been stimulated to inquire into cause and treatment. The writer of the reply to your correspondent's query as to the nature of stitch (see *Journal*, Feb. 10, p. 206) stated that "treatment is practically limited to cessation of exercise." In my experience firm pressure with the hand over the affected area always abolishes the pain; and frequently, but not always, the pain does not recur when the hand is removed. Leaning over to the affected side also helps to relieve the pain. It is interesting how little exercise may be needed to provoke stitch. I have had a sharp attack from walking only 30 yards after a meal. It is not my experience that stitch occurs with greater frequency in cold than in warm weather.

The Teaching Hospitals

"X." writes: Does not the Treasury grant, out of the pockets of the general public, recently announced by the Chancellor of the Exchequer, remind us of the national character of all the voluntary teaching hospitals, both in London and the Provinces. For the breadth of outlook which the national comprehensive service will demand, it will in future be more necessary than ever for the teaching hospitals steadily to continue in the policy of drawing upon graduates of all our universities in a united effort for the health and physical well-being of the British people. Medicine, of all the scientific arts, needs constantly the influence of broad-mindedness and interchange.

Thermometry

Mr. F. R. WALTERS, F.R.C.S. (Farnham) writes: Your contributor (*Journal*, Feb. 10, p. 206) who answered questions about clinical thermometry has not taken into account the atmospheric and other conditions affecting mouth temperatures. In a cool room, or out of doors, misleading readings will follow if the patient opens his mouth for any purpose with the thermometer in it, or shortly before the test; so that repeated inspection of the thermometer is inadvisable in such a place, and where more accurate results are important rectal temperatures are more reliable. Your contributor also writes as if there were a constant difference between rectal, mouth, and axillary temperatures; but this is not the case. In pulmonary tuberculosis, for example, it often happens that rectal temperatures are the same as mouth temperatures in the same patient at the same time; while at other times (perhaps the same day) there may be several degrees of difference. Febrile rises and warnings of complications may be missed if mouth temperatures are relied upon. After exercise, mouth temperatures may be lowered while rectal temperatures are raised. I refrain from giving illustrative cases.

Artificial Respiration and First-aid Instruction

Dr. J. L. BARFORD (Stoke Park, Guildford) writes: As it may be a novelty I venture to mention a very small "tip" which I have employed recently when demonstrating artificial respiration. It simply consists of putting (smuggling, for dramatic effect) a whistle into the casualty's mouth. On expiratory effort the clearness of the airway is made abundantly clear and impresses the students remarkably. It can be employed in Schäfer's, the rocking, or any other method, except, of course, Laborde's! Other instructors might like to copy. Incidentally I note that Dr. F. C. Eve (Jan. 6, p. 21), when describing the successful revival of a drowned child by rocking, states that this was the first (successful) resuscitation by manual rocking. Surely the rocking and swinging employed to induce the newborn infant to breathe, although not strictly a resuscitation, comes under this category? Perhaps I am so old-fashioned that this procedure, which I remember employing successfully, is now superseded.

Hydatidiform Mole

Dr. C. W. F. BURNETT (West Middlesex County Hospital) writes: The answer given under this heading in your issue of Jan. 20 (p. 105) contains no reference to modern theories of aetiology. The most convincing of these—formulated, I believe, by Mr. Barton Gilbert some seven years ago—ascribes the mole formation to the failure of development of embryonic blood vessels in the trophoblast. Food substances passing from the maternal blood through the villous wall by the vital activity of its constituent cells are, therefore, not conveyed to the embryo, which rapidly dies and disappears; the mesoderm of the villus retains the food products, and by a process of osmosis becomes oedematous and cystic. The cytotrophoblast, thriving on the highly nutritious contents of the villus, grows rapidly, assumes invasive characteristics, and secretes increased quantities of chorionic gonadotrophin as your answer describes. The suggestion has been made that this failure of formation of vascular tissue may be one of the results of Rh incompatibility in the parents; however, recent research does not confirm this hypothesis.

Pyretotherapy

Dr. W. F. COOPER (Kingston Hill) writes: Dr. J. R. Edge (Jan. 13, p. 61) suggests that pyretotherapy might be "worthy of a trial." Though the method is used in many cases, no one seems to consider what it is that produces the good effects, or *why* it is suitable in some cases and not in others, except, perhaps, as to antagonism between malaria and spirochaetes. By merely raising the temperature of blood and also of tissues, by whatever means, certain changes must occur; we do not know them all, but do know some of them. For instance, there will be an increase in the number of ions per unit volume, in ionic activity, giving rise to variations in physical effects such as conductivity, *p*H, Eh; and so on. Some of these changes can be brought about by ordinary therapy, and my experience is that they are effective. Information valuable for treatment would result if more attention were given to the effects of raising the temperature. Then one would not consider whether cases were "suitable to" pyretotherapy, but whether pathological conditions would be ameliorated by the effects of it. I consider that cases that are "susceptible" are those due to infection and/or inflammation; but it is not necessary to adopt the higher temperature. This is hinted at in Dr. Edge's letter, but insufficient data are given. A suitable examination of blood should have been helpful; that alone might have made it certain whether his children had an infection or not, and also whether any of the factors produced in pyretotherapy would have been beneficial.

Occupational Cause of Raynaud's Disease

Dr. D. H. MACCORMACK (Manchester) writes: With reference t the answer given under this heading (Jan. 20, p. 106), it is not mad clear whether or not Raynaud's disease and "dead hand" a phases of one and the same condition. This is a point on whic most textbooks still appear to be vague. However, I have personall no doubt that "dead hand" is merely an early stage, and that unles the causative factors are removed, it may, in many cases, develop int Raynaud's disease proper. Incidentally, I believe that "dead hand is listed as an industrial condition in Germany and other countrie and it is difficult to understand why it has so far not found i way into the British schedule.

Romberg's Sign

Dr. E. W. SQUIRE (Reading) writes: Is the answer (Jan. 20, p. 10 relative to Romberg's sign complete? What of the afferent tra through the retina and optic nerve to the visual centre, thence t the cerebellar centre controlling balance? Does not this tract pla an important part in maintaining balance in conjunction with th special sensory nerves? Apropos of this sign I have found it marke in only two cases on the Military Service Boards during the la 5¾ years—i.e., since May, 1939—during which time some thousanc of recruits have passed under my observation.

Translation, Please

Dr. F. DURAN-JORDA, M.D.Barcelona, writes from Manchester I think I can enlighten Dr. Maurice McElligott in regard to th Spanish words for diseases produced by *Bacillus anthracis*. *Bacill anthracis* is known as "carbunco o pustula maligna," and th common name for this is "carbon." In Catalan the scientific tit is "carbuncle" and the common name "carbo." For the staphylc coccal infections equivalent to a boil the word in Spanish "forunculosis," commonly known as "grano." A group of boi together is "antrax." In Catalan the corresponding names a "foruncle" and "antrax," the latter being referred to generally a "vesper," coming from "wasp." As I am not a surgeon myse and have not treated any of these cases there may be more nam in use, but the general scientific terms are as given here.

Dr. H. A. FULLER, M.D.Paris, writes from Glasgow as follows I quite appreciate Dr. McElligott's difficulty (*Journal*, Jan. 13, p. 7 over the words "charbon" and "anthrax" as used in France, an he may find the following helpful. He is quite right in translatin "charbon" as the equivalent of the English word anthrax, an "anthrax" as meaning "carbuncle." Those are the meanings these two words in France to-day; but it was not always s Formerly, in pre-bacteriological days, the word "charbon" (fro Latin *carbo*) was applied not only to malignant pustule but also t boils, carbuncles, and the buboes of plague, in France an apparently, from what he says about Ireland, in other countries a well. Evidently the word was applied to any small *hot* tumo (a burning coal). "Carbuncle" (from *carbunculus*, diminutive *carbo*) was retained in Britain to designate the multiple boil, where in France it is the Greek word anthrax (also meaning coal, course) which was retained for this. Maxwell and collaborato (*Terminologia Medica Polyglotta*; Churchill, London, 1890) give French, anthrax (*bénin*); English, carbuncle; German, Anthra Karbunkel, Brandschwär; Spanish, antrax, avispero (wasps' nest) and for: French, anthrax (*malin*), charbon; pustule maligne English, anthrax (malignant); German, Milzpocke, Milzpustel. Th also give: French, pustule maligne, sang de rate; English, maligna pustule, charbon, splenic fever, woolsorter's disease, maligna anthrax; German, Milzbrand, Karbunkelkrankheit, Brandblatte Spanish, pústula maligna.

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Corrigenda

Owing to delay in the receipt of corrected proofs there were thr errors in Dr. M. N. Pai's article "Changes in Personality aft Cerebrospinal Fever" published last week. In the table showi changes in personality after C.S.F. the figure opposite "Fairly good in the second column should be 10; in the last paragraph of t section on headache the word "post-confusional" should be "pos contusional"; the name "Rosenoff" in the bibliography should "Rosanoff."

In his letter on selenium poisoning in the *Journal* of Feb. (p. 276) Mr. A. L. Bacharach meant to write "selenium mig thus interfere with the *in vivo* synthesis of cystine"—not *in vitro*.

BRITISH MEDICAL JOURNAL

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SHALL WE NATIONALIZE MEDICINE?*

BY

Lord HORDER, G.C.V.O., M.D., F.R.C.P.

When you saw the title of my Address you may have been inclined at first to accuse me of introducing still another word or phrase into our discussions of a subject that interests us all just now, and so of increasing the confusion likely to result already from the use of rather loosely defined terms. This would have been a very poor way of showing my appreciation of the honour you have paid me by inviting me to give this address. I hope to show you that I am really clarifying the position when I speak of nationalizing medicine. By nationalizing medicine I mean doing with medicine what the Socialist desires to do with the land, the banks, the coal mines, and the railways—bring them under the control of the State. This is equivalent to a whole-time State service for all doctors, and that is what I mean by "nationalized medicine."

State Medicine: Confusion in Terms

The term "State medicine" is not free from ambiguity, for we have a State Medical Service already—a service which is certain to extend after the war. "Socialized medicine"—another term that is being used quite often—is more ambiguous still. Socialists use the term "State medicine" and "socialized medicine" as synonymous.[1] They mean by both that the State takes control of the medical profession in all its branches and in all the media through which it operates. But "socialized medicine" may have another connotation: it may mean making medicine more accessible to the people; and, as I believe, this may be done without nationalizing the medical profession.

Then there is confusion as between "socialized medicine" and the new term "social medicine." Since Prof. Ryle occupies the first chair in social medicine, and is its chief apostle, we may accept his definition without demur. Social medicine, he says, is concerned "with the many and varied problems created by sickness in the family and the community as a whole. . . . It embodies the idea of medicine applied to the service of man as *socius*, as fellow or comrade, with a view to a better understanding and more durable assistance of all his main and contributory troubles which are inimical to active health and not merely to removing or alleviating a present pathology. It embodies also the idea of medicine applied in the service of *societas*, or the community of men, with a view to lowering the incidence of preventable disease and raising the general level of human fitness."[1]

Social Medicine not a New Concept

Now, I think I have read all that has been written on the subject of social medicine, and I may say at once that I endorse all the humanist views and aspirations with which this literature abounds. I may be accused of being reactionary, or of trampling upon some people's dreams, if I say that, as here defined, "social medicine" is not a new concept in medicine but is a timely and justifiable challenge, both to medicine and to the State, that they have left undone those things which they ought to have done. But such is my view; for it may be readily conceded that, in searching for the aetiology of disease, medicine has not probed deeply enough into the lives and conditions of the people, so as to bring to light the more ultimate factors that cause unfitness, sub-health, and actual disease. So also it may be readily conceded that in treatment, and especially in preventive treatment, dictated by the discovery of these ultimate factors, medicine has not been nearly as vocal as it might have been. If, for example, overcrowding is a determining factor in the causation of rheumatic fever then it was the business of medicine to discover this fact, to take it into account when dealing with the indications for preventive treatment, and so point out the position to those whose duty it was to take action. On the other side our statesmen, who are at the moment paying so much lip service to what is called "positive" health, have so far done little to ensure for the people the basic conditions that make health possible.

What are these basic conditions? I stated them years ago, and as I cannot state them more explicitly now than I did then, please forgive me for plagiarizing myself. "*First*, enough of the right food; for to preach fitness to the undernourished is sheer hypocrisy. *Second*, shelter, but shelter at a rent which leaves something to buy food with and pay for transport to and from work. *Third*, easy access to the fresh air and the sun. *Fourth*, leisure for play; and—who knows—that may lead to thinking, even the 'high thinking' which the poet lamented is 'no more.' *Fifth*, the amenities, amongst which you will not expect me to omit noise control. And *last*, the giving to every human being a chance *before* he is born and, after death, the decent disposal of his body in the best interest of his fellow-men."[2]

Our Statesmen's Inactivity

What, I say, have our statesmen, who are now so eager to nationalize our profession, been doing about these things? It has taken a major war—a maximum war—to stir them to activity in regard to some of these things. To save our lives—not, mark you, to give us health—good food has been made available at a price that the people could afford; and we have fortunately had a heaven-sent statesman to control this basic necessity. But for how long? Even before the war is over, with other foods in short supply, with a threat that they may remain so for some time yet, with millions in the recently occupied countries half starving, and a few months after we were signatories to the recommendations of the Hot Springs Conference—one of which stresses the importance of maintaining the nutritional level of the people's food[3]—here is the Government reducing the extraction rate of flour, with a consequent sacrifice of essential nutrients which the country was told only four years ago were of great value in preserving the national health! And why is this being done? Why *now*? No convincing answer has yet been given. Our slow start at slum clearance has been greatly accelerated by enemy action—a grim enough commentary, seeing that by this method we have had to sacrifice not only the slum houses but also the folk who lived in them.

There are other obvious things that our statesmen have neglected. To give but one example. In July, 1938, I drew attention to the enormous growth in the quack medicine trade and to the incongruity of exercising no control over the deleterious effect of such trade, and especially of the intimidating nature of the advertisements connected with it, upon the national health at the very time when a serious effort was being made to improve national fitness. The Government apologist was at pains to remind me that "people have the right to make fools of themselves in their own way."[4] And only when, later, and for some obscure fiscal reason, it was thought desirable that the tax on patent medicines should be rescinded, did we get one step forward in amending the law so as to make disclosure of the contents of proprietary medicines compulsory.[5]

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* The annual address delivered before the Cardiff Medical Society, Feb. 21, 1945.

Now all this, and more like it, comes within the ambit of what is called "social medicine." It is right that the doctor, finding these things to be the answer to much of the problem of the people's unfitness, should say so, and should do his utmost to stir the Government to do something about them. Medicine is, it is true, a social science,[6] and politics is only medicine on a large scale.[6] But it is *not* the doctor's job to *do* these things—which is what emerges logically from much that is preached about "social medicine." Indeed, I feel that the Socialist peeps out rather unmistakably through the thin garb of Prof. Ryle's humanism. His use of the word "comrade" is not, I think, entirely fortuitous. But, speaking for myself, I believe it is paramount that we doctors remain detached from political colour. For the doctor there can be no "left" or "right." For him there is only expert knowledge, a rooted adherence to truth, horse-sense, and, as I have already allowed, a humanist outlook, which, after all, means nothing more nor less than a love for his fellows and a passion to help them, body and soul. He is the good doctor who, guided in his work by the light of science, can also, like Abou Ben Adhem, say quite boldly to the angel: "Write me as one who loves his fellow men."

Freedom of the Profession

Detachment from this business of right and left, then, first. Next, we must continue to merit and to enjoy the public confidence as must, and do, His Majesty's judges, who must be intellectually and spiritually incorruptible in the presentation of *Pax Britannica.* Detachment, public confidence, and, I will add, courage, these are essential, but withal the fundamental note in the doctor's ideal is freedom. But what happens to our freedom if we are part of a nationalized service? Let me be clear; I am not speaking of our freedom as individuals and as citizens: we all accept certain restrictions to our freedom in the public interest: I am speaking of our freedom as members of a profession. We must preserve "free speech on medical matters, free criticism of medical affairs, and free publication of scientific work."[7] If medicine is nationalized it is to a large degree monopolized, it is stereotyped. Most of us believe that if an industry is monopolized a disservice is done to the community: how much greater the disservice if a profession, if medicine, is monopolized? This risk to medicine's freedom must be watched jealously or we may lose it; lose it even when those who steal it from us do so with the best intentions in the world—with good intentions but with mistaken action. I have recently quoted an incident in the life of Herbert Spencer, and I do not apologize for doing it again. Herbert Spencer was speaking to an audience in New York, and he had the courage to utter these words: "One of your early statesmen said, 'The price of liberty is eternal vigilance.' But it is far less against foreign aggression against liberty that this vigilance is required, than against the insidious growth of domestic interference with personal liberty."[8]

There is a growing feeling among thinking folk that "the biggest fight before us in post-war days will be for individuality. It is the kernel of democracy, the biological basis of the struggle for freedom."[9] Someone has said that the best that is in medicine is a by-product of science. If this be true, it is essential that medicine, like science, shall enjoy "tolerance, freedom from restraint, and a recognition of the value of individuality."[9] My reference to the individual leads me to emphasize the fact that he also has his responsibility in the matter of fitness. You can't *make* a man healthy. You can keep the ring for him; you can make available the means of health (the State's job); you can point the way (the doctor's job); but the rest is with him. I refer to this because there is a growing tendency to unload on to the doctor much of the responsibility not only of personal health but of personal morals also. I saw the other day that a distinguished paediatrician spoke of welfare work as being the most neglected branch of medicine.[10] But *is* welfare work really a branch of medicine? I have recently drawn attention to a memorandum just issued by the Medical Women's Federation. It contained a list of matters concerning which the doctor is to help. The list included "the lowering of the standard of honesty and consideration for others; the growing habit of indulgence in alcohol in young people; the loosening of family ties and the toleration of a low standard of reading and of public entertainment."[11] And I wondered if we doctors *really* do society a good turn by carrying not only the baby but the whole family on our shoulders!

The Government's Intentions

But to return to the question of nationalizing our profession. We are told that our fears in regard to the intentions of the Government to nationalize medicine are groundless. In the White Paper there are reassuring words on this subject,[12] and the Minister of Health has repeated this reassurance. He has told us that we are "utterly mistaken" in thinking that the Government's proposals would end in "some sort of State-controlled and regimented service."[13] Well, the fact remains that many of us are left wondering how "general practitioners . . . can escape regimentation and control by the State in a complete service paid out of the public funds and based upon health centres owned by local authorities."[13] We do not accuse Ministers of subtlety: their intentions may be wholly good: but that is the way, we remember, that the road to Hell is paved. Much of the trouble is caused by the ignorance in Whitehall of the essentials of doctoring. How *can* Whitehall know the essentials of doctoring? In its comment on the conclusions reached by the B.M.A. Representative Body the *Times* said: "From an impressive mass of negative resolutions it emerges only that the conference has willed almost all the ends and rejected almost all the means."[14] Waiving the implied cynicism, I, for one, accept the *Times'* comment as apposite and am quite unabashed.

If any should deny that the White Paper envisages the beginning of a whole-time State Medical Service—and, as I say, its public sponsors *do* deny it—I would remind you that not only have the left-wing politicians welcomed the White Paper as a useful compromise, but Mr. Arthur Greenwood said in the House of Commons that he welcomed the White Paper as a great contribution towards the kind of plan which, in the fullness of time, his party would like to see established.[15]

In the brochure issued by the Labour Party, entitled *National Service for Health,* we are told: "In the Labour Party's opinion . . . it is necessary that the medical profession should be organized as a national, full-time, salaried, pensionable service." It adds this significant paragraph: "It may be that *for a while* some doctors will wish to be left out of the State Scheme. . . . The nation should make the service so efficient that no patient could desire a better and every doctor will wish to serve in it."[16]

Again, there was no sort of doubt in Sir William Beveridge's mind as to what would happen to the general practitioner in a very short time if Assumption B of his report were implemented: he would be squeezed out of existence. Said Sir William: "The possible scope of private general practice will be so restricted that it may not appear worth while to preserve it."[17]

The system of State control prevalent in Russia is often held up to us as a model which we might usefully follow; but it is necessary to remember that the slow evolution of our own Health Services, in themselves quite admirable, has been entirely different from anything that has happened in Russia; nor must we forget that "bloody revolution" in that country (a disaster which we have so far escaped here) necessitated a re-start from scratch and (by comparison) a very doctrinaire and detached set of Health Services was documented.

"Free choice of doctor" has become a familiar slogan: but, though not impossible of attainment, this would be almost impracticable if all practitioners were State-controlled. So much so that if medicine were nationalized the "black market" in doctoring would be terrific. What matters quite as much is that the spirit of individual initiative and adventure which has always characterized British medicine would be seriously damped, and men and women with good brains and healthy ambition would no longer be attracted to the profession.

The position of the voluntary hospital, in which, again, initia- ve and individuality have free play, and which has come to ave a unique status in this country, is rendered precarious y the form of control of the hospital services in general as utlined in the scheme now before the public. The voluntary ospital is certainly the medium through which the most triking advances, both in clinical knowledge and in laboratory esearch, have been made. From this type of institution the est-trained exponents of medicine are disseminated. As a eld for education it is essential to progress, and its survival ust be encouraged, not merely permitted, in the national terest.

Steps that should be Taken

I referred earlier to certain basic matters concerned with the ation's health which it was the business of the State to see . There are things more nearly connected with our Health ervices which are crying out to be done and which come roperly within the function of Government action. We learn rom the White Paper that the State proposes to interest itself medicine as applied to the individual citizen.[18] Well, we ave been pressing for this for a good many years. We have rged that in this relation the great help which the State can ive is in improving the machinery rather than in telling us ow we should do our doctoring. I am made a little tired by eading the homilies directed towards us, both in the preliminary aragraphs of the White Paper itself and in the speeches of the oliticians.[19] And not only in the speeches of the politicians. was a prominent Socialist member of our own profession ho, speaking to medical students a short time ago on the ssue of a nationalized Health Service, said: "You will never, hope, be content to be a tradesman in health matters, merely elling your skill in the treatment of declared disease to those ho can afford to pay for it and refusing it to the rest."[20] hades of Hippocrates!

Let me speak of a few of the things from which the citizen ould have derived a great deal of good. Many of us have or a long time stressed two steps which the State should ake, both of which are long overdue—the regionalization nd rationalization) of the hospital services and the inclusion f the dependants of the workers in the National Health nsurance Scheme. Regionalization of the hospitals and the etting up of health centres would provide the best possible asis for the organization of a national consultative service, mbracing physicians, surgeons, pathologists, and "special epartment" men! It becomes clear to-day that both of these ng-delayed steps are doomed to await the birth of the pro- cted nationalized service.

Another and very important part of our health services in eed of State help is the Nursing Service. Beyond taking it or granted that any scheme depends for its success upon an fficient nursing service, the White Paper is almost mute on is vital subject. We have too long paid only lip service the nursing profession. Until the State recognizes its duty relation to the nurse's training and makes it possible, by dequate grants for the purpose, that the student nurse shall e recognized primarily as a useful citizen in training, rather an as merely an employee of the hospital—until this state f the student nurse is recognized and supported, recruitment to the profession from girls with the best brains and the eenest natures will continue to lag and efficient nurses will ontinue to be scarce. This starvation will continue to show self also in the ranks of the District Nursing Service, a branch f the profession upon which the country will certainly rely ore and more in the future.

In whatever ways the State decides to advance in the direction f improving our Health Services it is clear that we shall need any more doctors. The heavy expenses attaching to the ducation of doctors must be shared by the State and in a umber of ways—through much larger university grants, rough subsidies to recognized medical schools, through holarships and bursaries.

Then Research—our millionaires have been most forth- oming, and we are grateful to them. But there must be a uch clearer official recognition of the essential contribution hich research makes to the efficiency and progress of medicine. he degree of recognition which research gets at present is eflected in the fact that the White Paper disposes of it in thirteen lines, most of which are taken up by saying that the present state of medical research is satisfactory and requires nothing further done about it.[21]

Our Case with the State

I have tried to indicate the main ways in which the State can function in society's interest in the field of health. It will have been seen that all these ways really concentrate upon the machinery of medicine and making it possible for the personnel to be efficient. The rest is up to us, up to Medicine. Our case with the State is surely just this: we say in effect, "If you will improve the machine whereby *availability* of medical service to every citizen is made possible, we will work the machine in the manner that we know from experience to yield the best results." But be it noted that we do *not* think (or I should say most of us do not think) that if doctors are made *a part of the machine* the same degree of efficiency will follow. In other words, many of us believe that to nationalize medicine is not only an unnecessary innovation but one which is unlikely to give the best results in medicine in this country. If we find the public uncertain it is our bounden duty to convince it of this.

I believe that the public, when it is really stirred to consider the matter, when it really thinks—for up to now it has been largely complacent, mildly intrigued by what it takes to be a squabble between the doctors and the politicians—will decide against making all doctors Civil Servants. I say, when it really thinks, when it remembers that it is the doctor–patient relation that matters, and that if this be broken up, whether in the name of insurance or social security or some other economic consideration, we shall lose something that is fundamental in our social as well as in our personal life.

Doctor–Patient

There is in Nathaniel Hawthorne's *Scarlet Letter* a description of the ideal doctor–patient relation which I should like to read to you. Speaking of the doctor, he says: "He deemed it essential, it would seem, to know the man before attempting to do him good. Wherever there is a heart and an intellect, the diseases of the physical frame are tinged with the peculiarities of these. In Arthur Dimesdale"—(that is, the patient)—"thought and imagination were so active, and sensibility so intense, that the bodily infirmity would be likely to have its groundwork there. So Roger Chillingworth—the man of skill—the kind and friendly physician—strove to go deep into his patient's bosom, delving among his principles, prying into his recollections, and probing everything with a cautious touch, like a treasure seeker in a dark cavern. Few secrets can escape an investigator, who has opportunity and licence to undertake such a quest, and skill to follow it up. A man burdened with a secret should specially avoid the intimacy of his physician. If the latter possesses native sagacity, and a nameless something more,—let us call it intuition; if he show no intrusive egotism, nor disagreeably prominent characteristic of his own; if he has the power, which must be born with him, to bring his mind into such affinity with his patient's, that this last shall unawares have spoken what he imagines himself only to have thought; if such revelations be received without tumult, and acknowledged not so often by an uttered sympathy as by silence, an inarticulate breath, and here and there a word, to indicate that all is understood; if to these qualifications of a confidant be joined the advantages afforded by his recognized character as a physician;—then, at some inevitable moment, will the soul of the sufferer be dissolved, and flow forth in a dark, but transparent stream, bringing all its mysteries into the daylight."[22]

Assuming this doctor–patient picture to be true—even though, as here described, it is an ideal which, on our side, we too often fail to reach—can we visualize it as being possible of attainment if medicine is nationalized? I don't think we can. I believe that the doctor–patient relation would receive a rude shock from which it would recover only when the individual emerged once more to triumph over the totalitarian mentality that is to-day threatening to enslave even our democratic country.

Conclusion

If, finally, any one of you should ask me, point blank: "Do you see hope in the future of medicine?" I should reply:

"Yes—I see more hope, both for ourselves as doctors and for the people who will come under our care, in the future of medicine than perhaps in any other single thing in the new world towards which we are hacking our way. We at least have not—yet—forfeited the trust of people for whom we work; we at least have not—yet—turned inwards in despair, bartering our spirit of adventure for a mere hope of security. We stand for sane knowledge, selflessness, and mercy in a world gone mad. We cannot let down these people who trust our profession, and it is in this firm resolve that we shall face the future of medicine."

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PREGNANCY AND DIABETES

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This paper is the study of 12 pregnancies in diabetic women, and in it the wider use of early surgical induction of labour is advocated to diminish the hazards to the infant.

Before insulin was introduced pregnancy in the diabetic was extremely dangerous for mother and child. According to Whitridge Williams (1909) the maternal mortality rate was 27% during pregnancy, labour, and the puerperium, and a further 23% in the next two years; the foetal mortality rate was 41%. In the early days of insulin treatment Wilder and Parsons (1928), quoted by Skipper (1933), gave maternal mortality as 12% and foetal mortality as 47%. The adequate use of insulin has much decreased the maternal mortality rate, but the foetal death rate remains high. In 1942 Lawrence and Oakley had a maternal mortality of 2% and a foetal death rate of 37%, but when only their 40 completely supervised cases are considered the latter figure falls to 23%. In the most recent American series Bill and Posey (1944) give a 27% foetal death rate.

In this personal series of 12 cases there were no maternal deaths and 2 foetal deaths (17%), one being due to a miscarriage and the other to premature death of the foetus *in utero*.

Maternal Risks

The diabetic risks to the mother are ketosis and hypoglycaemia, particularly in labour and the early puerperium; but with careful management they can be minimized, and they did not cause difficulties in our cases.

Increased liability to toxaemia is said to be the most important risk, and a high incidence is recorded by American writers. Herrick and Tillman (1938) reported toxaemia in 18%, and White and Hunt (1943) found the incidence as high as 42% in 119 pregnancies, and thought it accounted for the high foetal mortality. The latter have treated certain cases with large doses of hormones, giving 150,000 to 300,000 units of oestrin and 10 to 20 mg. of proluton daily, and reduced the foetal death rate from 40% in a control series to 8%.

In this country, however, Lawrence and Oakley (1942) found toxaemia in only 10% of their 54 cases, though a further 15% had albuminuria and oedema without hypertension, but in none of these cases was the baby stillborn. In this series only one patient developed toxaemia, and she went into labour spontaneously at 32 weeks and produced a live baby weighing 5 lb. 4 oz. She then had a post-partum eclamptic fit, but subsequently she and the baby did well. A second case had hypertension from the 22nd week, when she came under observation, the blood pressure being 160/100 to 180/120, but it fell to 120/80 after delivery. She developed slight oedema but no albuminuria.

Foetal Risks

Diabetics tend to produce fat and post-mature infants. Lawrence and Oakley (1942) think they reach maturity at about 37 weeks, and therefore if left to 40 weeks they are really post-mature. The large size—up to 12 lb.—may be due to excessive absorption of sugar or to increased production of growth hormone from the pituitary. The second possibility is favoured, as it does not seem possible to control the size of the baby by controlling the diabetes, for in this series labour was induced before the 37th week in 9 patients and the babies weighed between 6 lb. 6 oz. and 9 lb., with two exceptions; the baby of the toxaemic patient weighed 5 lb. 4 oz. at the 32nd week and the other 5 lb. 6 oz. at the 36th week, so that all but the last were over weight by the usual standards. The heaviest infant was born to the mother whose diabetes seemed well controlled by 130 units of insulin daily.

Premature death of the foetus *in utero* may occur, particularly if pregnancy is allowed to continue to term, and Lawrence and Oakley mention that 7 of the babies of 19 patients who were left to go into labour spontaneously were stillborn. In this series one pregnancy miscarried at the 23rd week, the foetus having been dead 2 to 3 weeks, and one baby died *in utero* at the 33rd week. Foetal death had occurred at the 32nd week in the latter patient's previous pregnancy, and it was planned to induce labour at the 33rd to 34th week, when the child would be large enough to have a good chance of survival. The patient was in hospital awaiting induction, with the diabetes satisfactorily controlled, when the child died. Lawrence and Oakley report a similar case in which Caesarean section was delayed for a few days to clear up scabies, and meanwhile the baby died *in utero*. In neither patient was toxaemia present.

Hydramnios is particularly liable to occur, and was present in 5 of our series. Five, four, and three pints of liquid were withdrawn from 3 patients when the membranes were ruptured, and 2 others had less severe hydramnios. Neonatal death may occur from foetal hypoglycaemia caused by overdevelopment of the pancreas *in utero*. Sugar was given prophylactically in our series, and this complication was fortunately not seen. Foetal abnormalities are said to be more frequent than usual, but none were found in our cases. One patient, however, since becoming a diabetic had lost her first baby after 3 days from congenital heart disease.

Diabetic Management in Pregnancy

The patients were given 220 to 300 g. of carbohydrate in a diet supplying 2,000 to 2,500 calories. It is important to maintain a high carbohydrate intake, for it is known that the renal threshold for sugar excretion is lowered during pregnancy, and large amounts of glucose—e.g., 50 to 150 g.—may be lost in the urine. It follows that insulin requirements must be judged by blood-sugar readings. Insulin requirements tend to rise in the 2nd trimester and especially in the last 3 months, but may occasionally become less, but this was not observed in our patients.

When the patients first came under observation they were given their usual insulin arrangement. As their insulin requirements increased, for preference they were given soluble insulin in the morning and a mixture of zinc protamine and soluble insulin in the evening. A small or medium dose of zinc-protamine-insulin used in this way prevents early morning

TABLE I.—*Obstetrical History*

MOTHER												BABY		
Age	Parity	Past Obstetric History	Complications in Pregnancy	Duration (Weeks)	Onset of Labour (Method)	Liquor Withdrawn	Delay Before Onset	Length of Labour	Method of Delivery	Complications during Labour	Lactation		Sex and Weight	Progress of Child
24	3	(1) L.B.; 10 lb. (2) L.B.; died in a few hours; pyelitis of pregnancy	Hydramnios Anaemia. Hb 52% at 18 weeks, 76% at 24 weeks, and later 60%	36½	Surgical induction by Drew-Smythe catheter	106 oz.	35 min.	27 h. 10 m. 20 m. 15 m. Total, 27 h. 45 m.	Spontaneous vertex	—	Good	Born alive	Female, 6 lb. 9 oz.	Slight jaundice and generalized oedema to 10th day. Very weak till 3rd week
36	2	1934: L.B.; 6 lb. 14 oz.	—	37	"	22 oz.	45 min.	3 h. 30 m. 50 m. 20 m. Total, 4 h. 40 m.	" "	—	Just insufficient	" "	Male, 6 lb. 6 oz.	Satisfactory
36	4	1935: L.B.; 8 lb. 2 oz. 1940: S.B.; 8th month 1941: Miscarriage 4th month; twins	—	37	"	18 oz.	45 min.	4 h. 30 m. 15 m. 20 m. Total, 5 h. 5 m.	" "	—	Insufficient; ceased after two weeks	" "	Female, 6 lb. 7 oz.	"
31	1	—	Toxaemia from 28th week. Much oedema and proteinuria. B.P. rose to 190/115	32	Spontaneous	Not excessive	—	10 h. 30 m. 1 h. 5 m. 20 m. Total, 11 h. 55 m.	" "	Post-partum eclamptic fit 1¾ hrs. after delivery	Insufficient; ceased after 11th day	" "	Male, 5 lb. 4 oz.	"
19	1	—	—	37	Surgical induction by Drew-Smythe catheter		20 h. 30 m.	11 h. 30 m. 1 h. 20 m. 20 m. Total, 13 h. 10 m.	" "	P.P.H., 24 oz.	Just insufficient	" "	Male, 6 lb. 8 oz.	"
25	1	—	Slight hydramnios at 29th week	37	"	24 oz.	1 h.	22 h. 1 h. 45 m. 5 m. Total, 23 h. 50 m.	Forceps for foetal distress. Spinal stovaine 1 c.cm.	—	Insufficient; ceased after 17th day	" "	Female 8 lb. 4 oz.	Slow progress; slight jaundice on 4th day
32	2	1942: Foetus died at 32nd week; macerated foetus 3½ lb. at 38th week	—	33	"	14 oz.	7 hrs.; pitocin 6-hourly inj. 2·5 u.	12 h. 50 m. 1 h. 20 m. 30 m. Total, 14 h. 40 m.	Spontaneous vertex	—	—	Stillborn	Male, 6 lb. 12 oz.	—
31	2	1941: Premature labour at ? 7th month. 3 lb.; lived 12 days	—	34½	"	18 oz.	2 h. 45 m.; one inj. pitocin	6 h. 30 m. 2 h. 20 m. 20 m. Total, 9 h. 10 m.	" ". Episiotomy. Legs were extended along body	Delay in second stage	Good	Born alive	Female, 5 lb. 12 oz.	Jaundice; attacks of cyanosis for 10 days
41	4	1922: L.B.; 10½ lb. 1924: S.B.; 12½ lb. 1931: S.B.; 10¼ lb. All full-term	Hydramnios Hypertension	36	"	88 oz.	3 days; 3 courses of pitocin	—	Caesarean section (lower segment)	—	None	" "	Female, 7 lb. 13 oz.	Slow progress
29	3	1939: Ectopic; laparotomy at 3½ months 1942: L.B.; 5 lb. 5 oz.; died 3rd day	—	36	"	12 oz.	75 min.	2 h. 15 m. 20 m. 25 m. Total, 3 h.	Spontaneous vertex	—	Good	" "	Male, 5 lb. 6 oz.	Satisfactory
37	5	See Case 3	Foetal death *in utero* at about 20 weeks	23	Medical induction	—	—	6 hours	Spontaneous abortion	—	—	Abortion	—	—
24	2	1942: L.B.; 7 lb. 6 oz.	—	36	Surgical induction by Drew-Smythe catheter; repeated after 5 days	20 oz. and 40 oz.	1. — 2. ½ hr.	1 h. 45 m. 25 m. 20 m. Total, 2 h. 30 m.	Spontaneous vertex	—	Just insufficient	Born alive	Male, 9 lb. 3 oz.	Satisfactory

hyperglycaemia without appreciable risk of insulin reactions. This valuable arrangement of insulin was described by Lawrence and Oakley (1944). In very difficult cases it may be advisable to use a third injection, giving soluble insulin before lunch.

During labour the usual diet was given as long as possible, and then glucose (or lactose) 15 to 20 g. 2-hourly and an extra 30 g. at the onset of the second stage. The muscular effect of labour reduces the insulin requirements and there is real danger of hypoglycaemia; the dosage must then be decreased considerably. If there is heavy ketosis, as in two cases, extra glucose should be given: 15 to 30 g. hourly may be needed.

After delivery less insulin is needed as a rule, and a satisfactory working arrangement is to give half the usual amount on the following day and build up the dose if necessary. In two patients the insulin requirements remained unchanged in the puerperium. Both mothers who lost their babies had a temporary increase in insulin requirements; the other patients had their dosage considerably reduced. The two patients who were not having insulin before pregnancy had their injections stopped without any ill effects after delivery.

TABLE II.—*Diabetic History*

No.	Age	Duration of Diabetes	Insulin Requirements: Before Pregnancy	During Pregnancy, Trimesters: 1st	2nd	3rd	After Pregnancy: On Leaving Hospital	Some Time Later	Ketosis	Comment
1	24	6 months	?	**27/13**	**26/24**	**16/20**	**26/40**	**20/38**	Traces only	No fall in insulin requirements during an after labour
2	36	8 years. Diagnosed when glycosuria persisted after first pregnancy	—	—	—	—	—	—	„ „	Blood-sugar curve at 3rd month (50 glucose): fasting, 146 mg. per 100 c.cm after ½ hr., 195 mg.; 1 hr., 234 mg 1½ hrs., 230 mg.; 2 hrs., 150 mg.
3	36	10 years	**40**	**40**	**40**	34/32	20/14	20/14	„ „	Insulin requirements halved on day labour
4	31	7 „	—	—	**24**	**20/36**	—	—	„ „	An overweight diabetic. Insulin stoppe during and after labour
5	19	3 „	**48/32**	**48/32**	**48/32**	**48/32**	**46/30**	60/30/**34** 16	„ „	Developed Tb. 16 months later. Insuli requirements diminished on day of labou (52 units), but returned immediately t previous level
6	25	6 „	**28/20**	**36/20**	**24/34**	52/26/22 **24**	34/**16** 16	34/**16** 16	Heavy ketosis at times and during labour	Given 26/26 on day of labour and 30/1 next day
7	32	1 year	**16/12**	**16/12**	**16/12**	**16/20**	**20/36**	**14** 16	Traces only	Glycosuria during first pregnancy. Fathe mother, and sister diabetic
8	31	2 years. Diagnosed 7th month of 1st pregnancy	**20**	**20**	**20**	**24** 20	**16** 20	**16** 24	„ „	Insulin requirements maintained after labou
9	41	3rd month of present pregnancy	—	—	—	16/16	—	—	„ „	Moderate obesity. No diabetic symptom but a markedly diabetic blood-suga curve. B.P. 160/100–180/110 fell t 120/80–140/90 after surgical inductior and stayed down
10	29	4 years	20/20	20/20	28/12/**6** 16	36/20/**10** 16	26/**8** 12		„ „	Insulin requirements reduced by 32 unit daily after delivery
11	37	11 „	20/14	20/14			18/14		„ „	Insulin requirements temporarily increase after abortion (30/24)
12	24	1 year	**45/50** 60	**45/50** 60	80/**20** 30	80/**20** 30	80/**20** 30		Heavy ketosis at times and during labour	Insulin requirements temporarily reduce after delivery

Black figures = Zinc-protamine-insulin.

Obstetric Management

Premature delivery at 36 to 37 weeks is advisable because of the risk of foetal death *in utero* near term and of mechanical difficulties due to overlarge babies. The methods available are either Caesarean section or surgical induction of labour.

Caesarean section has been widely advocated for three reasons: because of the large babies, to save the child the risks of labour; because a set operation is a known quantity but labour is uncertain in length and severity; and to enable sterilization to be performed if necessary. Even so, some of the babies may die and the risks of operation to the mother are greater than those of spontaneous delivery. In Lawrence and Oakley's series there were 27 Caesarean sections, with 2 stillborn babies and 2 neonatal deaths, and one mother died from pulmonary embolus.

Premature delivery by surgical induction of labour was advocated by Brandstrup and Okkels (1938), and its further trial was recommended by Lawrence and Oakley (1942), who had had satisfactory experience in 3 patients. This method has been used in the present series, which includes tw primigravidae. High rupture of the membranes by Drew Smythe catheter was performed, and pitocin 2.5 units hourl may be given for 6 doses if necessary. The induction wa performed when it was thought the child would weigh abo 6½ lb., and in most cases this was at 36 to 37 weeks c pregnancy. Labour pains started without undue delay in a but two patients. One was a multipara with hypertension, an after 3½ days' waiting, was finally delivered by lower segme Caesarean section. The other patient had a second surgic induction after 5 days and an additional 2 pints of liqu removed—1 pint having been withdrawn the first time—an then labour began soon afterwards. Delivery was spontaneo in all but one patient who needed a forceps delivery for foet distress. Otherwise no diabetic or obstetric difficulties we encountered, and early surgical induction certainly seemed satisfactory alternative to Caesarean section.

Nevertheless operation may be advisable in certain cases there is any doubt about an easy delivery or if there are an additional hazards. A diabetic patient at present under ou care who has developed Rhesus antibodies in her serum an having lost two previous babies by premature death *in utero* wi certainly be delivered by Caesarean section.

Management of the Baby

For the first 24 hours after birth the babies were give glucose—1 teaspoonful in 1/2 oz. of water two-hourly—to tr to prevent hypoglycaemia. This was given three-hourly fo the next day or two, and the infants were breast-fed or give expressed breast milk as soon as possible. Lactation unfo tunately tends to be poor in diabetic patients, and the chil may need to be given artificial feeds. In this series 3 patient fully breast-fed their infants, and in 4 cases attempts at breas feeding had to be given up after 2 to 2½ weeks. There we no neonatal deaths.

Summary

An account is given of the management of pregnancies in diabetic In a series of 12 cases 10 babies left hospital with their mothers— a better result than in previous published series, and justifying th greater use of surgical induction of labour at 36 to 37 weeks instea of routine Caesarean section.

Our thanks are due to Dr. Bullimore, Mr. MacVine, Dr. Silberstein, r. S. L. Simpson, Mr. Stern, and Miss Titcombe, who kindly ferred cases to us, and to the Research Committee of the Middlesex ounty Medical Society, which facilitated the collection of cases. e also wish to acknowledge our thanks to Dr. Sakula for his sistance with the neonatal infants.

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ORTALITY IN CHILDHOOD DURING 1920–38

BY

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uring the inter-war period considerable success had attended e efforts to reduce mortality, particularly in the first years of fe. It seems of interest to review briefly the trend of childhood ortality during the 20 years of peace, since with the prospects a continued decline in the size of the child population, and e wastage of young adult life due to war, the health and elfare of the child population will become of still greater portance to the nation in the future. The death rates in ngland and Wales during the first 15 years of life, for males d females for four periods covering 1920–38, are given in ble I. Mortality declined at each age throughout that riod; the greatest relative improvement occurred at ages 2 and 2–3, in which the rates had been more than halved. t ages 3–4 the death rate had decreased by over one-third, d there was an improvement of one-quarter in the infant ortality rate. A slight difference occurred in the relative ends of the mortality of boys and girls during this period. e minimum death rate for girls during 1920–4 was at age , but during 1935–8 mortality did not increase until age . There was no corresponding change in the trend of the ys' mortality, and as a consequence the death rate for girls ed 13 and 14 in 1935–8 was below that of the boys, while 1920–4 the boys had a slightly lower rate at these ages an the girls. The mortality at age 5 showed an interesting nd: in the first period the death rate at this age declined a smaller amount than in the preceding or succeeding e. This kink in the curve has become more pronounced, d in the last period the mortality at age 5 showed no improvement on that of age 4. This break at age 5 in the downward rve of mortality may be due to the greatly increased risk infection that confronts children on entering school life, it may be of significance as indicating a hiatus in child-lfare.

TABLE I.—*Death Rates per 1,000 from All Causes: England and Wales*

ges	Males				Females			
	1920–4	1925–9	1930–4	1935–8	1920–4	1925–9	1930–4	1935–8
0–	86·9	79·8	70·8	63·5	66·9	61·6	54·3	48·9
1–	23·0	20·9	14·8	10·2	20·8	18·8	13·0	8·9
2–	9·7	8·7	6·5	4·7	9·1	8·1	5·9	4·3
3–	6·0	5·3	4·4	3·5	5·7	5·0	4·1	3·1
4–	4·5	4·0	3·6	3·0	4·3	3·7	3·4	2·7
5–	4·0	3·6	3·5	3·0	4·0	3·3	3·1	2·6
6–	3·2	2·7	2·7	2·4	3·0	2·6	2·5	2·2
7–	2·6	2·3	2·2	1·9	2·4	2·1	1·9	1·7
8–	2·1	2·1	1·8	1·5	2·0	1·8	1·7	1·5
9–	1·9	1·8	1·6	1·4	1·8	1·6	1·5	1·3
0–	1·8	1·6	1·5	1·3	1·7	1·4	1·3	1·1
1–	1·7	1·6	1·4	1·2	1·6	1·4	1·3	1·1
2–	1·7	1·5	1·4	1·2	1·7	1·5	1·4	1·1
3–	1·7	1·6	1·5	1·3	1·9	1·6	1·5	1·2
4–	1·9	1·8	1·7	1·5	2·1	1·8	1·6	1·3

Infant Mortality

Before considering childhood mortality by cause of death is convenient to examine the mortality of infants, since the lk of these deaths are attributed to causes peculiar to the first year of life. The great improvement in infant mortality has arisen mainly from the decrease in deaths from infectious and general diseases. The mortality from diseases peculiar to infancy has undergone only a slight improvement. The rates for various causes are shown in Table II.

TABLE II.—*Infant Mortality in England and Wales*

	All Causes	Congenital Malformation; Congenital Debility; Premature Birth; Injury at Birth	Violence	Infectious and General Diseases
1920–4 ..	77·1	33·8	0·95	42·4
1925–9 ..	70·9	32·2	0·99	37·7
1930–4 ..	62·7	32·2	1·16	29·3
1935–8 ..	56·4	30·6	1·12	24·7

The fall in the rates of the second column was due to the decline of mortality from congenital debility from 8.09 in 1920 to 1.76 in 1938. A matter for concern is the steady rise in deaths due to injury at birth—from 1.22 in 1920 to 2.59 in 1938. A similar trend has been shown by the United States of America, where the mortality from injury at birth rose from 3.9 in 1920 to a peak of 5.3 in 1930 and then declined slightly to 4.8 in 1939. It seems rather ironical that, despite the efforts to reduce mortality, the death rates from violence should increase. In terms of rates the difference of 0.17 between the first and last periods is small, but if there had been no increase 410 fewer babies would have been killed during 1935–8.

Although infant mortality has steadily improved since the beginning of the present century, when the rate was 160 per 1,000 births, a considerable improvement can still be effected. This is shown by comparison with the mortality rate in other countries:

Country	Infant Mortality, 1935–9	Country	Infant Mortality, 1935–9
New Zealand	32	Denmark	64
Holland	38	Germany	64
Australia	39	France	66
Norway	40	Canada	67
Sweden	43	Belgium	75
U.S.A.	49	Scotland	76
England and Wales ..	55	Italy	103

The infant mortality rate of New Zealand is only a little more than half that of England and Wales. In the United States infant mortality has declined faster than in this country. The rates for 1920 and 1939 were 86 and 44 in the U.S.A. and 80 and 55 in England and Wales. A similar difference in trend occurred between London and New York. The rates for London fell from 76 in 1920 to 47 in 1939, while those for New York were 85 and 37. In 1939 the rates for each of the five boroughs of New York were below the rate for London. The values were: Manhattan, 45.7; Queens, 36.5; Brooklyn, 34.9; the Bronx, 32.1; and Richmond, 31.0. It is not possible to assess the relative difference of the maternal and child welfare services of the two countries. In the U.S.A., at present, facilities for maternal care for those who cannot pay are provided for only to a very limited extent out of public funds. Probably a part of the greater improvement in that country is due to the success attending the efforts made by ante- and post-natal clinics to increase maternal efficiency. Efforts have also been made to raise the standard of medical care by postgraduate education in paediatrics and obstetrics for practising physicians; and in New York and some other cities minimal standards for maternity services are enforced as public health regulations. With regard to England and Wales, it appears to be doubtful whether full use has been made of existing child welfare clinics. Statistics in a suitable form are not available, but the reports of the local medical officers of health suggest that, although in some areas over 90% of the children born attended a clinic, the total attendance per birth per year was low—of the order of 10. A fair inference is that the majority of mothers failed to take their baby more than once or twice to the clinic. The relative importance of the factors influencing infant mortality has not been established, since most conditions which have a close correlation with infant mortality have also a high degree of association with each other. Within the country there is a considerable negative correlation between infant mortality and economic and environmental conditions, although a comparison of regions reveals anomalies. The infant mortality rates by social class for four contrasting regions are:

Infant Mortality Rates, England and Wales, 1930–2

Social Class	Wales I	North I	East	Remainder of S.E.
I	43·1	37·8	29·9	33·1
II	52·2	50·3	41·7	38·4
III	70·0	71·9	46·7	41·6
IV	73·0	86·8	55·9	46·8
V	77·4	100·6	61·5	54·0

Within each region there is a definite correlation between social class and infant mortality; but the differences between the regions cannot be accounted for by this explanation, since it is impossible that the environmental and economic conditions of Class II of Wales I and North I are below those of Class IV in the remainder of South-East. Geographical position is hardly likely to account for much of the difference, since very low rates have been recorded in northern countries—e.g., the infant mortality during 1935–9 was 40 in Norway and 43 in Sweden.

Specific Causes

The trend of the most important of the specific causes of death for the first and last periods of Table I is shown in Table III. With the exception of violence and diphtheria, all causes show a considerable reduction in mortality at each age during the 20-year period.

TABLE III.—*Death Rates per 100,000: England and Wales*

Ages	Measles		Scarlet Fever		Whooping-cough		Diphtheria		Influenza		Tb. (all forms)		Bronchitis		Pneumonia		Diarrhoea and Enteritis		Violence	
	1920–4	1935–8	1920–4	1935–8	1920–4	1935–8	1920–4	1935–8	1920–4	1935–8	1920–4	1935–8	1920–4	1935–8	1920–4	1935–8	1920–4	1935–8	1920–4	1935-
Males:																				
0–	144	69	6	2	250	125	24	15	88	40	161	65	667	215	1,189	973	953	592	101	122
1–	303	118	18	8	178	67	61	25	64	21	185	82	161	32	737	347	160	55	73	68
2–	122	41	22	9	63	23	63	43	32	9	111	54	44	10	249	108	35	13	63	49
3–	58	23	21	7	30	13	73	57	19	6	72	35	19	5	109	55	17	7	53	48
4–	41	18	18	9	17	7	72	67	11	4	55	26	10	4	65	34	10	5	43	45
5–9	11	6	10	4	3	2	39	46	7	3	40	18	4	2	29	16	4	2	35	35
10–14	1	0·5	3	1	0·1	0·03	9	11	5	2	35	15	1	1	12	7	2	0·4	23	23
Females:																				
0–	120	57	4	3	275	146	18	10	61	31	124	54	510	163	894	731	684	418	88	101
1–	272	100	16	6	235	94	52	22	51	17	150	73	152	29	642	284	145	46	51	46
2–	115	44	21	8	96	32	64	44	29	9	96	45	45	9	232	102	32	12	42	33
3–	61	24	20	8	47	19	71	55	20	6	66	29	20	5	105	54	15	7	39	31
4–	36	16	20	7	23	10	74	65	11	4	55	28	12	3	63	34	10	5	29	26
5–9	12	6	11	4	5	2	47	51	7	3	41	17	4	2	27	15	5	2	17	17
10–14	1	0·6	4	1	0·2	0·1	11	12	6	2	55	21	1	1	11	7	2	1	7	8

Principal Communicable Diseases.—The death rate for diphtheria for all ages under 15 fell by 29%, owing to the large decrease in mortality among the pre-school population; at school ages the death rate increased slightly during the 20 years. The pre-school child is generally infected by its older brethren of school age, and the decrease in family density due to the declining birth rate is probably a significant factor in this age shift of mortality. In the U.S.A. a great improvement in mortality from diphtheria has been effected since immunization was introduced. During 1920–4 the mortality rates in the U.S.A. for ages 1–4, 5–9, and 10–14 were 86.9, 42.0, and 11.1—approximately at the same level as in England and Wales; by 1935–8 the rates had fallen to 18.6, 5.9, and 1.3. Thus in the last period American school-children had a mortality rate of one-eighth of that of English school-children. The relative smaller decrease at ages 1–4 in the United States was due to concentrating at first on the immunization of children of school age. Success has attended the campaign for immunization in England and Wales, although not yet on the scale achieved in the U.S.A. There were 1,092 deaths at ages 1–15 attributed to diphtheria in England and Wales during 1943, compared with an average of 2,837 during 1935–8.

A considerable improvement has occurred in the mortality from the other common infectious diseases of childhood. The death rate from scarlet fever has fallen to a very low level: only about 6 in every 1,000 deaths at ages under 15 were attributed to this cause in 1935–8. The rate of the decline in mortality from measles was slightly greater at ages 1–2 and 2–3 than at other ages, but the relative importance of this disease has remained unchanged at ages 1–2, when it was the second most important cause of death in both periods. At ages 2–3 measles has been displaced by tuberculosis and diphtheria from the second position, which it held in 1920–4, and, fo males, by violence in 1935–8. Whooping-cough has declined by a similar ratio for both sexes, and the girls suffered proportionately the same disadvantage at the end of the period as at the beginning.

Tuberculosis.—The mortality from tuberculosis fell considerably during the 20 years, and the relative importance of this disease as a cause of death in childhood also fell. The percentage of all deaths assigned to tuberculosis for age groups 0–1, 1–4, 5–9, and 10–14 in 1920–4 was 1.85, 9.4, 15.2, and 25.4, and the corresponding percentages in 1935–8 were 1.06 9.2, 9.0, and 14.6. Tuberculosis of the central nervous system was mainly responsible for the mortality at ages 1–4. In the United States the trend of childhood mortality from tuberculosis is different from that of England and Wales: instead of a continuous decline a minimum occurs at ages 5–9. The rate per 100,000 white children in the U.S.A. during 1920–4 for ages 1–4, 5–9, and 10–14 were 34, 12, and 15; and in 1935–8 they were 11, 4, and 5. The rates in both periods were below those for the corresponding group in England and Wales, and the rate of decline was greater. In the U.S.A. the mortality decreased by two-thirds during the period, which was abou 10% more than the rate of decline in England and Wales.

Respiratory Diseases.—A large proportion of the death occurring in childhood are attributed to pneumonia. In 1935– about one-seventh of all infant deaths—or, excluding th diseases peculiar to infancy, about one-third of the deaths du to infectious and general diseases at ages under 1, and one-sixt of all deaths at ages 1–14—were assigned to this cause. Th mortality from pneumonia in infancy declined by almost one fifth during the period, while at ages over 1 the death rate wa approximately halved. A further reduction in mortality ca be anticipated in view of the recently introduced treatme by chemotherapy, although this treatment gives only a sma proportion of successes at the extremes of life compared wit that obtained at other ages.

During the first two years of life the greatest decrease i mortality among the causes of deaths in Table III was show by bronchitis. The death rate decreased by two-thirds at age 0–1 and by four-fifths at ages 1–2 during the 20 years. Despi the large reduction in infantile mortality the relative positio of bronchitis remained unchanged: it was the third greate cause of death in both periods.

Other Specific Causes.—Although the mortality from influenz is subject to large periodic fluctuations, during the years r viewed there has been an improvement of from one-third one-half in the death rates during childhood. In both perio diarrhoea and enteritis formed the second most importa cause of death during infancy, and accounted for one-tent of all deaths at ages 0–1. The rate of decrease was less in th first year of life than in the later ages; at ages 0–1 it was on half of that at 1–2 and 2–3. The mortality from violen increased during the first year of life during the 20 years, small decline occurred at each age from 1 to 3, and rates chool age were the same in both periods. The relative imortance of violence during childhood increased for boys but ot for girls. Violent deaths at ages 5–9 and 10–14 formed 7.0 and 18.0% of all deaths among boys and 9.5 and 7.2% mong girls.

Conclusion

This short survey shows that since 1920 there has been a arge fall in mortality during childhood, in which practically very cause of death shared, but it is evident that there is oom for considerable improvement. The mortality level of liphtheria and violence showed an unnecessary and persistent vastage of child life. Although the infant mortality rate was ower than that of the highly industrialized countries of Europe, t was higher than in several other countries. This fact and he regional social class mortality of England and Wales suggest hat the pre-war rate for the whole country could be reduced, robably by one-half.

HAEMATOMETRA DUE TO CICATRICIAL TENOSIS OF THE CERVIX AFTER LABOUR

BY

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laematometra after a birth injury to the cervix is a rare event. he following is a record of such a case.

Case Report

Obstetric History.—The patient, aged 24, had been married for vo years. During her only pregnancy she attended an antenatal linic in London, but was transferred to an E.M.S. hospital in the ountry before her confinement. The hospital records reveal that ne had a surgical induction for post-maturity when three weeks ast the expected date of confinement. Foetal distress became vident when the os was almost fully dilated. Forceps were applied, ut were not successful in effecting delivery. The head was then erforated and the extraction became relatively simple. She subequently developed parametritis and was not fit for discharge for x weeks. Even then she felt weak and did not recover her previous ood health. The date of the delivery was Sept. 11, 1943.

History of Complaint.—In November, 1943, she had an attack of ain lasting about three days. The pain was like that previously ccompanying her menstrual periods, but there was no loss. She ıys that she reported to a welfare clinic but that nothing abnormal as found. Similar attacks occurred in December, January, and ebruary. She was then "bombed-out" and moved to the Midnds. In March, 1944, after the usual four-weeks interval, she had nother attack, the pain being more severe. She reported to a octor, who gave her tablets to ease the pain, which again subsided fter three days. A month later, on April 15, the pain came on nce more. This time it was worse than ever and was accompanied y vomiting. On April 18 she reported to the casualty department n account of the severity of the pain. She was found to have a nder abdomino-pelvic swelling and was admitted to the gynaecogical wards.

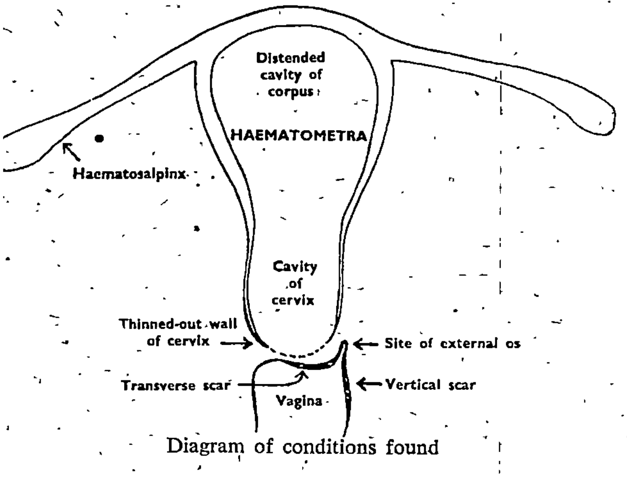

Diagram of conditions found

On admission the history of recurrent pain at intervals of one onth was elicited. On inquiry it was found that her present pain ıs intermittent and was mainly in the lumbar region. When asked it was like labour pains she said that it was, "but much worse." Her general condition was fairly good, though it was evident that the pain was severe. On abdominal examination she was found to have a slightly tender, firm, oval swelling arising from the pelvis and extending almost to the umbilicus, slightly to the left of the middle line. Contractions were watched for, but no alterations in consistence were demonstrable. On examining vaginally no cervix could be found. The abdominal swelling was continuous with a soft bulging of the vault of the vagina. The left vault was drawn upwards and to the left. At its summit was a narrow depression, about a quarter of an inch deep, which would admit the point of a uterine sound. Running into this depression were two scars, each about an inch long; one ran transversely across the vault, the other vertically up the left vaginal wall. Various sizes of probe were used in an attempt to establish communication with the swelling, but without success. The condition is shown diagrammatically in the accompanying figure.

Operation.—On April 18 the abdomen was opened. The free edge of the omentum was found to be lightly adherent to the floor of the vesico-uterine pouch and, more densely, to the left ovary. The body of the uterus was uniformly enlarged to the size of a twelve-weeks pregnancy. The cervix was drawn out to a length of about 4 in., and distended to a diameter of about 1½ in. Each tube had become sealed off at the abdominal ostium and was slightly distended. Hysterectomy was begun, and the uterus, together with the left tube and ovary and the right tube, was separated from its lateral attachments. The cervix was very thin-walled and was distended to the same diameter as the vagina, and it was therefore difficult to identify the line of separation of the two. At this stage the haematometra leaked at its lower end, and several ounces of thin chocolate-coloured fluid escaped. This was mopped away, and for the first time traction was exerted on the uterus. It was then found that the thinned-out anterior wall of the cervix had been completely torn across transversely, and its lower part could not be identified. The posterior attachments of the cervix were next divided and the uterus was removed. The bed of the uterus was inspected, but no sign of any intercommunication with the vagina could be made out, even when a finger was inserted in that organ. After peritonizing the raw area the abdomen was closed.

Convalescence was uneventful. When the patient was examined six weeks after discharge from hospital the condition of the vagina was the same as before operation, except for the absence of the swelling. The depression indicating the position of the cervical canal was still drawn upwards and to the left, and fixed in that position.

Comments

Haematometra is most commonly due to a congenital deformity, and then develops when menstruation begins. Acquired haematometra may be due to a variety of causes, the commonest being neoplasm of the cervix. Carcinoma, fibroadenoma, adenomyosis, or operations for these conditions, have been reported. Herring (1939) has published a case in which haematometra followed radium treatment for benign haemorrhage. Schockaert (1938) records a case due to cervical ulcer in prolapse. Cicatrization following cauterization of the cervix is a recognized cause. Caustics, stem pessaries, and gonorrhoeal and diabetic vaginitis have also been cited.

In a series of 19 cases reported by Bernstein and Walter (1939) congenital causes were responsible for 11. Of the remaining nine cases only two could be ascribed to obstetric injuries, and in each there was a vesico-vaginal fistula. In one the haematometra was found at operation nine years after childbirth; in the other the condition was found three months after delivery, and was due to adhesions in the fornices.

In the present case it seems, from the history, that the operation was performed during the sixth menstruation into the closed uterine cavity. There had been regurgitation of menstrual fluid into the tubes, which at the time of operation were sealed at the abdominal ostia. The adhesions of the omentum to the floor of the vesico-uterine gutter suggest that there had been a spilling into the peritoneal cavity at some stage before the tubes had become sealed off.

Two interesting features are the complete obliteration of communication between the uterus and the vagina, and the distension and thinning of the cervix. It is possible that the cicatrization occurring after the parametritis had drawn the lower end of the cervix upwards and to the left, and that this had been followed by sacculation of the cervix when the menstrual fluid filling this organ had been subjected to pressure by uterine contractions. The remaining part of the cervical canal might then have become subject to a "valve-action," with elongation and lateral compression, causing its virtual obliteration. That some such sacculation was present is evident from the relative positions of the distended cervix and the site of the obliterated os externum.

In most cases of acquired haematometra the stenosis is incomplete and there is some leakage past the obstruction. So complete an obstruction and so extensive a haematometra as that here described must be very rare.

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FAILURE OF IMMUNITY RESPONSES IN LOCALIZED DISEASE

BY

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During investigations on the influence of inflammation on immunity, evidence accumulated which suggested that, once a condition had become localized, there was a change in the absorption of substances from the site of inflammation and that the zone around the focus acted as a selective membrane stopping entry of substances of high molecular weight into the body. This conception found some support in the literature both from the work on the permeability of the tissues to dyes (Menkin, 1935, 1940) and from the work on staphylococcal lesions by Fleming (1939) in this country and by Hite, Banks, and Dack (1938) in the United States. The former showed that the level of staphylococcal antibodies was not raised above the level for the general population in persons who had suffered from a series of boils, while Hite and his co-workers found that patients with persistent sinuses from osteomyelitis also showed no rise in antistaphylococcal haemolysins. These workers, too, failed to demonstrate any absorption of antigens or of antibodies introduced into these natural sinuses in man or into artificially induced sinuses in animals.

The list of substances already thought not to be absorbed from inflamed areas includes various vital dyes, particularly trypan blue, horse serum, typhoid and paratyphoid vaccines, staphylococci and their toxins, and *B. botulinus* antitoxin. One recent observation supports this general picture. McClean (1943), in the course of work on gas-gangrene infections, found that animals dying from *Cl. welchii* infections had no *welchii* toxin in the circulating blood but large amounts localized in the infected muscles.

It is desirable for three reasons to settle the question whether antigens are absorbed from a chronic focus. First, it is taught that there is no necessity to stimulate the body's specific antibacterial defences during the course of naturally occurring disease, as adequate or even excessive amounts of antigen are already reaching the body from the lesions; secondly, it is possible to show what organism is causing a disease, since during the course of the disease, or in convalescence, the specific antibodies will always appear in the serum; thirdly, the absorption of bacterial products will account for all the toxic effects seen in inflammation.

Infections of the Urinary Tract

In the past difficulty appears to have arisen because the diseases on which the work on specific immunity has been done were all those in which there is a septicaemic phase—for example, lobar pneumonia, typhoid fever, syphilis, bacterial endocarditis, streptococcal septicaemia, and puerperal fever. From these conditions it has been argued by analogy that the less spectacular conditions of localized disease had the same general immunity pattern. One way of demonstrating the incorrectness of this supposition is to examine the serological responses of patients with localized diseases in which the diagnosis is so obvious that the identification of the infecting organism needs no serological support. The first series of cases recorded below had an infection with one single organism in an area which is normally sterile—the urinary tract; they ran a normal course and responded to the normal treatment. The accompanying Table shows 22 such cases. The cases were taken in sequence; only those organisms which auto-agglutinated i saline or which agglutinated to a high titre with all normal ser were excluded. Four strains were discarded for these reason The duration of the infection ranged from one week to man years, the ages of the patients from 22 to 76. In the older ag group, most of whom were men, a partial obstruction wa present in some of the cases. It will be seen that 16 patient show no trace of agglutination of the autogenous organism ; o the remainder only 3 reach a titre of 1/25.

Case	Age	Duration	Agglutination	Organism
1	22	6/12	1/25	Coliform
2	22	2/12	0	"
3	23	3/52	0	"
4	23	2/12	1/25	Proteus
5	23	1/12	0	Coliform
6	24	7/12	1/2	"
7	24	3/12	0	"
8	31	2/12	0	"
9	36	2 years	0	"
10	42	1/52	1/8	"
11	49	6/12	0	"
12	50	3/52	0	"
13	53	Years	0	"
14	53	"	0	"
15	60	"	0	Proteus
16	60	"	0	Coliform
17	61	2 years	0	"
18	62	Years	0	"
19	64	9/12	0	"
20	68	8/12	1/4	"
21	75	Years	1/25	"
22	76	"	0	Pyocyaneus

These results may be compared with those given in cases i which coliforms may reasonably be held to have reached th blood stream.

Case 23.—The patient had an arthritis of one wrist. The cultur from the joint gave a pure growth of coliforms. The patient's seru agglutinated suspensions of the organism to a final titre of 1/212 Complement-fixation tests, using the suspension of the organism a antigen, were positive even with a dilution of the serum to 1/128

Case 24.—The patient, an elderly male, had an old stricture of th urethra, in association with which there had been no fewer than s abscesses as well as persistent cystitis. Cultures of pus from a abscess and of the urine gave the same coliform in pure growt This was agglutinated to 1/640.

Peritonitis

To discover whether the usual cases of peritonitis behave as localized or as generalized diseases from the standpoint o their immunity responses, four patients who had all bee admitted together were examined ; one of these had a perforate gastric ulcer, the others perforated appendices. All ha peritonitis and ran a perfectly normal clinical course aft drainage, leaving hospital in three to four weeks. It wa impossible to distinguish clinically between the cases as to th degree of infection, the severity of the peritonitis, or the effec of the toxaemia on the patient, though the bacterial content the exudates was different in the four cases; the organism isolated were tested against the patient's serum either f agglutination or for complement fixation or precipitins.

Case 25.—Perforated gastric ulcer. Pus sterile.

Case 26.—Perforated appendix; cultures—coliforms. Test on 14 day of illness: agglutination and complement-fixation tests negativ Repeated on 21st day, tests still negative.

Case 27.—Cultures—coliforms and haemolytic enterococci. C 9th day: agglutination of coliforms negative; complement fixati with both organisms negative. On 16th day: agglutination coliforms to 1/16; complement fixation with coliforms to 1/ Complement fixation with enterococci negative.

Case 28.—Perforated appendix. Cultures—*Staph. aureus* and a enterococcus. On 14th day: precipitins and complement-fixing an bodies not found. On 21st day, still negative.

These last three patients were completely recovered fro their infections at the time of their leaving hospital. It might argued that antibodies might have been present later in co valescence, but it is certain that they were not present in tim to influence the local disease.

Diseases of Respiratory and Alimentary Tracts

In attempting to obtain the same type of information localized diseases of the respiratory or alimentary tracts, th problem is complicated by the difficulty of finding cases which only one organism is isolated and in which, in the absence of serum antibodies, there can be definite proof of the identity of the infecting organism. The following cases were chosen as the nature of the causal organism was not in reasonable doubt.

Case 29.—Infection of the lacrimal sac for two years. Cultures gave pneumococcus Type 20 in pure growth. The patient's serum contained no agglutinins or capsule-swelling antibodies against the autogenous strain.

Case 30.—Pleurisy for over a month. Fluid gave a pure culture of pneumococcus Type 4. The serum contained no capsule-swelling antibodies, but agglutinins were present to a titre of 1/4.

Case 31.—Pleurisy following mild pneumonia. Exudate gave a pure culture of pneumococcus Type 1. The serum contained no capsule-swelling antibodies; agglutinins present to a titre of 1/4.

Case 32.—Empyema for four weeks. Exudate gave a pure culture of pneumococcus Type 1. Slight swelling of capsules to a titre of 1/2, agglutination to 1/4, with a trace microscopically to 1/8.

Case 33.—Empyema for 12 days, no history suggesting previous pneumonia. Pure culture of pneumococcus Type 1. No capsule swelling, but agglutination present to 1/8.

Case 34.—Chronic sinusitis. Pus gave almost pure cultures of Pfeiffer's bacillus. Patient's serum gave no sign of agglutination against the autogenous organism. Similar results have been obtained with acute and chronic infections of the nasopharynx with this organism. Patients with *Str. viridans* infections gave no complement fixation against the autogenous organism.

Case 35.—Pleural effusion for about 6 weeks. *B. pyocyaneus* in pure culture obtained from the exudate. Serum showed no agglutinins.

The next group of cases shows the reaction of children who carry the pneumococcus in the nose or throat and who are considered to have infections of the tonsils and adenoids. While these patients will not give pure cultures of a single organism from the nose or throat, those chosen had a high percentage of colonies of one type. It is this group which would be expected to have the so-called subclinical infection that is credited with the growth of their subsequent immunity.

Case No.	Age	Pneumococcus Type	Serum Reaction
36	12	10	Nil
37	5	23	"
38	5	12	"
39	5	6	"
40	5	6	"

The difference between the reaction of patients with localized and those with generalized disease is particularly well shown in pneumococcal infections. The classical lobar pneumonia is well known to give a shower of antibodies at the crisis; even the patient whose disease is prevented from running its course by chemotherapeutic agents will still show some antibody response early in convalescence. The next case illustrates this.

Case 41.—Typical history of the onset of pneumonia; sulphathiazole given within 3 hours of the onset of the disease; temperature reached normal within 15 hours and did not rise again. Cultures of the sputum gave a pure growth of pneumococcus Type 3. Serum tested on the 10th day; swelling of capsules demonstrable and agglutinins present to 1/16.

This response may be compared with that obtained in the following two cases, in which the illness was of much longer duration but limited to the bronchi.

Case 42.—Bronchitis for one month without any sign of actual consolidation. Almost pure growth of pneumococcus Type 14 present in the cultures of sputum. No capsule-swelling antibodies and no agglutinins demonstrable.

Case 43.—Case of carcinoma of lung complicated by oedema of the glottis and severe bronchitis. Sputum gave a pure culture of pneumococcus Type 32. No serum antibodies could be detected.

The infections of the meninges are in a separate category of diseases, since, in general, they must be infected by blood-stream spread or by spread from the nose and throat—processes unlikely to be associated with strict localization. An occasional localized infection may occur after lumbar puncture, as in the next case.

Case 44.—A man was admitted for diathermy of a growth of the bladder; this was done under spinal anaesthesia. Ten days later cerebral signs appeared and the patient was found to have a *B. pyocyaneus* meningitis. He died after an illness lasting four weeks. At the end of the third week from the onset of symptoms his serum was examined for antibodies to the autogenous organisms. Agglutination was present at 1/2, absent at 1/4; complement fixation was negative.

One crucial disease for our purpose would appear to be diphtheria. This is a perfect example of a localized disease with remote effects. It is evident that there is an absorption of diphtheria toxin from the lesion and that the localized disease can give a lasting general immunity to the patient. This immunity is an antitoxic immunity, and as, so far as I know, little attention has been directed to the antibacterial immunity, a comparison of these two aspects of the immunity mechanism is instructive. I have been unable to obtain material from more than two cases in the present conditions, but they are sufficient to suggest the answer to the general question of what it is that determines absorption from a lesion. Agglutination tests are not satisfactory in my hands, even with mitis strains, but complement-fixation tests using the autogenous organism as antigen appear to be a good substitute.

Case 45.—An adult had clinical diphtheria for at least five days before treatment; antitoxin was given. The serum, examined in convalescence at the end of the third and fourth weeks, showed no complement fixation with the autogenous strain of mitis diphtheria.

Case 46.—A medical officer who had had previous diphtheria and whose Schick reaction was negative, performed an emergency tracheotomy and developed a sore throat from which the intermediate type of diphtheria bacillus was grown. There were no toxic symptoms and the throat was clear of organisms when the serum was examined at the end of the third week. Complement-fixation tests were negative, but the serum antitoxin titrated for me by Mr. L. B. Holt was at the high level of 0.1 unit per c.cm.—a level three times that usually taken as giving immunity (Glenny, 1925).

Finally, just as errors arose by assuming that all diseases followed the classical immunity pattern of the blood-stream infections, so it would be a mistake to assume, without investigation, that any individual case of apparently localized disease will have no antibodies. While collecting the present series of cases two apparently well-localized conditions were found with good serum antibody titres. There was nothing definitely to prove that the blood stream had been invaded, nor, of course, to exclude such an event.

Case 47.—Infection of the abdominal wound followed an appendix operation; no peritonitis was noticed at operation. Cultures gave a mixed growth of *Str. faecalis* and coliforms. The serum agglutinated the coliforms to a titre of 1/128, and a complement-fixation test with both organisms was positive, equivalent to one plus.

Case 48.—From an abscess arising in the scar of a mastoid operation performed 14 years previously a sequestrum was removed and the cultures of this gave a pure growth of coliforms. These were agglutinated by the patient's serum to a titre of 1/250.

Conclusion

The failure of localized disease to call out the immunity responses of the body can be most easily explained by postulating some interference with the absorption of specific bacterial proteins and toxins from the focus. This is clearly not absolute, as the case of diphtheria toxin shows. The measurement of diphtheria toxin by Pappenheimer, Lundgren, and Williams (1940) shows that it is a small molecule among proteins, and this points to there being a selective filter functioning in the area of inflammation which will permit the passage of some proteins and not of others. Analyses of exudates and oedema fluids (Harkins, 1942) indicate that the only substances being held back are some of the globulins, but as these appear to be the proteins of chief interest in immunity reactions, their retention is important.

Methods have now been devised for obtaining direct measurements of the porosity of membranes prepared from human fibrin, and the results so far obtained suggest that it may be possible to explain these results in terms of selective filtration. It is hoped soon to publish the full particulars of these methods.

If the observations in this paper are accurate it follows that measures designed to enhance the resistance of the body are indicated in those localized diseases not susceptible to chemotherapy; that previous localized disease will not have immunizing value against reinfection with the same organism; and that serological tests are of little help in identifying the causal organism in a localized infection. It also offers an explanation of why a measure of the antitoxic immunity of the serum may fail to give a true indication of the ability of the body to deal with the bacteria forming that toxin.

Summary

In strictly localized diseases the body does not produce serum antibodies to the infecting organism.

This is illustrated by infections of the urogenital system, peritoneum, pleura, nasal sinuses, respiratory tract, and meninges.

The explanation offered is that fibrin forms a selective membrane excluding some of the protein molecules together with larger particles.

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A NEW SALMONELLA TYPE: SALMONELLA CARDIFF

BY

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A new type of *Salmonella* has been isolated from a patient with acute enteritis, the organism containing an H antigen in Phase 2 that has not previously been described. Details of its isolation and characters are therefore given.

Clinical History

The patient, a soldier aged 37, was admitted to hospital on Sept. 7, 1942, with a history of severe diarrhoea and generalized abdominal pain. The onset had been sudden the previous evening. No other men in his unit were affected, although they had shared the same food. Midday dinner that day had included canned pork; the patient admitted to having had a large helping.

On admission he was still complaining of generalized abdominal pain and headache. He was obviously ill and dehydrated. His temperature was 100° F. There were no abnormal physical signs and his spleen was not palpable. The urine was normal. His motions were frequent—seven in six hours; they were fluid, greenish in colour, streaked with blood, and contained many white flakes. During the night following his admission his condition deteriorated; the diarrhoea became worse and vomiting of bile-stained fluid started, so that he was unable to take fluids by mouth. By 6 a.m. on Sept. 8 he was very collapsed, with a rapid thready pulse and subnormal temperature. The collapse was treated with injections of nikethamide and adrenal cortical extract; he was also given 1½ pints of glucose-saline intravenously. His condition began to improve; vomiting ceased, but he continued to have abdominal pain and diarrhoea.

The next day (Sept. 9), although his general condition was slightly improved, the diarrhoea was as severe as before. Therefore a course of chemotherapy with sulphaguanidine was begun. A total of 50 g. of the drug was given over 6 days, starting with 16 g. on each of the first two days. Thereafter the patient's condition gradually improved and the diarrhoea got less, until by Sept. 15 he was having only one motion a day, although it was still soft. He was discharged from hospital on Oct. 1, and was able to return to his unit after a stay of three weeks at a convalescent home.

Investigation

A specimen of faeces passed soon after admission was examined bacteriologically. A non-lactose-fermenting organism was isolated which had the cultural characteristics and biochemical properties of the *Salmonella* group. A similar organism was isolated from the faeces on a number of subsequent occasions, but was not found in a faecal specimen passed shortly before the patient was discharged. Three days after the onset of acute symptoms the patient's serum was tested for agglutinins to *S. typhi* H and O, *S. paratyphi A* H, *S. paratyphi B* H and O, and *Brucella abortus*, using 1/80 as the lowest dilution of serum. No agglutination was noted except for a weak partial reaction at 1/80 with *S. paratyphi B.* A blood count showed the number of white blood cells to be 5,000 per c.mm. The urine showed no abnormalities.

Bacteriology

The non-lactose-fermenting organism isolated from the faeces was shown to be a Gram-negative motile bacillus which produced a shiny round colony 1 mm. in diameter on MacConkey agar. The biochemical reactions were as follows: fermentation of glucose, maltose, mannitol, dulcitol, arabinose, rhamnose, sorbitol, xylose, inositol, and trehalose with the production of acid and gas in 24 hours; no action on lactose, saccharose, salicin, adonitol, raffinose, and inulin. The citrate-utilization test was positive; it produced hydrogen sulphide, but indole was not formed and gelatin not liquefied. When examined serologically the organism was agglutinated by *S. paratyphi C* O antiserum. Absorption of this serum by the organism completely removed the homologous agglutinins. Similarly, *S. paratyphi C* O removed all the homologous O agglutinins from an antiserum prepared against the organism. Therefore the somatic antigenic complex appeared to be VI.VII. On first isolation the organism was firmly in flagellar Phase 2, and was agglutinated to 1/40 by Standards (M.R.C.) Oxford non-specific *Salmonella* H serum (homologous titre 1/640). It was tested with single-factor sera containing agglutinins 2, 3, 5, 6, and 7, but was unaffected by these. An antiserum was prepared, and the following absorption tests were made (see Table):

	S. cardiff Phase 2 Serum						
		Absorbed by					
	Unabsorbed	S. paratyphi B (1,2 . . .)	S. newport (1,2,3 . . .)	S. thompson (1,5 . . .)	S. anatum (1,6 . . .)	S. madelia (1,7 . . .)	S. thompson (1,5 . . .) + S. madelia (1,7 . . .)
S. paratyphi B (1,2 . . .)	2,000	< 100	< 100	< 100	1,500	800	< 100
S. newport (1,2,3 . . .) ..	500	< 100	< 100	< 100	2,000	200	< 100
S. thompson (1,5 . . .) ..	2,000	200	< 100	< 100	1,000	400	< 100
S. anatum (1,6 . . .) ..	2,000	< 100	< 100	< 100	< 100	< 100	< 100
S. madelia (1,7 . . .) ..	5,000	500	200	500	2,000	< 100	< 100
S. cardiff	20,000	8,000	8,000	16,000	16,000	8,000	8,000

It is obvious from the table that the recognized Phase 2 strains failed to absorb the agglutinins from the antiserum prepared against Phase 2 of the organism; therefore the strain must have contained a new antigen. This has been designated 10, the full structure of Phase 2 being 1,10 . . .

Phase 1 of the organism was isolated by the inoculation of culture into semi-solid agar containing serum for *S. paratyphi B*, Phase 2. Phase 1 of *S. cardiff* was isolated without difficulty from the first passage. It was agglutinated to titre by *S. thompson* (k) serum, and completely removed the homologous agglutinins from this serum. *S. thompson* (k) was agglutinated to titre by a serum prepared with Phase 1 of the organism, and gave full reciprocal absorption. Phase 1 was denoted by k.

Summary

A new *Salmonella* type has been isolated from the faeces of a human case of acute enteritis. This organism has the antigenic structure VI.VII: k ←→ 1,10 . . ., and is designated *S. cardiff.*

Our thanks are due to Dr. W. J. D. Fleming for his help in the technical investigation of this organism; to Dr. T. J. Hennelly for permission to use the clinical notes of the patient; and to Dr. J. M. Naftalin for some results of laboratory investigations.

Some 150 doctors of the Royal Navy, British and American Armies, and R.A.F. attended a conference held in a Bengal hospital recently, when the work of the regimental medical officer was discussed. Many speakers saw in the duties of the R.M.O. and his relation to the rest of the Army's medical services a similarity with the position of the G.P. at home in relation to the civilian medical services. Both carried heavy responsibilities, and just as the G.P. was the backbone of the profession at home so the R.M.O. was the backbone of the Army's medical service. For the R.M.O. there was often too little reward. His work was at times monotonous, at times arduous, and nearly always taken for granted. He lacked the stimulus of contact with colleagues and with hospital work, and his patients were soon lost to him. The regimental medical officer, working alone and under conditions of maximum discomfort and often of danger, with no one to fall back on for advice, was the embodiment of the R.A.M.C. motto, *In arduis fidelis.*

Medical Memoranda

Sulphonamides and Tropical Ulcers

In an area in which tropical ulcers are common I have had some success when treating the condition with sulphanilamide. The ulcers include the sloughing and phagedaenic types, and there are the predisposing conditions of malaria and poor nutrition. I shall be glad to hear of the results of the same treatment given in other such areas.

Treatment.—Paint the ulcer with 2½% tincture of iodine, especial care being taken to see that it reaches well under the enveloping edges. Allow it to dry, then cover it with a layer of powder made up of equal parts of sulphanilamide and magnesium sulphate. Repeat treatment daily until cured. No bad after-effects of the drug have been observed. *Under no circumstances* should aqueous antiseptic solutions be used. Watery solutions make the ulcer worse.

CASE RESULTS

Case 1.—A schoolgirl aged 11 with malaria. Growing abnormally rapidly for her age. An ulcer of 6 months' duration on the outer side of the left ankle-joint had been treated with antiseptic solutions and ointments by various doctors. The ulcer got worse, with sloughing and gangrenous tissue round the edges. I treated the case first with equal parts of magnesium sulphate and sugar after cleansing with 90% alcohol. The procedure was very painful and cocaine was needed to allay the pain. This treatment was used for 25 days. The patient improved, but was not cured until sulphanilamide was substituted for the sugar. After 8 days of this treatment the ulcer—2 in. in diameter and 1/2 in. deep—was healed. Eleven months later the patient had a second attack, in the same place, after a knock on the ankle. The ulcer, this time much smaller, was cured in three dressings.

Case 2.—A woman aged 40, poor, badly nourished, and with a history of chronic malaria, had an ulcer 4 in. long, 2 in. at the widest part, and 1 in. deep, on the upper part of the right leg. She was cured in two weeks by the same treatment.

Case 3.—A boy aged 13 developed an ulcer and gangrene of the left arm after comminuted fracture. There was an extensive sloughing and gangrenous area extending 4 in.—almost from the elbow to the wrist. The patient was nearly cured after 2 months' treatment by the same routine.

Many other cases were cured by this method. Microscopically some of them showed fusiform spirochaetes and rod-shaped bacilli, pneumococci, streptococci, and staphylococci.

H. MINA, M.D.

The Persistence of Plasmodium ovale

The life-span of all four species of the malaria parasite outside the endemic area in naturally acquired infections is now fairly well known: the quartan parasite may persist in the human body up to 21 years (Shute, 1944), benign tertian three years, subtertian one year, and *ovale* tertian a few months. Moreover, the methods of treatment of the fever produced by the various species of parasite are more or less firmly established, and it is generally understood that *Plasmodium ovale* is the one species most amenable to quinine therapy. That there may be exceptions to this rule the following case record will show.

CASE RECORD

The patient, the wife of a doctor, was seen in Aug., 1939, after having spent one year in Sierra Leone. She had suffered six attacks of malaria during this period. In an attack in June, 1939, definite quartan parasites were found in her blood, and she was given plasmoquine-compound (plasmoquine and quinine) treatment. This had to be discontinued as she became cyanosed and suffered from severe abdominal pain, which was at first thought to be due to intestinal obstruction, but was ultimately ascribed to plasmoquine poisoning—though it should be stated that she had long been known to be the victim of ulcerative colitis. Another attack of fever followed in July, for which she received adequate quinine and mepacrine treatment for one month. After a period of leave in this country she returned to Sierra Leone, where she had several further attacks of malaria; this time a subtertian infection was definitely diagnosed, for which she was treated. She finally returned to this country in Aug., 1942, and has been here ever since.

There was some further fever in Dec., 1942, and though no parasites were found in her blood after prolonged search, on the clinical findings she was treated with mepacrine and quinine for subtertian infection. She kept more or less well until March 5, 1944, when she developed a rigor, with severe headache, vomiting, pain in the lumbar region, and a temperature of 106° F. Similar attacks occurred at 48-hour intervals. Seen on March 10, she looked pale and ill. There was slight enlargement of the spleen, and examination of her blood revealed a fairly heavy infection of typical half-grown *P. ovale* parasites. She was treated with mepacrine and quinine on the usual routine lines, and has remained well since.

DISCUSSION

It is obvious that this lady must have acquired her *P. ovale* infection in Sierra Leone at least 19 months before the parasites manifested themselves in the peripheral blood, and it is also certain that at least one full course of treatment for the subtertian infection had been given during this period. How is it, then, that the *P. ovale* parasites were not extirpated by this course of treatment at the same time as were the subtertian parasites, especially when *P. ovale* infections are seldom known to relapse in this country as do the other species? Why did mepacrine and quinine cure this attack of *P. ovale* infection when apparently it had no influence in preventing it?

This case would seem to support Shute's (1939) theory that malaria sporozoites may remain dormant for long periods underneath the epidermis, where they are unaffected by antimalarial drugs, awaiting an opportunity of finding their way into the blood stream when a suitable state of the host presents itself; or possibly an exo-erythrocytic cycle in the human host exists similar to that in bird malaria—*P. gallinaceum* (James and Tate, 1938)—but which so far has not been demonstrated in human malaria.

From this case it would seem that, so far from being always a trivial affair, it is now becoming apparent that *P. ovale* may occasionally produce a really serious illness with marked objective symptoms such as vomiting and high pyrexia, or, as we have pointed out in a previous paper (Manson-Bahr and Muggleton, 1937), even manifestations suggestive of appendicitis.

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Pneumococcal Meningitis Treated by Penicillin

The following record of two cases of pneumococcal meningitis in which a relapse occurred after treatment with penicillin may prove of interest.

Case 1.—A woman aged 70 was admitted to Addenbrooke's Hospital, Cambridge, on Nov. 16, 1944. She was pale and wandering in mind, and there was some rigidity of the neck. However, the pupils and reflexes were normal and there were no signs of middle-ear disease. Lumbar puncture produced a turbid fluid at a pressure of 140 mm. Sulphathiazole 2 g. was given at once and 1 g. four-hourly until next morning, when pneumococci were reported on culture. The dosage was then increased to 1 g. every hour. Twenty-four hours later the pneumococci were reported to be penicillin-sensitive. Accordingly 10,000 units of penicillin were given intrathecally every six hours and 2,000 units intramuscularly every three hours. Twenty-four hours later but few pneumococci were found on culture. On the sixth day of treatment the cerebrospinal fluid was almost clear and a penicillin concentration of more than 50 units per c.cm. after 36 hours dropped to 10. It would appear that to maintain the necessary concentration frequent injections must be given. The patient completely recovered on Dec. 21, was rational and well, and was normal in pulse and temperature.

Case 2.—This patient was a woman of 28 who was 7 months pregnant and who developed pneumococcal meningitis after a bilateral mastoid operation. She was given 8,400 units of penicillin intrathecally every six hours and 16,800 units intramuscularly every three hours for four days. On the third day the temperature was normal and the cultures sterile. She relapsed, however, after 48 hours, became comatose, and died, despite a second course of penicillin. Necropsy disclosed no infection remaining in the mastoid region, but there was meningitis of the vertex.

The total dosage of penicillin given was: Case 1, 270,000 units intrathecally and 910,000 intramuscularly in six days; Case 2, 134,000 units intrathecally and 537,000 intramuscularly in four days.

Cairns *et al.* state that these cases have a tendency to relapse after doses of 7,000 units for five days. They may do so even after larger doses, as in Case 2.

I should like to thank Dr. J. F. Gaskell and Mr. A. Walford for permission to publish these cases.

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Reviews

NEUROLOGY OF EYE, EAR, NOSE, AND THROAT

Neurology of the Eye, Ear, Nose, and Throat. By E. A. Spiegel, M.D., and I. Sommer, M.D. (Pp. 667; illustrated. $7.50.) New York: Grune and Stratton.

This magnificent volume provides a survey of the physiology and pathology of the nervous system in so far as they are connected with the eye, ear, nose, and throat, and such a survey necessarily includes a large part of the central nervous system. It embraces therefore all that the specialists in diseases of these organs may be expected to know, and in fact more than the average specialist is likely to acquire and retain in his mental and educational equipment. In the aural section the first chapter deals with the organ of hearing, and it provokes the reflection that a sense organ which plays so great a part in the normal activities of the individual exercises remarkably little influence on the study of neurology, while knowledge of the physiology of the vestibular system and semicircular canals in relation to the central nervous system has made rapid progress in the last thirty years; yet knowledge of the central connexions of the ocular apparatus is by comparison enormous. Although this is a large book, an excellent proportion between the various sections has been maintained, and a full account of the problems which so often present themselves will be found. Only in the case of the syndromes which are caused by the associated paralyses of the lower cranial nerves is the information scattered and unsatisfactory. The work of Burger in marshalling these syndromes into an orderly system has escaped notice. The illustrations, which depict numerous diagrams, specimens, and microscopical sections of the central nervous system, will be found a mine of information, and within the limits determined by the scope of the subject the authors have produced a complete and reliable textbook of neurology, with an excellent bibliography.

TRICHINOSIS

Trichinosis. By Sylvester E. Gould, M.D., D.Sc. (Pp. 356; illustrated. $5.00.) Springfield and Baltimore: Charles C. Thomas. 1945.

A book which deals fully with a single disease can be a particularly satisfying possession when one is confident that it gives all that is worth knowing on the subject. This confidence may be reposed freely in the work entitled *Trichinosis,* by Sylvester E. Gould of Detroit. It was to be expected that this book would be written in the U.S.A., since the disease is much more familiar there than with us; indeed, post-mortem examinations of muscle in that country have shown that about 10% of the population are infested at some time by *Trichina spiralis,* if only to an extent which can have had only slight clinical effects. The history of the disease and its elucidation is well told, from the original discovery of the parasite by James Paget while a student at St. Bartholomew's. (How many people know that two major discoveries in connexion with this disease were made by students, the second being the observation by Thomas R. Brown at Johns Hopkins that eosinophilia is a constant diagnostic sign?)

The contributions of Virchow and Zenker to the study of trichinosis were among their more important if less familiar achievements, and in the German part of the story there is an arresting anecdote about a sceptical veterinary surgeon who was challenged to eat infested sausage meat and duly developed the disease. A passion for raw pork has been many people's undoing: it can apparently be so strong as even to overcome fear of the disease in those fully aware of the risks they run. Such knowledge was of course lacking in Wolverhampton at the time of the only recent big outbreak of trichinosis in this country, but the habit of spreading the contents of uncooked sausages on bread-and-butter to furnish a tasty lunch for workers was a factor in many of the cases there.

For all information on the pathology, diagnosis, treatment, and prevention of trichinosis Gould's book will be found a complete guide. It is profusely illustrated, agreeably and concisely written, and furnished with an extensive bibliography, arranged chronologically from 1822 to 1943.

TUBERCULOSIS AS A SOCIAL PROBLEM

Social Aspects of Tuberculosis. By S. Roodhouse Gloyne, M.D., D.P.H. (Pp. 148. 8s. 6d.) London: Faber and Faber.

When a distinguished pathologist writes a book with this title, we unconsciously prepare for the shock of discovering that there are aspects of the subject which have escaped observation outside the laboratory but have been noted by a scientist at his bench. But the author has no intention of surprising us. He lectures to nurses, and since nowadays "social" medicine is in the fashion, he wishes to make this published review complete by a feat of overcompensation for the social side of the subject which, we suspect, attracts him least.

The earlier chapters, which deal with aetiology, and that obscure but fascinating relationship between soil and germ, are excellent. Lecturers to audiences even more critical than hospital nurses will find Dr. Gloyne's wise meditations on a lifetime's experience very helpful for hints and for reference. The bovine controversy is ably summarized, the question of age distribution is well handled, and the subject of primitive and Colonial tuberculosis is brought in from its usual sphere of neglect. We are glad to see that the view that sanatorium nursing is probably less dangerous than nursing in wards of chronic tuberculous patients receives Dr. Gloyne's support.

Wherever the author can rely on statistics and generalization he is good. But care work and rehabilitation are not aspects of the tuberculosis problem which can be illuminated from such resources, and this end of the book is unconvincing. Rehabilitation of tuberculous patients, in the full sense contemplated in the near future, is a difficult and still largely experimental art. The time has not come when it can be effectively summarized. Dr. Gloyne's book does not quite satisfy the expectations aroused by its name, but it is a good book, the work of an analytical brain, though as such we doubt whether it will set the student on fire with enthusiasm for tuberculosis as a social problem.

ANATOMY OF FOOD HABITS

The Origin of Food Habits. By H. D. Renner. (Pp. 261. 15s.) London: Faber and Faber. 1944.

Wartime restrictions have naturally heightened the interest in food, both scientifically and nostalgically. In this book Mr. H. D. Renner has probed deeply into the origin of food habits rather discursively and in a style somewhat portentous. Nevertheless he adduces much interesting evidence, and makes shrewd criticisms of some food fads and fallacies. Starting with a review of our knowledge of the special senses, he shows how psychological factors predominate throughout. Thus the appetite tires of strongly pronounced flavours much more quickly than of neutral flavours. Hence the objection to *toujours perdrix,* and the revolt of London apprentices against salmon more than twice a week in what now seem far-off days indeed. On the other hand, the slight flavour of bread and potato does not excite this fatigue, which makes them an admirable interlude between stronger flavours. Foods with the richest flavours do not grow at high temperature or sea level, but in higher altitudes with better exposure to the sun. From Rubner's statistics he shows that calorie requirements in different climates vary much less than is commonly supposed. Thus Britain, standing at the head of the list with close on 3,000 calories, exceeds Italy by only a trifle over 300 calories.

Mr. Renner is specially interesting on the origin of the port-drinking habit; starting as a political threat against French wines, and made practically possible for transport to England by fortifying the wine with brandy, it led to the discovery that maturation could take place in bottles. So the prevailing shape of bottles was altered to enable them to lie in bins, which was only possible when cork bark was introduced for sealing them. He remarks that although salt has long been well known for its preservative properties its real importance to the animal economy went unrealized until the relief of muscular cramps, after profuse sweating, by salted water was discovered. It is interesting to know that with prolonged residence in hot climates the output of salt in both sweat and urine diminishes—an important fact in acclimatization.

These are instances of the varied facts embedded in a good deal of verbiage; yet we doubt whether the author will induce us, on his recommendation, to abandon sandwiches or to gnaw bones.

Notes on Books

Mr. MAURICE H. WHITING's little book *Ophthalmic Nursing,* first published in 1926, has now reached a fourth edition. Brief notes on air-raid injuries and burns of the eye have been added, the section on sulphonamide drugs has been rewritten in the light of further experience, and a note on virus infections has been inserted. These and other additions and minor changes bring the book into line with modern developments. As Sir John Parsons says in his brief introduction, good ophthalmic nurses are rare, and although the art of nursing cannot be learnt from books, good manuals are well-nigh indispensable. This is one of them. The publishers are J. and A. Churchill, and the price 6s. 6d.

The ninth edition of Prof. R. A. FISHER's manual of *Statistical Methods for Research Workers* (Oliver and Boyd: 16s.) contains a new section on the testing of homogeneity of evidence used in estimation. It may be important to determine whether different sources of information fully concur in the estimates to which they lead or whether there is a compromise between sets of data which are significantly discrepant. Prof. Fisher shows how a χ^2 test may be applied. This valuable book will continue to spread knowledge of sound statistical technique.

The best part of the little pamphlet *V.D. Lectures for Nurses,* by REYNOLD H. BOYD, M.B., F.R.C.S.Ed., is the introduction; the description of syphilis and its treatment is good, though one of the Hutchinsonian triad in congenital syphilis—i.e., eighth nerve deafness—is omitted; gonorrhoea is dealt with adequately, but the rarity of gonococcal ophthalmia in adults might have been stressed, and some description given of the side-effects of sulphonamides. Chancroid, granuloma venereum, and lymphogranuloma inguinale are so rare in this country as hardly to deserve mention; their omission would have left space for such matters as a description of dark-ground microscopy, details of tests for albumin and bile in the urine, the nursing of cases of dermatitis and jaundice after arsenotherapy, the staining of films, and a number of other procedures which nurses carry out. This publication should prove helpful to all those who assist clinic medical officers, but some of the language might have been simpler; one is led to doubt whether the average nurse knows what obliterative endarteritis, perivascular infiltration, or intertrigo mean, while "the patient should be kept lying *flat downwards*" seems an awkward way of saying *prone* or *on his face.* The paper and general production are excellent, and perhaps their quality accounts for a comparatively high price (2s.). The pamphlet is published by Heinemann (Medical Books) Ltd.

The manual entitled *Hygiene,* by Prof. J. R. CURRIE, who then held the chair of public health in the University of Glasgow, appeared first in 1938 and had very favourable notice in these columns as a textbook for the use of students of medicine and general practitioners. It gave the essentials of personal, domestic, and industrial hygiene and of the extensive provision made for maintaining and improving the public health. In preparing the second edition Prof. Currie has had collaboration from Dr. A. G. MEARNS, senior lecturer in public health at Glasgow, whose name now appears with his on the title page. It is published in Edinburgh by E. and S. Livingstone at 21s., plus 7d. postage. The authors have widened their prospective audience and address the book not only to students of medicine, medical officers, and practitioners of medicine, but to sanitary inspectors, social workers, and others interested in public health. Appearing at this time it naturally has to do with hygiene as enlarged and quickened both by the war and by the development of social medicine. In an endeavour to keep pace with the march of time most of the text has been recast and much written anew, and post-war planning is touched upon in a postscript. New sections on nutrition and dietaries have been contributed by Dr. D. P. Cuthbertson, and the volume now runs to 432 pages, with a number of new figures, some of them reproduced in colour. As before, the proportion observed is judicious, the arrangement easy of reference, and the presentation interesting.

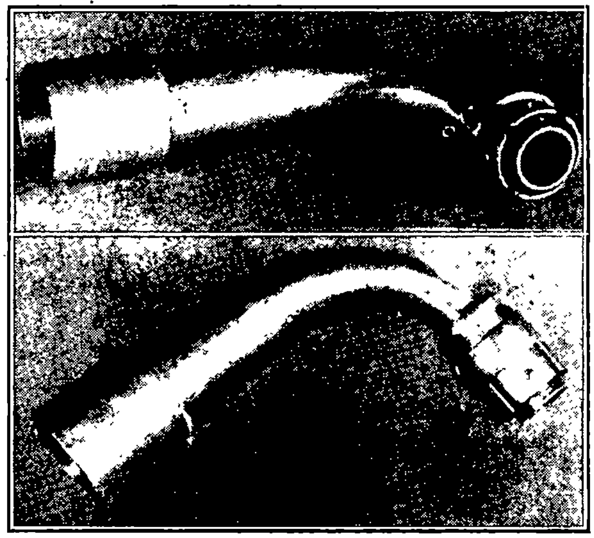
The Czechoslovak Medical Association in Great Britain has shown a truly international spirit in its *1944 Compendium* (Czechoslovak Research Institute, 29, Fursecroft, George Street, London, W.1; 5s.), which is a United Nations issue, ranging over the medical services of many countries. It includes articles on Soviet medical science, the health services of China, the school of medicine in Brussels, medical care in Holland, health in Yugoslavia, medical education in post-war Austria, and the health situation in other liberated or occupied countries. Sir Arthur MacNalty traces briefly the history of public health in England from the pre-Reformation monasteries. The acting director of the Polish Health Services contributes some "Thoughts towards a Better Organization of Health Services after the War," in which he sketches an idea for an international league, a permanent organization of doctors of Allied States, with an international intelligence office to gather and publish all recent scientific achievements and methods, an international body to deal with chemo-pharmaceutical problems, and an international fund for use in an epidemic which might be beyond the resources of a particular country. The compendium is dedicated to Dr. Benes, now on his way back to his country, whom it salutes as the "friend and trustee of the common man."

Preparations and Appliances

A SAFETY ENDOTRACHEAL CONNECTOR

Dr. A. OWEN-FLOOD (London, N.8) writes:

Endotracheal tubes all act more or less efficiently if the rubber is new and retains its elasticity. Any wear or fraying makes for an insecure joint when connexion is made to the source of the anaesthetic, and there is a danger of the tube slipping down into the larynx and thence into the trachea and bronchi. The possibility of this happening is a major nightmare to the anaesthetist, especially if the endotracheal tube is being used as an airway only and the connector is employed to retain it in position. It is here, under the cover of the mask, that an insecure joint may not become evident until it is too late to prevent the excursion of the tube towards the bronchi. Many anaesthetists prefer to discard the connector altogether and rely on the ever-useful safety-pin, borrowed from the nearest probationer, to retain the tube. The numerous pin-holes at the tube's end eventually render it unsafe if the connector is used by another anaesthetist, in the same hospital, who is not addicted to the pin technique.



The device illustrated gives a really reliable joint which is so secure that a degree of force is necessary to pull the endotracheal tube away from the connector. For ease in demonstration and illustration I have chosen a Thornton type of connector, but the device can be applied to most of the leading types now on the market.

The apparatus consists essentially of a split tube or, as it is called in the trade, a split chuck, which is welded on outside the original connector. This outside chuck is split vertically into four broad segments so that the lower ends form four claws. On the inner side of each of these claws is fixed a small stub. A broad ring is fitted outside the chuck, which, when slipped downwards, closes the claws on to the inner tube.

To use the apparatus, the ring is set in the topmost position on the chuck so that the claws will be in the full-open position. After insertion of the endotracheal tube the end is slipped on to the inner tube of the connector and the ring is pushed down, closing the claws, which, with the help of the inner stubs, firmly grip the substance of the rubber tube against the inner connector tube.

May I here record my thanks to Mr. Victor Peck, engineer, for his helpful suggestions and for making the original trial model, and to Mr. Tully and the other directors of the Medical and Industrial Equipment, Ltd., 12, New Cavendish Street, London, W.1, for their valuable guidance and for making the apparatus for me.

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THE POLITICAL LOAF

Any last lingering doubts that the European war is drawing to an end have been dispelled by the Government's decision to reduce the extraction of the wheat grain for the National Loaf. And the debate on this in the Lords on Feb. 28 showed remarkably little support for the Government's decision. It may be recalled that in March, 1942, the extraction of wheat was compulsorily raised to 85%, and the primary purpose of this was to save shipping space. At different times the following substances were added to flour: barley, groats and barley, prepared chalk, and dried skimmed milk. Synthetic vitamin B_1, about which there was so much controversy in the early part of the war, was not added to the flour. The motion to which Lord Teviot spoke last month was: "That the standard of 1942—i.e., 85% extraction—should be regarded as a minimum compatible with the maintenance of the health of the people, and that if the extraction rate has been reduced below that standard it shall forthwith be restored." There seems to have been first of all a reduction to 82½%, and then a further reduction to 80%, the first in October last year, and the second in January of this. When the first reduction was effected it was stated that the sacrifice of essential nutrients was "inappreciable." Lord Horder put a pertinent question in the Lords debate when he asked: "How many inappreciables go to an appreciable?" He described the benefits to health which could justifiably be attributed to the consumption of 85% extraction flour during the greater part of the war. "We found," he said, "that some of these cases of ulceration of the stomach healed more and not less quickly under the National wheat-meal bread than they had done under the 75% extraction bread—not, shall I say, a surprising finding, seeing that we know that the healing of ulcers of that type is contributed to by a rise in the general nutrition of the patient." Anaemia had greatly decreased in incidence. His own experience, supported by that of a large number of his colleagues, was that the country as a whole was much less constipated. He reminded the House that increasing the extraction rate from 75% to 80% gave us enough additional bread to provide 1¼ million people with 1 lb. per head a day. In view of the facts that we were one of the signatories to the Hot Springs Conference, and that there was a great shortage of food in liberated countries, the proposed reduction was difficult to understand. Lord Hankey observed later in the debate that the Government was committed to the decision of the Hot Springs Conference to "consider the most effective means of disseminating knowledge of correct feeding among all sections of the population."

It appears that the Government's defence is that new methods of milling worked out at the Ministry of Food's Cereals Research Station at St. Albans had made it possible to reduce the percentage of extraction without "appreciably" lowering the vitamin B content of the resulting flour. The latest results of microdissection of the wheat grain were described by Dr. McCance and Miss Widdowson at the recent meeting of the Nutrition Society, a report of which is published elsewhere in this issue. The typical wheat grain consists of 12.3% of bran, 83% of inner endosperm, 2% of outer endosperm, 1.2% of embryo, and 1.5% of scutellum. The endosperm is rich in carbohydrate, the bran in iron, and the embryo and scutellum in protein and fat. The scutellum is a tiny sheath of powdery matter between the embryo and the endosperm, and contains more than half the vitamin B_1 of the whole grain. Germ, scutellum, and the outer layer of the endosperm are lost with the bran in low-extraction flour; but a flour of 85% extraction can be prepared which contains the germ and scutellum. Only a small amount of vitamin B_1 is, therefore, lost in reduction of extraction from 100% to 85%. But below this the decline is rapid.

Mr. A. L. Bacharach observed that there was a 22% reduction in the available iron when the extraction of wheat was reduced from 85% to 80%. Lord Balfour of Burleigh, who is chairman of the Medical Research Council, quotes a high authority on nutrition thus: "I expect an increase in anaemia to result from the reduction to 80%, and I am confident that if the reduction goes on down to the pre-war 75% or 70% there will be a great increase in anaemia." Miss Copping, at the Nutrition Society meeting, pointed out that riboflavin decreased to about two-thirds of its 1942 value when extraction was changed from 85% to 82½% at the end of 1944. In agriculture the chief need for wheat offals seems to be in the poultry and pig industry, as these animals suffer from vitamin deficiencies unless they are given that part of the wheat grain which popular taste in this country appears to have discarded. But if it comes to the question of pig versus man most people would agree with Viscount Bledisloe that "the children of the nation must in this respect be given a priority over the pigs." In the present state of nutritional knowledge it would seem to be unwise to support a policy of adding vitamins to a low-extraction flour in order to meet the consumer's taste and his apparent vitamin needs. More than one observer has pointed out that there are probably essential nutrients whose existence is yet undiscovered and that we still do not know what we may be excluding from a highly milled flour. There would seem to be much force in the ingenious suggestion made by Dr. Kodicek that high-extraction flour should be used for human consumption and that experiments in artificial enrichment should be tried out in the first place on pigs and poultry.

If we consider vitamin B_1 alone it is well to recall the extent to which this has disappeared from the national diet during the past two or three hundred years. In 1670, for example, the soldier's ration contained 1,000 units of B_1 a day; in 1782 the diet of the parish poor contained between 600 and 850 units; a little over 100 years ago the Poor Law diet of London contained 1,230 units. Just before this war the vitamin B_1 content of the diet ranged from about 290 units at the lowest income level to about 500 units at the two highest income levels.

Those who are better off have a fair chance of making good the deficiencies of wheat-flour by, say, having eggs and bacon every morning for breakfast; the wheat offal is returned to them through the medium of the hen and the pig. The opportunity for doing this is restricted among the poorer classes; and they have almost an addiction to white flour in any shape or form. If, therefore, after the most searching inquiry doctors and experts in nutrition are satisfied that extraction of flour below 85% is injurious to the health of the country, will the country, as represented by Parliament, agree in peacetime to eat a standard National wheat-meal? Or is it more likely to be swayed by such spurious slogans as that in a free country one should eat what one likes? There are fortunately laws which prevent people from eating what they like and drinking what they like, so they may be protected from poisoning, infection, and from consuming undeclared constituents in foodstuffs. Is there in fact any real difference between enforcing laws to prevent people suffering from the water-borne epidemics of the nineteenth century and enforcing a law which is against the consumption of flour seriously deteriorated by the removal of essential nutrients? Unfortunately the large-scale consumption of vitiated flour causes no such dramatic departure from good health as beriberi. It shows itself rather in an insidious lowering of general health, caused by such remediable conditions as anaemia and constipation.

The two obstacles to "bread reform" are public taste and the millers. If the millers were really convinced by sound scientific and medical evidence that white flour was harmful to the health of the people we cannot help thinking that public taste could soon be remoulded if they joined hands with the medical profession and the Ministry of Health in a sustained and widespread propaganda campaign. Some thirty years ago Lord Northcliffe showed what one man and one newspaper could do in popularizing "Standard bread." It would be useless to embark on any campaign to encourage the consumption of whole-meal flour if it is available only in insufficient quantities. Unfortunately it looks as if the Ministry of Food, the Ministry of Health, and the millers have made an uneasy compromise and have lamentably failed to seize this opportunity of restoring to the people of this country its former healthy taste for whole-meal flour.

RELIEF OF OESOPHAGEAL OBSTRUCTION

A few months ago we drew attention in these columns[1] to Prof. Grey Turner's Hume Memorial Lectures on injuries and diseases of the oesophagus, in which he described the possibility of surgical treatment of the otherwise hopeless condition of congenital atresia. That Grey Turner's hopeful views are justified is shown by the published results of Ladd, a pioneer in the surgery of this condition.[2] His paper, which is beautifully illustrated, should be read by those interested in the condition, and especially by paediatricians, obstetricians, and others who have a good opportunity to make an early diagnosis and so refer the patient for surgical treatment. Ladd describes five types of atresia with and without fistulae of various sorts, and discusses the diagnosis and investigation. He makes the point that the use of barium is undesirable because it will cause an aspiration pneumonia if a fistula is present. If a contrast medium is needed a little lipiodol should be used. The simplest way of dealing with the condition is closure of the tracheal fistula and restoration of the oesophagus by end-to-end anastomosis. This is not often possible, but it was done in 6 out of Ladd's 34 operation cases, and 2 of the 6 patients are still living. When direct anastomosis is not possible Ladd recommends a three-stage operation consisting of obliteration of the oesophago-tracheal fistula, gastrostomy, and then oesophagostomy; out of 28 patients 9 are living. Continuity between oesophagostomy and gastrostomy is restored by anterior oesophagoplasty. Of the total 11 living patients the oldest is over 4 years old, and her photograph seems fully to justify the comment that she is a fairly normal child for her age.

The problem of surgical reconstruction of the oesophagus in another obstructive condition—namely, cicatricial contracture—is dealt with in an invaluable article by the famous Moscow surgeon, Serge Yudin.[3] His paper deals with 80 cases, but an editorial footnote brings the final total up to 92, the last 4 patients having been operated upon before the members of the Anglo-American Surgical Mission. Out of his vast experience Yudin discusses the evolution of the surgical technique of anterior oesophagoplasty and in particular the final method he now favours. The whole is illustrated by a most comprehensive series of diagrams, skiagrams, and photographs. Yudin prefers a two-stage operation, excluding gastrostomy. At the first stage a long jejunal tube is freed, great care being taken to maintain the blood supply by preserving the vascular arcades. The bowel is divided and an end-to-side anastomosis made between the proximal end of the intestine and the distal end of the mobilized segment. A long subcutaneous tunnel is now made with either a long forceps or a special tunnelling instrument designed by Yudin himself, and the jejunal tube is carried up into the left side of the neck as high as the mastoid process and so that it lies alongside the pharynx and cervical oesophagus. At the second stage a direct anastomosis is made between the jejunum and the cervical oesophagus. When it has not been possible to draw the intestine up to the level of the pharynx, or if partial necrosis has occurred, the upper portion of the artificial oesophagus must be constructed of skin; Yudin discusses and illustrates the steps of this procedure also. There can be no question that he has made a pre-eminent place for himself in devising this anterior reconstruction of the oesophagus. Out of 88 completed cases the direct operative mortality was only 2; in 21 a total intestinal oesophagoplasty was done.

Anterior oesophagoplasty, however, may not appeal to all, especially if it means numerous plastic operations for construction of an intervening skin tube. Grey Turner[4] described a remarkable case in which he succeeded in restoring normal swallowing by teaching the patient self-dilatation with bougies after anterior oesophagoplasty had

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[1] *British Medical Journal*, 1944, **2**, 282.

[2] *New Engl. J. Med.*, 1944, **230**, 625.

[3] *Surg. Gynec. Obstet.*, 1944, **78**, 561.

[4] *Brit. J. Surg.*, 1943, **30**, 344.

failed and all food had been taken by gastrostomy for 19 years. Self-dilatation is, however, limited in its applicability, especially if the patient is unsuitable, and means of restoring continuity by resection and internal methods of anastomosis must be considered. As yet no final pronouncement can be made on this subject, but the success attending resection and anastomosis for carcinoma of the oesophagus justifies the attempts that are now being made to apply the same methods to cases of simple obstruction. When the lower third of the oesophagus is affected there should be no difficulty in bringing the fundus of the stomach through the diaphragm and, after resection of the diseased segment, performing an end-to-side anastomosis between stomach and oesophagus. Since Adams and Phemister's report of their successful case of cancer treated in this way in 1938 a large number have been successfully operated on, and many cases are recorded in the literature. The problem is less fully worked out for cancer or stricture at the higher, and indeed common, level of the arch of the aorta. Torek's operation of excision followed by gastrostomy and cervical oesophagostomy is rendered more acceptable in the light of Yudin's work, but in spite of this brilliant contribution anterior oesophagoplasty still remains a difficult and distasteful procedure and may bring much misery to the patient and anxiety and disappointment to the surgeon. There can be little doubt that immediate restoration of continuity is the ideal, and that this can be achieved is shown by recorded cases of others. Thus Brock[5] describes and depicts resection of a growth at the level of the bifurcation of the trachea in two patients; the anastomosis lay above the level of the aortic arch and was rendered possible by freeing the upper part of the oesophagus and displacing it to the left or lateral side of the aorta. One patient left hospital eating a normal diet 3 weeks after operation. Garlock[6] also describes a similar procedure which he has carried out on 2 patients, and there seems little doubt that this may become the method of choice in mid-oesophageal growths and will also be applicable to simple stricture. Garlock in another paper[7] analyses his experiences with malignant oesophageal obstruction during the last 8 years. In all, 91 patients have been explored, and in 60 the growth was operable. Twenty-nine patients died, a mortality of 45%. Seventeen are still alive—one 8 years, one 5 years, and one 4 years after operation. The advances in the surgery of oesophageal obstruction, especially that due to cancer, have been great during the last decade, and equally great advances are to be expected during the next few years.

LORD DAWSON

Lord Dawson of Penn died in the early hours of March 7, and the profession mourns his passing. The world at large thought of him as a "royal doctor," physician to four Kings of England, but to medical men and women he was more than that: he was our senior statesman, admired for his courage and wisdom, and loved for his kindness and charming approachability. Young and old of every degree gave him their confidence. Bertrand Dawson had no flying start in life: he carved out his early career by hard work and determination. Good fortune came his way but could not spoil him. If he made few contributions of his own to the science of medicine he had an abiding interest in medical progress and its practical application. This thirst for knowledge from every source, joined with clinical acumen, shrewd judgment, and exquisite tact, earned him fame as a consultant. Other qualities which he possessed—a high sense of public duty and the gift of speech—were seeking an outlet at the end of the last war, when he rose to the front rank in medical affairs. Thenceforward he stood out as a leader, holding fast to all the traditions he thought good and worthy to be preserved, but conscious of a changing world and of the need to look ahead and around. He was the first medical man in active practice to be created a Peer, and he soon made his mark in the House of Lords when matters affecting the health of the people came up for debate.

Sympathetic with the forward movement in medical practice and organization, well aware of the needs and aspirations of our profession, Lord Dawson believed in the British Medical Association and acted up to his belief. His long Presidency of the Royal College of Physicians of London gave him the power to instil fresh life into that ancient corporation. As a member of Council of the B.M.A. he had been diligent in attendance and constructive in outlook, and when the Centenary approached it was inevitable that he should be chosen as President of the Association: in the celebrations of 1932 he did wonders as the central figure. That eventful year was not the end of his interest in the work of the Association, nor (as it turned out) of his willingness to hold office again if asked to do so. Lord Dawson served as an ordinary member of the Medical Planning Commission without reminders of his disappointment at the pigeon-holing by the Government of the report which his Consultative Council put out in 1920. Then in 1943, and again last year, the British Medical Association called him once more to its Presidential Chair. He accepted the unique honour as a duty to his fellow-members, and in that spirit declined no request from headquarters when his influence or help was sought. Even in the last few months, after a severe operation, he kept in touch with the course of events.

ORGANIZATION OF RESEARCH IN INDIA

Prof. A. V. Hill, M.P., paid a visit to India last winter at the invitation of the Government there to discuss and advise on Indian scientific research problems. This is the first occasion in the history of the connexion of the two countries that a distinguished British scientist has been asked to offer such counsel, and it is a happy circumstance that the scientist chosen should be a man of such vision and of such practical grasp of research in many fields as the secretary of the Royal Society. His visit has evidently made him feel strongly that the structure of scientific activity in India needs reinforcement in many respects, and he has produced a report which makes some carefully thought out recommendations. He considers that an Indian Scientific Office should be set up in London, with specialists in various subjects, including medicine, that representative Indian scientists should be attached to the British Commonwealth Scientific Office in Washington, and that young Indian teachers and research workers should be given facilities for advanced study abroad, especially in Britain. He lays it down that in the medical colleges it is essential to have full-time teachers and research workers in all subjects, and he urges the establishment in Delhi of an All-India medical centre where selected students could be trained and receive financial aid in the form of scholarships. Such a centre must be free from all racial, religious, political, or provincial bias; its purpose would be to provide the best type of teacher and research worker, and thereby to foster throughout India a high standard of medical practice. A special hospital for the clinical study of malaria and the bringing of existing research institutes into closer touch with the medical colleges are other recommendations. To facilitate scientific research in general Prof. Hill wants to see a central organization under a Minister without Departmental duties, this organization to have six boards charged respectively with research in medicine, agriculture, industry, natural resources, engineering, and defence. The director and principal administrative officer of each board should be *ex officio* a member of the other five, so that the closest liaison would be maintained. A research grants committee and a studentships committee would serve all six boards. Other points in Prof. Hill's programme are the construction of an Indian central register for scientific and technical personnel, the institution of a central scientific academy—the Indian equivalent of the Royal Society—and help from the Government of India to specialist scientific societies in such a way as would not lessen their independence. He points out, finally, that scientific research in universities is the basis of progress in science. A national policy of grants to universities is necessary, and medicine and biology are two of the subjects which badly need fortification by this means. At the same time he is aware of the drawbacks of making research an entirely Government-subsidized affair, and of the need for enlisting private benevolence in the endowment of scholarships and fellowships and the various means whereby research is assisted.

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[5] *Post-Graduate med. J.*, 1944, **20**, 287.
[6] *Surg. Gynec. Obstet.*, 1944, **78**, 23.
[7] *J. thorac. Surg.*, 1944, **13**, 415.

CAVE CANEM

Pulmonary hydatid disease is usually considered a rarity in this country, although in certain districts it is common enough to be of some importance. Barrett and Thomas,[1] in a remarkable analysis of 19 cases, show that the very infrequency of the disease often causes delay in diagnosis. Although the majority of patients consult a doctor shortly after the onset of symptoms, hydatid disease is usually the last condition to be suspected, and in this way valuable time is often lost. The dog is the source of the trouble, and the town-dweller's dog is as liable to infestation with *Taenia echinococcus* as the countryman's. Ova acquired from the dog are ingested and liberate hexacanth embryos in the stomach which are carried by the portal circulation to the liver, where the majority lodge; but a few find their way to the lungs and other tissues. When a hydatid cyst develops in the lungs it compresses the parenchyma and produces areas of collapse, tension emphysema, pneumonia, and infarction. Cysts near the hilum often rupture into a large bronchus and are expectorated; others erode a vessel, with fatal results, or leak slowly into a bronchus and become infected. Cysts in the middle of a lobe often attain a large size before causing symptoms; mass radiography will probably reveal a number of these "silent" cysts. A peripheral hydatid cyst quickly encroaches on the visceral pleura, and causes pain and erosion of the ribs by pressure on the chest wall. It may lead to a pleural effusion or tension pneumothorax; less frequently the cyst is extruded into the pleural cavity and continues to grow there. Multiple pulmonary hydatid cysts are not uncommon. In rare cases the parasite dies and the cyst degenerates into a mass of brown debris enclosed in the calcified adventitia. More often it ruptures into a bronchus, and the patient may expectorate salty fluid and sometimes the membranes. If these are discharged completely the cyst may heal, and it has been stated that 70 to 80% of hilar cysts resolve in this way. If the fistula is small the cyst usually becomes infected and resembles a lung abscess. Daughter cysts rarely develop in a pulmonary hydatid, and the expectoration of "grape skins" usually means that a cyst in the liver has ruptured into the lung.

Significant diagnostic features include the complaint of repeated small haemoptyses, signs of anaphylaxis, thoracic pain, and the expectoration of salty fluid. Both the Casoni reaction and the complement-fixation test can be valuable in expert hands, but interpretation of them requires considerable experience. Contrary to the accepted description, a hydatid cyst of the lung often has a dented and blurred outline in the *x*-ray film. A diagnostic feature is the presence of a thin crescent of air in the upper part of the cyst between the adventitia and the laminated membrane. Diagnostic aspiration of a pulmonary cyst is a most dangerous operation: it may be followed by rupture of the cyst, severe anaphylaxis, or the production of secondary cysts by implantation.

Although some hydatid cysts resolve spontaneously, Barrett and Thomas consider that the treatment should be surgical. Even spontaneous rupture may be fatal, and the patient with a pulmonary hydatid is threatened by a host of severe complications. If the cyst is accessible from the chest wall it should be opened and packed like a lung abscess, steps having first been taken to ensure that the pleural membranes are adherent at the site of operation. In other cases—for instance, when the cyst is central, when the diagnosis is in doubt, or when irreversible septic changes are present—lobectomy may be the treatment of choice.

Barrett and Thomas have not merely given an authoritative account of every aspect of pulmonary hydatid disease: they have shown that this condition should always be remembered by the clinician when he is considering an obscure opacity in a skiagram of the chest. Their work also serves to emphasize the need for skilled chest surgery in the treatment of this complaint.

A PROFESSION FULLY GROWN

The Dental Board, which was established by the Act of 1921 to share with the General Medical Council the administration of the Dentists Acts, was described by its former chairman, Sir Francis Dyke Acland, as a halfway house. Probably he foresaw the time when it would outgrow its temporary status as a Board and become a Council like that of the medical and other professions. Up to now whatever the Board has done has been under the supervision of the General Medical Council, its preceptor and host. Dentists have had a separate *Register* since 1878, but they have never had complete control over admission to it. In its disciplinary work the Board may only recommend erasure: it is the Council which pronounces it. The G.M.C., moreover, has been responsible, with the co-option of additional members appointed from the Board, for the courses of study and examinations for dental graduates and licentiates. The Board has now come of age, not merely in years but in experience, and the time is approaching when there may be a General Dental Council, with full control of its *Register* and of professional discipline. Reference was made to this possible development at the last session of the Board by its new chairman, Dr. E. Wilfred Fish, who pointed out that during the eventful years since the last Dentists Acts the art of dentistry has evolved into a profession, has acquired a scientific background, and has found a place in the national life which will grow in importance with the passage of time. In its evidence to the Teviot Committee the Board recommended the transfer to itself of certain dental functions from the General Medical Council, and Sir Herbert Lightfoot Eason, the president, has stated that the Council has put forward the same proposal. If these recommendations come into effect the dental profession will be charged with the responsibility for its own management. This must not be looked upon as a divorce from medicine: rather is it the departure of a daughter from her father's house to make a home of her own. In Dr. Fish's words, "just as the child cannot always remain in the home or at school if it is to contribute its full share to the store of human knowledge and play its part in the greater life of the nation, so, we believe, our profession must now take its place by the side of medicine, but no longer under its wing." The association of dentistry with the scientific life of medical schools will be even closer, for the proposal is that in addition to the appointment to the new Dental Council of a representative from each dental licensing body, there will be included six members from the General Medical Council, which members will invariably serve on any statutory committee on dental education and examination which the new Council may set up. The Dental Board since its foundation has done its work well. It found a divided profession and has helped to give it cohesion. It found a lack of university facilities, and has made it financially possible for the universities to establish chairs in dental surgery. It has helped the struggling student with scholarships and bursaries. It has undertaken some novel enterprises for the dental health education of the public. Its disciplinary procedure has been carefully modelled on the lines of that of the G.M.C., and only in one instance to our recollection has its recommendation not been accepted by the overriding body. Such is now the experience of the Board that it feels capable, under a new title and with an enlarged composition, of assuming full control of its *Register* and of professional discipline.

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[1] *Brit. J. Tuberc.*, 1944, 38, 39.

ARTERIAL INJURIES

The Memoranda of the War Wounds Committee of the Medical Research Council have been of outstanding excellence and a very present help in these times of trouble. The latest publication—on the early diagnosis and treatment of arterial injuries[1]—has been prepared by a subcommittee under the chairmanship of Sir Thomas Lewis, whose clinical researches on the peripheral circulation have provided the explanation for many of the phenomena recorded and the basis for much of the treatment recommended in the memorandum. Mr. B. C. Maybury, bringing the fruits of extensive experience of arterial wounds in the war of 1914–18, and the benefits of an early training in the Makins tradition; Prof. J. R. Learmonth, with his special interest in the technique of vascular surgery, in arteriography, and in the methods of research; and Mr. Sol. M. Cohen,[4] with his knowledge of arterial spasm and the care of the ischaemic limb, must all have contributed largely to a monograph which is a masterly review of the subject. It has been written chiefly for the guidance of young medical officers who have had little or no previous experience of the early treatment of arterial wounds. The late effects, such as arteriovenous fistula, are not included. The monograph begins with an account of the morbid anatomy of partial and complete division, and contusion of an artery, arterial spasm, and the factors influencing the development of collateral circulation: stress is laid upon the importance of muscular branches in this process, and consequently upon the serious nature of a wound in which much muscle, as well as the main vessel, is damaged. Spasm of arteries after contusion or a "near miss," and the relation of vascular spasm to traumatic shock, provide one of the most difficult problems. The clinical manifestations of complete division, thrombosis, or spasm of a main artery, which include colour changes in the limb, blistering, change of temperature, oedema (explaining "wet" and "dry" gangrene), pain, interference with the function of motor and sensory nerves, loss of pulse in distal vessels, and the appearance of abnormal pulsating collateral vessels, are described in detail. Then follows a description of the complications of complete arterial block—the greatly increased risk of anaerobic infection, the appearance of Volkmann's contracture or colliquative necrosis with subsequent calcification of muscle, and the rare occurrence of causalgia as a possible result of the ischaemic state. A note of warning is sounded against early muscle biopsy to diagnose the Volkmann state. Partial division of a main artery is indicated by undue bleeding and local swelling relative to the size of the wound, for haemorrhage cannot be arrested by the natural process of retraction of the vessel wall unless the division is complete. If a false aneurysm forms the distal pulse is usually present, but the most constant sign is a short systolic murmur; this shows the importance of listening to all punctured wounds, however small, close to main arteries.

The memorandum must be consulted for the treatment of the several types of injury: it depends primarily on the facilities at hand for operative surgery, and upon the extent of the damage. Descriptions are given of axial anastomosis, which is rarely practicable; of the use of artificial tubes, which, if heparin is also available, may prove to be more useful than they were in 1914–18; and ligation of the proximal and distal ends of the severed artery with simultaneous ligation of the companion vein. In the management of the ischaemic limb full directions are given for the reduction of the metabolic needs of the affected tissues—the assistance of collateral circulation by passive movement and posture of the limb, timely incision for the relief of tension, and the promotion of vasodilatation either reflexly or by sympathetic denervation. Appendices describe the technique of arterial suture, of the administration of heparin, and of sympathetic block. A guide to the writing of case notes in base hospitals and vascular injury centres completes a booklet which packs much information and advice into a small space.

A memorial service for Viscount Dawson of Penn will be held in Westminster Abbey on Tuesday next, March 20, at 12.30 p.m. Admission to the Abbey will be by ticket. Applications for tickets should be sent forthwith to the Secretary of the British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1.

It is now announced that the Canadian Medical Association will hold its 76th Annual Meeting in the Mount Royal Hotel, Montreal, on June 11–15.

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[1] *Arterial Injuries: Early Diagnosis and Treatment.* By the Vascular Injuries Subcommittee of the M.R.C. War Wounds Committee. M.R.C. War Memorandum No. 13. 1944. H.M.S.O. (4d.)

WHAT IS MARRIAGE GUIDANCE?

The following note has been written for the information of our readers by the Secretary of the Marriage Guidance Council.

In recent years it has been increasingly realized that a vast amount of personal unfulfilment and social disruption can be traced back to marital disharmony. If the stability of the community is largely determined by the soundness of its family life, it is equally true that the stability of the family is largely determined by the soundness of the basic relationship between husband and wife. To increase the number of successful marriages would therefore go far towards diminishing the incidence of many of the social and personal ills which beset us.

This is the *credo* of the Marriage Guidance Council. First formed in 1938, it was reconstituted in 1942 under the joint presidency of Lord Horder and the now Archbishop of Canterbury. A voluntary organization, it welcomes as members all who approve its aims and principles, as set out in its Memorandum.

The Council seeks to foster healthy family life in two ways: by the preparation of young people for marriage and parenthood, and by offering guidance to those in marital difficulties. The first task is mainly educational, the second falls within the general field of social service. In the achievement of both, however, the specialized knowledge and skill of the medical profession must play a vital part.

Preparation for marriage ought properly to include the education of the young in matters of sexual hygiene, the guidance of the adolescent towards a sound approach to mate selection, and the specific preparation of engaged couples for the marital adjustments which await them. It also covers, in its wider compass, the teaching of domestic science and parentcraft. Each of these tasks requires the counsel, if not the active participation, of the doctor.

It is with the preparation of individual couples that this Council is particularly concerned. It is our practice strongly to recommend a pre-marital medical examination for both partners. This should ideally cover questions of general physical and mental health, sexual competence, eugenic fitness, and freedom from venereal disease. In some cases the couples may also desire advice about family spacing and an investigation of their potential fertility. This is not the whole of marriage preparation, for marriage is much more than a physical relationship. But our experience suggests that the doctor's contribution to this work is of immense importance. It is to be hoped that practitioners will concentrate increasingly upon this important aspect of preventive medicine.

Secondly, the Council seeks to offer help in the difficulties of married people. In London we have now had a Marriage Guidance Centre in operation for two years. Experience of nearly a thousand cases has taught us much concerning the scope and nature of this work. It has become clear that an adequate service in this field calls for the co-operation of a team including the doctor and medical psychologist, the parson, the lawyer, the social worker, and others. No one person could deal competently (even if he or she had the time) with the wide diversity of problems which have confronted us. Increasingly we have realized that the Centre must work on a short contact basis, advising in a general way and referring to the private practitioner, the hospital, or clinic where treatment is required. Thus at the Centre itself no treatment, in the technical sense, is undertaken; for that reason the word "clinic" is avoided. The object is to provide a clearing station through which those in need of help can be directed to the proper quarter. Where this means a doctor (as it often does), the latter will handle the case in accordance with the principles of ordinary medical practice, making a brief report to the Centre for record and statistical research purposes. Similar procedure is adopted where a case is handed over to the lawyer or the professional social worker.

Our experience, therefore, confirms that already gained in America over a period of some years, that marriage guidance is a new type of social and personal service in which the co-operation and help of the medical profession are absolutely essential. At present the Council's activities are increasing rapidly up and down the country. We would be very glad to know of medical men and women who are already specializing in this work, and who would be willing to co-operate with us in furthering its development in their own localities. Inquiries should be addressed to the Secretary at 78, Duke Street, London, W.1.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

Though the work of the London School of Hygiene and Tropical Medicine has been sadly frustrated by the war and much clinical teaching and research has been brought to an end, the latest report of the acting dean, Prof. Major Greenwood, shows that not a little has been accomplished. Seven special courses in tropical medicine and parasitology were provided during the year and were attended by nearly 500 Service medical officers. Two week-end courses in industrial health were also arranged. Prof. Greenwood mentions that his own department of vital statistics, while less oppressed by difficulties than some others, has suffered because ordinary sources of information have dried up, owing to security reasons, the impossibility of taking a Census, temporary redistribution in space and occupations of the people, and other causes. It will be a matter of much difficulty, he says, for his successors to prepare an adequate account of the state of the people, and they must give this account to pupils who have not read—and will indeed have had no direct access to—official means of information. The work of the department of entomology has been directed chiefly to serving the needs of the armed Forces in the control of disease-carrying insects, and that of the department of biochemistry to the service of different Ministries, particularly the Ministry of Supply—one matter investigated has been fungal deterioration of Service equipment in the Tropics—with the result that the output of fundamental research has been relatively small. In the department of industrial physiology there has been more opportunity to continue original research, and investigation has been carried out on the heat-insulating properties of clothing materials and on the efficient lighting of schools and dwellings. The outstanding event of the year in the department of public health was the induction of Prof. J. M. Mackintosh to the London University chair in that subject, and the board of management is confident that under his leadership the influence of the school as the Empire centre for the teaching of hygiene and tropical medicine will continue to grow. During the period under review 52 papers by workers at the school were published in medical and other scientific journals.

TREATMENT OF CANCER IN YORKSHIRE

The Bradford and County Joint Cancer Committee, established under the Local Government Act, 1933, and the Cancer Act, 1939, is the first regional body of its kind in this country. The inaugural meeting, held at Bradford on Feb. 20, was fully reported in the *Yorkshire Post*. Of the 30 members of the committee, 10 have been appointed by the Bradford City Council and 10 by the West Riding County Council. The remaining 10 are co-opted, 6 being nominated by the board of management of the Bradford Royal Infirmary, and the other 4 representing the University of Leeds, the voluntary hospitals of Keighley and Halifax, and the medical profession in the area. Under the terms of reference from the Ministry of Health the Joint Cancer Committee becomes the governing body in all arrangements for the prevention and treatment of cancer in Bradford and a large part of the West Riding. In treatment by radium the Bradford Radium Institute will take its part. The Joint Committee will also arrange surgical work, medical work, pathological work, and diagnostic centres. A professional and scientific committee has been set up to advise the Bradford Radium Institute and its new committee of management. The Joint Committee is further responsible for the registration and records of all cancer cases within its area.

The Bradford meeting was followed three days later by a meeting in Leeds of the Yorkshire Cancer Committee, comprising representatives of local authorities, the medical profession, hospitals, universities, and the British Empire Cancer Campaign. Mr. James Phillips, consulting surgeon to the Bradford Royal Infirmary, took the chair. Mr. Bernard Kenyon, clerk of the West Riding County Council, who is acting as secretary to the committee, pointed out that Yorkshire had three radium institutes—at Leeds, Bradford, and Sheffield. For an effective scheme it would be necessary for local authorities to combine, and the good will of the hospitals was essential. The meeting agreed to set up a drafting committee of 18, consisting of one representative for each of the three county councils in Yorkshire, the county boroughs, the British Medical Association, Leeds University, the Empire Cancer Campaign, and the Leeds, Bradford, and Hull Infirmaries. Its proposals for the organization of a comprehensive scheme will be submitted to a further meeting of the Yorkshire Cancer Committee.

Reports of Societies

TREATMENT OF ACUTE MENINGITIS

A meeting of the Section of Neurology of the Royal Society of Medicine, Air Vice-Marshal C. P. SYMONDS presiding, was held on March 1 for a discussion on the treatment of acute meningitis.

Serotherapy and Chemotherapy

Dr. MAURICE MITMAN said that uncertainty about the efficacy of serum in meningococcal meningitis was reflected in the experience of all who had had to treat numbers of cases. Some cases responded satisfactorily, but there were many failures, even in the most favourable circumstances, and this led to the view that not the serum but the spinal drainage was the effective therapeutic measure. Even before the appearance of chemotherapy the popularity of serum had declined. The factors influencing case mortality were: first, the virulence of the prevalent strain of the meningococcus; secondly, the age factor (meningitis under endemic conditions was preponderantly a disease of infancy and young childhood; under epidemic conditions it was widely distributed in all age groups up to 30); and, thirdly, the organization for early diagnosis and prompt and efficient treatment. It was possible to diagnose early meningococcal meningitis on clinical grounds alone in a large proportion of cases. The four cardinal symptoms had been stated by one authority to be headache, vomiting, chill, and rash.

The sulphonamides had transformed the picture. They had reduced the mortality, practically abolished chronic relapsing cases, greatly diminished complications, and shortened hospital detention to 30 days or so. The combination of sulphonamides with serum gave no better results than sulphonamides alone, and in some instances the results were worse. This was surprising, because the modes of action of serum and of sulphonamides were quite different and a synergic action might have been expected. Clinically, however, serotherapy as an adjuvant to chemotherapy had failed, not only in meningococcal but in pneumococcal infections and in certain streptococcal ones. The choice of the sulphonamide had been narrowed as a result of recent work. Sulphanilamide had been largely replaced, though its use was indicated when haematuria was caused by its sister preparations. Sulphathiazole was still largely used, but sulphadiazine or one of its substitution products held the field, being less toxic than the others, except for its tendency to cause crystalluria and haematuria. Routine nursing measures still played an important part in the treatment of meningitis—namely, sedation, adequate nourishment, care of the skin, and watch on the bladder. The place of penicillin in treatment was still uncertain. Eventually it might replace the sulphonamides; at present it was an adjuvant, and sulphonamides were still the drugs of choice.

Treatment by Penicillin

Dr. HONOR SMITH (Nuffield Department of Surgery, Oxford) described 30 cases of pneumococcal meningitis treated by penicillin. About half of them were treated by penicillin alone, and half by penicillin and a sulphonamide. Once pneumococci were seen a lumbar injection of about 20,000 units of penicillin was given, the exact amount depending on the age, size, history, and general condition of the patient. Sulphadiazine was given by mouth or nasal tube, 2 g. hourly, following an initial dose of 4 g. Often for the first 24 hours there was no sign of improvement except disappearance of organisms from the film. Those 24 hours were a period of great anxiety, during which general nursing could make all the difference between success and failure. If the mortality of pneumococcal meningitis was to be reduced to 5% or less, each case must be studied closely and treatment modified in accordance with the needs of the individual. The principles to be followed were: (1) early institution of treatment; (2) administration of adequate amounts of penicillin to all parts of the cerebrospinal pathway; (3) maintenance of adequate concentration of penicillin in the cerebrospinal fluid for a sufficient time; and (4) treatment of primary focus of infection. There was one clinical differentiation between meningococcal meningitis and pneumococcal: in the former it was exceptional to find evidence of a primary focus other than pharyngitis, whereas in pneumococcal meningitis such a primary focus was the rule. With subarachnoid block lumbar puncture became difficult, and this was an indication for resorting to the ventricular or other route for the introduction of penicillin.

Indications for stopping treatment were hard to define. Even in the most straightforward case daily injections should be given for a minimum of five days and withheld only when the patient was obviously approaching convalescence. Relapses were common. The need for a high standard of asepsis in lumbar puncture should be emphasized. As for results, among the 30 cases there had been 8 deaths, but 2 of the patients who died were moribund when the treatment started. Recovery was complete in almost all the patients who lived.

Pharmacology of Penicillin

Dr. E. S. DUTHIE (Sir William Dunn School of Pathology), speaking of the same clinical experiment, said it was always wise to remember that penicillin as received was only about one-third pure. Discretion must be used in treating cases with such an impure compound. The makers were doing their best to ensure the safety of their ampoules, but they could not guarantee it. The dose used in the work just described had been between 5,000 and 10,000 units a day. American workers had used much larger doses, but the dose mentioned had generally given satisfactory results when, 24 hours later, the spinal fluid was examined. Penicillin was now recognized to be a drug which killed bacteria, but it killed them only in the dividing phase, and it did not kill all the bacteria because there was always a small residue not in the dividing phase, which was the reason for the relapses or the positive cultures after treatment had ceased. It had been claimed that with penicillin given intramuscularly clear cerebrospinal fluid could be obtained. The method to be recommended, however, was intrathecal injection, but intramuscular injection might be made in the first instance if full facilities were not available, and by this route some penicillin would pass into the cerebrospinal fluid. He had been told that there was more rapid disappearance of penicillin in older patients, and that was borne out in his own experience. On the other hand, one child aged 17 months lost penicillin with remarkable rapidity. Eventually it was found that she had a large subdural hygroma; after the fluid was evacuated from the hygroma she retained penicillin normally. It had been found advisable to combine penicillin and sulphonamides; the two drugs were better together than either separately, and did not inhibit one another.

Air Vice-Marshal SYMONDS said that the most critical problem was the fulminating case. He asked whether it would be possible for consultants to keep in their bag a small supply of penicillin and rely on it when called to such a case. Before setting out on a consultation they should make more effort to obtain by telephone or otherwise information as to the character of the case so they could have some idea whether it was likely to be acute meningitis. The loss of a few hours might jeopardize the life of the patient.

The Relapsing Case

Brig. HUGH CAIRNS said that the only uncomplicated Gram-positive case of meningitis he had seen after a gunshot wound was in Normandy, where a man who had a wound through the shoulder and the jaw came to one of the neurosurgical units on the beach-head with clinical meningitis. He was treated and recovered. He added that they had been keen to get rid of pneumococcal meningitis from the surgical side. It had been possible clinically to cure the meningitis, but there was relapse as soon as the injection of penicillin into the cerebrospinal fluid was stopped. He had known cases which had relapsed five or six times. It was a diagnostic problem whether the source of infection was extradural or intradural in these relapsing cases. He had been struck during this war by the number of cases of infection of the meninges from either diagnostic lumbar puncture or lumbar puncture for the administration of stovaine, and it was right to say that the standard of lumbar puncture throughout the country was not high enough everywhere to allow this new method of treatment to be contemplated without some degree of anxiety. Apart from serum this was the first time there had been wholesale injections of a foreign substance into the spinal theca, and he wished to emphasize the importance of the most scrupulous technique in the use of lumbar puncture. This was not merely a matter of attention to the particular case when it came along but of organization and preparation and the making of a standard throughout the institution in which one was working.

In some further discussion Dr. **ELI DAVIS** made a plea for the use of sulphamezathine, which, he said, was likely to be less injurious than some of the other sulphonamides. He added that in meningococcal meningitis, although the over-all mortality had been cut down to 10% or less, every now and then there were cases, clinically appearing no different from the others, which slipped through one's fingers, and on post-mortem examination there was nothing to show why this should have happened. One curious thing about pneumococcal meningitis was its uneven distribution. In his hospital he had seen only one case in two and a half years, although at a sister hospital just across the river there had been 80 cases in the same period.

After a number of other comments and questions by Dr. **DONALD PATERSON**, Dr. **HELEN MACKAY**, and others, Dr. **MITMAN** replied on the point of the toleration of sulphonamides by children. A child of 6 would take half the adult dose without difficulty, and a child of 2 would take one-quarter. On the question of mortality and age, while he agreed that there were other factors, he thought that on the whole mortality would be found to vary inversely with age, at any rate up to the later age groups.

CLINICAL PATHOLOGY

The annual general meeting of the European Association of Clinical Pathologists was held in London on Jan. 20, with the president, Dr. S. C. **DYKE**, in the chair.

Prof. E. M. **FRAENKEL** (London) discussed mould allergy in 200 allergic patients. Many more positive skin tests to moulds had been obtained in England (53%) than on the Continent (16%) with an allergen mixture of *Penicillium*, *Aspergillus*, and *Mucor* extracts; he attributed this to the damp climate, which favours the growth of moulds. More recently the moulds used for tests and treatment were cultured from the patients' environment and excretions. Allergens prepared from the six more frequent types (*Sporotrichon*, *Cladosporium*, *Penicillium*, *Aspergillus*, *Mucor*, and *Monilia*) gave positive skin tests in up to 66% of the 200 patients tested with the mixtures and the individual mould allergens. Treatment by desensitization with mould allergens proved to be successful.

Dr. G. **UNGAR** (Paris) described experimental work on the bleeding time; he showed that when several tests were performed on the same individual the bleeding time had a constant value. The bleeding time was independent of blood coagulation, and was mainly determined by the state of the capillaries. Certain facts pointed to an endocrine influence on the bleeding time through the pituitary and the adrenal cortex, which appeared to act on the spleen. From this last organ two factors had been isolated which, when injected into animals, caused lengthening or shortening of the bleeding time.

Dr. R. L. **WORRALL** (Sydney), speaking on aetiology and treatment of influenza, recalled how frequently the nervous system was involved in this disease, and said that these manifestations were probably due to excessive cholinergic activity of the nervous system. In the treatment of these symptoms the main object was to reduce capillary permeability so as to avoid fatal flooding of the lungs with protein-containing fluid from the dilated pulmonary capillaries. To attain this effect he advocated the use of intravenous ascorbic acid and adrenocortical hormone.

NUTRITIVE VALUE OF BREAD

The Nutrition Society held a conference at the London School of Hygiene and Tropical Medicine on Feb. 24 to discuss factors affecting the nutritive value of bread as human food. Prof. R. A. **PETERS**, who presided, said that the need for making the best use of imported grain during the war had led to the introduction of flour of "85% extraction," which meant that this proportion of the milled wheat was recovered as flour. This product made excellent bread, free from fibre, and medical evidence had shown it to be non-irritant, even in patients with ulceration. Unfortunately the 85% standard extraction had now been superseded by 82½%. To reduce the extraction of flour, even if the flour was to be fortified with synthetic vitamins, was a very questionable procedure. Hopkins suggested 40 years ago that numerous organic substances in addition to proteins, carbohydrates, fats, and minerals might be necessary for life and health. Many essential factors besides known vitamins might well be present in the wheat grain. Until we were sure that our knowledge of all the complex constituents of wheat was complete it was unsafe to assume that fractions discarded during milling could be replaced by the introduction of a few known vitamins.

Composition of the Grain of Wheat

Dr. R. A. **MCCANCE** and Miss E. M. **WIDDOWSON**, discussing the superiority of wheat over all other cereals in its bread-making qualities, said that this property was closely linked with its protein content, which averaged 13.62% in "hard" Manitoba wheat with good baking qualities, but only 8.89% in "soft" English wheat, which was poor for baking. Laborious microdissections carried out at the Cereals Research Station of the Ministry of Food had shown that a typical wheat grain consisted of 12.3% of bran, 83% of inner endosperm, 2% outer endosperm, 1.2% embryo, and 1.5% scutellum. The chemical composition and nutritive value of these fractions varied considerably. Thus the endosperm, from which white flour was derived, was rich in carbohydrate; bran was rich in iron; while the embryo and scutellum were rich in protein and fat. The distribution of vitamins also was uneven. Thus the scutellum, a tiny shield of powdery material interposed between the embryo and endosperm, contained more than half the vitamin B_1 of the whole grain. When low-extraction flours were milled the bran included the outer layer of the endosperm, known as the aleurone layer, as well as the germ and scutellum. By suitable modifications, however, flour of 85% extraction might be prepared which contained the germ and scutellum. A reduction in extraction from 100% to 85% involved only a small loss in vitamin B_1, but below 85% the decline was rapid. Dr. McCance deplored the Government's policy in reducing extraction from 85% to 82½%, and also the prospect of further reductions. Only in times of plenty could we afford to give the best part of the wheat to animals.

Dr. **HARRIETTE CHICK**, describing the protein content of different types of flour, said the aleurone layer and germ were much richer in protein than the endosperm, which, however, contributed almost three-quarters of the total protein in the grain on account of its much greater bulk. The proteins of the bran were richer than those of the endosperm in the essential amino-acids—lysine and tryptophane. American workers found that the proteins of wheat embryo were about equal in biological value to those of milk. Dr. Chick herself compared the biological value of the proteins of wholemeal, 85% and 75% extraction flours, by observing the rate of growth of young rats which received these materials as their sole source of protein. Values of 1.6–1.77, 1.54–1.67, and 1.21–1.48 respectively were obtained. Trials by Macrae of the digestibility of the proteins in wholemeal and in flour of 73% extraction gave coefficients of 82.4 and 87.3%. The inferior digestibility of the wholemeal flour did not outweigh the superior biological value of its proteins.

The importance of the method of calculation in working out "biological values" was, however, emphasized by Mr. H. C. H. **GRAVES**, who criticized Dr. Chick's conclusions on the ground that no allowance had been made for protein used up for maintenance rather than for growth. On recalculating Dr. Chick's results with this revision he claimed that her figures indicated no significant difference in the biological values of the protein of the three flours.

Vitamin Loss in Lowered Extraction

Miss A. M. COPPING described the vitamin values of different types of flour. Wheat contained only traces of carotene, although it was rich in vitamin E. Its chief importance as a source of vitamins, however, lay in its high content of the B complex. In biological tests with rats she had found that wholemeal flour contained 1.40 i.u. of vitamin B_1 per g., 2.3 µg. of riboflavin, and 4.0 µg. of vitamin B_6. For national 85% flour the corresponding figures were 1.15 i.u., 2.0 µg., and 3.3 µg., and for 73% white flour 0.35 i.u., 0.85 µg., and 2.0 µg. These figures confirmed the view that while the differences between wholemeal and 85% were trivial, the disparity between 85% and 73% was serious. Chemical estimations by other workers had indicated that the vitamin B_1 content of wheats varied from 2.8 to 8.5 µg. per g. Hard wheats were much richer in this vitamin than soft wheats. The amount of vitamin B_1 included in the flour depended largely on the method of milling. When wheat was moistened before milling the scutellum was removed with the offals, but if the grain was milled dry the scutellum adhered to the endosperm and was included in the flour. Data collected from reports on large numbers of samples of national flour during 1942, 1943, and 1944 showed a steady decrease in the vitamin B_1 and riboflavin content. The change in vitamin B_1 was less marked; this was probably accounted for by the inclusion of Canadian white flour. But the riboflavin content decreased to about two-thirds of its 1942 value. When the extraction was changed from 85% to 82½% at the end of last year the explanation of this change was not clear. According to biological tests little if any of the vitamin value of flour was lost in baking bread.

Dr. R. KODICEK presented the results of chemical and microbiological estimations of vitamins of the B complex in flours, which agreed with the findings of Miss Copping in her experiments with rats. The greatest concentration of nicotinic acid in the wheat grain was in the bran, which contained 235 µg. per g. He suggested that, to avoid confusion, the results of biological tests should be expressed in international units and the results of chemical tests in µg.

Brown or White?

Dr. KENT JONES, in a defence of the policy of "enrichment"—a term implying the addition of synthetic vitamins to low-extraction flour—observed that in the battle between brown and white bread enthusiasts on both sides had recently shifted their ground considerably. The supporters of "brown" bread now realized that wholemeal was not generally popular, that it contained a high proportion of indigestible material, and might increase the tendency to rickets on account of a high content of phytic acid. Those who favoured white flour, while emphasizing that the main function of bread was to provide energy and protein, were alive to the fact that low extraction led to deficiency in certain vitamins. The struggle was, therefore, no longer between wholemeal and ordinary white flour but between 85% "near white" flour and 75% white flour "enriched" with vitamins and minerals. In Dr. Kent Jones's view experience in America had shown that 75% white flour was the popular choice. The loss in nutritive value caused by low extraction was partially recovered by the use of weatings in the production of eggs and bacon. Poorer sections of the population might not, however, be able to afford their full share of these foodstuffs, but for 9d. per person per year 75% flour might be enriched with vitamin B_1, riboflavin, nicotinic acid, and iron, so as to be much superior to 85% extraction flour in these factors. If high-extraction flour was to be endowed by its supporters with the virtue of a high content of unknown vitamins, it may equally well be considered by its detractors to contain unknown forms of phytic acid and other deleterious substances.

Mr. A. L. BACHARACH considered that in deciding between the relative merits of high-extraction flour and "enrichment" it was important to have regard to other matters. A food might be good or bad according to the nature of the remaining components of the diet and other circumstances. Thus Jessop's reports from Dublin suggested that wholemeal bread, while an excellent source of B vitamins, might contain so much phytic acid as to cause rickets. There would be much to commend a flexible policy of combined high extraction and "enrichment," which could be varied to suit immediate needs. Points to be considered in planning "enrichment" were the real need for the supplement to correct a deficiency, uniformity of distribution and stability in the chosen vehicle, compatibility, economy, palatability, ease of estimation for checking purposes, and disclosure to the purchaser. It might sometimes be convenient to add vitamins to foodstuffs which did not usually contain them. Thus in America the addition of vitamin D to flour was permitted.

Prof. FRIDERICIA mentioned that in Denmark, where wholemeal rye bread, with added wheat offals, was freely consumed, the incidence of rickets is not high, while Mr. WOODS reported that the real cause of rickets in Dublin was a shortage in the cod-liver-oil supply which coincided with the period during which wholemeal bread was eaten.

Wheat on the Farm

The afternoon session was devoted to the subject of the rival claims of man and of farm animals and poultry for the coarser fractions of wheat. Prof. H. D. KAY said that the cow was independent of external sources for its B vitamins, which were synthesized by bacteria in the rumen. When not at pasture the cow had to subsist on bulky fodder such as hay, straw, and roots, which must be supplemented by concentrates rich in protein, such as soya-bean cake or decorticated ground-nut cake, in order to maintain milk production. In summer crushed cereals were used as a supplement to good pasture, which was very rich in protein. Weatings were suitable for neither of these purposes, but bran was valuable for making mashes which had a slight laxative effect. The requirements of cows, therefore, placed no obstacles in the way of milling wheat up to 90% extraction for human consumption provided adequate quantities of maize and protein cake could be imported.

Mr. E. T. HALNAN, discussing the value of wheat offals for feeding pigs and poultry, said middlings and bran were staple foods for both, although when given in excess they might impair growth through overloading the intestines with indigestible fibre, and thus reducing the intake of calories. This applied particularly to bran, which should not be given to either pigs or poultry in amounts exceeding 25% of the diet. Diseases indicating deficiency of most of the known B vitamins had already been recognized in hens, as well as a displacement of the Achilles tendon which resulted from deficiency of manganese. When wheat offals were included as a major component of the diet any danger of these deficiencies was avoided. Thus excellent results were obtained in the County Egg-laying Trial with a diet containing 40% wheat middlings and 20% bran. Mr. LE GROS CLARK asked whether poultry could not be given the whole wheat which was saved by the use of high-extraction flour for bread-making, rather than the weatings obtained as a by-product in milling low-extraction flour. Mr. HALNAN replied that whole wheat would not be as rich in vitamins as weatings. Dr. KODICEK suggested that high-extraction flour might well be used for human consumption, and experiments in artificial "enrichment" tried out in the first place on pigs and poultry.

Prof. J. A. S. WATSON disclaimed the idea that "the customer was always right" in regard to flour, and considered that the widespread use of low-extraction flour had harmed the generations which had lived since the invention of the roller mill. During a visit to America he gained the impression that most authorities were in favour of "enrichment" as a practical policy, although E. V. McCollum considered that we could not be sure that all the discarded nutrients were replaced. Economic issues could not be overlooked. The milling of high-extraction flour had meant real hardships to pig and poultry farmers during the war. An increase in extraction from 72 to 82% in the flour used for bread-making, moreover, meant a great reduction in the total demand for wheat. To aggravate the situation bread might be consumed in diminished amounts if not to the consumer's taste. In peacetime, when wheat was not extensively used to make synthetic rubber, the Canadian prairie farmer feared the danger of over-production, which in the past had brought him near to ruin. From a scientific standpoint great hopes might be entertained of breeding improved types of wheat to meet special requirements. Already plant breeders in Australia had introduced drought-resisting types which doubled the yield of grain for every inch of rainfall. In Canada, where the limiting factor was freedom from frost, types of very rapid growth had been employed. There was no reason why wheat specially rich in vitamins should not be bred if this characteristic was particularly desired.

Prof. **Peters**, in his summary, concluded that education was still necessary to persuade the public to prefer bread baked from high-extraction flour. The instruction of bakers in the art of obtaining the best possible loaf was also desirable. The conference had made it clear that cows could easily dispense with wheat middlings, although they required the bran which was usually rejected by the human being. The production of pigs and poultry was certainly handicapped by the diversion of weatings to direct consumption by man, but the "enrichment" of alternative foods for these animals with artificial vitamins seemed worth a trial. The policy of "enriching" flour used for human consumption entailed much greater complications than were at present visualized. Scientific progress might well reveal a "slippery slope" with the discovery of an ever-increasing number of essential nutrients. It might be difficult to restore all these factors to the flour under conditions which would assure their stability.

Medico-Legal

IDENTIFICATION OF GAS CYLINDERS

A tragic accident which occurred at Bath last summer[1] shows the urgent need for adequate and standardized distinction of gas cylinders. A child aged 2½ years was undergoing an operation under nitrous oxide and oxygen. The anaesthetist examined the machine and was satisfied that it was in order, but she did not examine the cylinders. Apparently it was the practice for her to rely on the nurse whose duty it was to change the cylinders. The child stopped breathing and the anaesthetist gave what she thought was pure oxygen, but the child died. She then found that a nitrous oxide cylinder had been coupled up to the oxygen tube. The necropsy confirmed that the child's death was due to asphyxia caused by nitrous oxide. The nurse said that before the operation she had found the two oxygen cylinders empty and had replaced them with two cylinders which she had thought contained oxygen and which she took from a cupboard. She was accustomed to the work, but admitted that she could not have checked the cylinders properly.

Our contemporary rightly comments that, although the anaesthetist ought to have checked the contents of the cylinders, every possible automatic safeguard ought to be used to lessen the risk of such accidents. In these days, as the anaesthetist herself remarked in evidence, it is not very easy to recognize the difference between the two kinds of cylinders. At present anaesthetic gas cylinders are painted black and identified merely by a pasted-on paper label. In transit they are exposed to friction, dirt, paint, rust, and weather, and the labels often become almost illegible. Admittedly oxygen cylinders have white nozzles and nitrous oxide cylinders black, but the difference tends to diminish with time and exposure, and the cylinders are not always kept in well-lit stores. What is required is an unmistakable mark carried completely round the cylinder—e.g., a transverse stripe or stripes of different colours, perhaps made of plastic paint let into shallow grooves. It should be quite practicable to distinguish cylinders by painting the bodies one colour and the stripes another. Accidents due to this cause are unfortunately not rare, and if the anaesthetists would agree upon standard markings, doubtless manufacturers would at once meet their wishes.

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[1] *Chemist and Druggist*, Aug. 5, 1944.

Nova et Vetera

CALCAR, WESEL, AND VESALIUS

At the moment when these lines are being written the might of modern battle is thundering within sight of Wesel and the Wehrmacht is striving to save the important Rhine crossing. Five days before the Allied army had passed through the pleasant little town of Calcar. These two places are connected by a road which will now be crammed with military traffic, and through the centuries they are linked by their indirect association with the anatomist Vesalius.

Wesel is situated strategically at the confluence of the Lippe with the Rhine. It has been a stronghold from very early times. The Romans fortified it first, and in his campaign against the Saxons Charlemagne made it his headquarters. Later it was a member of the Hanseatic League, and remained a free imperial city until the sixteenth century. Invaded four times during the seventeenth century, and again in 1805, it once more appears to be living up to its history and its name. The legend goes that after the Roman conquest it was invaded daily by weasels which came from the forest near by, and that this is the real derivation of its name (in Flemish, weasel is *wesel*).

Jan Stephan van Calcar

The ancestors of Andreas Vesalius originally came from this town, and the family name was variously spelt Witing, Witting, Wytinck, or Wytings. Later they moved to Nijmegen, and as so often happened became known from their place of origin as Wesel or Wesalius. The immediate ancestors of Andreas were all connected with the healing art. His great-great-grandfather wrote a commentary on Avicenna; his great-grandfather was physician to Mary of Burgundy, as also was his grandfather. In addition the latter was a writer on medical subjects and a mathematician. The father of the anatomist was apothecary to Charles V. When Andreas *père* and his wife Isabella Crabbe moved to Brussels is unknown, but at any rate it was there that Vesalius was born. On the title-page of his first book—*Paraphrasis in Nonum Librum Rhazae*—he styles himself "Andrea Wesalius Bruxellensis," and subsequently this designation always appeared after his name. The town had adopted as its armorial arms a shield bearing three weasels, and this had been granted to—or assumed by—the Vesalius family. It is there for all to see, high up above his head, in the imaginary theatre so brilliantly depicted in the title-page of the *Fabrica* (1543). *Meae mustellae*—my weasels—he calls them in his letter on the China root. Yet even to his contemporaries his connexion with Wesel could not have been obvious, as we would expect it might have been. Looking at this coat-of-arms we notice the long legs and necks of the three animals. They could only be greyhounds, and even in 1646, eighty-two years after his death, a writer described his coat-of-arms as consisting of three yellow greyhounds on a red field. In the second edition (1555) of the *Fabrica* the graceful animals have been treated surgically, to become what they were originally intended to be—the three weasels of Wesel.

We do not know how often Vesalius visited Wesel during his early life—which is, after all, the only part of his life that matters to posterity—but we do know of one occasion on which he did so. After the publication of his great work in 1543 he took the drastic step of burning his papers and books and becoming surgeon to the Emperor Charles V. Early in January, 1546, Charles opened the Congress of the Order of the Golden Fleece at Utrecht, and proceeded with his train to attend the Diet at Regensburg. When they reached Nijmegen the Venetian Ambassador was taken seriously ill, and Vesalius had to stay behind to attend to him. Perhaps he did not mind the month which he spent there; it certainly gave him the opportunity—as he tells us—of paying a visit to Wesel.

This burning of the books, this forsaking of the anatomy room for the Emperor's court, has been a bone of contention among scholars. It has been said that Vesalius threw away the substance for the shadow. There is little doubt that he was grieved at the way in which the *Fabrica* was received by the die-hards, and this probably was the factor which determined the time at which he took the step. Looking at his ancestry one would think that his parents would naturally desire him to achieve eminence in court circles. That was something which they—with their ancestry—could understand. His father did not die until 1546. Though Vesalius was not one to be swayed by men, it seems quite likely that he had set out with the intention of following the career in which his ancestors' names and his father's influence at court could help him. The introduction to the *Tabulae anatomicae* tells us much. The *Fabrica* may have been an adventure on the way.

Calcar, fifteen miles or so from Wesel, is almost quite undistinguished. It always was what, to quote Christopher Buckley, it was before the war, "a pleasant little country town . . . with a population of some 10,000 or 12,000, strongly Catholic." It would be quite undistinguished were it not for the fact that it was the supposed birthplace of its most outstanding son, usually known as Jan Stephan van Calcar—or various Flemish or Latin equivalents of that name. In Italy he was called Giovanni di Calcar Fiamingo—the Fleming. Calcar was born in 1499, and was thus fifteen years older than Vesalius. He studied art in the school of Jean de Bruges, and apparently as the result of an *affaire de cœur* he appeared in Venice about 1536 or 1537. Practically all we know of Calcar is derived from the pages of Vasari. The *Lives* appeared first in 1550, four years after the death of Calcar, and contained no reference to him. In the second edition (1568) Vasari said:

> "In the year 1545, I became known to, and contracted much friendship with Giovanni Calcar, a Flemish painter of great merit, who so successfully practised the Italian manner, that his works were not always perceived to be those of a Fleming; but he died at Naples, while still young, and when the fairest hopes had been conceived respecting his future progress."

For all his defects Vasari is still the greatest contemporary source of information on the artists of the classical period; and what he says here appears to be true. In the space of about eight years Calcar seems to have assumed to perfection the mantle of an Italian painter; or, in the words of Ivins, to have done what few, if any, other Northerners ever succeeded in doing—absorbed completely the three-dimensional draughtsmanship of Titian and his school. The paintings by Calcar which have survived are not numerous. There was a *Mater dolorosa* in the Boisserée Collection; a portrait of Cardinal Colonna, formerly attributed to Holbein, in Rome; and a number of supposed portraits of Vesalius, in London, Paris, Oxford, Glasgow, and Boston, of which some are probably by Calcar, but none is a genuine portrait of Vesalius.

Calcar seems to have met Vesalius in Venice about 1537, and the result was the publication of the six "fliegende Blätter" known as the *Tabulae anatomicae* (*sex*). In the introductory dedication Vesalius indicates that the first three sheets of drawings are by himself, while the three skeletons are by Calcar. These skeletons struck an entirely new note, and at a bound raised the standard of osteological illustration. Whatever was the reason, Calcar appears to have paid the bill for the publication, whether as agent for Vesalius or because Vesalius needed his financial help is unknown.

The next great works in which the names of Vesalius and Calcar are traditionally linked are the *Fabrica* and the *Epitome*, both published in 1543. For some unaccountable reason the drawings in these volumes—or at least the full-page tabulae—were ascribed to Titian for more than 200 years after the publication of the books. Bonavera (1670) and Tortebat (1667) both believed that Titian was the artist. In 1706 Moschenbauer of Augsburg issued an anatomical work based on Vesalius, in the title of which the statement was made that the figures were drawn by Titian. Considering how often the tabulae of the muscles are found to have been torn out of copies of the *Fabrica*, we might guess that this ascription of the drawings to Titian accounted in part for the popularity of the book. The ascription is strange, since Vasari had written in 1568:

> "Among those about Titian meanwhile was a certain Giovanni, a Fleming, who became a good master, whether for larger or smaller figures, and in portraits was most admirable, as may be seen by his works at Naples, where he lived for some time, and where he ultimately died. By his hand, and they must do him honour to all time, were the designs for anatomical studies which the most admirable Andrea Vesalio caused to be engraved on copper and published with his works."

This is emphatic, and Vasari's many readers would apparently find little to quibble about here. The "operative word," as we might say, which should have set all heads nodding and tongues wagging is Vasari's statement that the illustrations were engraved on copper. It is well-known that the whole of the illustrations in both the *Fabrica* and the *Epitome* were printed from wood-blocks. These blocks were still in existence just before the present war, and the New York Academy of Medicine used them all to reprint the illustrations of Vesalius in a sumptuous volume. Vasari must have known the difference between prints made from wood and from copper, and we are led to wonder therefore whether he ever saw the books.

This is no place to embark on discussion of the identity of the artist or artists who drew the Vesalian illustrations, but a few points will suffice to show the pitfalls in this apparently clear expanse. In the first place, roughly 280 wood-blocks were used in printing the *Fabrica*, and none of them bears the signature of Calcar. Then there is the complaint of Vesalius that he had had difficulties with "several artists," who made him pay dearly for the cutting of the wood-blocks. Of course, there is no reason to suppose that, even if Calcar made all the drawings for the blocks, he also carried out the cutting. Finally, there is the doubt which Vesalius himself expressed in the Venesection Epistle published in 1539: "Wherefore, if there are opportunities of obtaining bodies, and if Jan Stephan—the most illustrious painter of our time (*insignis nostrae aetatis pictor*)—does not refuse his services, I on my part will by no means shun the task." This was fulsome praise while Titian and certain others were still living, and was obviously written for a purpose. Vesalius gave due credit to Calcar in the *Tabulae anatomicae*; yet his name does not appear in the whole of the *Fabrica*. Having embarked on his great task, did Vesalius find that the artist of his choice would not collaborate?

The portrait of Vesalius which adorns all complete copies of the *Fabrica* is generally regarded as being the work of Calcar. This portrait was reproduced in the *Journal* on the occasion of the quatercentenary of the publication of the *Fabrica* in June, 1943. Prof. Charles Singer has recently advanced the theory that, while the head itself is a genuine work of some good artist—Calcar or another—the setting is the work of an inferior craftsman, perhaps the woodcutter. The title-page of the *Fabrica* is almost certainly by Calcar, and it represents one of the finest wood-cuts of all time.

We can sum up briefly by saying that, while the association between Jan Stephan and Vesalius—Calcar and Wesel—is definite, the association between Jan Stephan and the *Fabrica* is another matter.

E. A. U.

W. P. Boger (*Amer. J. med. Sci.*, 1944, **208**, 708), who records two cases in women aged 24 and 52, states that the arthritis commonly described in meningococcal infections is in most cases an acute synovitis which usually accompanies the rash. Acute synovitis as a rule promptly subsides with complete restoration of function, but exceptionally the synovitis leads to a purulent arthritis.

Correspondence

Aerial Infection

SIR,—Dr. Maurice Mitman (Jan. 20, p. 71), reviewing the subject of aerial infection, assumes that the so-called droplet nuclei are the chief factors in the spread of intramural infection. If he will refer to a paper I published four years ago (*Canad. publ. Hlth. J.*, 1940, p. 539) dealing with the transmission of haemolytic streptococcal infections by carriers, he will find: first, an account of experiments showing that when talking or coughing both mouth saprophytes and streptococci are expelled inside heavy droplets, which rapidly fall under the influence of gravity and probably never become droplet nuclei; secondly, an account of many experiments designed to show that droplet nuclei are infected, all of which showed that they are not infected with mouth saprophytes, let alone haemolytic streptococci; and, thirdly, the enunciation of a theory that this type of infection is transmitted by an indirect route, the organisms being expelled by the donor when speaking, coughing, snoring, etc., inside heavy droplets, which fall on to whatever is below the level of his mouth (clothes, desk, table, sheets, pillow-case, etc.), quickly dry thereon, and are subsequently released into the atmosphere on dried particles of dust, fluff, etc., when the surface is disturbed.

The carriers in these experiments were talking or coughing. Subsequent work, which has not yet been published, has shown that the droplet nuclei left floating in the atmosphere after a sneeze may be infected. But if the transmission of these infections requires droplet nuclei it is difficult to believe that we must wait for a sneezing donor before we can get other cases of scarlet fever or tonsillitis. And in any event the demonstration by Thomas and Van den Ende (*British Medical Journal*, 1941, **1**, 953) that the bedding of patients with tonsillitis is heavily infected with haemolytic streptococci, and that these organisms are released into the air in great numbers when the bedding is disturbed, shows that it is only too easy to get the specific organisms into the atmosphere by the indirect route postulated above. Undoubtedly the same thing occurs with carriers, for I was able to show in another paper (*Lancet*, 1941, **1**, 85) that they too can infect their clothes and bedding. For these reasons it is hardly necessary to invoke infection of droplet nuclei to explain the transmission of haemolytic streptococcal infection.

Carriers of other varieties of organisms (*C. diphtheriae, N. meningitidis, H. pertussis*, pneumococcus) have not, so far as I am aware, been studied by this technique, nor have carriers of virus infections such as influenza, smallpox, chicken-pox, measles, or mumps—for obvious reasons. It is therefore impossible to say whether the droplet nuclei expelled when coughing, etc., are infected or not. The chances are that they are not, because even when an indicator organism such as *Ch. prodigiosum* is taken up in large quantities into the mouth this organism too is only expelled inside heavy droplets, although it *may* be present in droplet nuclei when the subject sneezes.

As in the case of scarlet fever and tonsillitis, it is equally difficult to believe that if these diseases are spread by droplet nuclei, diphtheria, mumps, whooping-cough, pneumonia, influenza, smallpox, chicken-pox, measles, will be transmitted only if the donor is good enough to sneeze.—I am, etc.,

University of Toronto. RONALD HARE.

Shock Therapy and Conditioned Reflexes

SIR,—Dr. H. N. Hardcastle makes the interesting suggestion that human behaviour may be regarded as a complex of engrams, a view which appears to me not only to fit the facts but also to bring the Pavlovian conditioned reflex into its right place in the cortical neuronic pattern. But is it necessary to regard the influence of emotion as the primary cause of the engram as a complex of conditioned reflexes? Surely not. As I emphasized in my original address, cortical neurones are constantly being altered by the environmental stimuli to which they are subjected. Hence the engrams, or combinations of neurones, are as constantly being modified—new combinations adding to or replacing older ones. There is more to the engram than emotion, as I sought to explain by referring to the neuronic conception of dreams and the vagaries of memories.

I am not competent to discuss the clinical nature of shock therapy, but if, as Dr. Hardcastle surmises, it will recondition a reflex in the absence of the conditioning factor I see no structural reason why it should not. What ordinary environmental stimuli undoubtedly do, so surely may the violence to which shock therapy submits the brain. It is indeed quite possible that it destroys old engrams and creates new ones. If so, then there is afforded an explanation of the altered behaviour reactions which may follow the treatment.

If this conception of interrelated associational neurones—that is, cortical engrams—satisfactorily explains the vagaries of memory, dreams, Pavlov's conditioned reflexes, and the beneficial influence of shock therapy, then it would appear that we now have a common factor worthy of extended study and application. It is up to those who think otherwise to produce a better explanation, but it will not be easy to contravene the scientific basis of the former.

The conception of the engram at least holds out hope for the future, and I therefore agree with Dr. Hardcastle that it should not now be overlong before there may be evolved a form of therapy in which the "recall" properties of shock may be combined with the selective facilities of the more orthodox psychological approach, though not necessarily the better founded on fact.—I am, etc.,

University Club, Liverpool. RICHARD J. A. BERRY.

Therapeutic Illness?

SIR,—Dr. Narasimha Pai's article on changes in personality after cerebrospinal fever (March 3, p. 289) has evoked the unforgettable recollection of an experience in reverse—an example possibly unique at any rate surely exceedingly uncommon.

During the last war when in charge of a medical division I was informed by one of my juniors of the arrival in hospital of "that perisher De C.," his admission coinciding with his impending departure over-seas. Private De C. had gained (and thoroughly earned) an unsavoury reputation in his unit for slackness and inefficiency; and as he had on two previous occasions succeeded in gaining admission to hospital by reporting sick when on draft for over-seas, his third appearance in similar circumstances not unnaturally excited some suspicion. Proceeding to the ward with the intention of summary action, I found Private De C. with a temperature of 104° F. suffering from cerebrospinal fever, complete with "spots." In those days when our treatment was limited to lumbar puncture and the dubiously effective administration of serum, recovery of such a severe case was no small achievement; yet Private De C. weathered the storm, and after convalescence returned to his unit. I subsequently learnt from his company commander and medical officer that he developed into an exemplary smart and, capable soldier, who, in due course, went abroad enthusiastically and served with considerable distinction.

Encephalitis lethargica is even more notorious than cerebrospinal fever as causative of moral deterioration. Has anyone ever encountered a reversal of character from bad to good in one of the afflicted?—I am, etc.,

London, W.1. ADOLPHE ABRAHAMS.

Ovariotomy or Caesarean Section?

SIR,—What, presumably, Prof. S. J. Cameron (March 3, p. 307) wishes to convey is that for ovarian cysts obstructing, or likely to obstruct, labour he advocates ovariotomy, followed by spontaneous or assisted vaginal delivery rather than ovariotomy followed (or, possibly, preceded) by Caesarean section. His object in writing is, he states, to ascertain if this is the practice adopted by his colleagues.

I can speak best for south of the Tweed, where, I believe, the practice of removing the cyst followed by vaginal delivery has for many years been the established one. It was taught by the late Dr. Herbert Spencer, whose influence was, and is, rightly great. There are, naturally, exceptions: sometimes a wedged or adherent cyst cannot be shifted from the pelvic cavity before the uterus has been emptied, and sometimes accompanying obstetric conditions, which need not be detailed.

indicate Caesarean section. I have never yet known or heard of a case of haemorrhage from the stump.

In the textbook which, I am credibly told, is the one most widely read in these southern climes (*Textbook of Obstetrics,* by Eden and Holland), the advice given is as follows: (*a*) Ovariotomy during pregnancy (at or near term): "Caesarean section is unnecessary unless the tumour is adherent in the pelvis. In all ovariotomies during pregnancy the pedicle should be ligated with extra care and as far away from the uterus as possible." (*b*) Ovariotomy during labour: "After the tumour has been removed Caesarean section is unnecessary, for there will now be no obstacle to delivery by the natural passages. When the operation has been performed towards the end of the first stage, the cervix being dilated, delivery can be immediately completed with forceps, whilst the patient is still under the anaesthetic; if the cervix is not fully dilated labour must be allowed to continue until it is, and then the child is delivered. The presence of a recent abdominal wound does not interfere with natural labour; pain is relieved by morphia, and forceps are applied as soon as the second stage begins."—I am, etc.,

London, W.1. EARDLEY HOLLAND.

SIR,—I should like to support the views expressed by Prof. S. J. Cameron (March 3, p. 307) on Caesarean section in pregnancy complicated by ovarian cysts. I have before me notes of twelve recent cases of pregnancy complicated by ovarian cysts. In one of these I performed Caesarean section. In this case I was unable to control by sutures the bleeding from veins in the uterine end of the attenuated broad ligament. Retraction of the uterus after it was emptied promptly stopped the bleeding.

Haemorrhage from the stump has not occurred in any of the cases. I would suggest that where it does happen it is more likely to be due to faulty technique in ligaturing than to the strain of labour. If this is true the risk of stump haemorrhage will not be reduced by performing Caesarean section.

If any criticism can be aimed at Prof. Cameron's advice in the case quoted in para. 2 of his letter it is that he advised ovariotomy when, considering that it was a dermoid, partial resection with conservation of ovarian tissue might have been possible, as was shown some time ago by Mr. Victor Bonney and more recently by Mr. Scott Russell in your issue of Feb. 24 (p. 262) and by myself in the *Practitioner* (February, 1944). If this could have been done there would have been no stump to worry about. This method is applicable not only to dermoids but to all types of benign ovarian cysts, as I hope to show in a future paper on the results of 50 such operations that I have performed. The fact that the patient is pregnant or is in labour adds but little difficulty to the operation. I consider that wounding the uterus simply in order to deal with an ovarian cyst is quite unjustifiable, and the only occasion on which I have found it necessary a fault in my own technique was responsible. Some cysts lie deep in the pelvis, and their inaccessibility is put forward as an excuse for Caesarean section in such cases. Personally I prefer to eventrate the uterus even though it means making a longer incision in the abdominal wall.

Some years ago Prof. Cameron's colleague Prof. Munro-Kerr pointed out that the mortality of ovariotomy is much higher than most gynaecologists imagine—4%. Why, then, add to this the risks of Caesarean section?—I am, etc.,

Newcastle-upon-Tyne. STANLEY WAY, M.R.C.O.G.

Problems of Cortical Hyperadrenalism

SIR,—When by analogy with "hyperthyroidism" the term "(anterior) hyperpituitarism" had been introduced for pituitary gigantism and acromegaly, it became clear after some years that this must be changed to "(anterior) eosinophilic hyperpituitarism" to differentiate it from "(anterior) basophilic hyperpituitarism"—Cushing's syndrome.

Should cases of "cortical hyperadrenalism" likewise be divided into two classes: (1) the well-known class in which excessive action of the cortical endocrine cells (whether the result of a malignant or non-malignant endocrine tumour of the cortex or of mere hyperfunction of the cortex without any actual endocrine tumour) produces virilism; (2) the much rarer cases in which it produces feminism?

In a case shown to me in 1915—a man aged 27 years, to which my then surgical colleague, Dr. zum Busch, afterwards allowed me to refer (*Brit. J. Derm.,* 1926, **28,** 7)—feminism in the form of bilateral mammary enlargement (a few drops of milky fluid could be squeezed from the nipple of either breast) occurred as the result of an adrenal cortical endocrine tumour. I first thought that this was the only example of the kind on record, but the publication of the Bittorf-Mathias case was earlier (*Virchows Arch.,* 1922, **236,** 466), and since then two or three well-authenticated analogous cases have been recorded.

The question has therefore naturally arisen whether there may be an adrenal cortical hormone (*a*) with a feminism-producing function, like folliculin, as well as (*b*) a virilism-producing hormone like testosterone and the active principle of andreioblastomata in females. If those who hold this view are correct, we already can refer to rare instances of feminism-producing cortical hyperadrenalism (with or without actual tumour-formation) in males (as referred to above); but are there analogous cases in females? May there not be mild forms of feminism-producing cortical hyperadrenalism in females (probably without any actual cortical endocrine tumour) to account for some cases of excessive development of the uterus (perhaps with early and excessive menstruation and myomata) and possibly exaggeration of breast development and secondary female sex characters? Dr. G. Samson, in a conversation, has even suggested to me that the feministic features of so-called "pituitary obesity" and Fröhlich's "dystrophia adiposo-genitalis" in both boys and girls might conceivably partly be due to excessive formation of such a feminism-producing adrenal cortical hormone.

It is clear that the above suggestions are only theoretical explanations. In the same way, it might be suggested that an active thymic endocrine tumour or delayed involution of a large thymus in a young male might cause either excessive virilism of the macrogenitosomia type or, still more rarely, feminism with gynaecomastia and smallness of testes and penis, and that this might be accounted for by assuming the existence of a virilism-producing thymic hormone dominating in the former cases, and a feminism-producing thymic hormone in the latter. But other explanations seem more probable (Weber and Wohl, *Med. Press and Circ.,* 1944, **211,** 22; Weber, ibid., p. 155).—I am, etc.,

London, W.1. F. PARKES WEBER.

Ludwig's Angina

SIR,—Ludwig himself pointed out that *the* danger of the angina now inseparably linked with his name was sudden oedema of the glottis. Obviously, if the larynx is intubated the principal danger of the condition and the anxieties connected with the anaesthetic fade into insignificance. Majors John Farr and E. D. Stanhope (March 3, p. 295) advocate intratracheal anaesthesia in Ludwig's angina.

Even an anaesthetist highly practised in laryngeal intubation requires the patient to be deeply anaesthetized before he can pass a tube beyond the vocal cords. Even a practised intubator has difficulty in regularly intubating the normal larynx blindly, and has to resort to direct laryngoscopy in a percentage of cases. If, as is always the case in true Ludwig's angina, the patient has trismus, a grossly swollen tongue, is "full of mucus," and, above all, has some oedema of the glottis, what chances are there of successful visual intubation if blind intubation fails?

I used to consider that intravenous anaesthesia was the one of choice, but here again all is well only if the mouth can be opened freely. In my experience the only safe anaesthetic for use in Ludwig's angina is local. To perform bilateral local regional block anaesthesia it is only necessary to have a lumbar puncture needle and some 1% novocain. After raising a weal in the skin the lumbar puncture needle is inserted up to the base of the skull behind and parallel to the posterior border of the sternomastoid at a depth of approximately half an inch. Ten to 15 c.cm. of novocain is then injected *as the needle is withdrawn slowly.* This renders the submaxillary region sufficiently anaesthetic for a bowed incision and thorough division of the mylohyoid muscle. When the mylohyoid has been completely divided, the closed fascial space surrounding the submaxillary salivary gland is decompressed, and the danger of oedema of the glottis is circumvented. To save the life of the patient, division of the mylohyoid is, I believe, the only absolutely necessary surgical measure.

It so happens that I am well practised in removing the submaxillary salivary gland under local analgesia, having done this more than 80 times. In two cases of Ludwig's angina, after dividing the mylohyoid freely, I supplemented the regional block anaesthesia with a little local infiltration of novocain, and removed the submaxillary salivary gland, completing the operation by packing the resultant cavity lightly. Certainly both patients had the benefit of sulphonamide therapy; even so, I consider the absolutely unhindered drainage of the infected fascial space accounted for the fact that both patients were virtually convalescent in a few days.

Whether or not those who have made a special study of the surgery of the bucco-cervical region approve of the above measures, I am sure they will support my statement that an incision leading from the mouth into the neck should be avoided on every possible occasion. Ludwig's angina is no exception, and on this account I consider that the incision described in the older literature and advocated by Majors-Farr and Stanhope is a retrograde step.—I am, etc.,

London, W.1. HAMILTON BAILEY.

Nephrectomy with Partial Resection of the Other Kidney

SIR,—The long-range effect of removing more than half the kidney substance has been so seldom observed that a short note on a case about eight years after operation may be of statistical value.

The patient had calculous pyonephrosis and functionless kidney on the left side. On the right side there was a branched calculus occupying the lower calyx system. The latter stone was surrounded with pus, but the upper pole of this kidney was healthy. The two operations, which took place in June, 1937, consisted of complete removal of the left kidney together with the lower pole of the right one, a little less than two-thirds of the whole kidney substance being removed. The case was reported in the *Journal* of Aug. 26, 1939 (p. 445).

Almost eight years have elapsed, and the patient, a married woman now 47 years of age, continues to be in perfect health and is fully engaged in all the usual general and social activities. She has never restricted her diet or taken any special precautions except that she usually takes 5 or 10 gr. of acid sodium phosphate a day to maintain the acidity of the urine. There are no symptoms or evidence of infection or recurrence of calculus. *X*-ray examination shows a large disk-like mass instead of the usual reniform organ on the right side. Following the operation there was a small sinus on the left side, which persisted until a year ago and then closed and remained closed.—I am, etc.,

Johannesburg. R. CAMPBELL BEGG.

Soviet Gramicidin

SIR,—Ever since there has been life one form of life has lived upon another form. Plants depend upon the life in the soil; animals and man upon plants. The life in the soil consists of bacteria, fungi, and protozoa, and my investigations lead me to believe that the life needed by plants is that which is obtained from the lytic action of certain micro-organisms upon fungi. I hold the most active micro-organism to be one which I call the *B. proteus anaerogenes*, as it appears to connect the *B. faecalis alkaligenes* to the proteus group of micro-organisms.

This micro-organism, or group of micro-organisms, abounds in all wastes, and is found in greatest abundance in the final stages of sewage decomposition. Its lytic action upon other forms of protein is greater than that of the other bacteria, fungi, and protozoa with which I have experimented. Indeed, since 1938 I have been using the liquor from sewage to break down my bacterial emulsions in the preparation of the vaccines for the prevention and treatment of distemper and influenza.

Fungi may be used in the laboratory for the same purpose, but their lytic action does not compare with that of the *B. proteus anaerogenes*. My attempts to discover the nature of the lytic action have led me to conclude that it lies in the expander action that the two sulphur atoms, which are attached to the pyrimidines—cytosine and uracil—in the nucleic acid, and especially the amino groups of the polypeptides of the live agent, exert upon the dead object. This sulphur-nucleic acid-amino-polypeptide complex is the most important one in the constitution of every protein product. It is the complex in its concentrated form extracted from *Penicillium notatum* which forms the basis of penicillin, and doubtless the one which, extracted from *B. brevis*, forms the basis of gramicidin. But the work I am doing on the *B. proteus anaerogenes* suggests that the complex extracted from this micro-organism might yield even better results. As the complex of the lytic agent extracts the complex from the dead object, use need not be limited to the former but it should be extended to include the latter. Insulin owes its action to the same amino-polypeptide complex, and the sulphonamide compounds owe their expander action to the aniline amino group.

Interesting as it may be to discover the most active polypeptides in the complex, the inquirer must avoid carrying the differentiation too far, because in all these inter-protein reactions the more important agents are the connexions between the chemical substances, and not the chemical substances themselves. In conclusion, I would like to say that man has not touched the fringe of the allied nutritive and therapeutic values of wastes.—I am, etc.,

London, W.1. J. E. R. McDONAGH.

Oral Administration of Penicillin

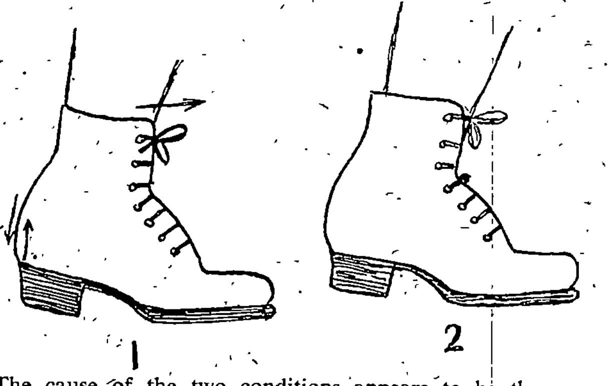
SIR,—In your very timely and instructive annotation on new ways of giving penicillin (Feb. 17, p. 227) you write as follows about the possibility of giving penicillin by the mouth: "This route has hitherto been firmly ignored because the drug is destroyed by acid, and even administration by duodenal tube has resulted in poor absorption." As the importance of a possible oral administration for general practice cannot be over-emphasized, may I suggest that research workers who are in a position to carry out experiments should try to give penicillin in keratin-coated gelatin capsules. These capsules have the great advantage that owing to the insolubility of keratin in acid medium they pass through the actual stomach intact and get dissolved only in the richly alkaline medium of the lower part of the small intestines, freeing their content there.

The administration by duodenal tube is a complicated and difficult procedure not suitable for general practice, and for the actual purpose inferior to the keratin-coated capsules, the alkalinity of the duodenum being a very unreliable factor because it is constantly altered and upset by the unceasing injection of the acid gastric content. Often there is no alkalinity at all, the latter being over-compensated by the hyperacidity of the stomach and thus leading to duodenal ulcer.—I am, etc.,

Newark. L. SCHMIDT.

Prevention of Blistered Heels

SIR,—The article on peritendinitis (Johnson, H. D., *Journal*, 1945, 1, 193) brought to my mind the method of blister prevention given me by an old Swiss guide soon after the last war. After some years of hospital life with very little exercise, my feet could not stand the long mountain walks, and first blisters and then tenosynovitis of the Achilles seriously interfered with the holiday.



The cause of the two conditions appears to be the same. When the ankle is flexed in bringing the hinder foot forward, the rigidity of the laced-up front of the boot is less than the rigidity of the sole; therefore the heel rubs against the leather of the boot, and if the rub is a broad one a blister forms; if there is a wrinkle in the boot heel, tenosynovitis occurs. (Fig. 1.)

I was advised to lace the first four eyelets rather tightly and then make a double twist in the laces, the first part of a surgeon's knot; next twist the lace-ends round so that the end which was going to the right now goes to the left. Instead of this a proper knot may be made, but this takes long to undo. The double twist plus reversal is almost as firm as a full knot and takes no time to loosen. After this, lace on the rest of the boot distinctly loosely. This completely alters the resultant forces. The ankle can now have a little play and the rub due to the rigidity of the sole is almost absent and folds in the leather are not forced against the tendon (Fig. 2).

Since putting this into practice I have had little further trouble and have been able to face the long walks after a year or so of a sedentary life.—I am, etc.,

A. T. Todd,
Physician, Bristol Royal Infirmary.

Repair of the Oblique Hernia

Sir,—With reference to the evergreen topic of hernia, I am rather surprised to find no mention in recent reviews of the excellent procedure for repairing the large oblique hernia devised by Mr. F. R. Brown and reported in the *British Medical Journal* some fifteen years ago.

As Brig. Edwards (*Brit. J. Surg.*, 1943, **31,** 122) so rightly emphasizes, a hernia of this type, in which the neck of the sac has expanded medially, requires considerably more than ligature and removal of the sac at its neck if the cure is to be permanent. In Brown's operation, after removal of the sac, a spiral strip cut from the sac itself is used for the "hammer" method of repairing the defect between the internal oblique and the recurved edge of the inguinal ligament. The length and strength of the material which can be obtained from such a source are quite remarkable; and this procedure obviates the somewhat tedious business of taking a strip of fascia from the thigh.

As a point in technique I think it is important in those cases in which fascia is removed from the thigh that the limb be bandaged immediately with a crêpe bandage over wool. Subsequent haematoma formation, fibrosis, and pain are thus minimized.—I am, etc.,

James F. Riley,
Surgical Specialist, E.M.S.

Tuberculous Infection of Nurses

Sir,—Before the editorial ban falls on this subject, may I point out that Dr. L. E. Houghton's critical letter (Feb. 24, p. 274) does not attempt to refute the arguments of my two previous letters, which relate specifically to the risks to the Mantoux-negative nurse when exposed to infection in tuberculosis wards. I am not concerned with or about Mantoux-positive nurses.

Dr. Houghton admits that the sanatorium nurse is certainly infected during her duties, but apparently questions the significance of massive infection. If massive infection plays no part, then we need no longer take precautions against such infections, patients may cough tubercle bacilli over the nurse indiscriminately, and other precautions be abandoned. Standard teaching on the subject of bacterial infection, however, still accepts massive infection as an important factor in producing disease—e.g., Boyd's *Pathology,* which states that "when small numbers of micro-organisms enter the body they may be destroyed, but if in large numbers they may overwhelm the defence, and tuberculosis is a good example."

No one would deny the importance of environmental, genetic, and immunological factors in the aetiology, but as tuberculosis is known to be an infectious disease (Koch, R., 1882) the fundamental causal factor must be invasion by the specific organism.

It will be interesting to learn the result of the survey of nurses at Market Drayton and Harefield. It would be even better if this survey could extend to other less efficient institutions, where, as Dr. T. F. Bostock has told us (Feb. 10, p. 198), environmental factors may be far from satisfactory. Unfortunately movements of nurses are frequent, their health records may be inadequately kept, and Mantoux-testing is comparatively uncommon; so that short of a planned survey, which will take some years (five or six in Dr. Heaf's estimate), no accurate large-scale information is likely to be forthcoming.

It is for these reasons I suggest that the available evidence on tuberculous infection in general hospital nurses is sufficient to demand the exclusion of Mantoux-negative nurses from all tuberculosis wards, or, alternatively, their immunization.—I am, etc.,

Kinmel Hall Hospital, Abergele. W. E. Snell.

Aetiology of Erythema Nodosum

Sir,—With reference to the article on the aetiology of erythema nodosum by Prof. C. Bruce Perry (Dec. 30, 1944, p. 843) and also your leading article (p. 857), I feel sure that Prof. Perry would take exception to the comment in the leading article, which ventures the opinion that "no one is likely to go far wrong who regards a case of erythema nodosum as tuberculous unless it is proved otherwise." In his conclusions he is most careful to stress the non-specific nature of the toxaemia.

The question naturally arises why there is such a frequent association between the two conditions. It is also necessary to clarify the position as regards the basic causes of the various types of rheumatism. If the position is left as it is we would appear to be heading for another "cause and effect" misappreciation which would result in unnecessary anxiety on the part of those who have had the misfortune to inherit a pituitary discrinism, with its protean manifestations.

When the puling infant, biophysics, attains maturity we shall be required to interpret all clinical phenomena in terms of water, its solutes and suspensoids, and the electrical phenomena induced in them by the omnipresent factor of radiation. The Auckland Research Group have already endeavoured to meet the new situations that will surely arise when the head-on collision eventuates between "electronics" and the ideas and explanations that have largely come down to us from the Middle Ages. All bodily swellings will come to be regarded as electrical water-colloid effects, which arise out of the attraction between negative water molecules and colloid structures that have been rendered positive as a result of the attachment to them of positive toxic molecular entities. It is merely a question as to where the positives come from—i.e., bacterial or metabolic. The life process will be regarded as a radiational water-colloid effect, with the pituitary neuroglandular structure dominating and controlling all enzyme and hormone activities.

Our thinking and reasoning will be dominated by "cause and effect" chains much like the following: (1) constitutional pituitary "wobble"; (2) dysfunction of the somatotropic hormones; (3) a discrepancy between the size of the thorax and the lungs; (4) over-stretching of the lungs by the atmospheric pressure, and resulting emphysema; (5) impaired apical air currents and ciliary defence mechanism; (6) pulmonary tuberculosis. The erythema nodosum chain will also start with: (1) pituitary discrinism; (2) dysfunction of the hormones controlling metabolism; (3) a radiation dysfunction and a consequent impairment of the extrinsic renal factor; (4) impaired excretion of positives, and a lowered negativity of membranes with impaired permeability; (5) dominance of the positive toxic factor in local areas; (6) erythema nodosum. We shall also eventually recognize the dual source of the positives that underlie the blanket term "rheumatism"—i.e., bacterial and metabolic.

So it is that the common constitutional pituitary factor may ultimately lead to effects as far apart as tuberculosis and erythema nodosum. We feel that statistical investigations should be integrated on a wider base and at a lower level, taking in such ultimate pituitary phenomena as hyperchlorhydria and flat feet. Little progress will be made until it has been shown that there is a statistical relationship between effects such as melaena and corns. We would also stress the dangers and sorrows that may arise out of the interpretation of small calcified pulmonary nodules revealed by *x* rays. A dysfunction of the growth hormones, and resulting emphysema of moderate grade, is much commoner than is generally realized, and it frequently does not lead to an impairment of the haemo-respiratory gaseous exchange. It does, however, frequently lead to varying grades of obstruction in the pulmonary circulation, and some degree of raised venous pressure, which is adequately accommodated by the vein valves. This factor of strain not infrequently leads to a deposition of calcium at valve sites (phleboliths).

Until medical science has a much wider and deeper understanding of causes and effects we would be wise to interpret statistical comparisons with caution.—I am, etc.,

Auckland Research Group, New Zealand. W. N. ABBOTT.

Room for Women Students

SIR,—We the undersigned all received our medical education in different medical schools of London voluntary hospitals which at that time were providing co-education—namely, St. Mary's, St. George's, University College, and the London Hospital. In each hospital special accommodation for women students was limited to the provision of a cloakroom and lavatories, and in the case of one or two of them a common room also. For women resident medical officers no special accommodation was provided: bedrooms, sitting-rooms, common rooms, bathrooms, and lavatories were used as they would be in a hotel or boarding-house without any sex discrimination. It would therefore appear that there is no legitimate reason on the score of lack of accommodation for delaying the entry of women medical students into the medical schools and hospitals which are at present reserved for men only. It should not be an insuperable difficulty, even in wartime, to provide a common room (if it is thought necessary), a cloakroom, and lavatory accommodation for women medical students.—We are, etc.,

DORIS G. LITHERLAND, M.R.C.S., L.R.C.P.
MARY MITCHELL, M.R.C.S., L.R.C.P.
DOROTHY HOWSE, M.R.C.S., L.R.C.P.
Bournemouth. PHOEBE WOODWARD, M.B., B.S.

Final M.B. of London University

SIR,—I would like to share in the appeal made by Dr. D. S. Porter (March 3, p. 310) against the unfortunate discrimination involved in the new regulation for the London M.B., B.S. Final Examination. I, too, sat for this examination in the first year of the war, and entered the Army in the same year. My failure in the examination, so I was informed, was limited to the oral part of one subject; and this indeed was the only failure in my student career.

It is presumed that the new regulation has been instituted to make allowance for the increased difficulties of study and examination in wartime. The difficulties of students taking their final examinations in the early months of the war have perhaps been forgotten. My own circumstances at this time are probably typical of those of my contemporaries. I was hastily turned out of my London teaching hospital on the day war broke out and sent to an L.C.C. hospital in the area, there to continue my studies under unavoidably makeshift conditions. I and my fellow students were accommodated in small cubicles incompletely divided from one another; the deficiency of space and inadequate lighting made study almost impossible, yet we were required to live on the premises. The greater part of my time was spent in filling sandbags, transferring patients in Green Line coaches, assisting in the establishment of a blood transfusion centre, and attempting to carry out the more essential functions of the hospital laboratory, from which the entire staff had been suddenly transferred under E.M.S. arrangements. Part of my Final Examination was taken in London and part in Manchester. Finally, it need hardly be mentioned that the general atmosphere at that time was more unsettling and more eerie than it has been in the last few years. Conditions were, therefore, thoroughly inimical to the concerted absorption of those minutiae with which a candidate is expected to be equipped, and it was perhaps more a sign of the times than of ignorance that not all of us were able to reproduce in an orderly and confident manner such facts as we had learned.

If, as I suspect, the new regulation was instituted from a charitable motive, then those of us who attempted our Final Examination in those hectic days, and who have been prevented by national service from resitting our examination until many years later, may surely expect the privilege to be extended to us. After all, it is not a question of seeking to lower the high standard demanded, but merely of being credited with those subjects in which we did, in fact, satisfy the examiners.—I am, etc.,

HAROLD B. HEWITT,
Capt., R.A.M.C.

The Young Married Doctor

SIR,—I agree most heartily with the letters of "Married Doctor," "B1," "Y.M.D.," and Tom Barns, especially where better conditions are likely to produce better work in hospitals, as they do in industry. Hospitals should not only give the permission to live out, as suggested by Tom Barns, but should either provide both living-in and living-out accommodation or give a living-out allowance in lieu to cover a reasonable rent, including the telephone, and food, fuel, and light. The hospital should also have some form of transport to convey the doctor to it at a moment's notice, or provide a further allowance in lieu if he happens to run a car.

If priority were necessary in this scheme, senior resident medical officers and ex-Service officers should have the preference. At present many doctors find the fight for a decent existence detrimental to their primary fight against disease. And I think that most young Service doctors, married or unmarried, resent this association of celibacy with hospital appointments when they turn their thoughts towards the post-war period. Have their careers as doctors not been warped enough already by the conditions of war? A happily married doctor is better than a happily unmarried one who has merely resigned himself to an unnatural and prolonged non-marital state—or fate. Sacrifice is often necessary in the life of a doctor, and if he is true to his calling he never flinches from it, but surely marriage is one thing which he should not have to sacrifice when he takes the Hippocratic Oath, especially when the great Hippocrates taught that disease was due to disobedience of natural laws.

It is more than pleasing to see that this subject has come to the notice of the medical public, and possibly also to some of the non-medical hospital public, by courtesy of your columns. —I am, etc.,

N. Ireland. "Y.M.S.O."

Artificial Respiration

SIR,—My committee's attention has been called to several articles appearing in your *Journal* in connexion with the Eve rocking stretcher method of artificial respiration, and they note particularly the remarks made by Dr. F. C. Eve in your issue of May 1, 1943 (p. 535), as to the inadequacy of the Schäfer method and the attitude of complacency adopted by the Royal Life Saving Society in this matter. My committee ask that you will kindly bring the following facts to the notice of your readers.

The Royal Life Saving Society is only too anxious to adopt and teach to the multitude any method of artificial respiration which can be proved superior to that of Schäfer. The society some months ago extended to Dr. Eve an invitation, which he accepted, to demonstrate his method before the members of the Central Executive and a large gathering of experts on artificial respiration, and the doctor was closely questioned upon the merits and demerits of his system. As a result of this demonstration it would appear that the success of his method stands or falls by his own statement that the diaphragm in a deeply asphyxiated person remains, owing to loss of muscle tone, in a permanently arched position, and he stated that he had "no doubt that the diaphragm would go up several inches." This statement by Dr. Eve was challenged, but he agreed that it could be checked by *x*-ray photographs, which Dr. Eve and we have tried to obtain without success.

After further correspondence, in which Dr. Eve was asked for some conclusive proofs of his statement, he has replied in writing that he has no proofs at all. If definite proofs could be produced, no one would be more pleased than the members of the governing body of the society, for they wish it to be known that they have a permanent committee appointed to survey current expert opinion in relation to new methods of resuscitation, with the object of their adoption, if found in any way superior to Schäfer. So far nothing has been discovered to supersede this very well tried and successful method.—I am, etc.,

London, W.1.
ALWYN E. BISCOE,
Chief Secretary, Royal Life Saving Society.

Erythrocyte Sedimentation Rate in Malaria

SIR,—Please allow me to make the following brief addendum to my letter published on March 10.

The differentiation of malaria—of the falciparum type—from sandfly fever at an early stage is important; many cases of this type of malaria have proceeded to "cerebral malaria" and death while being treated for "sandfly." The mortality is also high in cases of falciparum malaria treated as infective hepatitis, unexpected coma giving an indication too late for effective interference. Truly a living problem may prove a dead certainty.—I am, etc.,

FRANK MARSH.

Check your References

SIR,—Dr. C. Langton Hewer (Feb. 17, p. 233) usefully discusses the most convenient method of reference to earlier papers, but makes no mention of the need for accuracy of actual references.

In writing on commission a comprehensive review of radiological progress, I lost much time looking up references because of their inaccuracy. Lawrence in (I believe) his first description of the cyclotron in the *Physical Review* gives due reference to the prior work of Wideroe published in the *Archiv für Elektrotechnik*, but his reference is incorrect and much time was wasted tracking down the original paper. A still more glaring example was about planigraphic (tomographic) methods. Andrews in his excellent paper in the *Amer. J. Roentgen.* (1936, **36**, 575) refers to the work of Portes and Chausse and gives their French patent as No. 541,941 of 1922. Reference to this patent at the Patent Office showed other patentees of a patent having no relation to radiology. Extensive search failed to reveal the Portes patent and, as a consequence, all reference to it was deleted. No assistance could be obtained from other authors as all gave this patent number, including Grossman (*Fort. a.d. Geb. d. Roentgenstrahlen*), Keiffer (*Amer. J. Roentgen.* and *Radiology*), and Twining (*Brit. J. Radiol.*), the inference being that the reference was merely copied with its error. After omission further attempt was made to track down this much-quoted patent, and, after much time in acrobatic feats on the high steps of the Patent Office, it was tracked down to a different French patent.

Having a personal library which comprises journals not otherwise available, I have in the past been asked to supply details of references for papers being published. While doing so with pleasure I have later been surprised to note the amount of information which is presumably obtained from a mere reference only.

Mention of an earlier publication usually infers first-hand acquaintance, but unfortunately it appears to have become the vogue to quote prior papers without actual personal reference as to correctness, etc. It is, of course, quite possible that circumstances are such that a reference is merely quoted for its priority; for example, in dealing with the Ziedes des Plantes method of planigraphy, I personally gave references to his publications in the *Fort. a.d. Geb. d. Roentgenstrahlen* and *Acta Radiologica*, journals moderately easy of access and personally owned, but for priority reasons gave the first publication in a Dutch medical journal not accessible or read by myself. My editor, however, even in this case queried the unusual page number of 5218 and would not include it until this journal had been located and the page number checked.—I am, etc.,

London, E.7.
BERNARD LEGGETT.

Present Practice of Diphtheria Immunization

SIR,—In reply to Dr. Evelyn Maclagan's questions (March 3, p. 309) the ages of the positive Schick reactors were: 2 1/12 (1), 2 3/12 (2), 2 5/12 (1), 2 1/2 (2), 3 (1), 3 1/12 (1), 3 1/4 (1), 3 10/12 (1), 4 (3), 4 1/12 (1), 4 2/12 (1), 4 4/12 (1), 4 1/2 (3).

A Schick test was performed three months after immunization, and *all* were negative.

No mother produced a certificate stating that the whole procedure was satisfactory. (We are issuing one to each mother at this nursery.)

The two children who developed diphtheria (positive cultures) were one boy, aged 4, immunized here Jan., 1943, Schick-negative, diphtheria July 28, 1943, mild case, returned to nursery Sept. 14, 1943; another boy, aged 4 4/12, immunized at L.C.C. school 1941, Schick-negative, diphtheria Aug. 27, 1943, mild case, returned to nursery Sept. 14, 1943.

It is our practice here to carry out a further Schick test after two years and re-immunize positive reactors.—I am, etc.,

Battersea Central Mission.
J. L. BLONSTEIN.

The Services

Col. K. S. Master, M.C., I.M.S., has been appointed Honorary Physician to the King in succession to Col. A. C. Macrae, I.M.S.(ret.); and Col. W. C. Spackman, I.M.S., V.H.S., has been appointed Honorary Surgeon to the King in succession to Major-Gen. R. H. Candy, C.I.E., I.M.S.(ret.).

Temp. Acting Surg. Lieut.-Cmdr. R. N. Martin, R.N.V.R., has been mentioned in dispatches for courage, endurance, and determination in transporting stores, vehicles, and men in L.S.T.s and L.C.T.s and other vessels to the Normandy beaches.

Acting Temp. Surg. Capt. W. B. D. Miller, D.S.C., R.N.V.R., has been mentioned in dispatches for good services in organizing the evacuation of casualties from the forefront of the battle during the liberation of France and Belgium.

L/Cpl. Henry Eric Harden, R.A.M.C., who, after bringing in to safety two badly wounded men, was killed while endeavouring to rescue another, has been awarded a posthumous Victoria Cross.

The following awards have been announced in recognition of gallant and distinguished services in Italy:

D.S.O.—Majors E. H. Anderson and R. W. Boyden, R.C.A.M.C.

M.C.—Capt. J. K. Pugh, R.A.M.C.; Capts. T. C. Hopkins-Husson, S. Anand, and S. R. C. Muthuswamy, I.A.M.C.; Capts H. F. Owen and T. Statten, R.C.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Killed in action in Burma.—Capt. Peter Hamilton Barkey, R.A.M.C.

Previously reported missing, now officially recorded killed in action.—Major Clarence Alexander Calder, R.A.M.C.

Accidentally killed.—Lieut.-Col. Maurice Baylis King, M.C., R.A.M.C.

Died on active service.—Capt. Bernard Alfred Maclean Brown, M.C., R.A.M.C.

Died of wounds.—Capt. Joseph Campbell Swanson, R.A.M.C.

Died.—Flight Lieut. Ernest Alexander Wallis, R.A.F.V.R.

Wounded.—Temp. Lieut.-Col. R. B. Wright, O.B.E., R.A.M.C.; War Subs. Capts. A. R. Elsom and T. M. Rowatt, R.A.M.C.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a Congregation on March 2 the degrees of M.D. were conferred on N. H. L. Ridley and of M.B., B.Chir. on G. Hartridge, both by proxy.

During the month of February titles of the degrees of M.B. B.Chir. were conferred by diploma on E. M. Davies, M. Farquharson and M. H. Jordan, of Girton College, and on E. M. Kingsley-Pillers, of Newnham College.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

Dr. Henry MacCormac, F.R.C.P., will deliver the Lumleian Lectures on "Prospect and Retrospect" at the College (Pall Mall East S.W.), on Tuesday and Thursday, April 17 and 19, at 4.30 p.m.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A cheque for £100,000 has been received by the President from Sir William Henry Collins for the endowment of the Departmen of Anatomy and the institution of a Chair of Human and Comparative Anatomy. Last year he gave £100,000 for a Chair of Pathology.

Médecin-Colonel Merle d'Aubigné, Conseiller technique au Ministère de la Guerre, and two other French military surgeons Major-Commandant Toulemonds and Captain P. Lance, were received at the Royal College of Surgeons on March 8 and entertained to luncheon. They brought to the meeting of the Council greeting from the President of the Académie de Chirurgie at Paris, received a cordial welcome, and took back from the President and Council of the College greetings of friendship and an expression of hope that it would soon be possible for normal relations between the two bodies to be resumed.

SOCIETY OF APOTHECARIES OF LONDON

Prof. E. C. Dodds, M.D., F.R.S., will deliver a lecture on "Ancient Apothecaries and Modern Biochemists" at Apothecaries Hall, Black Friars Lane, Queen Victoria Street, E.C., on Tuesday March 27, at 4 p.m. Members of the medical profession and senio students are cordially invited.

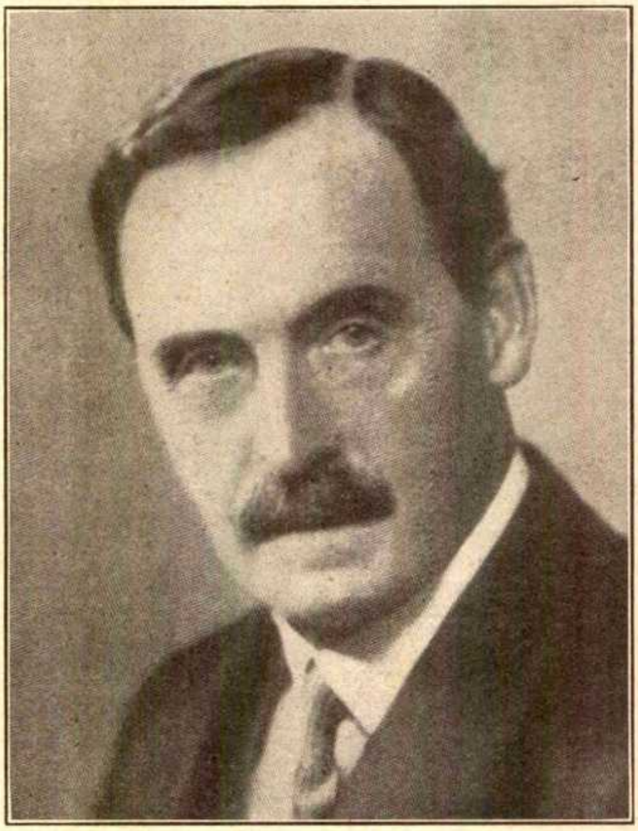
Obituary

VISCOUNT DAWSON OF PENN,

P.C., G.C.V.O., K.C.B., K.C.M.G.

President of the British Medical Association

The death of Viscount Dawson of Penn, which took place on March 7, robs British medicine of one of its most prominent personalities. For a third of a century, during four reigns, he was a physician to the King. For twenty-five years he was a member of the House of Lords and took an active part in its debates. For seven years he was President of the Royal College of Physicians of London. He was twice President of the B.M.A.—the first time at its Centenary Meeting and the second when the Association was about to face all the problems raised by the publication of the Government's White Paper on a National Health Service. During the whole of his professional career he was associated with a great London hospital and its teaching school and the university of which the school is a part, becoming a member of the Senate and for a time dean of the medical faculty. He was equally wise and sympathetic at the bedside, at the teacher's rostrum, and at the council table. Perhaps the greatest thing about him was that, although the offices he held must have inclined him to caution and reticence, he was sympathetic towards forward movements in the science, practice, and organization of medicine, and in social affairs, and never behindhand in proclaiming the faith that was in him. He was also a most likeable man, distinguished in any assembly by his attractive presence, alert manner, and persuasive speech.



Dawson of Penn

Education and Early Career

Bertrand Edward Dawson was the son of Henry Dawson, an architect, of Purley in Surrey, where he was born on March 9, 1864. From St. Paul's School he entered University College, London, where he took his B.Sc. in 1888. A modest man, he was never willing to talk about his career, but there is some indication that the early years were not without struggle. Mr. Ramsay MacDonald, at the annual dinner of the Royal Society of Medicine in 1929, when Lord Dawson was in the chair, mentioned that he and his host had been students together at London University, and that on occasion after a students' supper they would tramp at midnight from Gower Street to their lodgings in Holloway because their combined resources were insufficient to raise a cab fare. Mr. MacDonald added that when next he met his fellow student it was in Buckingham Palace forty years afterwards.

Bertrand Dawson's clinical studies were undertaken at the London Hospital. He was an eager student, and eagerness as a clinician was indeed characteristic of him all his life. He qualified in 1890, and three years later, before he was thirty, took the M.D. of London University. It was at the London Hospital that he held his first resident post; later he became medical registrar and lecturer in physiology in the medical school. His first appointment as an honorary physician was at the Royal Hospital for Diseases of the Chest, City Road, where he also acted as pathologist. In 1896 he was elected assistant physician at "The London," lecturing also on elementary clinical medicine and materia medica, and in 1906 full physician. Long before this his reputation as a consulting physician had become thoroughly established.

During all these years he wrote extensively in medical journals, hospital reports, and textbooks. In 1895 he contributed to the *Twentieth Century Practice of Medicine* a paper on diseases of the lymphatic system. Later he wrote in Allchin's *Manual of Medicine* the articles on diabetes mellitus, diabetes insipidus, influenza, rheumatoid arthritis, and the physical examination of the stomach and intestines. His special interest in medicine at that time was disorders of the alimentary tract. The value of *x* rays in this connexion appealed to him, and one of his early papers, given in 1907 to the former Roentgen Society and well illustrated, was on the *x*-ray diagnosis of stricture of the oesophagus.

Court Physician

In 1907 he was appointed physician-extraordinary to Edward VII, and with the three physicians-in-ordinary he attended that King on his deathbed in 1910. He was also made physician-extraordinary to George V, and at the same time a Knight Commander of the Royal Victorian Order. In 1914 he became physician-in-ordinary. Throughout the reign of George V, extending over a quarter of a century, he was not only medical adviser but a trusted friend of the King and the Royal Family. He came most conspicuously before the public during the King's illness which began at the end of 1928. From the issue of the first bulletin on Nov. 21 until the thanksgiving service for the King's recovery in the following July, he bore a load of responsibility such as has seldom fallen to a court physician. He was assisted by a carefully chosen and most capable "team," as he called them, to whom he made public acknowledgment, but in the eyes of the people it was Lord Dawson who had "pulled the King through." In January 1936, he was at Sandringham during the last days of George V, and signed the bulletin which announced to the nation that the King's life was drawing peacefully to its close. He became physician-in-ordinary again to Edward VIII, to whom as Prince of Wales he had been physician since 1923, and after the abdication he remained the head of the medical advisers of George VI. He was also physician-in-ordinary to Queen Mary.

War Services

At the outset of the war of 1914–18 Sir Bertrand Dawson, as he then was, held a commission in the R.A.M.C.(T.F.) as commandant of the 2nd London General Hospital. Later he served as consulting physician to the British Armies in France, attained the rank of major-general, and became honorary member of the Army Medical Advisory Board (of which many years later, in 1936, he was chairman). Among the clinical subjects in which he interested himself during the war were paratyphoid fever and jaundice of infective origin. In 1915 he led a special investigation into the causes of infective jaundice among the troops in France, cases of this nature being collected in a special hospital. In an elaborate paper on the subject, which was published in this *Journal*, Sir Bertrand Dawson, with two collaborators, showed that the type of infective jaundice there seen was the same in its clinical and pathological features as had just been described by Japanese workers as due to the presence of a spirochaete in the liver.

His duties as consulting physician to the British Armies in France took him to all the war hospitals, British and American. Some years afterwards, in addressing McGill University, the first to send a fully equipped hospital to the seat of war, he mentioned that that hospital had been in his zone of work, and how immensely his visits to it had inspired and cheered him.

The Ministry of Health

As the war came to an end Sir Bertrand Dawson began to call the attention of our profession and the public generally to the position of medical services in the approaching period of reconstruction. He was a prominent member of a committee set up by the British Medical Association to formulate a scheme for the establishment of a Ministry of Health. He set forth his own proposals under this head in his Cavendish Lecture before the West London Medico-Chirurgical Society in 1918—a lecture so full of matter that it had to be delivered in two parts, with a week's interval. The title was "The Future of the Medical Profession," and the main thesis was that both medical and public opinion had reached the conclusion that medical services must have some kind of State aid and central control, and that for efficient work they needed co-ordinated effort which should be directed from specially equipped institutions. He urged the foundation of a Ministry of Health as the most pressing of current problems.

In the discussions preceding the introduction of the Bill to establish the Ministry it became evident that Sir Bertrand Dawson had a firm grasp of principles and a clear view of the important and even determining share which medicine must take in guiding the Ministry's policy. He was far from being merely a fashionable figure with a gilded name: he revealed himself as a leader of the profession. In his view the Ministry which was in the shaping should be something much bigger than a mere amalgamation of the Local Government Board and the Insurance Commission. The needs of the nation, he declared, required a comprehensive reorganization of the medical services, and such reorganization could succeed only if it enlisted the confidence and support of the medical profession. It must draw to its council, he said, representatives from all departments of medicine, both preventive and curative, and they must have real power.

These declarations he followed up in many addresses, including the presidential address in the Section of State Medicine at the Brussels Congress of the Royal Institute of Public Health in 1920, and also at Divisional meetings of the British Medical Association. It was no uncommon thing to find him at this period attending meetings of Divisions in places like Willesden or Stratford and carrying on the discussions until midnight.

The Consultative Council

The Bill for the establishment of the Ministry of Health went through both Houses of Parliament in 1919. The new Ministry took over all the powers and duties of the Local Government Board and the Insurance Commission, the powers of the Board of Education relating to the health of expectant and nursing mothers, and the powers of the Privy Council under the Midwives Acts. That was the mere clay; into it had to be breathed a living soul.

One of the first acts of the new Ministry, from which much was hoped, was the formation of a Consultative Council on Medical and Allied Services, of which Sir Bertrand Dawson was chairman and Mr. C. J. Bond of Leicester vice-chairman. Among its seventeen members were Dr. J. A. Macdonald, then Chairman of Council of the B.M.A., Sir Robert Bolam, the Chairman-to-be, and Dr. H. Guy Dain, the present Chairman. All the interests—clinical teaching and investigation, private and insurance practice, public health, nursing, dental surgery—were so far as possible represented. Many meetings were held, and eventually, in May, 1920, a scheme for the provision of a chain of health services was elaborated in what was described as an "interim" report, which was published, said Lord Addison, then Minister of Health, "to facilitate discussion of the questions raised in it." The scheme was based on, but a considerable extension of, one proposed by Dr. Middleton Martin, M.O.H. for Gloucestershire. In the roughest outline it was a scheme for basing the domiciliary health services of a district on a primary health centre, a group of these centres being based in turn upon a secondary health centre situated in a town where consultant service and adequate equipment were available, and such secondary centres again in their turn being brought into relation with a teaching hospital. There were many provisions for supplementary services.

The establishment of a Consultative Council and its early report gave rise to high hopes in many quarters. Sir Bertrand Dawson had pleaded that to be a reality such a Council must meet regularly, be empowered to seek information from the heads of Departments, have direct access to the Minister, and have power to initiate advice. The views thus expressed were endorsed by the joint committee of the English Royal Colleges, the British Medical Association, and the Royal Society of Medicine. A leading article in the *British Medical Journal* at the time, while welcoming the Council, begged the profession not to expect from it the impossible, and to realize that it was there to give advice and thereby help to mould sound policy—not there to administer, still less to exercise patronage or promote interests.

The idea that the Council should be a permanent advisory body to the Ministry of Health on medical matters was probably also in the minds of the Government at the time, but it was never carried out. The real achievement of the Council was that it was the first body to focus public opinion on systematized health services. Since then there has been a Royal Commission on National Health Insurance, a Departmental Committee on Scottish Health Services, a Voluntary Hospitals Commission, the report of PEP, the proposals, original and revised, of the British Medical Association for a general medical service for the nation, the interim report of the Medical Planning Commission set up by the B.M.A., and the Government's White Paper. But in 1920 the ideas now familiar, and even stereotyped, were new, and in the hopeful mood of the immediate after-war period everything seemed possible. Certainly there was a Ministry of Health in Whitehall, and there was a Consultative Council even if it was not consulted and even if its report was pigeon-holed; but, better than this, there was a marshalling of ideas on the subject in the medical profession, and an effort to secure that the profession exercised its proper influence in public affairs.

Elevation to the Peerage

Whatever the fate of the Consultative Council, its chairman was by general assent revealed as a medical statesman. He was a consultant, but his long membership of the Council of the British Medical Association, on which he represented the Metropolitan Counties Branch for several years, had familiarized him with the conditions of general practice. He had also a grasp of the problems of medical education. When, therefore, he was created Baron Dawson of Penn universal pleasure was felt. It was not the first time that a medical man had become a peer, but he was the first to be raised to that dignity while still engaged in hospital and private practice and in teaching. His membership of the House of Lords, the roll of which he subscribed on Feb. 18, 1920, ensured that, irrespective of the chances of parliamentary election, there would be one man in the legislative councils well qualified to speak for the profession and in furtherance of national health. At a complimentary dinner given soon afterwards he said that he looked upon the honour paid him as an invitation from the State to the medical profession to take that bigger share in the national life from which it had so far held aloof.

Lord Dawson soon made his personality felt in the House of Lords. In 1926, at the invitation of the Parliamentary Medical Committee, he addressed at the House of Commons a large meeting of members of both Houses on the relations of the medical profession, the General Medical Council, and the public. In 1935 he served on the House of Lords Select Committee which considered the Bill for the registration of osteopaths. There he showed himself a very effective cross-examiner. There are amusing passages in that inquiry, including one in which Lord Dawson encouraged one of the leading exponents of osteopathy to describe how he reconstructed the Eustachian tube by "finger surgery"—placing a finger in the opening of the tube in the post-nasal situation. He also got from two of the chief witnesses on behalf of the osteopaths the admission that in disease after disease drugs were necessary. As the only medical member of the Select Committee it was largely due to his expert and destructive criticism of the claims of these practitioners that the proposals were rejected; but at one point in the inquiry he declared that he began to despair of it. "I have never been mixed up in an inquiry in which it has been so difficult to get an answer."

In 1929 he was made a Privy Councillor, and in 1936, in the only Birthday Honours List of Edward VIII, his personal services to the King's father were fittingly acknowledged by the conferment of a viscounty—the first time this honour has been given to a practising medical man.

Presidentship of the R.C.P.

Lord Dawson became a member of the Royal College of Physicians of London in 1893, and a Fellow ten years later. He was for several years one of its examiners, and he took an active interest in the College administration. Although before 1931 he had not delivered any of its classical orations or lectures, he was in that year elected President, and re-elected until he had served for the unusually long period of seven years.

During his presidency, working in close harmony with the Royal College of Surgeons and also with the recently constituted College of Obstetricians and Gynaecologists, his policy was to foster the influence which these foundations exercise in the domain of State medicine and medical education. He saw to it that the Fellowship of the College became representative of all specialties. He also constantly expressed his desire that the younger Fellows should take a more active part in College affairs; he placed them on various committees and called upon them to take part in the debates in Comitia. He encouraged the co-ordination of individual scholarships so that larger purposes of research might be furthered, as, for example, the succession of grants to investigate different aspects of anaemia or of rheumatoid arthritis. Another task of his was to encourage the participation of the College in large co-operative schemes such as the Curriculum Conference and the British Postgraduate Medical School. "The promotion of public health," he said in an address at the Harveian celebration at the College in 1937, "is something with which in days past this College has been deeply concerned," and he claimed for it at least an equal part in the developments that then seemed to lie just ahead. In a word, under his guidance the College became something more than a dignified academic body: it began to exercise real leadership in the profession.

The British Medical Association

In 1932, when the British Medical Association held its centenary celebrations in London, Lord Dawson was the obvious choice for President. He had been for many years in close touch with the work of the Association, a member of ts Council and of important committees. In 1925 he was chairman of the Marylebone Division, and in the same year at the Annual Meeting at Bath he was President of the Section of Medicine. In all the functions of the centenary week in London and Worcester he gave dignity to what was done, and the innumerable little speeches which the President had to deliver were always gracefully turned. He presided over the Centenary Dinner at the Albert Hall, when the Prince of Wales, afterwards Edward VIII, was the principal guest. No one would have supposed, watching Lord Dawson's spare, active igure during the events of that time, that he was within two years of the allotted span. His presidential address was delivered to a distinguished audience in the Queen's Hall. It was an eloquent survey of medicine—past, present, and future—under the title "One Hundred Years and After." It was marred a little by hurry in delivery, Lord Dawson holding the view that forty minutes was the limit of the patience of any audience. But it reads well. One passage almost at the end may be quoted:

> "The pursuit of knowledge in the medical sciences not only brings esults prolific of benefit to mankind, maybe by adding to life's uality or lightening the burden of suffering, but its very pursuit makes doctors of every nationality and clime into comrades who, animated by the same ideals, think and work together—the gold of endeavour without the alloy of conflict."

In September, 1943, Lord Dawson became our President again by a unanimous vote of the Annual General Meeting, and he was re-elected last year for a further term of office.

Other Interests and Activities

Only a brief reference can be made to the many other activities which occupied Lord Dawson at various times during his busy life. He took a leading part in furthering the Government health and fitness campaign, was a prominent member of the Medical Advisory Committee of the National Fitness Council, and a frequent speaker on this subject at medical and lay gatherings. For many years he was consulting physician to the Ministry of Pensions, the King Edward VII Sanatorium at Midhurst, and the Lambeth (L.C.C.) Hospital Clinic for Heart Surgery. In 1931 he became a member of the Medical Research Council. Among his other interests were the London Provident Hospital Scheme and the People's League of Health, whose campaigns for safe milk and other public health objects he supported.

Lord Dawson's public utterances, to the preparation of which he always gave fastidious care, had a fresh and often a challenging quality. Some of them showed remarkable courage, such as his choice of the Church Congress platform in 1921 to give his views on birth control, then much to the fore in the public mind, and on sex relationships in general. His address, in which he did not hesitate to criticize the Lambeth Conference for its attitude, aroused widespread interest and controversy and was afterwards reprinted as a corrective to the rather misleading press reports published at the time. He held the view, which he expressed many years later at a medical gathering, that changing habits of thought, perhaps involving changes of social habit, do not necessarily indicate, as many religious people are inclined to suppose, a deterioration of the race. He was himself a loyal Churchman, but he wanted the Church of England to be more liberal in spirit.

In 1922–3 he was President of the Medical Society of London, and in his presidential address, which covered many subjects, he touched on psycho-analysis, a subject then relatively unfamiliar even to many in the medical profession. His criticism was not so much of its conception as of the method of its presentation and handling. A subject on which he often spoke was professional secrecy. In an address to the Medico-Legal Society many years ago he declared that public opinion was emphatically in favour of some measure of privilege for the doctor, though he admitted that when once the principle of such privilege had been conceded the difficulties of definition would be very great. On the questions raised by the Bourne trial in 1938, which turned upon the right of a medical man to bring about an abortion in the case of a young girl pregnant as the result of rape, Lord Dawson had very decided views, which he expounded at the annual dinner of the Medico-Legal Society in the presence of the judge who had presided at the trial.

Lord Dawson was honoured by many universities and other bodies both at home and abroad. In 1925 he received the Sc.D. of the University of Pennsylvania, and, on the same American visit, the LL.D. of McGill. In 1926 the D.C.L. of Oxford was conferred upon him, and in 1927, on the occasion of the Annual Meeting of the British Medical Association, the LL.D. of Edinburgh. The Royal College of Surgeons of England elected him an Honorary Fellow in 1932.

He married, in 1900, the daughter of Sir Alfred Yarrow, founder of the great shipbuilding business at Glasgow. The help which Lady Dawson gave to him during their long married life was often publicly acknowledged. During his first presidency of the British Medical Association, when some compliment was paid to her, he said that "if any of us honestly looks back on his career he will find it difficult to estimate what a large part of his success is due to his wife, and how little he could have achieved without her. . . . We cannot be too grateful for the gentle autocracy under which we live." Lord and Lady Dawson had three daughters. Their country home was for many years Dell Cottage at Penn, from which Buckinghamshire village he took his title.

Dr. H. GUY DAIN, Chairman of Council, writes:

The British Medical Association mourns the loss of its so distinguished President, Lord Dawson of Penn. Rarely are the qualities of a sound physician and a great statesman to be found in the same person. These qualities, displayed in Lord Dawson, were combined with a gentleness of spirit and a kindness of heart which made him a great gentleman. He took the keenest interest in the development of medicine and of medical services, and his breadth of vision and statesmanship did much to advance both. Typical of his devotion to our profession was his acceptance of the Presidency of the British Medical Association two years ago, at a time when he might properly be passing responsibility to others. This he did because he felt he should place his help and experience at our service in these critical days. By his death not only the Association but the whole profession loses its acknowledged leader.

Sir ARTHUR S. MACNALTY writes:

It is difficult to realize that Lord Dawson is dead. With his erect figure, his quick step, and his energetic speech he seemed the embodiment of eternal youth. He resembled Cicero in liking young men; he helped and encouraged them in their careers and readily became young with them. Many a physician of to-day owes his first steps on the ladder of success to the helping hand Lord Dawson extended to him. In my own case, when I was a candidate for the medical registrarship at the London Hospital, he invited me to a dinner-party of leaders of the medical profession at his own house in order to tell me that I had secured the appointment. Young men appreciate such rare consideration. At the London Hospital he gave me charge of his beds sometimes when he was absent, and often asked me to see interesting cases with him. He delighted in discussing new advances in medicine. In the last war he offered to take me to France with him, but the War Office and the Local Government Board would not release me from work in connexion with epidemics and inspections of camps and hospitals in this country.

Lord Dawson had the mind of a statesman. Not only did he maintain and advance the interests of the medical profession as President of the Royal College of Physicians, President of the British Medical Association, and acting chairman of the governing body of the British Postgraduate Medical School, but he worked incessantly for national health and the improvement of social conditions. He was in the councils of the Ministry of Health from its inception. The Interim Report of the Consultative Council for Medical and Allied Services, of which he was chairman, reveals his far-seeing and able gifts. This plan is the parent of all regional schemes of health services. It represented an honest and wise attempt to reconcile conflicting medical interests for the benefit of the public. It is regrettable that medical and public opinion were not at the time sufficiently enlightened to give adequate consideration to this report. We are still labouring at the problem which he would have helped to solve in 1920.

When I became Chief Medical Officer of the Ministry of Health he helped me in countless ways throughout my tenure of office. He was a member of the Medical Advisory Committee to the Minister, where his advice was of the utmost value, and we had the benefit of his knowledge of men and affairs in dealing with many health problems. His high standards of public duty and service persisted to the end. He told me last year that he was tired, but nevertheless felt that he must not refuse the invitation to be President of the British Medical Association at this critical time. He had a keen sense of humour, which often stood him in good stead. Once, when I expressed the hope that he was writing his reminiscences, he said: "Oh, no! I would have to leave the best things out. I could never dare to tell them." He was essentially human, a leading and vivid figure in British medicine. "He walked with Kings nor lost the common touch."

Dr. HENRY ROBINSON writes:

May one who, as a general practitioner, many times met Lord Dawson in consultation testify briefly to his clinical wisdom and not less to his tact and sympathetic handling of sick people and their relatives? Apart from his great gifts as a physician, I have known his diagnosis (on a surgical case) to be right when that of one of his surgical colleagues was wrong; and I have known him furnish a most excellent opinion on a gynaecological case, once at least. But he impressed me most, perhaps, some thirty or more years ago when I called him to see an old gentleman of 78 years who had survived an old-fashioned lobar pneumonia first of the right lung and then of the left. Thereafter he started to have daily rigors with pyrexia up to 105°, and I withdrew two or three ounces of turbid fluid from his left pleural sac; this was reported to contain virulent streptococci. It was at this stage that Sir Bertrand Dawson, as he then was, came to my help. I remember well how he sat on the edge of the bath (for the bathroom was the only place where we could confer privately) swinging his legs off the ground, and saying in that extremely pleasing voice of his: "I don't know why, but I have a feeling that this man is going to recover. I agree that to operate on him would be just to kill him; I advise you to trust to Nature, and I think he will get well." And get well the old gentleman did, dying of old age several years later.

We regret to announce the death on Feb. 24 of FRANCIS JOHN GREEVES, J.P., L.R.C.P., L.R.C.S.I., at Larkhill, Blackburn. Born in Galway in 1870, he received his medical education in Dublin, qualifying in 1892 and winning the silver medals in medicine and surgery. After a period as resident at Jervis Street Hospital he came to England, and in 1895 took over the practice of Dr. Bastable at Larkhill, where he lived and practised all his life. His activities were many and varied, both medical and social. He took a lively interest in medical politics, and on the formation of the Insurance Committee was elected as representative of the practitioners, remaining a member until his death. He was chairman of the Local Medical and Panel Committee from its inception, and for many years its representative at the Panel Conferences; he also served as chairman of the Blackburn Division of the B.M.A. during the last war. Dr. Greeves took an active interest in local politics, and was elected to the Blackburn Town Council in 1900. He was soon chosen chairman of the Public Health Committee, and held the position for twenty years. In 1906 he became a borough magistrate and in 1912 a barrister of Gray's Inn. He was the first chairman of the Maternity and Child Welfare Committee. In 1903 he was made a member of the Library Committee, in 1915 vice-chairman, and in 1927 chairman. His colleagues showed their appreciation of his services when his portrait in oils was unveiled in the Art Gallery in 1935—King George's Jubilee. In 1922 he was elected an alderman and became mayor of the borough in 1938—a singularly popular election. In spite of a crowded and many-sided life Dr. Greeves had a number of hobbies, included in which were a love of music, drama, art, and reading. His record of service is most impressive. He was respected and loved by all—a truly good and great man.—F. W. T.

Dr. BENJAMIN ARTHUR RICHMOND died on Feb. 26, in his 75th year, at Trefriw, Caenarvonshire. He had a distinguished student career at Guy's, taking the B.Sc.Lond. with honours, and the gold medal in the M.D. examination. Dr. Alfred Salter, a fellow student, had begun practice in Bermondsey with the intention of giving what was a medically neglected area a good medical service, and Richmond joined him, and the practice quickly grew to one of six partners. The status of these partners may be gauged by the fact that Dr. Salter has long been M.P. for the Division, and both he and Richmond were made J.P.s of the County of London. Richmond took a very active part in the National Health Insurance struggle and became the first whole-time secretary of the London Panel Committee in 1916. In 1920 he was appointed Regional Medical Officer to the Ministry of Health and served successively in the South-Eastern area and in Birmingham. Dr. Richmond joined the B.M.A. in 1912, resigned when he was appointed to the Ministry, but re-joined in 1925. He served on the Executive Committees of the Camberwell and the Woolwich and Lewisham Divisions of the B.M.A.

Dr. EDWARD MCCULLOCH died in Plymouth at the age of 68 on March 4. Graduating M.B., Ch.B. of Edinburgh University in 1898 he came to Devonport as house-surgeon at the Royal Albert Hospital; subsequently he entered general practice and continued as hon. radiologist to the hospital. He was keenly interested in medical and social politics, being a member of both the Panel and Insurance Committees from their inception. He took an active part in the formation of the Protection of Practices Scheme and the Local Medical War Committee, acting as hon. secretary. He was also acting hon. secretary of the Plymouth Division, B.M.A. Both of these onerous positions he had to relinquish when in the spring of 1941 he sustained injuries during an air raid in which his house was demolished. He never completely recovered from the effects of this accident. Dr. McCulloch was a past president of the Plymouth Medical Society and in the last war he was consulting radiologist to the E.E.F. His death is deeply regretted by his colleagues, who extend their sincere sympathy to his widow and two daughters.—G. D.

The following well-known medical men have died abroad: Dr. MAURICE LAMM BLATT, professor of paediatrics at the University of Illinois College of Medicine, aged 65; Dr. CHARLES LANGDON GIBSON, emeritus professor of surgery at Cornell University Medical College, aged 80.

Medical Notes in Parliament

The Flour in the Loaf

Lord Teviot in the House of Lords on Feb. 28 asked why the extraction rate of wheat had been reduced below the standard of 1942. He moved that this standard should be regarded as the minimum compatible with the health of the people and should be restored. He recalled that before the war the extraction had been 70 to 72% and that in March, 1942, it had been raised from 75% to 85%. Were the millers going back to the pre-war extraction? All medical and scientific authorities were anxious at the reduction from 85%. Had the Ministry of Health, the Special Diets Committee of the Medical Research Council, and the Scientific Advisory Committee on Food Policy, set up by the Ministry of Health in 1940, been consulted? Lord Horder was the medical adviser of the Ministry of Food. Had he been consulted? It had been found that wholemeal or high-extraction flours were of more nutritive value when tested on animals than 70% extraction flour, even when that was fortified by the addition of food factors removed in the milling of white flour. There were eleven such factors, but it had only been possible to manufacture three of them to fortify the white loaf. There were also unidentified factors and trace elements. It was ridiculous o claim that the addition of three factors would make white flour as nutritious as 85% flour. He disputed the assertion hat Dublin experience showed that high-percentage extraction flour caused rickets. There had been no records of the ncidence of rickets in Irish cities before the period in question. Cod-liver oil and halibut-liver oil had been unobtainable in Eire when high-extraction flour was in use. Dr. Sanders, medical officer for Cork, had pointed that out. Tests by the Medical Research Council had shown that the maximum nutriive value of wheat with the minimum of bran was secured by 85% extraction. White bread of 70% extraction enabled a person to take in daily 150 to 200 international units of vitamin B. Each person should take in 600 units daily. Our ancestors, eating wholemeal bread, took in about 900 to 1,000 units per diem. The plea was advanced that the wheat offals were wanted to produce more milk, but farmers did not give heir cows wheat offals.

Lord Addison said it was exceedingly profitable to the millers to increase the percentage of offals taken out of the wheat. White flour nearly composed of starch would absorb more water and the number of loaves produced from a quarter sack of flour could be raised from 92 or 96 to 102. The addition was water, charged at 2d. a lb.

Lord Horder pointed out that Lord Woolton, before raising he extraction rate by 10%, had received assurances that he was not compelling the people to eat a bread which was not digestible. In giving those assurances Lord Horder and cerain of his colleagues bore in mind the disturbed digestion of patients suffering from ulceration of the stomach or the bowels. Prof. Davidson and his colleagues in Edinburgh confirmed that assurance. Some cases of ulceration of the stomach healed more quickly under the national wheat-meal bread. That was not surprising, seeing that the healing of ulcers of that type was aided by a rise in the general nutrition of the patient. The same experience was seen in the feeding of infants, and he Minister of Food therefore stopped, 18 months ago, the allocation of white flour for the manufacture of infants' food. No complaints followed the action. On March 11, 1942, he had said that no other step which the Government could take was so calculated as this to raise the level of nutrition. That orecast, after three years' experience, proved correct. If the atisfactory health of the country was not mainly due to this, hen doctors did not know to what it was due. Deficiency diseases did not really exist in this country. An American authority came here to study deficiency diseases in the third and fourth years of the war, but found no clinical material. Anaemia had greatly decreased in incidence. A more general effect of the national wholemeal bread was that the country was less constipated, and the harmful habit of swallowing purgative drugs had been reduced. Facts like these had become general knowledge. Therefore people asked why the extraction rate had been reduced. Prof. Kay, of the National Instiute for Research in Dairying, declared that the vitamins of wheat offals were wasted on the cows. Recent researches at he Cereals Research Station at St. Albans had given new knowledge of the intimate composition of the wheat grain. This research would affect the technique of milling, but the Government had been too hasty in "cashing in" by lowering he extraction rate by 2½% in October, with a second 2½% eduction in January.

Lord Geddes said it paid the miller to have people eating white bread because they had to eat so much more to get the feeling of nutrition which they had from eating brown bread. Every medical man would agree that 85% extraction had made for health and for resistance to disease.

Lord Hankey said the Government had been warned for years by their own experts, by the Medical Research Council, and by international experts that ordinary white bread was extremely deficient in nutritional content. Successive Governments neglected that warning and brought the nation to the first stages of degeneracy. Advertisements in newspapers of proprietary medicine, and especially of aperients, fell away after the change in the extraction of flour was made in 1942. Now a powerful move toward what Sir Edward Mellanby had called "the meretricious attractions of the old white bread" was being made even before the shipping situation had eased. He asked whether experts had been consulted; it was evident that Lord Horder was not.

Lord Horder, replying to an intervention by Lord Woolton, said he was a member of the Nutrition Committee of the Ministry of Health and the Ministry of Food. Lord Hankey asked whether that joint committee had been consulted, or the Chief Medical Officer of the Ministry of Health, or the Medical Research Council, or the Scientific Adviser to the Ministry of Food, or the Scientific Advisory Committee. If they were consulted, did they consider the new policy provided the best bread in the interests of public health? Lord Bledisloe said millers produced what the public demanded. He suggested an experiment between three adjoining villages—one fed on bread of the 72% extraction flour which prevailed before the war, one on bread of 80% extraction, and one on bread of 85% extraction.

Lord Woolton Explains

Lord Woolton said that the Minister of Health had been consulted. The Chief Medical Adviser to the Ministry of Health and the Scientific Adviser to the Ministry of Food had been consulted. The Secretary of the Medical Research Council had been brought into the discussion. So far as Lord Woolton knew there had been no consultation of the Scientific Advisory Committee nor of the Special Diets Committee of the Medical Research Council. That last committee was set up to advise on food requirements of persons suffering from specific diseases, so there was no point in calling them into consultation on this issue. The millers had also not been consulted. It was not proper to ask a Minister what had been the advice of this or that adviser. Therefore he did not answer the question. Ministers must not shelter behind the advice they received. The decision had been taken when he was still Minister of Food. He took it on seeing a demonstration at St. Albans that, by separating the scutellum of the wheat germ and bringing it into the flour, the same amount of vitamin B could be secured with a lower rate of extraction. This was tried on a commercial scale, and it was shown that the resulting flour was as rich in vitamin B as before, save for 0.08%, but with less bran left in the flour. Bran was not good for the human stomach. The opinion of the scientific people who had been his advisers during the war was that the reduction could safely be made to 82½%. Since then it had been suggested that the Government could go lower. It was trying that experiment out. The Government wished to preserve the quality of the flour, not a percentage of extraction rate. He would give an undertaking that it would preserve the quality of the flour. He believed that as a result of war experience the country would demand high-quality bread.

The Earl of Portsmouth said he was not prepared to say the removal of bran from bread was good. Constipation was the national curse, and he noticed that "bemax," which was almost unobtainable two years ago, was coming on the market again. This product was largely the result of removing the most valuable constituents from the wheat berry before it was made into white bread. These were then sold as a tonic at about 100 times the price they would have cost if left in the loaf. Lord Balfour of Burleigh feared that in the reduction from 82½% to 80% there was lost an undue proportion of the iron. Since the change was first made to high extraction there had been a remarkable improvement in health. The common factor was that everyone ate bread, which was presumption that bread was a predisposing cause of the improvement. There had been a striking decrease in deaths of infants under 1 month, a great reduction in deaths due to appendicitis, a reduction in deaths due to inflammation of the gallbladder, a great reduction in deaths due to exophthalmic goitre, a reduction in diabetes mellitus, an enormous improvement in the death rate of children aged 5, and a substantial decrease in mortality associated with pregnancy. There was evidence of a diminished amount of anaemia.

Lord TEVIOT asked for an assurance that the present extraction was not below 80%. Lord CRANBORNE replied that if imported flour was added the mixture might be below 80%, but not in any other case. Lord TEVIOT said he was far from happy at the position, but he withdrew his motion.

Committee on Homeless Children

The terms of reference of the Committee on the Care of Homeless Children, the members of which were announced in these columns on March 10 (p. 351), are as follows:

"To inquire into existing methods of providing for children who from loss of parents or from any cause whatever are deprived of a normal home life with their own parents or relatives; and to consider what further measures should be taken to ensure that these children are brought up under conditions best calculated to compensate them for the lack of parental care."

Doctors in the Army

Sir JAMES GRIGG said on Feb. 27 that the shortage of doctors, and especially of surgical specialists, was so acute in the Army that it was usually impossible to release any unless replacements were immediately available.

Achievements of British Science in War

Mr. SALT asked on March 1, in view of the fact that no reports had been issued by the Medical or Agricultural Research Councils for the past five years, what steps were being taken to issue reports as soon as possible dealing with such of their activities during the war as could be published without security objection. Mr. ATTLEE replied that it had been necessary, owing to war conditions, to suspend publication of reports not of direct importance to the war effort, including these annual reports. A large number of notable reports had been issued by these bodies during the war. Other reports would be published as soon as security and other considerations permitted. The form of such publication was now being reviewed.

In a previous reply Mr. Attlee told Mr. Salt that an archivist had been appointed to prepare for publication records of the achievements of British science during the war.

Research by Water Undertakings

On March 6 Mr. PRICE asked the Minister of Health what was the present estimated expenditure on scientific research by water undertakings in Great Britain; whether they made any contribution to the Water Pollution Research Laboratory; what research stations of their own were maintained; and whether he anticipated that such research work would be increased under the provisions of the Water Bill now before the House. Mr. WILLINK said that he had no detailed information on the subject of the first part of the question; the answer to the second part was "No." With regard to the third part, a number of the larger undertakings had laboratories where they carried out experiments in connexion with local water supply difficulties, the cost of which was included in the general expenses of carrying on the undertaking. As to the last part of the question, section 77 of the Third Schedule of the Water Bill would, when applied to a water company, enable it to make contributions for furthering research where it had not that power at present.

Scottish Hospital Patients Treated under E.M.S.

On March 6 Mr. HUBBARD asked the Secretary of State for Scotland how many cases had now been transferred from the list of Scottish voluntary hospitals and treated under the Emergency Hospital Scheme; and what were the financial arrangements with the voluntary hospitals for treatment of such cases.

Mr. JOHNSTON: Under a scheme which I arranged with the Scottish Branch of the British Hospitals Association in January, 1943, 32,250 patients from the waiting lists of voluntary hospitals in Scotland have been treated in Emergency Hospitals set up by the Department of Health for Scotland. For this service an overall charge of 30s. per case, irrespective of the length of stay, is made against the voluntary hospital. The scheme has had a considerable effect in reducing the waiting lists and has been of immense benefit to thousands of patients.

Sick Persons in Channel Islands.—In answer to Capt. Gammons on March 1 Mr. HERBERT MORRISON said it was not the policy of the Government to evacuate any of the able-bodied civilian population of the Channel Islands. Negotiations were in progress through the International Red Cross Committee for the evacuation of sick persons who could not be given in the islands the medical attention which their condition demanded. It was contemplated that a neutral medical commission should proceed to the islands, as soon as the necessary arrangements had been made, for the purpose of selecting those persons whose removal was imperative on medical grounds

Medical Services in Jamaica.—Mr. RILEY on Feb. 28 suggested that Col. Stanley should investigate the dissatisfaction in Jamaica with the Government's medical services. He said at least three medical officers had resigned from the service during the past year from dissatisfaction with its administration. Col. STANLEY said that while in Jamaica he had received representatives of the local branch of the British Medical Association, who expressed dissatisfaction on some points affecting the medical service. He had informed them that such matters were now the concern of the new Executive Council and Legislature in Jamaica. He was therefore not prepared to intervene on the question of an inquiry into the causes of any recent resignations from the medical service.

Notes in Brief

Legislation to amend the Housing (Rural Workers) Acts is to be introduced shortly, and in any case before the end of the session.

Double summer time will begin on April 2 and continue till July 15. It is hoped that no extension will be necessary before that date, and that it may be possible to revert to Greenwich mean time on Oct. 7.

Col. Stanley has approved in principle proposals from the Governor of the Seychelles for a reorganization of the Colony's health services and improvements to the hospital.

Sir James Grigg stated on Feb. 28 that efforts had been made to establish in camps in Germany for prisoners of war substantial reserves of medical supplies and comforts, in preparation for the mass movement of prisoners from the perimeter toward the central districts.

Medical News

The Harveian Society of London announces that the Director General of the Army Medical Services, Sir Alexander Hood, K.C.B. will deliver the Harveian Lecture on "Total Medicine" at the Royal College of Surgeons of England (Lincoln's Inn Fields, W.C. on Monday, May 28, at 3.30 p.m.

The annual meeting of the Association of Surgeons of Grea Britain and Ireland (45, Lincoln's Inn Fields, W.C.2) will be held at the Royal College of Surgeons of England, Lincoln's Inn Fields W.C., on Wednesday and Thursday, May 2 and 3. The provisiona programme is as follows: May 2, morning, business meeting and discussion on "The Education of the Surgeon," to be opened by Prof. Ernest Finch, Prof. J. R. Learmonth, Prof. John Kirk, Prof W. G. Barnard, and Major-Gen. W. H. Ogilvie; afternoon, shor papers; evening, annual dinner at the Connaught Rooms. May 3 morning, discussion on "Carcinoma of the Recto-sigmoid," to be opened by Mr. R. Scott Mason, Dr. Cuthbert Dukes, and Mr. O. V Lloyd-Davies; afternoon, operating sessions. A full programme wil be issued in April.

There is a great deal of concern about the proposed closing down of the wartime nurseries. In response to requests from mothers al over London, the London Women's Parliament (24, High Holborn W.C.1) is calling a conference on "Nurseries—A Social Service" at B.M.A. House, Tavistock Square, on Sunday, March 18, at 3 p.m At the conference women for whom nursery provision has become a necessity will be able to express their views. With nursery staffs trade unionists, borough councillors, welfare workers, and representatives from women's organizations they will work out a plan o action to ensure the continuation of nurseries after the war. Th speakers will include a medical officer of health, a matron supervisor of nurseries, and a mother.

At a meeting of the Medico-Legal Society at 26, Portland Place W., on Thursday, March 22, at 5 p.m., Mr. Donald C. Norris wil read a paper on "Medico-Legal Examinations and Reports."

The sixty-fifth annual meeting of the Mental After-Care Association will be held at Burlington House, Piccadilly, W., on Friday March 23, at 2.45 p.m. under the presidency of H.R.H. Princes Arthur of Connaught. Col. Y. Kneeland, U.S. Army, Brig. G. W. F James, M.D., and Col. Henry Yellowlees, M.D., chairman of th association, will speak. All interested are invited to attend.

A meeting of the Clinical Society of the Royal Eye Hospital wi be held at the hospital, St. George's Circus, Southwark, S.E.1, o Friday, March 23, at 5 p.m., when a talk will be given by Mr. P. M Moffatt, F.R.C.S., entitled "A Critical Survey of Orthoptics."

A meeting of the Medical Society for the Study of Venerea Diseases will be held at 11, Chandos Street, W., on Saturday March 24, at 2.30 p.m., when Surg. Capt. T. R. Lloyd-Jones, R.N and Surg. Cmdr. F. G. Maitland, R.N., will open a discussion o "Early Syphilitic Infection treated with Arsenotherapy an Penicillin."

Mr. W. K. Fitch, editor of the *Pharmaceutical Journal,* will giv a lecture on "Pharmacists with the B.L.A." before the Pharmaceutical Society of Great Britain, 17, Bloomsbury Square, W.C., o Tuesday, March 20, at 7 p.m.

The following films will be shown by the Scientific Film Association at the Royal Society of Medicine, 1, Wimpole Street, W., on Wednesday, March 28, at 5.30 p.m., and again at 8 p.m.: "The Nose Has It"; "The Action of Cilia and the Effect of Drugs on their Activity"; "Open Drop Ether"; "Unwanted Guests"; and "Conquest of a Germ." Admission by ticket only, and those who have not already done so should apply immediately to the honorary secretary of the medical committee, Dr. S. J. Reynolds, 14, Hopton Road, London, S.W.16.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* measles notifications were 4,049 higher than last week, and those for dysentery 36 higher. The total for scarlet fever rose by 47 cases, and for diphtheria by 30—Lancashire reporting a rise of 36. The incidence of acute pneumonia fell by 88 cases.

The notifications of dysentery were the largest for twenty-four weeks. The only fresh outbreaks of any size were in Sussex, East Grinstead U.D. 20, and Berkshire, Maidenhead M.B. 13. The largest of the other returns were in Lancashire 38, London 34, Essex 25, Surrey 24, Yorks West Riding 21, Devonshire 19, Glamorganshire 15, Gloucestershire 14, Middlesex 11.

In *Scotland* measles notifications rose by 32 cases, and scarlet fever by 31, but there were 38 fewer cases of acute primary pneumonia. Seven more cases of diphtheria were recorded than last week, two-fifths of the total being notified in Glasgow. Cases of dysentery were 5 fewer than in the previous week; the largest returns for this disease were in Falkirk 37, Edinburgh 31, Glasgow 22, Stirling County 11, Renfrew County 10.

In *Eire* there was a general increase in infectious diseases, the totals being higher than last week by the following amounts: measles 34, whooping-cough 19, scarlet fever 14, diarrhoea and enteritis 14, diphtheria 13. Measles and whooping-cough were practically confined to two areas—Wexford, New Ross R.D., with 25 and 37 cases respectively, and Dublin C.B. with 13 and 28 cases.

In *Northern Ireland* the incidence of measles continued to fall, and the lowest total for nineteen weeks was recorded.

The Measles Epidemic

The notifications of measles in England and Wales, 23,216, reached the highest level since the outbreak of the war, when this disease was first made notifiable. The largest returns in the two preceding outbreaks were 20,146 in the eighth week of 1943 and 17,853 in the first week of 1941. Although the incidence is now 22 times the minimum of last summer, the present level is not officially regarded as having reached epidemic proportions. From an academic point of view it is perhaps difficult to decide what level of incidence constitutes an epidemic, because the returns are available for five years only, and the normal limits of the biennial rise are unknown. But notifications 20 times higher than the endemic level seem to justify the description "epidemic," whether such totals occur periodically or spasmodically. In the present outbreak the rate of increase has been greater than in the preceding ones. The notifications in eight-week periods are:

Weeks	1944-5	1942-3	1940-1
45 to 52	61.894	91,710	111,614
1 to 8	126,970	122,369	128,705

The regional distribution varies from that of the previous epidemic, the incidence being lower in the south and higher in the north. The notifications in London, 977, are only two-thirds of the maximum weekly total for 1943, but Yorkshire's total of 4,961 cases is considerably above the previous maximum. Deaths in the great towns during the first eight weeks of this year numbered 122, compared with 4, 155, 15, 178, for the corresponding periods of the four preceding years. The largest rises in notifications during the week reviewed were: Yorks West Riding 586, Staffordshire 410, Middlesex 394, London 337, Durham 324, Essex 304.

Typhus in Cologne

Typhus had appeared in Cologne before the Allied occupation. The German authorities estimate that there are over 200 cases scattered throughout the city.

Week Ending March 3

The notifications of infectious diseases during the week in England and Wales included: scarlet fever 1,461, whooping-cough 1,462, diphtheria 470, measles 22,480, acute pneumonia 905, cerebrospinal fever 77, dysentery 399, paratyphoid 3, typhoid 13.

No. 8

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Feb. 24.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	76	3	37	2	2	75	7	27	5	4
Deaths		1	2				1	3		
Diphtheria	457	17	136	104	25	690	26	173	104	28
Deaths	8	—	1	2	—	11	2	—	2	1
Dysentery	393	34	135	3	—	234	14	79	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	3	—	1	—	—	2	—	—	—	—
Deaths		—					—			
Erysipelas			47	17	3			46	10	8
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				23					8	
Deaths	52	8	8	7	2	60	10	12	12	6
Measles*	23,216	977	453	56	93	1,796	239	196	403	1
Deaths	21	2	2	—	1	1	—	—	4	—
Ophthalmia neonatorum	78	3	11	1	—	63	3	19	1	1
Deaths										
Paratyphoid fever	6	1	—	1 (B)	—	6	1	—	—	—
Deaths	1	1	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	1,118	61	12	13	7	858	61	15	2	6
Deaths (from influenza)	51	4	4	—	1	46	3	3	2	2
Pneumonia, primary			279	12				249	27	
Deaths		39		19	10		48		14	13
Polio-encephalitis, acute	—	—				1	—			
Deaths		—					—			
Poliomyelitis, acute	3	—	—	3	—	4	—	—	3	—
Deaths		—					—			
Puerperal fever		3	12		—		1	13		1
Deaths										
Puerperal pyrexia‡	153	16	18	—	—	143	14	16	2	—
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,544	49	228	22	46	1,948	117	259	19	55
Deaths	—	—	—	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	6	1	1	7	—	7	—	—	7	3
Deaths	1	1	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough	1,539	69	151	72	20	1,810	164	154	66	16
Deaths	6	—	2	—	1	14	1	—	2	—
Deaths (0–1 year)	445	47	67	57	22	437	60	61	51	21
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	5,503	763	730	275	130	5,913	1,246	653	265	152
Annual death rate (per 1,000 persons living)			16·6	17·7	§			15 0	17·3	§
Live births	7,010	792	821	441	247	6,889	854	831	367	278
Annual rate per 1,000 persons living			16·4	28·5	§			16·9	24·0	§
Stillbirths	192	17	27			222	17	28		
Rate per 1,000 total births (including stillborn)			32					33		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

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ANY QUESTIONS?

Hysterorrhaphy

Q.—*I did an abdominal operation for dystocia. When the abdomen was opened the foetus was found lying free in the peritoneal cavity, the uterus had ruptured, and the placenta was still in the uterus. The infant was delivered out of the abdominal wound, the placenta was expressed, and the rent in the uterus repaired. The patient is quite fit to this day, and the baby is still alive and is 2 years old. Is this operation a Caesarean section or hysterorrhaphy?*

A.—Hysterorrhaphy is perhaps the best term to be employed for the particular operation. The case is of great interest clinically, because there is an implication that the ruptured uterus had not been diagnosed. The literature on the subject shows that it is not uncommon to find an unsuspected rupture of the uterus after the abdomen has been opened.

Diphtheria Immunization after Serous Encephalitis

Q.—*My boy of 13 suffered when he was 9 from an acute serous encephalitis which developed spontaneously. It began with a rash and he developed gastro-intestinal disturbance, delirium, and convulsions. For one or two days he had a slight paresis of one hand. The C.S.F. showed 15 cells per c.mm. He made a quick and complete recovery. Is there any danger connected with an immunization against diphtheria?*

A.—The illness "serous encephalitis" from which this boy suffered four years ago may have been due to one or other of several conditions. It could have been post-infectious encephalitis such as happens after measles, mumps, or vaccinia, but there is no history of any such antecedent infection; it might have been a mild attack of polio-encephalitis (did it occur in the late summer, or was there poliomyelitis in the district?); or, with the history of an accompanying rash, it might have been a meningococcal septicaemia with some cerebral localization; or it may have been an acute allergic condition, but to what? In any event, the advisability of immunization against diphtheria is the point now in question, and in this connexion an antecedent history of encephalitis of whatever aetiology is no bar to the performance of the Schick test, which in a boy of this age is an essential preliminary to artificial immunization. If the Schick test is positive and there is no pseudo-reaction with the control material, it is safe to go ahead with immunization—either two doses (0.2 and 0.5 c.cm.) of A.P.T. at one month's interval or three doses of 1.0 c.cm. each of T.A.F. at 2- and 3-week intervals.

B.S.R. Estimation by Westergren Tubes

Q.—*What is the technique of the B.S.R. estimation by means of Westergren tubes?*

A.—Westergren's apparatus and tubes may be bought from any firm dealing with laboratory supplies. 0.4 c.cm. of a sterile 3.8% solution of sodium citrate is drawn up into a 2-c.cm. syringe, the needle of which is then introduced into a vein and the syringe filled with blood to the 2.0 c.cm. mark. The mixture of blood and citrate is emptied into a specimen tube, mixed well, and then drawn up as soon as possible in the special Westergren tube to the zero mark. With the finger on the top of the tube, the point of the tube is firmly placed on the rubber disk at the base of the Westergren stand, and the top of the tube slid under the spring clip. The blood must be examined within 3 hours of collection. The number of millimetres of clear plasma at the end of 1 hour is the sedimentation rate. The normal values are: for men 2-5 mm., and for women 3-7 mm. Sometimes a second reading is made after a further hour. The normal values for this 2-hour reading are: for men 7-15 mm., and for women 12-17 mm. It is essential that the Westergren stand be absolutely vertical, as slight variation from the vertical may cause considerable increases in the sedimentation rate. Many Westergren stands are made of wood and are liable to warp, so this point must be watched.

Body Odour

Q.—*A girl aged 12 has had to leave school on account of complaints by other boarders of a disagreeable smell emanating from her—this also being noticed by her parents. She has not menstruated yet. I could find no cause for the complaint in urine, etc. Can you suggest treatment? Scents have been tried without success.*

A.—In such a case it is necessary to exclude infection of the antra and upper air passages, gingivitis, bronchiectasis, vaginal discharge, and diurnal enuresis. An unsuspected fat dyspepsia occasionally causes halitosis, and the symptom is relieved by restricting the fat in the diet. Investigation may fail to reveal any organic lesion, in which case the following simple remedies should be given a trial. If the smell is coming from the breath creosote capsules should be prescribed; if from the skin, she should be bathed twice a day and have a simple deodorant applied to the axillae and groins. In addition she should wear only clothes which can be regularly washed, and these should be changed twice a week. The hair should also be washed frequently. The possibility that the child is deliberately sucking some unpleasant-smelling tablets should be considered.

Penicillin Administration

Q.—*In an attempt to overcome some of the difficulties of penicillin treatment (painful injection, rapid absorption and excretion, destruction by gastric juice) would any of the following methods of administration be likely to be efficient: (1) frequent inunction of a penicillin ointment with a lanoline or preferably eucerine base, (2) sublingual medication, (3) inhalation for certain diseases of the respiratory tract, (4) suppositories for anal affections?*

A.—These are ingenious suggestions, and although there are objections to them their usefulness could be determined only by trial. The first two are presumably intended as substitutes for intramuscular injection when systemic treatment is required. Whatever the route of administration, the rate of renal excretion demands that the total daily dose absorbed should be not less than 100,000 units. Little is known about the absorption of penicillin by the normal skin: unless this were unexpectedly free and rapid the disturbance to the patient at night by repeated vigorous inunction over a wide area might be greater than that caused by injections. Penicillin is absorbed from the mouth, but part of the dose so administered would be swallowed and destroyed in the stomach; this must therefore be a wasteful method. Of the two forms of local treatment suggested, inhalation, if frequently repeated, is theoretically sound and well worthy of trial. Rectal medication is unpromising for two reasons: that intestinal bacteria destroy penicillin, and that most intestinal infections are due to insensitive organisms. Apart from female gonorrhoea (which should be treated systemically) what infection in this area is there which could benefit?

Multiple Telangiectases

Q.—*A patient has multiple telangiectases of the face and nasal mucosa, resulting in alarming attacks of epistaxis of an arterial type. They are extremely difficult to arrest, and treatment has caused considerable destruction of the nasal septum and inferior turbinates. Any suggestions?*

A.—The usual methods of treatment of telangiectases are by electrolysis, ignipuncture by galvanic or diathermic cautery, radiotherapy, or by carbon-dioxide snow. Of these, electrolysis would seem to be the method of choice in this case. The questioner does not state what treatment has already been tried. The destruction of tissue must have been due either to pressure from plugging or to sloughing from sepsis. Further loss of tissue ought to be prevented by the local use of penicillin (if available), which should keep the part free from septic organisms. It could be applied in the form of a powder, which could be insufflated.

Menstruation and Epilepsy

Q.—*Is there any knowledge of the result of artificial induction of the menopause by x rays in the case of epilepsy occurring only at the menstrual period?*

A.—I have no personal knowledge of this having been done, nor do I know of any reference to it in the literature. It is by no means certain that the fits would stop, for although epilepsy often responds to highly specific precipitating causes such as menstruation, as in this case, removal of the precipitant only removes the immediate cause. The patient would still be a potential epileptic.

Leukonychia

Q.—*What is the cause of leukonychia, and is there any reasonably certain cure for the complaint?*

A.—Leukonychia may be limited to small white spots or transverse bands, or may affect the whole nail substance. It has been explained by "soft" areas which shrink and admit air, or more probably by defect of normal keratinization from injury or malnutrition. It is doubtful if the condition can be improved by treatment. Simple cosmetic applications disguise but do not cure.

Hyoscine Hydrobromide

Q.—*In view of the partial but undoubted success of hyoscine hydrobromide in the cure and prevention of sea-sickness, do you think it could be used with good effect for pregnancy sickness?*

A.—Hyoscine is effective for sea-sickness only when relatively large doses are used, and even then it is effective only in certain individuals. Holling, McArdle, and Trotter (*Lancet*, 1944, 1, 127) found that sea-sickness was more efficiently prevented by hyoscine than by any other drugs they tried. They noted no unpleasant side-effects except dryness of the mouth, and no effect on vision, on ability to shoot, or on capacity for physical exertion. But they point out that their experiments were performed on young, fit men and for short trips only—that is, the drug was not given by repeated administration over a number of days. The doses used were 0.6 mg. (1/100 grain) and 1.2 mg., the latter being more effective. It is doubtful whether hyoscine would be of any value in controlling pregnancy sickness, and the procedure would not be without danger, especially if the large doses mentioned were needed. Hyoscine is a powerful deliriant, and in some patients causes uncontrollable excitement. With repeated administration unpleasant side-effects such as dryness of the mouth and disturbances of vision might result. In pregnancy sickness hypnotic drugs are best avoided, though a mild sedative such as potassium bromide may be given to ensure sleep. Patients are best treated along general lines, including avoidance of dehydration, high carbohydrate diet, and the administration of vitamin B. In severe cases admission to hospital is advisable.

Ménière's Syndrome

Q.—*Could you suggest any treatment that will make the attacks of Ménière's syndrome few and far between?*

A.—The attacks of Ménière's syndrome are thought to be due to faulty water metabolism, producing a "waterlogged" condition of the inner ear. Treatment is to avoid the ingestion of sodium salts. The use of table salt at meals is forbidden, some substitute taking its place. The daily fluid intake is also drastically reduced. If such measures fail, the offending labyrinth may be destroyed by injecting alcohol into the external semicircular canal. This is permissible only when hearing is negligible in the affected ear, as the function of the entire inner ear is destroyed.

Acroparaesthesia

Q.—*Is there any treatment for acroparaesthesia involving both fingers and toes in a woman of 65 who has to do all her own housework?*

A.—It is, of course, necessary first to exclude an organic neurological cause for acroparaesthesia—e.g., subacute combined degeneration. Assuming such causes to be excluded, acroparaesthesia as seen in middle-aged and elderly women is probably circulatory in origin and usually responds quite well to the following mixture:

℞	Liq. trinitrini	♏ 1
	Sod. brom.	gr. 5
	Acid. hydrobrom. dil.	♏ 10
	Aq.	ad ℥ss

Sig.: ℥ss t.d.s.

together with a small dose of thyroid extract, such as 1/2 grain a day. This treatment needs to be continued for several months.

Chemical Contraceptives and Endocrine Activity

Q.—*What is the method of choice of contraception in the case of a healthy woman of 27 who has had 2 children within 15 months? To what extent do chemical contraceptives inhibit vaginal absorption of the endocrine constituents of semen, and are these "endocrines" of real benefit to the woman?*

A.—Previous replies to the first part of this question appeared n the *Journal* of Aug. 5, 1944 (p. 198), Nov. 4, 1944 (p. 615), and Feb. 24, 1945 (p. 282), and should be consulted. In general it can be stated that the most suitable contraceptive in a case of this kind would be a Dutch vaginal pessary or a cervical cap, correctly fitted according to size, and combined with a chemical contraceptive such as phenyl mercuric acetate incorporated in a jelly or soluble pessary.

The second part of the question is more difficult. It was at one ime believed that the spermatozoa themselves can be absorbed by he epithelial cells lining the genital tract, and that the products of heir destruction have some form of beneficial effect on the female organism (Kohlbrügge's theory). This is no longer believed, and according to the evidence available there is no reason to think that he absorption of spermatozoa has any endocrine influence. The view current in some circles is that the fluid part of human semen contains some principle which, when absorbed by the vaginal (or uterine) epithelium, is of importance to the woman. Its reputed effects are mainly of a vague character, such as a sensation of well-being; but apart from any other function it may have it is claimed hat human seminal fluid promotes development or maturation of he female genitalia, especially the uterus, and thereby improves reproductive function. It is therefore argued that continued contraception leads to sterility, particularly if the method used is the condom or coitus interruptus. This view is based on scanty evidence, largely unconfirmed, and has only a few, but nevertheless ardent, advocates. While it is true that the vaginal epithelium can absorb hormones—e.g., oestrogens—and other substances, the majority believe that it has still to be proved that seminal fluid contains any special substance, hormonic or otherwise, whose absorption by the genital tract is of any value to the woman. Even if it has, the nature of the substance remains in doubt, and it is therefore impossible to say how it will be affected by chemical contraceptives. However, it seems unlikely that such contraceptives would have any direct chemical destructive action, and they should not interfere with the absorption of this hypothetical hormone unless they are of such a nature that they damage the vaginal epithelium, and are therefore to be avoided in any case.

Student House Officers

Q.—*What is the legal position of the student house officer as regards the ordering of dangerous drugs, and general "answerability" in law—e.g., actions at law?*

A.—The legal position of a student in hospital is very debatable, and has never been clarified by decision or statute. He must himself exercise a "reasonable" degree of skill and care, and may have damages awarded against him if his professional conduct in these respects falls below the standard to be "reasonably" expected, in the opinion of the court, of a student in his particular circumstances. How far the hospital governors, or his medical instructors or supervisors, can be held liable for his lack of skill or care probably depends on whether, in the particular case under review, the student at fault was allotted a duty which could "reasonably" be considered within his capacity. Perhaps hospital governors are not liable in any event, but instructors and supervisors almost certainly bear such a responsibility. As the circumstances of the particular case are all-important, the court would probably consider it reasonable to give students, in the difficult circumstances of wartime when qualified men are scarce, more responsible work than they would be given in time of peace.

In the particular matter of prescribing and supplying dangerous drugs, the law is that only "authorized persons"—for present purposes registered medical practitioners—may do so. Once the drug has been lawfully prescribed or supplied, it seems that anyone may lawfully administer it. In spite of the alteration in the conditions of hospital work, the Home Office has never extended the statutory authorization to students, and therefore a student may not lawfully prescribe or supply a dangerous drug except under the direct supervision of a qualified man. On the other hand, the authorities have not shown any disposition to inquire into the present practice in hospitals. Their attitude is doubtless the admirable one of letting a hard-pressed and necessary body of persons do their work as best they can without interference. Unless public anxiety is aroused by some mishap, the present position will probably be allowed to continue unquestioned.

Cold Pressor Tests

Q.—*What are cold pressor tests? Are they of any clinical value?*

A.—If one hand is immersed in ice water (4° to 5° C.) a rise of blood pressure averaging 9 mm. systolic and 7 mm. diastolic is normally observed. In certain people the rises may be of the order of 40 mm. and 30 mm. respectively. It has been claimed that such high figures are characteristic of hypertension or potential hypertension, but this view is not generally accepted. The response is not peculiar to cold, as similar pressor responses are obtained with other stimuli which produce discomfort or pain. There is no conclusive evidence that a hyper-reactive vasomotor system is correlated with a tendency to high blood pressure or arteriosclerosis, and cold pressor tests are therefore not of value in routine clinical work.

Anxiety and Obsessional Neuroses

Q.—*How does one distinguish an "anxiety neurosis" from an "obsessional neurosis"? What is the modern treatment for the latter?*

A.—The term "anxiety neurosis" is used in the Services to cover both what Freud calls "anxiety neurosis," when there is an excess of production of libido as against discharge, as in coitus interruptus, and anxiety hysteria (phobias, etc.), which are psychogenic. The term "anxiety states" may conveniently be used of all exaggerated anxiety, whether neurotic or otherwise (as in the "conditioned anxiety" from bombardments). Such terms may be most simply understood when viewed biologically. When an organism is faced with danger it reacts (*a*) by preparatory changes in the autonomic nervous system, and with a release of energy; (*b*) by a state of mental apprehension; and (*c*) by discharge of energy in voluntary motility through the central nervous system, whereupon the organism achieves its end and is restored to a state of equilibrium. Disorders of the first type are the psychosomatic disorders, such as nervous indigestion, palpitation, sweating, some headaches, etc. Disorders of the second type are the anxiety neuroses—generalized fear, the phobias, apprehension. Disorders of the third type are the conversion hysterias, which affect the functions of the central nervous system—such as hysterical blindness, deafness, anaesthesia on the sensory side, and paralysis on the motor side. Which of these is the symptom "chosen" depends on many factors, partly accidental, partly tending physically to the weak spot, but mostly influenced by childhood reactions and personality types. There may be, of course, and often are, mixed conditions. In addition to these there are the sexual aberrations and perversions, which are the emergence into activity of infantile modes of sensuous pleasure.

In our illustration we have taken the biological responses to fear, but the same physiological and psychological effects may result from other emotions like rage, which often produces headaches; but the mental part consists of hate or anger, not apprehension. Further, these same results may occur when the danger is subjective, from within, from fear of an impulse or from a memory, in which case the body suffers all the same changes and produces the same physiological results to prepare to meet objective changes which are not there.

The term "obsessional neurosis" is usually taken to refer to compulsive acts; but these may be of two types. In the first category come those impulses which are the emergence of some repressed aggression—e.g., the compulsion to strike or poison others, or the fear of doing so. Many tics are of this kind, for tics are aborted acts—e.g., the compulsion to strike may take the form of a tic of the arm. Obsessional neuroses of the second category are acts of a propitiatory kind—e.g., counting ten before speaking, walking on or over the cracks in the pavement, getting things exactly into line with the eyes. Over-conscientiousness and punctiliousness are obsessional character traits of the same order, being in essence propitiatory, and unconsciously designed to avert the dreaded consequences of forbidden desires. We may not know what these desires are, or that we are repressing them. But the necessity to keep them down means that we go to the opposite extreme—it may be, of over-punctiliousness, over-goodness, over-cleanliness—or that we resort to the performance of ritual acts. A mother, for instance, who for any reason does not want her child may feel guilty of this wish, and so become over-anxious about the child's health; or she may develop a phobia that she will poison the child; or she may start to sterilize unnecessarily everything the child uses, not in the least knowing why. Obsessions are therefore morbid mental compulsions due to a basic moral conflict.

The outward feature which distinguishes the obsessions from the other neuroses—e.g., hysteria and sex-perversions—is their compulsive nature; and, whereas the others are symptoms of some repressed tendency, the obsessional neurosis proper is primarily an act of the moral sense (or super-ego) *against* the repressed tendency. Reference should be made to the works of Freud, especially his *Introductory Lectures*. The modern treatment is obviously to discover the underlying guilt, which probably goes far back into childhood but which also persists at the present day, and to release the repressed emotion so that it might be used normally. But these are among the most difficult psychoneuroses to cure.

INCOME TAX

Payment for Services of Wife

E. S.'s wife has an income of £25 in the form of interest. How much can he pay her for professional services without her having to pay income tax?

*** The question is not affected by the amount of any "investment income" of the wife; that is deemed to be the husband's income for income-tax purposes. If E. S. pays his wife £89 for a particular year, the result will be that she has an "earned income" of £89 against which can be set the earned income relief (1/10th of £89) = £9 and the £80 special relief to married women's earnings, leaving nothing on which tax is due. If more than £89 is paid then tax begins to be payable.

Sickness Benefits

"OPTIMIST" refers to a previous reply on this subject to the effect that sickness benefits are not taxable, and points out that in the case of Forsyth *v.* Thompson (heard in 1940) the benefits were held by the court to be assessable.

*** The benefits referred to in the previous reply were those which are received for irregular and comparatively short periods. In Mr. Forsyth's case the benefits were permanent—as he had been permanently disabled from carrying on his profession. The legal distinction is that the former payments are not "annual payments," but the latter were so regarded and held to be liable as such to income tax. How long a non-permanent benefit would have to run to qualify as an "annual payment" is not known. It would, on the basis of the Forsyth judgment, depend to a large extent on the likelihood of its indefinite continuance.

LETTERS, NOTES, ETC.

Epileptic Fits in the Theatre

Dr. ROBERT CAIRNS (Barking) writes: Regarding the question of epileptic fits in the theatre (Jan. 27, p. 138) the possibility of endogenous hypoglycaemia should be considered. A detailed history may reveal that the patient frequently misses a meal when he visits the theatre or cinema, and his blood sugar is likely to be low. It would be interesting to inquire whether he eats sweets or drinks sweetened tea on such occasions, and if his attacks are prevented in this way. A low blood sugar during the night would account for his nocturnal attacks, and the nature and time of the last meal before retiring should be determined. Special investigations would include pre-breakfast blood sugar, glucose tolerance (6-hour curve), and be directed towards detecting any abnormality of pituitary, thyroid, adrenal, or liver function. An abnormal tolerance curve with the absence of any abnormality of these organs is suggestive of pancreatic hyperplasia or adenoma.

Rhubarb Leaves

Dr. S. CONCHUBHAIR (Dublin) writes: Dr. G. V. Ryan of Dublin states (Dec. 30, p. 876): "The leaves of rhubarb as a salad would probably be safe enough. Cooking them breaks down the fibres and releases the poison (oxalic acid) into the intestine. . . ." One might think from reading this that to eat raw leaves of rhubarb would be safe since oxalic acid would be released from them on cooking, but not otherwise, but this would be erroneous, as the raw leaves are poisonous; it is possible that one would not be likely to eat sufficient to be poisoned.

Translation, Please

Capt. S. S. B. GILDER writes: I find Dr. Burnet's notes under this head (Feb. 3, p. 174) rather confusing. During a recent enforced sojourn in the Reich I had many contacts with both French and German doctors, and I found that my French colleagues almost invariably used the word *charbon* for anthrax, and *anthrax* for carbuncle. The Germans use *Milzbrand* as a generic term for all types of anthrax and occasionally *Milzbrandkarbunkel* for the malignant pustule. Although their word for carbuncle is *Karbunkel*, they frequently loosely use the term *Furunkel* for lesions which, to British eyes, had long passed the stage of a folliculitis. I see that my *Lehrbuch der inneren medizin*, which gives English and French synomyms for many diseases, agrees with the above. It seems clear, however, that in earlier days failure to recognize the difference between a malignant pustule and a carbuncle led, as Dr. Burnet says, to an indifferent use of the same word for both conditions.

Mr. GEO. H. BELL (London, S.E.4) writes: The following extracts may help Dr. Maurice McElligott (Jan. 13, p. 70). I give only those phrases which define the words.

French:

Larousse XX^e^ Siècle, vol. II, p. 141: Charbon, maladie infectieuse causée par l'inoculation de la bactérie charbonneuse . . . pustule maligne. . . .

Garnier et Delamare, *Dict. de Termes Techniques de Médecine*, p. 107: Charbon, fièvre charbonneuse . . . bactéridie charbonneuse.

German:

Der Kleine Brockhaus, p. 464: Milzbrand (Anthrax), akute, durch den Milzbrandbazillus verursachte Infektionskrankheit. . . .

Dornblüth, *Klinisches Wörterbuch*, p. 35: Anthrax, Milzbrand . . . mit Bildung einer Pustel, *Pustula maligna*, Milzbrandkarbunkel . . . Erreger, Milzbrandbazillus = *Bacillus anthracis*.

Spanish:

Espasa-Calpe, *Diccionario Enciclopedico*, vol. I, p. 790: Carbunco, . . . el carbunco o pústula maligna es una enfermedad originaria por el *Bacillus anthracis*.

Larousse, *Diccionario de Medicina usual*, p. 413: Pústula maligna o carbunco (Bacteridia carbuncosa).

Neither of the last two works mentions the word "carbón" with the meaning of anthrax, although the latter is translated from French and the obvious rendering of "charbon" would be "carbón," if such a term were really Spanish. But Spanish has suffered, perhaps more than any other language, by being flooded with the barbarisms of careless translators; "carbón" may be among them.

Dr. James Burnet (Feb. 3, p. 174) introduces another language and another subject. It may be helpful, therefore, if I give the most usual terms for (*a*) the disease caused by *Bacillus anthracis* and (*b*) the ordinary carbuncle:

(*a*) Anthrax.—French: *Charbon* (pustule maligne). German: *Milzbrand* (pustula maligna). Italian: *Carbonchio* (pustula carbonchiosa). Spanish: *Carbunc(l)o* (pústula maligna).

(*b*) Carbuncle.—French: *Anthrax*. German: *Karbunkel*. Italian: *Antrace*. Spanish: *Antrax*.

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THERAPEUTIC TRIAL OF METHIONINE IN INFECTIVE HEPATITIS*

BY

CLIFFORD WILSON, D.M.

Major, R.A.M.C.

M. R. POLLOCK, M.B., B.Chir. AND **A. D. HARRIS, M.R.C.S., L.R.C.P.**

During the present war there has been a greatly increased incidence of liver disease due to infective hepatitis, arsenotherapy jaundice, and homologous-serum jaundice following inoculation with yellow-fever vaccine. The problem of treatment has produced a renewed interest in the relation of dietary factors to liver disease. Most animal experiments recorded in the literature have been concerned with the production of cirrhosis of the liver and its relation to the fat content of the diet or to liver metabolism of fat. More recently, however, certain protein constituents have been shown to have an important bearing on the production of acute liver damage. Davis and Whipple (1919) found that skimmed milk or casein protected the liver against the toxic action of chloroform. Subsequent work (Miller, Ross, and Whipple, 1940; Miller and Whipple, 1942) revealed that the sulphur-containing amino-acids, particularly methionine, were the specific protective factors. These experiments were performed in dogs fed on a very low protein diet. Messinger and Hawkins (1940) found that in dogs a high protein diet protected the liver against the toxic action of arsphenamine; and Goodell, Hanson, and Hawkins (1944), using a similar technique to that of Miller and his colleagues, showed that methionine exerted a specific protective action against mapharside. More recently it has been discovered that protein deprivation alone gives rise to acute liver damage, which can be prevented by the addition of sulphur-containing amino-acids to the diet. Daft, Sebrell, and Lillie (1942) reported that cystine and methionine prevented the hepatic haemorrhages and necrosis which occur in rats on a low-protein high-carbohydrate diet. Himsworth and Glynn (1944) demonstrated that this protective action was independent of other dietary factors.

From these experiments it is apparent that protein deprivation in animals produces or predisposes to acute hepatic necrosis and that the sulphur-containing amino-acids, particularly methionine, protect the liver from the effects of protein deficiency. It was on the basis of these experiments that the present therapeutic trial of methionine was undertaken. The object of the trial was to discover whether oral administration of the amino-acid had a beneficial effect on the course of the disease and, in particular, whether the period of incapacity could be shortened.

Material

The trial was carried out on 100 Service patients with infective hepatitis, admitted to hospital under the M.R.C. Jaundice Unit. Methionine was administered to alternate cases. All were males, except three in the treated group and two in the control group. The average duration of symptoms of all cases on admission was 8.3 days, the average interval between the appearance of dark urine and admission was 3.9 days, and the majority of the patients had been jaundiced one to two days.

Methods

dl-methionine was given in daily doses of 5 g. from the time of admission until the urine had been bile-free (using the foam test) for five days. This quantity of methionine is probably roughly equal to the average content of the normal diet. The amino-acid was administered in morning and evening doses of 2.5 g. each. A fresh solution was made daily, kept in the refrigerator, and given ice-cold, flavoured with orangeade. Control subjects received orangeade alone. There was no restriction of diet except that greasy foods were omitted, and all patients received a supplementary pint of milk and one egg daily. It was impossible to give a fixed diet owing to variation in the appetite at different stages of the disease. Sample analyses showed that during the period of diminished appetite (i.e., during the first few days after admission) the amount of food actually consumed contained approximately 60 g. protein, 70 g. fat, and 240 g. carbohydrate, with a total calorie value of 1,900. During the later stages, after the appetite had returned to normal, the values were 120 g. protein, 130 g. fat, 450 g. carbohydrate; calorie value 3,500. The majority of patients were kept in hospital until they were fit to resume training at a convalescent depot, from which they returned for examination one month after discharge from hospital.

Comparison of the treated and control groups was based on clinical and biochemical criteria. The clinical criteria were: (1) duration of anorexia after admission; (2) duration of jaundice after admission; (3) duration of liver enlargement after admission; (4) duration of liver tenderness after admission; (5) period in hospital; (6) frequency of relapses or recrudescences. The majority of relapses or recrudescences were observed before discharge from hospital; we have included any deterioration of the patient's condition during recovery which led to a return of symptoms with increase in biliuria and rise in the serum bilirubin.

The biochemical criteria employed were: (1) duration of biliuria; (2) interval between admission and return of serum bilirubin to 2 mg. per 100 c.cm.; (3) maximum serum bilirubin; (4) hippuric acid synthesis after the disappearance of bile from the urine, as a test for recovery of liver function. The foam test for bilirubinuria was used, and serum bilirubin was estimated by the method of Malloy and Evelyn (1937). The intravenous modification (Quick, 1939) of the hippuric acid synthesis test was employed.

Comparability of Control and Treated Cases

The following criteria were used to determine whether the control and treated cases were comparable: (1) age; (2) interval between first symptom and admission; (3) interval between appearance of dark urine and admission; (4) percentage of cases admitted with rising serum bilirubin.

TABLE I.—*Comparability of Treated and Control Groups*

	Treated	Controls	Difference	D./S.E.
Number of cases	50	50		
Age (mean in years)	26·7	27·2	0·5	0·42
Onset to admission (mean in days) ..	7·5	9·2	1·7	1·84
Dark urine to admission (mean in days)	4·4	5·7	1·3	2·14
Number of cases with rising serum bilirubin on admission	25	25		

The comparative figures for the two groups are given in Table I. The age distribution was very similar, with mean

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* A report to the Medical Research Council.

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values of 27.2 (controls) and 26.7 years (treated cases). The mean duration of the disease before admission was a little shorter in the treated group (7.5 against 9.2 days), which might produce a slight bias in favour of the untreated cases in respect of criteria measured from the date of admission. There were 29 patients in the treated group with less than seven days' history on admission, compared with 23 in the control group: as will be seen later, comparison of these early cases does not give significantly different results from those obtained by comparison of all cases. Thus the groups may be regarded as comparable in spite of the shorter mean duration before admission in the treated cases. Furthermore, the duration of the disease before admission is largely determined by the length of the pre-icteric stage; this we have found to bear no relation to the severity or duration of the icteric stage, on which our comparison is mainly based. In both groups exactly half the cases showed a rising serum bilirubin after admission. This is not an entirely satisfactory criterion, since estimations were made on admission and every third day subsequently, so that if methionine had an immediate beneficial effect a rising serum bilirubin on admission might have been checked in some cases. The general results of the investigation indicate that such an occurrence is unlikely. On the several criteria employed, it may therefore be assumed that the control and treated groups are comparable.

Results

A comparison of the clinical and biochemical criteria in treated and untreated patients is made in Table II. Figures are given for all cases, and for early cases admitted with less than seven days' history of symptoms. The majority of criteria show a slight bias in favour of the methionine-treated group, but the differences are not statistically significant.

TABLE II.—*Comparison of Clinical and Biochemical Criteria of Severity and Duration in Treated and Control Groups*

	All Cases				Early Cases			
	Treated	Controls	Difference	D./S.E.	Treated	Controls	Difference	D./S.E.
Number of cases ..	50	50			29	23		
Duration of anorexia (days)	8·3	8·7	+0·4	0·17	7·7	10·7	+3·0	0·79
Duration of jaundice (days)	16·0	18·6	+2·6	0·96	17·9	17·8	−0·1	0·02
Duration of liver enlargement (days)	20·8	23·9	+3·1	0·67	21·6	24·2	+2·6	0·40
Duration of liver tenderness (days)	21·5	22·8	+1·3	0·47	20·5	24·8	+4·3	0·67
Period in hospital (days)	32·0	36·4	+4·4	1·33	33·9	32·1	−1·8	0·35
Number of relapses	5	9	+4	1·14				
Duration of bilirubinuria (days)	13·2	16·7	+3·5	1·59	14·8	17·0	+2·2	0·55
Duration of hyperbilirubinaemia (days)	18·1	21·9	+3·8	1·20	21·1	20·2	−0·9	0·19
Maximum serum bilirubin (mg./100 c.cm.)	12·0	12·3	+0·3	0·20	12·0	12·2	+0·2	0·11
Final hippuric acid test	1·039	1·058	−0·019	0·36	1·007	1·125	−0·118	1·49

+ = Difference in favour of treated cases. − = Difference in favour of controls. Early cases were admitted within 7 days of onset. All figures except number of relapses are mean values. Time intervals are measured from admission —i.e., from the beginning of treatment. Duration of hyperbilirubinaemia is the interval between admission and return of serum bilirubin to 2 mg./100 c.cm. Hippuric acid test is expressed as grammes of sodium benzoate excreted in 1 hour.

The mean duration of jaundice after admission was 16.0 days in treated patients and 18.6 days in controls. This is not a significant difference (D./S.E.=0.96). In early cases the difference was negligible (17.9 against 17.8 days). Duration both of liver enlargement and of liver tenderness was again slightly longer in the control than in the treated series, and the early cases showed a similar but not significant difference. Duration of stay in hospital was 4.4 days shorter in the treated group (32.0 days) compared with the controls (36.4 days); in early cases the difference was reversed (33.9 days, treated; 32.1 days, controls). There were five relapses in the treated group, compared with nine in the control group, but this difference is less than twice the standard error (D./S.E.=1.14). Duration of anorexia was almost the same in the two groups (8.3 days, treated; 8.7 days, controls), although in early cases anorexia lasted 3 days longer in controls.

Comparison of the biochemical criteria showed similar small differences in favour of the treated group. The duration of bilirubinuria after admission was 13.2 days, treated, against 16.7 days, controls (D./S.E.=1.59); in the early cases the difference was somewhat smaller (14.8 against 17.0 days). The duration of hyperbilirubinaemia after admission showed a similar but not significant difference (18.1 days, treated; 21.9 days, controls; D./S.E.=1.2); this difference was reversed when early cases were compared (21.1, treated; 20.2 days, controls). The difference in duration of hyperbilirubinaemia was more pronounced in cases admitted with a falling serum bilirubin, which is partly explained by the fact that in these the mean admission serum bilirubin was higher in the control (7.65 mg. per 100 c.cm.) than in the treated group (5.9 mg. per 100 c.cm.), so that half the control cases started with a disadvantage, estimated at 2½ to 3 days, compared with the treated cases.

The mean maximum recorded serum bilirubin was almost identical in the two groups. The comparison of maximum serum bilirubin was confined to the 25 cases in each group admitted with rising serum bilirubin. If, instead of comparing the mean values, the cases with rising serum bilirubin on admission are subdivided into groups with maximum serum bilirubin of 0 to 5, 5 to 10, and over 10 mg. per 100 c.cm., the distribution of cases in these groups of differing severity is very similar in the treated and untreated series (Table III).

TABLE III.—*Distribution of Cases admitted with Rising Serum Bilirubin, according to Maximum Observed Serum Bilirubin*

Maximum Serum Bilirubin	Treated	Controls
0–5 mg./100 c.cm.	1	1
5–10 mg./100 c.cm.	10	7
Over 10 mg./100 c.cm.	14	17
Total	25	25

The hippuric acid test, performed at the end of treatment, showed no significantly different mean value in treated and control cases; in fact, the result was slightly favourable to the controls.

Discussion

One of the difficulties in interpreting the results of therapeutic trials in infective hepatitis is the choice of suitable criteria for comparison. In individual cases of the disease there often appears to be a very variable relationship between the clinical and biochemical findings. We have attempted to overcome this difficulty by comparing as many criteria as possible, so as to obtain a comprehensive picture of the severity and duration of the disease. In a study of over 200 cases we have found that in a large series there is in fact a fair correlation between the clinical and the biochemical criteria of severity used in this comparison.

Although the differences between treated and untreated cases do not appear to be statistically significant, the fact that all the criteria except hippuric acid synthesis show some bias in favour of the treated group suggests that possibly the methionine may not have been without benefit. Since, however, many of the criteria are interdependent their values should not be summated in assessing the effect of methionine treatment. Thus duration of jaundice and duration of biliuria are dependent on duration of hyperbilirubinaemia; and length of stay in hospital, except in a few cases, was decided by the time taken for the serum bilirubin to reach the 2-mg. level.

We conclude, therefore, that oral administration of methionine under the conditions of this trial had no significant effect on the severity or duration of the disease. It must be pointed out that infective hepatitis is rarely diagnosed until jaundice becomes manifest. Even if treatment is started on the first day of jaundice, symptoms may have been present for a week or more, and both symptoms and liver function tests are rapidly improving in the majority of cases. It is apparent that methionine administration does not prevent relapses. We observed five relapses during the course of methionine therapy, and there was no evidence that the degree of liver involvement during these relapses was less than in untreated subjects. Himsworth and Glynn (1944) have suggested that massive hepatic necrosis occurring in the course of infective hepatitis may be due to nutritional factors. The rarity of this complication would make it extremely difficult to decide this point. It has been stated (Cohen, 1944) that methionine undoubtedly has beneficial effects in "subacute necrosis" of the liver. The proof of this would again demand a large and well-controlled series of cases. In our limited experience methionine has been ineffective in patients who had already developed symptoms of hepatic failure.

Summary

Five grammes of methionine has been administered daily by mouth to alternate cases in a series of 100 Service patients with infective hepatitis. A comparison of clinical and biochemical criteria has shown no significant effect on the severity or duration of the disease or on the incidence of relapses.

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TREATMENT OF INFECTIVE HEPATITIS WITH METHIONINE

BY

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No therapeutic means have yet been found capable of producing a rapid alleviation of infective hepatitis. There would seem to be justification for seeking such a means among the constituents of proteins. Favourable effects of a diet of high protein and vitamin content have been claimed by some investigators in cases of liver disease (Patek and Post, 1941). In animals it has been shown experimentally that the health of the liver and its capacity to resist the action of toxic agents are influenced by the protein content of the diet (Himsworth and Glynn, 1942). Diets low in protein may produce in animals a cirrhosis of the liver which in many features resembles that seen in man (György and Goldblatt, 1939; György, 1944; Lillie, Daft, and Sebrell, 1941). Of the amino-acids, methionine has proved most effective in preventing the experimentally induced deposition of fat in the livers of animals (for references, see McHenry and Patterson, 1944) and the cirrhosis associated with a low protein intake (György, 1944). From the work of Miller and Whipple (1942), who described its value in preventing necrosis of the liver following chloroform anaesthesia, methionine may have some value in protecting the liver against other toxic substances. In what way methionine acts in these conditions, whether by processes of transmethylation or by a role in sulphur metabolism, is uncertain. Nevertheless, of all the amino-acids, methionine most justifies a trial of its effect upon liver disease in man. Peters *et al.* (1945) have given evidence of a slight beneficial effect of methionine and cysteine upon so-called post-arsphenamine jaundice. While that trial was in progress it seemed worth while to ascertain its usefulness in infective hepatitis.

Details of Trial

All patients suffering from infective hepatitis referred to the hospital between Oct., 1943, and March, 1944, were admitted to the same ward. The total number was 37, and their ages were between 17 and 45 years. Care was taken to exclude patients with liver disease from other causes; no patient who had received neoarsphenamine or who had been exposed to any toxic substance was included in the experimental group. All the patients were kept in bed. Every alternate patient was given methionine. They were not discharged until clinically well and their plasma bilirubin had fallen below 2 mg. per 100 c.cm.[*] One month after discharge they were seen again and their blood and urine examinations were repeated.

To minimize the chance variation of the methionine content of the meals, all patients, treated and untreated, were put on a diet of low-fat, high-protein content, supplemented with extra vitamins. A record was kept of the amount eaten by every patient at each meal. It was estimated that the methionine content of the diet consumed daily was of the order of 2.5 g. To ensure an adequate supply of methionine twice this amount was given to the treated patients. Synthetic *dl*-methionine is not easily taken in solid form. It was therefore made up in the proportions of 10 g. to 283 ml. of water containing 2.8 ml. of concentrated hydrochloric acid; this solution contained 1 g. of methionine in 1 fl. oz. Throughout the day five 1-g. doses were given either in milk or after flavouring with fruit juice. Including that in the diet, the treated patients received daily nearly 7.5 g. of methionine. Some found the amino-acid nauseating, and in others it caused vomiting in the early days of the disease. There was only one instance of a patient's intolerance to the amino-acid. During the experiment one of us (G. H.) developed infective hepatitis. He was admitted to the ward and was given methionine. This induced persistent nausea. He became so intensely jaundiced and ill that the drug was stopped after 7 days. For this reason his case is not included in the series, but is described separately.

A detailed biochemical study was made on all patients. It included blood urea, plasma bilirubin, proteins, phosphatase determinations at 2–3-day intervals, daily urinary excretion of nitrogen, urea, creatinine, creatine, porphyrin, bilirubin, and urobilin, and faecal porphyrin and stercobilinogen studies. A detailed description of these findings will be published later. Only the more simple biochemical investigations, which were thought to reflect adequately the clinical course of the disease and provide criteria for comparing the treated and untreated groups, are being reported here.

Results

In a small series it might happen that all the treated cases were much milder or much more severe than the controls, or that the former were all admitted much earlier or later in the course of the disease than the others. Table I has been compiled to show that in the present series there was no great bias in either group. The treated cases, omitting G. H., included 8 males and 10 females, and the controls 11 males and 7 females. If the severity of the disease be judged by the degree of bilirubinaemia it will be seen that there were 6 severe, 8 moderate, and 4 mild cases in the treated group, and 8 severe, 5 moderate, and 5 mild cases in the control group. This table also shows that in 9 of the treated cases and 10 of the controls the jaundice increased after admission, which suggests that the illness was at about the same stage in both groups when treatment was started. In further support of this is the fact that the length of time from the onset of the illness to the day of admission, which is given in Table II, is not significantly different in the two groups.

Table I.—*The Severity of the Bilirubinaemia in 18 Controls and 18 Treated Subjects, and the Number of Subjects in which the Bilirubinaemia Increased after Admission*

	Number of Subjects	
	Treated	Controls
Males	8	11
Females	10	7
Highest level of plasma bilirubin:		
1. Over 10 mg./100 c.cm.	6	8
2. 10 to 6 mg./100 c.cm.	8	5
3. Under 6 mg./100 c.cm.	4	5
Rising plasma bilirubin	9	10

From a consideration of the detailed clinical, biochemical, and haematological studies made during the course of the illness and at the follow-up, it was decided that the duration of anorexia, raised plasma bilirubin, and biliuria provided adequate information for the assessment of the therapeutic value of methionine in infective hepatitis. All the patients were afebrile either before or immediately after admission, and there was no consistent change in the pulse rate, white cell count, or sedimentation rate that might have provided alternative criteria of ill-health. The results from all the cases, except G. H., are summarized in Table II, which gives the length of time after the cases came under observation until: (1) the patient ate at least 2,000 calories a day; (2) the plasma bilirubin fell below 2 mg. per 100 c.cm.; (3) the bile disappeared from the urine. It will be observed that there was no difference in the two groups in respect of these three criteria.

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[*] Plasma bilirubin was estimated by the method of Thannhauser and Andersen (1921).

TABLE II.—*Duration (in Days) of Anorexia, Bilirubinaemia, and Biliuria*

	Subjects	
	Treated	Controls
Duration of illness before admission ..	8·4 ± 0·61	8·6 ± 0·29
After admission:		
1. Food intake less than 2,000 calories	8·3 ± 0·79	8·06 ± 1·15
2. Plasma bilirubin over 2 mg./100 c.cm.	9·8 ± 0·97	9·9 ± 1·36
3. Biliuria	8·6 ± 0·55	7·2 ± 0·96

In each instance the average number of days, with the standard error, is given or the treated and untreated cases.

It might be argued that in the mild cases the slightness of the illness would make difficult a demonstration of the therapeutic effect of methionine. Consequently the results of the investigations upon the 10 most severely jaundiced patients from each group were considered. They are given in Table III.

TABLE III.—*Analysis of the Results Obtained on the 10 Most Severely Jaundiced Cases in Each Group. (Average Values, with the Standard Error)*

	Subjects	
	10 Treated	10 Untreated
Maximum plasma bilirubin (in mg./100 c.cm.)	14·5 ± 1·42	14·5 ± 1·36
Plasma bilirubin over 2 mg. (in days) ..	12·8 ± 0·88	14·1 ± 1·27
Bile in urine (in days)	8·8 ± 0·56	8·9 ± 1·77
Anorexia (in days)	8·7 ± 0·7	8·1 ± 1·67
Number of cases of rising bilirubin	5	8
Time from maximum bilirubin to bilirubin below 2 mg./100 c.cm.	9·6 ± 1·2	11·6 ± 1·42

The average duration of the raised bilirubin in the plasma was 14.1 days in the controls and 12.8 in the treated cases, but the individual variation was so great that the difference was less than the standard deviation. The average duration of the anorexia in the treated cases was 8.7 days, compared with 8.1 in the untreated cases; clearly the difference is negligible. Five of the treated cases continued to have a rising bilirubinaemia after admission, compared with 8 of the controls; and there was no difference in the number of days that the bile was present in the urine in the two groups. The average time taken for the plasma bilirubin to fall from its maximum height to below 2 mg./100 c.cm. was 9.6 days in the treated and 11.6 days in the control cases.

Case G. H. differed from the others in the severity and duration of the jaundice. The highest plasma bilirubin concentration determined in the other 36 cases was 24 mg./100 c.cm., and no one remained jaundiced for more than 22 days after admission. In G. H. the plasma bilirubin rose to 32 mg. and remained high for 45 days. Throughout the week that the methionine was given, the jaundice steadily increased and the nausea induced by the amino-acid appeared to have such an unfavourable effect that it was stopped. The peak of the jaundice was reached on the 12th day after admission and the plasma bilirubin remained about 30 mg./100 c.cm. for another 10 days. The patient eventually made an uninterrupted recovery.

Discussion

In a disease in which the mortality rate is low the length and severity of the illness should be appreciably less in treated cases than in untreated ones if the specific remedy produces an effect. The natural course of the disease in infective hepatitis is so variable and the tendency to spontaneous cure so universal that it is almost impossible to decide in any individual case whether the illness has been affected by the treatment. But a comparison of two groups of cases of about equal severity should reveal the presence or absence of a therapeutic effect if one group is treated and the other not, even though it might require a much larger number of cases to show that an apparent effect was statistically significant.

In this trial only slight differences were seen between the patients treated with methionine and those who received none, and, therefore, though the cases were few the amino-acid produced less effect than in the trial reported by Peters *et al.* (1945). This suggests that methionine is clinically of little practical importance in infective hepatitis. In this respect our experience appears to differ from that of Beattie and Marshall (1944a, 1944b) in the treatment of post-arsphenamine jaundice with sulphur-containing amino-acids.

The prophylactic value of methionine has been well established in animals in which liver damage has been produced by the use of diets rich in fat, by reduction of protein intake, or by exposure to noxious substances. These conditions would not seem to apply to the majority of patients suffering from infective hepatitis. Biochemical studies of the plasma protein indicate that reduction in protein intake is not an aetiological factor in the disease, and wartime feeding restricts a high fat intake. Considered from this point of view, the treatment of infective hepatitis with methionine might not be expected to be very efficacious. But there is another possibility. The liver damage had occurred before the patients, already jaundiced, were admitted to hospital for treatment. Methionine might hasten the repair of the damaged cells. This effect, if any, would appear to be too slight to be of clinical significance, for no statistical difference in the time taken to pass from the stage of maximum jaundice was observed between the treated and untreated groups. Although the results of our trial do not suggest that methionine in quantities of 7½ g. daily produces any demonstrable benefit, it is possible that our experimental conditions were not suitably designed for its manifestation. Nevertheless, it will rarely be practicable to treat a high proportion of cases of infective hepatitis at an earlier stage in the disease than was studied in the present experiment.

Summary

Eighteen patients suffering from infective hepatitis were treated with a low-fat high-protein diet with extra vitamins, and another 18 with the same diet supplemented with 5 g. of pure methionine.

The two groups were comparable in respect of the duration of the illness before admission to hospital and of the number of mild and severe cases.

Treatment with methionine did not significantly affect the clinical course of the illness, the anorexia, or the average duration of biliuria or of bilirubinaemia.

We are indebted to M. W. Stanier, J. Badenoch, B. Glascock, W. Wakelin, L. A. Rawlings, and P. Quelch for practical assistance: we are also grateful to R. H. S. Thompson for advice. This trial was made possible by the generous supply of synthetic methionine by the Ministry of Supply.

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The Ministry of Health has sent to all local authorities and port health authorities a folder giving details of new publicity material available for local use in support of the educational campaign on venereal diseases. The central publicity undertaken during the past two years by the Ministry, in conjunction with the Ministry of Information and the Central Council for Health Education, is being continued; and recently large posters have been displayed on hoardings throughout the country with the object of drawing public attention to the seriousness of the problem, and of increasing the effectiveness of the detailed education carried out through advertisements, films, lectures, leaflets, etc. The display of posters on the subject of venereal diseases, undertaken for the first time in this country, has aroused no criticism, and there is evidence that the campaign as a whole continues to have the approval of the vast majority of the public. The Minister considers it important to maintain this educational publicity during the next twelve months, and to intensify it.

THE ANTIDIURETIC ACTION OF NICOTINE AND OF SMOKING

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Nicotine has been well known since the time of Langley as a substance which stimulates the ganglia of the sympathetic system. Langley painted a solution of nicotine on a ganglion to determine what effects followed the stimulation of the cells present in it. He was thus able to locate the synaptic connexions of the sympathetic system. When nicotine is injected intravenously the stimulation of the ganglia results in a rise of blood pressure and a raised pulse rate. Nicotine also stimulates the carotid body, and so increases respiration. Finally, nicotine in sufficient doses produces convulsions. The experiments to be described show that, in addition to these properties, nicotine has an antidiuretic action, probably due to stimulation of the hypothalamus, and that man is so sensitive that the action can readily be demonstrated in some subjects after one cigarette.

In 1939 Dr. Mary Pickford demonstrated that when a diuresis is produced in a dog by giving it water, the diuresis is promptly inhibited by the intravenous injection of acetylcholine. To observe the effect a large dose—1 mg.—was used, and to exclude the action on the heart, on the blood vessels, and on the intestines atropine was given to the dog beforehand. The antidiuretic effect was shown to be due to the liberation of the hormone of the posterior lobe of the pituitary gland, because when the posterior lobe was removed the injection of acetylcholine no longer inhibited a diuresis.

Since this effect of acetylcholine was exhibited in the presence of atropine, it seemed likely to belong to those effects of acetylcholine which Dale (1914) called nicotine-like. If so, it was to be expected that nicotine itself would exert a similar action.

Observations on Rats

Experiments were therefore performed with groups of 16 rats to which water was given by stomach-tube to produce a diuresis (Burn, 1931); the antidiuretic action of acetylcholine was confirmed, and it was then found that the intravenous injection of 0.1 mg. of nicotine acid tartrate, given 45 minutes after the water, inhibited the diuresis during 45 minutes. The least dose of nicotine which, given subcutaneously, would exert an antidiuretic action was next found. In Fig.[1] 1 is shown a composite record of two experiments on 16 rats. They were males, about 190 g. in weight; after being kept without food overnight they were each given warm water by stomach-tube (5 c.cm. per 100 g.) and put in four cages for urine collection. The urine was recorded every 15 minutes. After 30 minutes from giving the water, 8 of the rats were injected with nicotine acid tartrate, 0.5 mg. per 100 g. The other 8 were injected with saline. The experiment was repeated on another day, when the rats previously injected with nicotine were injected with saline, and vice versa. Fig. 1 shows that rats when injected with nicotine had a larger diuresis than the controls during the next 15 minutes, but the diuresis was then inhibited for about 45 minutes. Thus the curve showing the diuresis when the control injection of saline was given is a curve with a single peak 75 minutes after the water was given; the curve when nicotine was injected is a curve with two peaks, in between which is the inhibition due to the injection of nicotine. When the experiment was repeated with half the dose of nicotine, no inhibition was seen.

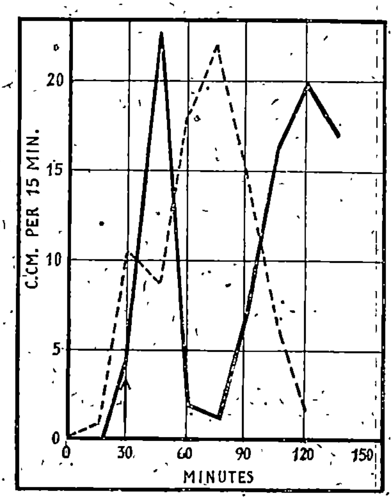

FIG. 1.—The broken line shows course of excretion of water given by stomach-tube to 16 rats at zero. The solid line shows course of excretion when each rat received 0.25 mg. nicotine (base) by subcutaneous injection 30 min. after it received water. Note period of inhibition between the two peaks of excretion.

It is very probable that the increased excretion seen as the first peak in Fig. 1 immediately after the nicotine is explained by a rise of blood pressure due to the nicotine. This rise would increase the rate of diuresis. In support of this explanation is the observation that when a similar experiment to that shown in Fig. 1 was performed using tyramine instead of nicotine, the peak of the diuresis occurred earlier than in the controls, though when tyramine was injected there was no period of inhibition and therefore no second peak. Tyramine causes a rise of blood pressure as does nicotine, but by a purely peripheral action on heart and vessels.

Effect of Pituitary Removal

The main point of interest, however, was the inhibition of diuresis between the two peaks in Fig. 1. It was next shown that no such inhibition occurred when rats from which the pituitary gland was removed were used instead of normal rats. We are indebted to Dr. Edith Bülbring for preparing hypophysectomized rats for this work. These rats were injected daily with anterior pituitary extract kindly sent to us by Dr. I. W. Rowlands of the National Institute for Medical Research. They were given water by mouth (6 c.cm. per rat) in the morning of each day, and observations on water diuresis were then made in the afternoon after giving more water (6 c.cm. per rat). The graph in Fig. 2 shows that the injection of nicotine in the same dose and at the same time as in Fig. 1 failed to produce any inhibition of diuresis. When the experiments were complete the rats were killed and the pituitary fossa of each was examined for remnants of gland. None were found. This result made it clear that the action of nicotine in exerting the antidiuretic effect depended on the presence of the pituitary gland, and probably on the posterior lobe.

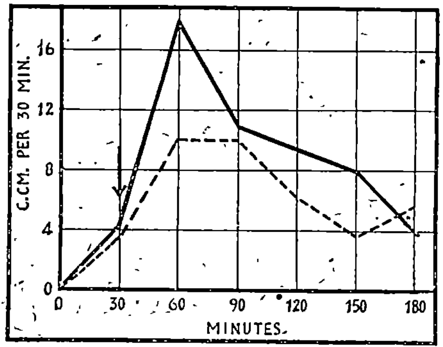

FIG. 2.—A similar experiment to that in Fig. 1, carried out on 10 rats from which the pituitary body had been removed. The broken line represents the control experiment, the solid line the experiment in which nicotine was injected. There is no phase of inhibition.

Nicotine is not the only alkaloid which exerts this antidiuretic action, for de Bodo (1944) has found that morphine has a similar action in the dog, exerted through the neurohypophysis.

Observations on Man

The least dose of nicotine which, given subcutaneously, produced an antidiuretic effect in rats was 0.5 mg. of the acid tartrate per 100 g.: this corresponds to 0.25 mg. of nicotine base per 100 g. If man were equally sensitive per unit of body weight, 150 mg. of nicotine base would be required to exert an effect on a man of 60 kg. Despite the unlikelihood of observing a positive result in man, it seemed worth while to determine whether the smoking of cigarettes had an antidiuretic effect. In performing the experiment the subject, when his stomach was empty, passed water every 15 minutes and recorded the volume. When this was reasonably uniform he drank one litre of warm water and continued to pass water every 15 minutes. The excretion rose to a peak usually about 75 or 90 minutes after drinking the water and then fell to the original rate of excretion in about 2½ hours from the time of drinking. In Fig. 3, curve A shows the normal diuresis thus obtained in E. M. V. W. Curve B shows the course of the diuresis in E. M. V. W. when he smoked three cigarettes in succession, beginning 45 minutes after drinking the water. The diuresis had already begun when smoking started, but inhibition occurred after 15 minutes, and the effect of the three cigarettes was to produce complete inhibition during 2.5 hours; after which the diuresis began again to reach a peak 4.5 hours after drinking the water. E. M. V. W. is a healthy male of 26 years. In smoking the three cigarettes, he did so as rapidly as possible and inhaled deeply. He smoked them in 20 minutes. He suffered from vertigo and felt very sick; 5 minutes after finishing smoking he vomited, and continued to feel sick for one hour. The inhibition of the diuresis outlasted these symptoms, and in several other observations an inhibition was observed without the production of any appreciable symptoms at all. Thus in Fig. 5 an observation on the same subject—E. M. V. W.—is recorded, in which inhibition was produced by one cigarette; he noted "slight dizziness" while he smoked, but nothing more.

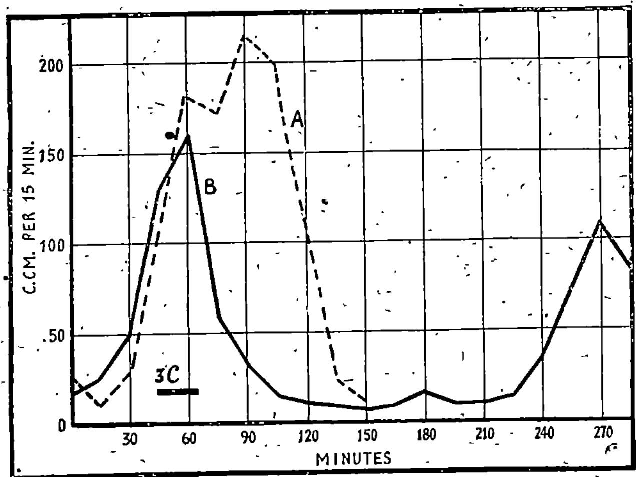

FIG. 3.—Subject E. M. V. W. drank 1 litre of water at zero. The broken line shows excretion of water in c.cm. per 15 min. The solid line shows excretion in a second experiment when he smoked 3 cigarettes, beginning 45 min. after drinking the water. Note the long period of inhibition.

Variation among Subjects

This antidiuretic effect of smoking varied a good deal in different subjects. Subject E. M. V. W. was unusually sensitive, for, as seen in Fig. 5, the smoking of one cigarette produced an effect on him. Subject L. H. T., observations on whom are shown in Fig. 4, was less sensitive than E. M. V. W., for the smoking of one cigarette had no effect. In another subject, G. B. P., who was a fairly heavy smoker, the smoking of three cigarettes had only a very slight effect. However, out of seven subjects, six of whom were males between 20 and 26, one cigarette had an inhibitory effect on diuresis in three, two cigarettes had an inhibitory effect in two others, and three cigarettes had an inhibitory effect in a sixth. Only G. B. P. can be considered as scarcely affected by three cigarettes. He smoked about 20 cigarettes a day in addition to two or three pipes. Another subject who was a regular pipe smoker observed no inhibitory effect from smoking a pipe; on the contrary, he observed an increased rate of excretion, probably due to the rise of blood pressure which the smoking caused. A positive effect was recorded only when as a result of smoking there were two peaks of diuresis as shown in Figs. 3, 4, and 5, and the time interval between these peaks is expressed as "delay" in the accompanying Table.

Table showing Experimental Results

Subject	Age	No. of Cigarettes	Delay (hours)
L. H. T.	21	3	3·5
,, ...	,,	3	2·0
,, ...	,,	1	Nil
E. M. V. W.	26	3	3·5
,, ...	,,	1	1·75
J. H. B.	51	1	3·25
T. H. C. L.	21	2	3·0
J. R. W. G.	19	2	3·25
G. B. P.	19	3	Nil

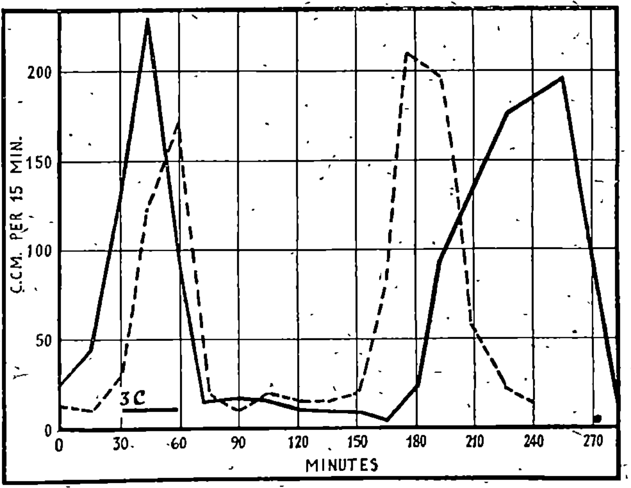

FIG. 4.—Similar experiments to that in Fig. 3, on subject L. H. T. The solid line is an experiment carried out smoking 3 cigarettes when L. H. T. was not otherwise smoking. The broken line is an experiment carried out also with 3 cigarettes when he was smoking 12 to 15 a day.

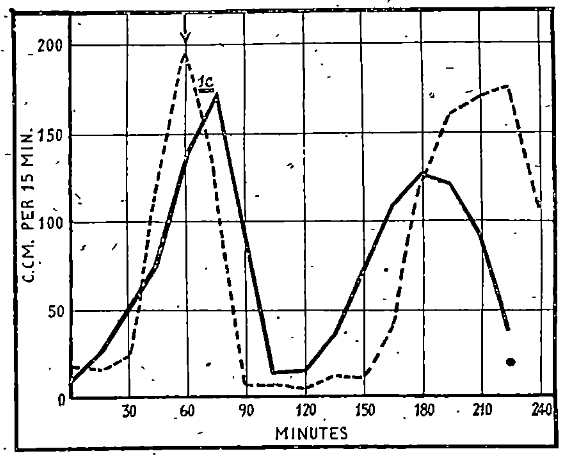

FIG. 5.—Similar experiments to those in Figs. 3 and 4. The broken line is an experiment in which 0.5 mg. nicotine (base) was injected intravenously at the arrow 60 min. after drinking the water. The solid line shows the effect of smoking one cigarette in the same subject.

Two experiments on L. H. T. afford further evidence that the antidiuretic effect is less when tolerance is established. These experiments are shown in Fig. 4. The first was done when L. H. T. had just finished a period of training for rowing, and had not been smoking; the delay was 3.5 hours. The second experiment was done seven months later, when L. H. T. was smoking 12 to 15 cigarettes a day; the delay was only 2 hours.

Intravenous Injection of Nicotine

In view of the large dose of nicotine required to produce the antidiuretic effect in the rat, it was surprising that smoking should exert an antidiuretic effect if this was due to the nicotine, as the amount of nicotine in the smoke seemed far too small. Some experiments were then carried out to determine whether small doses of nicotine would exert an antidiuretic action in human subjects. The nicotine was injected intravenously as acid tartrate when a diuresis was beginning. The effect of 1 mg. nicotine (base) in R. P. M. is shown in Fig. 6; the period of inhibition between the two peaks was 2.75 hours. In R. P. M. the injection of 0.5 mg. nicotine (base) had no antidiuretic effect. In E. M. V. W., however, the injection of 0.5 mg. nicotine (base) had an antidiuretic action such that the period between the two peaks was 2.75 hours (see Fig. 5). Now, as Fig. 5 shows, in this subject the smoking of one cigarette produced an antidiuretic action lasting 1.75 hours, so that the effect of one cigarette was rather less than that of 0.5 mg. nicotine (base).

Amount of Nicotine in Cigarette Smoke

Is there so much nicotine as this in the smoke of one cigarette? Schnedorf and Ivy (1939) have stated that one cigarette of the type they used yielded, in smoke taken in, about 0.2 mg. With the help of Mr. H. W. Ling we have determined the amount of nicotine which a smoker receives from British cigarettes. We connected a glass cigarette-holder to a long U-tube immersed in cold water. The other end of the U-tube was connected to a filter pump by a T-piece with one limb open to the air. When the filter pump was turned on gently, air was sucked in through the open limb of the T-piece. When this limb was closed, the air was sucked in through the cigarette-holder. We put a cigarette in the holder, lighted it, and, by alternately closing and opening the side limb of the T-piece, sucked some of the smoke into the U-tube and allowed part of it to escape into the air, imitating as closely as possible the ordinary smoking of a cigarette. The nicotine in the smoke was condensed in the U-tube. As a rule we "smoked" 10 cigarettes in the apparatus in succession. We then washed out the U-tube with ether, evaporated off the ether, and dissolved the residue with a little alcohol and 1% tartaric acid. As a rule the residue from 10 cigarettes (about 60 mg.) was collected in 10 c.cm. This solution was then estimated by comparing it with a known solution of nicotine acid tartrate for its pressor effect on the blood pressure of a spinal cat prepared by Dale's method (Burn, 1928). One estimation on 10 cigarettes gave the result that the smoke of one cigarette contained more than 0.66 mg. but less than 0.75 mg. nicotine (base). Estimations made on different batches of Gold Flake and Player's cigarettes gave figures varying between 0.6 mg. and 0.75 mg. nicotine (base) in the smoke of one cigarette. We observed no difference between the brands.

Now if 0.6 to 0.7 mg. nicotine enters the mouth of a smoker, not all of it will enter the blood. A certain proportion will do so, however, depending for its amount on how much the smoker inhales. When the smoker inhales, probably about 0.3 to 0.4 mg. reaches the alveoli of the lungs, from which it must be rapidly absorbed. This conclusion accounts very well for the observation on R. P. M. and E. M. V. W. In R. P. M. neither the intravenous injection of 0.5 mg. nicotine (base) nor the smoking of one cigarette had any antidiuretic effect. In E. M. V. W. the intravenous injection of 0.5 mg. nicotine (base) had an antidiuretic effect lasting 2.75 hours, and the smoking of one cigarette an effect lasting 1.75 hours.

Amount of Posterior Lobe Hormone Liberated

The antidiuretic action of nicotine depends on the pituitary body, and almost certainly, as Mary Pickford proved for acetylcholine, on the posterior lobe. Presumably the nicotine stimulates the supra-optic nucleus and adjacent nuclei, which, like it, send nerve fibres to the posterior lobe. When impulses arrive in the posterior lobe the antidiuretic hormone is released. What amount of hormone, in terms of the ordinary pituitary (posterior lobe) extract, is released when nicotine is injected? The ordinary posterior lobe extract is measured in units, the official strength being 10 units per c.cm. An attempt was made in subject R. P. M. to imitate the effect of 1 mg. nicotine (base) injected intravenously, as shown in Fig. 6, by injecting posterior lobe extract also by the intravenous route.

Posterior lobe extract was first injected in a dose of 0.05 unit. The antidiuretic effect, shown at B in Fig. 6, was shorter than that of 1 mg. nicotine (base) by 30 to 45 minutes. In the next experiment twice this dose was used—0.1 unit—but it produced the same effect. These results indicated that when posterior lobe extract was given intravenously the duration of the effect was not proportional to the size of the dose, but probably depended on the rate of destruction of the hormone. This was supported by the fact that when two doses, each of 0.05 unit, were given at an interval of 45 minutes the antidiuretic effect was much more like the nicotine effect, being in fact slightly greater. Thus the results indicated that an intravenous dose of nicotine does not exert a single momentary stimulus to the posterior lobe, but rather a stimulus which persists for 30 to 45 minutes.

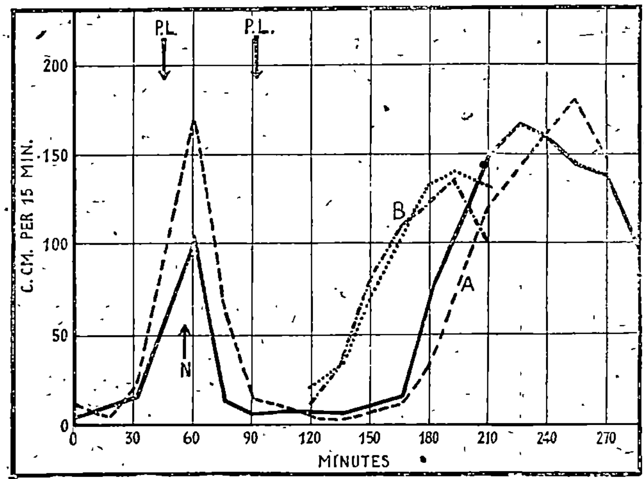

FIG. 6.—The solid line is an experiment in which 1 mg. nicotine (base) was injected intravenously into R. P. M. at arrow N. The broken line A is an experiment in which 0.05 unit posterior lobe extract was injected twice at an interval of 45 min. at arrows P.L. The lines at B are experiments in which (*a*) 0.05 unit and (*b*) 0.1 unit were each injected once.

Discussion

Although the effect of smoking in causing a rise of blood pressure has been known since 1907 (Hesse), that it does so cannot yet be said to be a matter of common knowledge. Recent observations by Roth, McDonald, and Sheard (1944) provide fresh evidence on the point, and also demonstrate the fall of skin temperature due to the vasoconstriction of the skin which occurs. The rise of blood pressure, of pulse rate, and of vasoconstriction in the skin are all the result of the stimulation by nicotine of sympathetic ganglion cells. The observations recorded in this paper indicate that it is not only the nerve cells of the sympathetic ganglia which are stimulated by nicotine but that nuclei in the hypothalamus are also stimulated, as a result of which the hormone of the posterior lobe of the pituitary is liberated in the blood. The effect was accompanied in several of the observations by symptoms regarded as toxic effects of nicotine, such as vertigo, nausea, and even vomiting. These effects were not always present, and there is no doubt that the antidiuretic action is observed in their absence.

If smoking causes secretion of the antidiuretic hormone it seems reasonable to suppose that the other hormones of the posterior lobe, such as the oxytocic hormone, are also liberated. If this occurs, smoking should accelerate labour.

Many believe that there is a connexion between smoking and gastric ulcer, and since Dodds *et al.* (1934) have shown that the injection of posterior lobe extract into rabbits causes gastric ulcer, it might appear that our experiments suggest the mechanism of the connexion. This is very doubtful; large amounts of posterior lobe extract are needed to produce ulcers, and the effect of pharmacopoeial doses of posterior lobe extract in man is to diminish gastric acidity, not to increase it. This we have observed here, in confirmation of other workers. Our experiments do, however, raise the question whether those with impaired kidney function should be allowed to smoke.

Summary

Nicotine exerts an antidiuretic effect in the rat. This effect does not occur if the pituitary body is removed.

Smoking exerts an antidiuretic effect in man. In a sensitive subject one cigarette will inhibit diuresis for 2 to 3 hours.

The same antidiuretic effect is produced in man by the injection of nicotine intravenously in an amount approximately equal to the amount absorbed from one cigarette.

It is probable that the nicotine absorbed from cigarette smoke stimulates the supra-optic nucleus of the hypothalamus and causes a discharge of the hormone from the posterior lobe of the pituitary gland.

Our thanks are due to those already mentioned in the paper, and also to Mr. E. M. Vaughan Williams and Mr. R. P. Michael for their care in making observations.

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ENFORCED LEISURE

A STUDY OF THE ACTIVITIES OF OFFICER PRISONERS OF WAR

BY

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Recent articles and correspondence in the medical press on prisoner-of-war mentality have naturally caused considerable discussion in P.O.W. camps. Whether rehabilitation on a large scale will be necessary or not is difficult for the individual to say. Nevertheless some observations on how the P.O.W. spends his time may be of general interest. In this paper an attempt is made not to produce an average individual but to assess what contribution the average prisoner makes to the life of the camp.

Oflag VII/B was originally formed as a camp for young officers. Its strength varies, but in the period under review is about 1,700, of whom 110 are Canadians, 117 are Australians, 87 are New Zealanders, and the rest are from the British Isles. There is a sprinkling of officers from other parts of the Empire. One is justified in regarding it as presenting a fair cross-section of the educated classes of the Empire. The living conditions, as regards accommodation, are fairly similar, while the food is completely standardized. Facilities for recreation, study, sport, etc., are available in exactly the same measure to everybody. The extent to which these facilities are exploited naturally depends on the individual.

Despite the limitations of the questionary form of investigation, it was chosen as being the only one practicable in the peculiar circumstances of captivity. A questionary covering all possible forms of camp activity was drawn up. This was issued to a number of patients in hospital, who were asked to allocate times on the basis of an average day to the various activities. The data thus collected proved interesting, and it was decided to extend the investigation to get a fair sample of the camp as a whole. The questionary was issued to various people, with a request that in each case every member of the mess or room should answer it. In some cases the return was 100%, in others there were one or two men who, for various reasons, refused to co-operate. Nevertheless I think that the return represents a fair cross-section of the camp.

It will be observed that no name is asked for; nevertheless, by inquiry it was generally possible to trace individuals when any point required clarifying. One objection raised was, What is the difference between "study" and "serious reading" or between "light" and "serious" reading? To me it seems purely an individual distinction. Most people know what they are trying to study and they also have their own standards of serious and light reading, and I have accepted these standards.

Form of Questionary

Country (or Dominion) of Origin: *Age:*
Previous Occupation:
Length of Captivity: *Educationa Standard:*
Average Day:
I. Camp official (administrative, parcel education, medical, sports, etc.) .... hrs.
II. Activity for benefit of community (non-official): e.g., work on wood pile, gardening, tutoring, block cooks, Toc H nursing, voluntary massage, or any other altruistic activity .... hrs.
III. Study: (*a*) Prescribed course for examination .... hrs.
(*b*) Language—which? .... hrs. } .... hrs.
(*c*) General study .... hrs.
IV. Handicrafts: Model-making, woodwork, tinsmithing, knitting, etc. .... hrs.
V. Art: Painting, drawing, sketching, modelling, etc. .... hrs.
VI. Music: (*a*) As performer. What type of instrument? .... hrs. } .... hrs.
(*b*) Listening .... hrs.
VII. Writing: (*a*) Books or articles for possible publication .... hrs. } .... hrs.
(*b*) Diary or scrapbook for own amusement .... hrs.
VIII. Dramatics: (*a*) Actor .... hrs. } .... hrs.
(*b*) Producer, stage hand, scenery designer, etc. .... hrs.
IX. Reading: (*a*) Serious .... hrs. } .... hrs.
(*b*) Light .... hrs.
X. Sport or exercise: (*a*) Active .... hrs. } .... hrs.
(*b*) Spectator .... hrs.
XI. Indoor games, chess, or cards for amusement or nominal stakes .... hrs.
XII. Gambling .... hrs.
XIII. Serious discussion .... hrs.
XIV. Aimless gossip (war, reminiscences, local gossip) .... hrs.
XV. Sleeping and eating .... hrs.
XVI. Time spent on household fatigues .... hrs.
XVII. Hobbies: bird-watching, flowers, collecting (types of cigarettes, etc.) .... hrs.
XVIII. Do you attend general interest lectures?
XIX. Do you work to a time-table?
XX. Have you improved, or not, physically? How? Since when?
XXI. Have you improved, or not, mentally, especially with regard to interest, concentration, and memory?

Results

TABLE I.—*Returns Collected from 300 Officers*

Average age: 29·8 years.

Educational standard: High, n that 97—i.e., 32·3%—were either University graduates or undergraduates; 16—i.e., 5%—had various professional qualifications.

I. Official duties		35 mins.
II. Altruistic activities		46 „
III. Study: (*a*) Course for exam.	1 hr. 5 mins.	2 hrs. 29 „
(*b*) Languages	29 „	
(*c*) General	55 „	
IV. Handicrafts		14 „
V. Art		6 „
VI. Music: (*a*) Performer	9 mins.	23 „
(*b*) Listener	14 „	
VII. Writing: (*a*) For public	4 „	7 „
(*b*) Diary, etc.	3 „	
VIII. Dramatics: Actors and stage assistants		3 „
IX. Reading: (*a*) Serious	1 hr. 1 min.	2 hrs. 6 „
(*b*) Light	1 „ 5 „	
X. Sport: (*a*) Active	1 „ 1 „	1 hr. 24 „
(*b*) Spectator	23 „	
XI. Cards		20 „
XII. Gambling		11 „
XIII. Serious discussion		24 „
XIV. Aimless gossip		1 hr. 16 „
XV. Sleeping and eating		10 hrs. 37 „
XVI. Household fatigues		1 hr. 3 „
XVII. Hobbies		6 „
Unaccounted time		1 „ 50 „
		24 hrs. 00 mins.

XVIII. General interest lectures	Yes = 57·3%;	No = 42·7%
XIX. Work to time-table	„ = 29·0%;	„ = 71·0%
XX. Feeling physically impaired	„ = 33·7%;	„ = 66·3%
XXI. Feeling psychologically impaired	„ = 40·0%;	„ = 60·0%

Discussion of Table I

The first two groups cover most of the actual work required for the running of the camp. The average time of 35 minutes per head for camp administration may appear high to an efficiency expert. 100 forms recorded some kind of activity. Three claimed to work 7 hours and one 6 hours a day, but the majority worked 1/2 to 1 hour a day. (Frequency Diagram 1.)

In Group II 45 minutes also appears high. Nevertheless, in a P.O.W. camp there is a considerable amount of reciprocal service. The massage department in the hospital is entirely staffed by volunteers, all of whom have learned massage in captivity. Block cooking is also done by volunteers; while, apart from the teaching organization, there is an enormous amount of private tuition.

III. *Study.*—The overall averages in this group are misleading (see Frequency Diagrams 3, 4, and 5). (*a*) *Courses:*—29% claim to be following courses of study, and on an average they study 3 hours 46 minutes a day. One claims 11 hours, one 9 hours a day. Although these figures seem high they are not incredible. From reveille onward the study rooms are continuously occupied. (*b*) *Languages:*—Most prisoners have studied some language—usually German—at one stage or another in their captivity. In the present sample 31% study, on an average, 1 hour 32 minutes daily. German and French head the list; Russian is popular; every European language has its students. Less well-known languages, such as Gaelic, Afrikaans, Urdu, Malayan, Arabic, receive attention. (*c*) *General study:*—51% register time spent on general study. This represents 1 hour 47 minutes per head, as contrasted with 3 hours 46 minutes in the group pursuing courses of study. It suggests that even in captivity study must have a purpose. The simple pursuit of knowledge is not enough.

IV. *Handicrafts.*—17% are occupied on hand work of some description. Towards the end of winter, knitting was fashionable. Tapestry, needlework, weaving, tailoring, watch-making, model-making, all occupy a certain amount of time, but the total time and the time per head are relatively small.

V. *Art.*—11% devote 32 to 35 hours to drawing, sketching, or painting. This represents about 57 minutes per head.

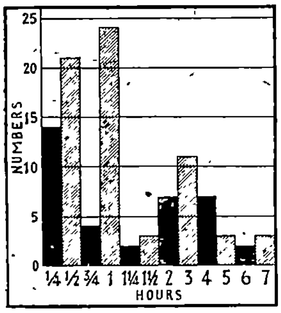


DIAGRAM 1

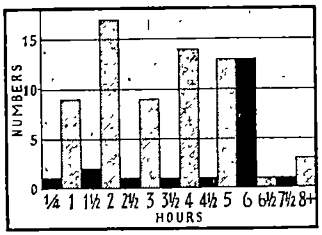


DIAGRAM 3

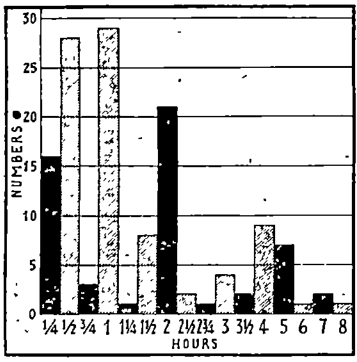
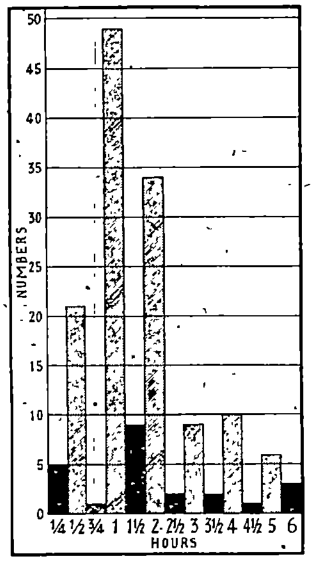


DIAGRAM 2



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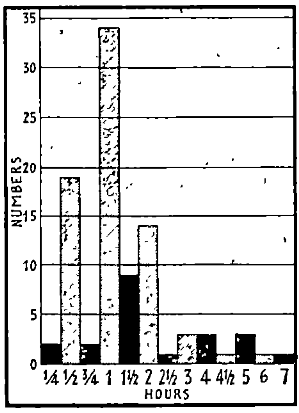

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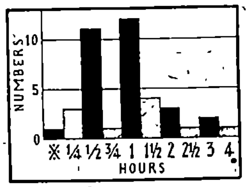

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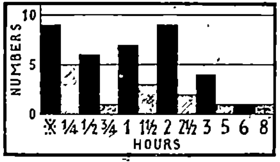

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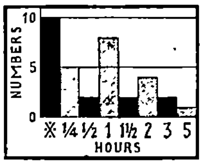

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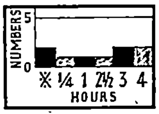

DIAGRAM 10

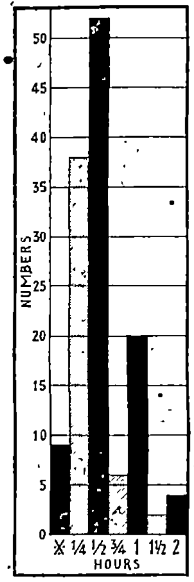

DIAGRAM 9

FREQUENCY DIAGRAM 1.—Group I, Camp Administration: 100 record some form of activity; 200 record *nil*. (In all these diagrams the "nil" column has been omitted owing to lack of space.)

FREQUENCY DIAGRAM 2.—Group II, Altruistic Activities: 135 record activity; 165 record *nil*.

FREQUENCY DIAGRAM 3.—Group III, Study; (*a*), group taking prescribed course: 87 students.

FREQUENCY DIAGRAM 4.—Group III, Study; (*b*), group studying languages: 93 students.

FREQUENCY DIAGRAM 5.—Group III, Study; (*c*), general study group: 153 students.

FREQUENCY DIAGRAM 6.—Group IV, Handicrafts: 51 occupied: 249 *nil*. * Time claimed, less than 1/4 hour per day.

FREQUENCY DIAGRAM 7.—Group V, Art: 33 occupied; 267 *nil*. * Time claimed, less than 1/4 hour per day.

FREQUENCY DIAGRAM 8.—Group VI, Music; (*a*), Performer: 13 performers; 287 *nil*. * Less than 1/4 hour per day.

FREQUENCY DIAGRAM 9.—Group VI, Music; (*b*), Listener: 132 listeners; 168 *nil*. * Less than 1/4 hour per day.

FREQUENCY DIAGRAM 10.—Group VIII, Dramatics: 9 actors, etc.; 291 *nil*. * Less than 1/4 hour per day.

VI. *Music.*—(*a*) *Performers:*—There are enough musicians in the camp to provide music for all shows and, in addition, to stage a music festival covering symphonic, choral, orchestral, light orchestral, chamber music, and dance band programmes. This, however, is the work of a relatively small number. In the present sample 13 average 1 hour 8 minutes a day, but this figure includes one man who spends 4 hours a day orchestrating music for the various instruments in the camp. (*b*) *Listeners:*—Apart from the musicians the camp has an excellent record library and a fair number of gramophones. 132 people devote, on an average, 32 minutes a day to music—i.e., about two evenings a week.

VII. *Writing.*—(*a*) The number of potential or active writers at 12.3% is probably high. The actual "market" is small, and consists of two monthly camp magazines. (*b*) The number of people keeping diaries—25.3%—also seems high considering the unexciting round of ordinary camp life. However, it is a personal and unexacting form of self-expression, and is one of the few open to a prisoner of war.

VIII. *Dramatics.*—Only 3% claimed to be in any way occupied with the stage. The acting fraternity tend to live together, and it is possible that they are not fairly represented in the survey. Nevertheless, the plays staged in the camp are produced by a small number of good actors—so good, indeed, that the tyro has very little chance. (It is interesting that the most spectacular features of camp life—viz., the Arts and Crafts Exhibition and the theatre shows—are, basically, the work of very few and do not in any degree represent the industry and talent of the camp as a whole.)

IX. *Reading.*—Everybody reads to a greater or lesser extent. The only negative returns in this category were from men who spend several hours a day in study.

X. *Sport.*—Similarly, everyone takes some form of exercise. The limiting factor in some cases is not so much lack of energy or equipment as lack of space, and every sports field is used continuously by fresh teams throughout the hours of daylight.

XI. *Cards and Indoor Games.*—These are not as popular as one might have expected. However, the season (early summer) may to some extent account for this.

XII. *Gambling.*—10% are occupied in games of chance. The camp moralists are inclined to disapprove. Nevertheless it provides a harmless outlet for a variety of captivity and social impulses. The craving for excitement can be satisfied to a certain extent, and the acquisitive instinct can sometimes be gratified without the community being in any way affected.

XIII. *Serious Discussion.*—I consider an average of 24 minutes per head a modest understatement.

XIV. *Aimless Gossip.*—An average of 1 hour 16 minutes per head is probably fair. Normally, there are not enough rumours or camp trivialities to occupy very much more time than this unless one gravitates from group to group. So, for lack of subject-matter, an aimless gossip quite often becomes a serious discussion.

XV and XVI.—Rooms are divided into messes, numbering from 2 to 8 members. Members in turn prepare food and do the fatigues incidental to eating. Sleeping and eating are among the most important of camp activities.

XVII. *Hobbies.*—Naturally there is very little scope for this form of activity. Popular are bird-watching, butterfly-collecting, collecting various brands of cigarettes, coins (?), razor blades; designing homes, motor-cars, yachts. *Unaccounted Time.*—Roll calls occupy about 30 minutes a day. The remainder is taken up in various insignificant ways—" doing nothing," as one man expressed it. No allowance on the questionary was made for meditation. Two people claimed 4 hours a day under this heading.

XVIII. *General Interest Lectures.*—" Occasionally " and " Sometimes " were interpreted as affirmatives.

XIX. *Work to a Time-table.*—I had assumed that most prisoners would slip into some form of daily routine, and, as a matter of habit, stick to it. Apparently the majority do not.

XX.—In an endeavour to avoid the suggestion contained in the words " impaired " or " deteriorated " the question read, " Have you improved, or not, physically? " To my surprise a few admitted to actual physical improvement. 66.3% consider themselves unimpaired or are not certain about it. Of the impaired group the deterioration is expressed as " loss of weight," " no stamina," " teeth and eyes affected," " sinusitis," " asthma developed," " migraine started." In the last two instances I naturally tried to establish some connexion between captivity and the onset. In migraine I was unsuccessful, in that each of the patients had actually had migraine for some years, but the label had been attached only during captivity. Regarding asthma, several cases have developed since capture. Clinically, headache, sciatica, and rheumatism are fairly common, and are to a large extent, no doubt, somatic manifestations of mental strain. Whether competent psychological treatment would, in the circumstances, be successful is an academic matter, because such treatment is not available. In its absence, headache is described as probably due to sinusitis or eye strain and treated accordingly. The other conditions are treated symptomatically—not, unfortunately, with uniform success.

XXI.—It was rather difficult to assess answers, in that a number of replies confused " interest " with " interests," and so some of the men replied: " Memory and concentration worse. Interest wider and improved." In general, it appears that memory and concentration have suffered, while interest is erratic. A few regard their captivity as a total loss, while others, making a virtue of necessity, have used their leisure for broadening their interests. Naturally there is no strict line of demarcation between the physical and mental states, and replies expressing a deterioration in one often express a similar deterioration in the other.

Grouping by Length of Captivity

By way of contrast, and in order to provide a kind of chronological " Prisoners' Progress," replies have been subdivided into four groups—1-, 2-, 3-, and 4-year prisoners respectively. Of further interest is the origin of the groups. Groups 1 and 4 are chiefly from the British Isles, Group 2 is predominantly Canadian, and Group 3 predominantly Australian and New Zealand.

The following is an analysis of the sample summarized in Table I. The number in Group 1 is probably high in proportion to the total number of 1-year prisoners in the camp. The other groups are roughly in proportion.

Group 1	Number 26	Average age 28·8 years
„ 2	„ 36	„ „ 32·8 „
„ 3	„ 81	„ „ 30·3 „
„ 4	„ 157	„ „ 29·1

TABLE II

Group:	1-Year	2-Year	3-Year	4-Year
I. Official duties ..	22 m.	35 m.	31 m.	39 m.
II. Altruistic activities	37 m.	31 m.	56 m.	45 m.
III. Study:				
(*a*) Course ..	1 h. 0 m.	48 m.	1 h. 0 m.	1 h. 12 m.
(*b*) Language ..	9 m.	22 m.	34 m.	31 m.
(*c*) General ..	50 m.	1 h. 3 m.	1 h. 1 m.	52 m.
	1 h. 59 m.	2 h. 13 m.	2 h. 35 m.	2 h. 35 m.
IV. Handicrafts ..	2 m.	11 m.	26 m.	11 m.
V. Art	7 m.	2 m.	4 m.	9 m.
VI. Music:				
(*a*) Performer ..	1 m.	2 m.	10 m.	11 m.
(*b*) Listener ..	19 m.	7 m.	14 m.	15 m.
VII. Writing:				
(*a*) Publication	5 m.		3 m.	6 m.
(*b*) Diary (percentage writing)	38%	31%	23%	23%
VIII. Dramatics ..		No comparison possible		
IX. Reading:				
(*a*) Serious ..	47 m.	43 m.	1 h. 6 m.	1 h. 6 m.
(*b*) Light ..	2 h. 5 m.	1 h. 11 m.	48 m.	1 h. 2 m.
X. Sport:				
(*a*) Active	1 h. 0 m.	58 m.	1 h. 0 m.	1 h. 2 m.
(*b*) Passive	37 m.	33 m.	16 m.	23 m.
XI. Indoor games and cards	21 m.	35 m.	19 m.	18 m.
XII. Gambling ..	5 m.	25 m.	12 m.	7 m.
XIII. Serious discussion	13 m.	26 m.	25 m.	25 m.
XIV. Gossip	1 h. 35 m.	1 h. 0 m.	1 h. 0 m.	1 h. 25 m.
XV. Sleeping and eating	11 h. 0 m.	10 h. 40 m.	10 h. 32 m.	10 h. 35 m.
XVI. Fatigues	1 h. 9 m.	1 h. 11 m.	1 h. 9 m.	1 h. 2 m.
XVII. Hobbies (percentage with)	8%	22%	23%	25%
Unaccounted time	1 h. 36 m.	2 h. 37 m.	2 h. 14 m.	1 h. 44 m.
	24 h. 0 m.	24 h. 0 m.	24 h. 0 m.	24 h. 0 m.
XVIII. General interest lectures: Yes	31%	61%	58%	61%
XIX. Work to time-table: Yes	12%	22%	37%	29%
XX. Feeling physically impaired: Yes	15%	47%	40%	33%
XXI. Feeling psychologically impaired: Yes	19%	55%	41%	38%

Discussion of Table II

The similarity between Groups 3 and 4 may be due to two causes: (*a*) larger numbers in groups eliminate the swings in either direction owing to individuals recording high figures in a particular activity; (*b*) possibly, after two years, adjustment to captivity is fairly complete and a more or less stereotyped " average " routine is adopted.

Study.—It is remarkable how quickly first-year prisoners have got down to courses of study.

Music.—Several of the older prisoners have learned music in captivity, which probably accounts for the slight increase in time.

Writing.—The number writing diaries decreases after the first novelty wears off.

Physical Impairment.—In Group 1 this is due to temporary unfitness from wounds. The same applies to a few in Group 2, but, apart from that, there is no clinical difference between the groups. Nevertheless, this survey is, of course, purely subjective, and indicates what the individual thinks about his physical and mental state. The relatively low figures for the 4-year group may be due to three factors: (*a*) They represent a rather younger age group; (*b*) they show more complete mental adjustment; (*c*) possibly a matter of pride, and refusal to admit to impairment after a long spell in adverse circumstances.

Analysis of Effect according to Age

Finally, in order to determine the effect of age on the use of leisure and the mental attitude towards captivity, the sample has been divided into two groups—under 30 and over 30. A sharper contrast would naturally have been provided by an under 30 and over 40 comparison. However, the number of prisoners over 40 is too small to permit this. (See Table III.)

Group I: Under 30 ..	Number 179 ..	Average age 26·4 years
„ II: Over 30 ..	„ 121 ..	„ „ 35·8

Discussion of Table III

The older age group is, not unexpectedly, occupied to a greater extent on administrative and altruistic activities. Comparison of the two groups with regard to study is interesting, because of (*a*) the large number of men over 30 who are following courses, and (*b*) the amount of time devoted by this group to study. The older group appears to be slightly ahead on art, music, writing, and dramatics. The figures for light and serious reading are what one would

TABLE III

	Under 30	Over 30
I. Official duties	28 m.	45 m.
II. Altruistic activities	40 m.	55 m.
III. Study: (*a*) Course	(30%) 1 h. 8 m.	(27%) 1 h. 0 m.
(*b*) Language	33 m.	23 m.
(*c*) General	59 m.	50 m.
	2 h. 40 m.	2 h. 13 m.
IV. Handicrafts	18 m.	9 m.
V. Art	5 m.	9 m.
VI. Music: (*a*) Performer ..	8 m.	10 m.
(*b*) Listener	15 m.	12 m.
VII. Writing: (*a*) Publication ..	4 m.	5 m.
(*b*) Diary	22%	30%
VIII. Dramatics	2 m.	6 m.
IX. Reading: (*a*) Serious	52 m.	1 h. 16 m.
(*b*) Light	1 h. 11 m.	55 m.
X. Sport: (*a*) Active	1 h. 7 m.	52 m.
(*b*) Spectator	25 m.	20 m.
XI. Indoor games and cards ..	18 m.	20 m.
XII. Gambling	9 m.	13 m.
XIII. Serious discussion	23 m.	26 m.
XIV. Aimless gossip	1 h. 20 m.	1 h. 10 m.
XV. Sleeping and eating	10 h. 37 m.	10 h. 38 m.
XVI. Fatigues	1 h. 6 m.	1 h. 6 m.
XVII. Hobbies	22%	22%
Unaccounted time ..	1 h. 52 m.	1 h. 56 m.
	24 h. 0 m.	24 h. 0 m.
XVIII. General interest lectures: Yes	55%	60%
XIX. Work to time-table: Yes ..	25%	35%
XX. Feeling physically impaired: Yes	32%	39%
XXI. Feeling psychologically impaired: Yes	40%	41%

normally expect. Similarly, the amount of time spent by the younger group on sport is naturally rather higher. That the over 30 group should attend general interest lectures to a greater extent is unexpected; but that they should be more apt to work to a routine is natural. The older age group would feel that they had suffered deterioration physically to a greater extent than the younger. Under any circumstances physical activity would tend to be less over the age of 30. With regard to mental deterioration the two groups are almost equal.

General Conclusions

Under wartime conditions most people are forced to "waste time" in the sense that individual studies and careers are interrupted. The prisoner of war, in this respect, is no worse off than anyone else, except that he has leisure which, although unlimited in time, yet in space is very strictly limited. He utilizes this in activities which may be roughly grouped under three headings.

(*a*) *Work.*—Official and altruistic activities, study and fatigues amounting to about 5 hours a day per head.

(*b*) *Vegetative and—Predominantly—Time-consuming Activities.*—These are represented by: sleeping and eating, gossip, card-playing, and unaccounted time, amounting to about 14½ hours a day per head.

(*c*) *Creative and Recreational.*—Art, music, handicrafts, writing, dramatics, reading, hobbies, sport, and lectures, amounting to about 4½ hours a day.

From this it would be rash to draw general conclusions, but, under P.O.W. conditions, I doubt whether the time spent on creative and recreational activities could be much increased even with unlimited facilities. Apart from reading and sport, the average English education makes no provision for leisure. (Judging from camp activities, the Australian and New Zealand systems follow the English fairly closely.) The North American education is worse in this respect. The 2-year group seem to reflect a high level of specialized education in that there are more university degrees than in the other groups, yet the average time spent in Category C is only 2½ hours per head.

My general impression is that the physical and mental well-being of the P.O.W. largely depends on his daily activities and, of course, conversely. This is rather strikingly illustrated by the case of an ex-schoolmaster who worked conscientiously 6 hours a day for 3 years, passed two difficult exams., and then quite suddenly developed sciatica and polyneuritis, which incapacitated him for further study. Few of the replies were as clear-cut as this. Nevertheless, in replies which devoted most time to vegetative and time-consuming pursuits, there was a greater tendency to admit physical and mental impairment or to complain of symptoms for which an organic basis could not be found. This may represent a "P.O.W. neurosis" similar to the commoner "war neurosis," which, according to Gillespie, arises at a superficial level and will presumably disappear when the conditions causing it are removed.

It is a pleasure to acknowledge the work done by the various branches of the Red Cross and other charitable organizations in providing the necessary facilities to enable P.O.W.s to lead a fairly normal life in captivity. I am indebted to Major G. Hadley, R.A.M.C., and Major E. Parker, R.E., for help and criticism, and to numerous officers in camp for assistance.

SUBSTANCES USED IN TREATMENT OF PEDICULOSIS CAPITIS

THEIR RELATIVE VALUE

BY

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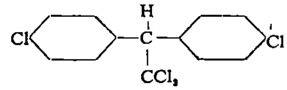
The objects of the investigations here described were to test the efficiency of substances which have recently been recommended for the destruction of head lice and their nits, and to compare these with older methods. The substances were first brought to trial by laboratory tests in which their insecticidal and ovicidal actions were observed under the conditions of controlled bench experiments. They were then tried by direct observation of their effects on subjects kept under controlled clinical conditions. Some of the substances were tried by a third method of attempting infestation in volunteers whose heads had been treated with the test substance.

The newer substances on trial were: (1) 50% lethane 384 special in a white oil (Busvine and Buxton, 1942); (2) 25% technical lauryl thiocyanate in a white oil (Busvine and Buxton, 1942); (3) ascabiol (new formula), a non-irritating preparation of benzyl benzoate emulsion (Blackstock, 1944); (4) emulsion of D.D.T.: 4 parts D.D.T. in (30 parts heavy solevent naphtha +10 parts "amoa A.S.X."). Diluted with water to give 2% D.D.T. This D.D.T. emulsion was supplied by the Ministry of Health for experimental purposes.



D.D.T. (dichlor-diphenyl-trichlorethane)

The older substances tried for the purpose of comparison were: carbolic acid solution (1 in 40 and 1 in 60), "derbac" soap, 20% solution of dettol, concentrated infusion of quassia, quassia mixture (Jörgensen, 1940), 12.5% formalin soap mixture *B.P.C.* (Ministry of Health Memo., 1940), spirit soap, formalin, 0.1% mercuric chloride in spirit, 0.1% aqueous mercuric chloride, methylated spirits, 3 to 1 mixture of methylated spirits and water, 2% lysol, 2% β-naphthol in spirit, ol. abietis in spirit, oil of cedarwood, oil of citronella, oil of lemon-grass, oil of sassafras, oil of turpentine, paraffin oil, and 5% tar oil.

Laboratory Tests

Laboratory tests are carried out under arranged experimental environments which are to that extent artificial, but they are useful as a preliminary to clinical tests because they demonstrate which of the test substances have no lethal action. These substances can then be discarded as useless and requiring no further clinical test. Laboratory tests are useful also in indicating the manner in which the substances kill the lice. From this the most suitable methods of their application to the hair and scalp can be deduced. For example, a substance may be shown to act through its vapour, and so the best method of applying it (apart from elaborate mechanical devices: Lebailly, 1937) will be by soaking the head with the substance and covering it with a rubber cap to keep the maximum amount of the lethal vapour in contact with the hair. Other substances act directly on the lice, presumably entering their bodies through their external chitinous skeletons. The effect of each insecticide on the nit (or egg) has also to be determined, because if one application of any substance is to be effective it must kill all the nits as well as all the lice. If it does not kill all the nits, larvae will hatch out during 6 to 8 days after treatment, and the state of infestation will continue unless the insecticide persists on the hair and scalp over this period and kills the larvae as they hatch out.

The following is a summary of the laboratory tests used and the results obtained. The lice were taken from infested heads or were bred for the purpose :

Experiment I

The lice were placed on a tuft of cut hair, which was then wrapped in a piece of cotton material soaked in the insecticide and left in position for a period of from 1/2 to 1 hour. The lice were then removed to an observation glass and their behaviour watched for from 4 to 6 hours. It was found necessary to observe them for this length of time to exclude the possibility of sham death or of stupefaction with later survival. This precaution was observed in all the laboratory experiments. The number of lice used for each experiment varied from 5 to 14. According to their results the drugs were divided into three groups: (A) effective—all lice being killed; (B) probably effective—most lice killed, some moribund; (C) ineffective—majority of lice surviving.

The following substances proved to be effective insecticides under the conditions of this experiment and were placed in Group A: D.D.T. emulsion, lethane, lauryl thiocyanate, 2% lysol, sassafras oil, turpentine, methylated spirits, quassia mixture, ol. abietis in spirit, 0.1% mercuric chloride in spirit, 2% β-naphthol in spirit, paraffin oil, and formalin. Less conclusive results were obtained from the use of carbolic acid solution (1 in 40), benzyl benzoate emulsion, 20% dettol, and spirit soap. These were placed in Group B. The remainder of the substances tested were placed in Group C as they proved ineffective. These were: 0.1% mercuric chloride in water, concentrated infusion of quassia, 12.5% formalin soap mixture, oils of cedarwood, lemon grass, and citronella, and 5% tar oil.

Experiment II

Three to five lice on a tuft of hair, and a small watch-glass containing the insecticide to be tested, were placed separately in a covered glass vessel 3½ in. in diameter. The vessel was left at a temperature of 20 to 23° C. for 1 to 1½ hours, and no contact between the lice and insecticide was allowed to take place. The vapours of methylated spirits (and any insecticide containing methylated spirits) and tar oil were effective as insecticides. Some drugs were found to stupefy the lice, which on their removal to fresh air recovered at varying intervals up to 4 hours, even though they looked quite dead when first removed. Carbolic acid (1 in 40), D.D.T. emulsion, 2% lysol, lethane, and oil of sassafras acted in this way. The vapours of lauryl thiocyanate, oil of lemon-grass, and paraffin oil had no effect on the lice.

Experiment III

A tuft of hair was dipped in the insecticide, the excess of which was then dabbed off on a dry cloth. Two or three lice were then applied to the hair and their behaviour observed for 15 minutes.

Of the insecticides tested in this way—lethane, lauryl thiocyanate, sassafras oil, methylated spirits, paraffin, 0.1% mercuric chloride, 1 in 40 carbolic acid, and D.D.T.—lethane alone showed any effect. After 2 to 4 minutes the lice remained quite immobile although intestinal peristalsis continued for 1 to 2 minutes longer. Removal of the lice at this stage was not followed by recovery. This experiment was repeated 8 times with similar results. The amount of test substance left on the hair when it is treated in this way will vary with the viscosity of the substance, and the test is to that extent inaccurate. It is also possible that certain drugs may have a delayed action, and had the lice been observed for a period longer than 15 minutes after exposure to the treated hairs other insecticides would have been found effective. But this experiment does demonstrate that lethane is effective in very small quantities and that it has a rapid action.

Experiment IV

In this experiment the effects of various substances on nits were determined. The nits were obtained from two sources: (1) from the heads of children, the hair with the nit attached being pulled out by the root or cut close to the scalp; (2) from lice kept in a breeding-box. In every experiment untreated nits from the same source as those used in the test were set aside and incubated to act as controls. The nits were immersed for 5 minutes in the insecticides at room temperature and were then transferred to the incubator. From the percentage hatch of the control group and the percentage hatch after treatment, the percentage reduction of hatch was calculated, taking the hatch of the control as 100%. The results are given in Table I.

TABLE I.—*Effects on Nits of Immersion in Insecticide (Experiment IV)*

Treatment	Treated Nits			Control Nits			% Reduction of Hatch
	No.	Hatched	% Hatch	No.	Hatched	% Hatch	
D.D.T. emulsion ..	10	3	30	9	7	78	62*
Lethane	15	5	33	8	6	75	56*
Lauryl thiocyanate	6	6	100	8	6	75	0
Sassafras	8	5	62	10	8	80	23
Methylated spirits	14	8	57	10	8	80	29
2% β-naphthol in spirit	9	7	78	7	6	86	9
1 in 40 carbolic acid	10	0	0	8	6	75	100*
1 in 60 carbolic acid	5	0	0	8	6	75	100*
Paraffin oil ..	5	5	100	8	6	75	0
2% lysol	12	0	0	12	7	58	100*

* Statistically significant in that the difference is greater than twice the standard error.

Summary of Results of Laboratory Tests

From the results of these experiments it is seen that many substances are lethal to the louse, but the insecticide with the quickest and most reliable action is lethane. In Experiment III the rapid action of lethane is very striking as compared with other insecticides. Methylated spirits and tar oil seem to act by their vapours. Many insecticides dissolved in or mixed with methylated spirits owe their insecticidal action to the spirits. Treatment with these agents should be carried out in such a way that the vapour has a chance to take effect, preferably by the use of a rubber cap. From the results of Experiment IV, lysol and carbolic acid solution appear to be the most effective ovicides. D.D.T. emulsion and lethane are moderately effective ovicides, but the other substances tested in this way are unreliable. The ovicidal action of D.D.T. emulsion is probably due to the other ingredients in the emulsion (Busvine, personal communication).

Controlled Clinical Tests

The object of these experiments is to test the lethal action of various drugs on the louse and on the nit, under conditions which are natural but controlled, so far as is possible, to allow comparisons to be drawn between the different reagents. This method of investigation gives results which are of more value than those obtained by laboratory experiments because the drugs are tested under natural conditions.

The method used to determine the lethal action on the louse was the application of the test substance to a head in which a known number of lice were present. The head was carefully toothcombed 12 to 18 hours after treatment and the condition of the lice noted—dead, moribund, or apparently healthy. To determine the lethal action of the test substance on the nits a comparison was made between the hatching rates of the nits before and after treatment in the following way:

Before treatment was started, hairs with nits attached were pulled out by the roots or cut close to the scalp. Each nit was examined with a hand lens, and if the operculum was broken off or the nit appeared empty it was discarded. Ten to twenty full nits with intact opercula were placed in a container in the incubator to determine the hatching rate before treatment was given. These acted as controls. In exactly the same manner 10 to 20 full nits were removed 24 hours after the application of the substance under trial, and they were incubated under the same conditions as the control nits. Both lots of nits were examined 10 days after they were put in the incubator. By counting the number of full and empty nits the hatching rate was determined. From these figures the percentage reduction of hatch was calculated and a comparison of the effects of the different substances on the nits could then be made. Further control of the drug's ovicidal action was made by daily toothcombing for 10 days and by examination of the combing with a hand lens. The results obtained in these experiments are shown in Table II.

Discussion

Although the number of cases used for each controlled clinical experiment varies and in some instances is small the results are clear enough to enable one to draw certain conclusions, which further observations of the field-trial type will confirm or refute.

First, with regard to the *lethal action on the louse* the following substances have proved effective: lethane, 100 cases; 2% lysol, 6 cases; oil of sassafras, 6 cases; paraffin oil, 4 cases; 5% tar in oil, 4 cases; methylated spirits, 6 cases; ascabiol, 10 cases; D.D.T., 10 cases. Derbac soap and dettol solution were included in the experiments because so many mothers were found to have used them on their children. Both are quite ineffective. The formalin soap mixture (M.O.H. Memo., 1940) is also unreliable. Carbolic solution was successful in some but not all cases, and lauryl thiocyanate was unsatisfactory in the 6 cases in which it was used.

Secondly, the *ovicidal action* of these substances is of interest. Judged by the purely experimental results of their effect on the hatching rate of the nits, lysol and methylated spirits have the most efficient lethal action. Ascabiol, sassafras oil, carbolic acid, and turpentine come next in order of efficiency. If the substances are classed according to the results of toothcombing a different order is obtained. This is due to the property of lethane, and particularly of D.D.T., of persisting on the hair and scalp and killing the larvae as they hatch out (see below). Ascabiol, although it produced fairly satisfactory results, did not "have a solvent action on the cement of the nit," nor was "simple washing with soap and water sufficient to remove all remaining nits," as claimed by Blackstock (1944).

TABLE II.—*Results of Controlled Clinical Experiments*

Treatment	Method	Effect on Lice	Effect on Nits			Control Nits			% Reduction of Hatch	Results of Toothcombing
			No. of Nits	No. which Hatched	% Hatch	No.	No. which Hatched	% Hatch		
Ascabiol	Approx. 2 oz. applied with brush to scalp and hair	All killed	20	2	10	20	19	95	89*	Very occasional larvae
1 in 60 carbolic acid ..	Wet hair thoroughly; apply compress 8 hours	Not all dead	10	3	30	10	10	100	70*	Larvae
Derbac soap	According to directions	No effect	26	16	61	22	12	55	0	Abundant larvae
D.D.T. emulsion ..	4–5 teaspoonfuls applied to scalp and rubbed in	All killed	20	15	75	15	14	93	19	Nil
1 in 20 dettol solution	Wet hair thoroughly; compress applied 6 hours	No effect	12	5	58	14	9	64	9	Abundant larvae
Formalin soap mixture	According to directions	Not all killed	21	11	52	13	9	69	25	Several larvae
Lauryl thiocyanate ..	2–3 dr. by spray or pipette; applied to scalp	„	20	11	55	20	16	80	31	Larvae
Lethane	„ „	All killed	20	6	30	20	12	60	50*	A few larvae
2% lysol	Wet hair thoroughly; compress applied 8 hours	„	9	0	0	10	9	90	100*	„ „
75% methylated spirits	„ „	„	13	0	0	17	9	47	100*	Very few larvae
Paraffin oil	„ „	„	8	3	37	7	5	71	48	A few larvae
Oil of sassafras ..	„ „	„	31	4	13	27	25	93	86*	Occasional larvae
5% tar in oil	2 oz. applied to scalp and hair	„	7	2	30	5	3	60	50	A very few larvae
Turpentine	2–3 dr. applied to scalp; rubbed in	Not all killed	10	2	20	11	7	64	69*	Several larvae

* Statistically significant in that the difference is greater than twice the standard error.

Its results were obtained by its ovicidal action, 80 to 90% of the nits being killed. With careful toothcombing, a greater number of nits are removed after treatment with ascabiol than with other agents, such as methylated spirits and carbolic acid. Ascabiol appears to have a slight lubricant effect, but in no instance was it found to be an "easy method of freeing the scalp from nits."

The relative inefficacy of the other substances as ovicides should be sufficient to remove them from the extensive list of therapeutic agents which have long been advocated for the treatment of pediculosis.

The Protective Action

The third method was that of attempting infestation of heads of volunteers after treatment with the test substances. Methylated spirits, lysol, ascabiol, D.D.T. emulsion, and lethane hair-oil were tested in this manner. Of these substances, only D.D.T. and lethane persisted in the hair and were able to continue their lethal action for more than 24 hours. Three or four lice were applied to the hair 24 hours after treatment and the head was toothcombed the following day. Recovery of lice was taken as evidence that the test substance did not possess any protective properties. Recovery of dead lice or failure of recovery after careful toothcombing was taken as evidence of protection. When protection occurred, healthy lice were again applied and the head toothcombed the following day. This was continued until living lice were recovered.

One application of lethane was found to protect the head for from 4 to 6 days in 6 subjects, the length of protection varying from case to case according to the extent to which the oil was rubbed off on the pillow and also possibly to slight difference of technique. Washing of the hair removes the lethane and thus destroys its protective action. One application of D.D.T. emulsion protects the head for from 14 to 18 days if the hair is not washed after treatment, and for from 11 to 15 days if washing is carried out. Eight cases treated with D.D.T. emulsion were tested in this way. In 4 cases the head was washed 1 to 3 days after D.D.T. emulsion had been applied.

The discrepancy between the relatively weak ovicidal action of lethane and D.D.T. and the results of toothcombing is explained by the persistence of these substances in the hair or on the scalp in an active state for 4 to 6 days and for 14 to 18 days respectively. Those nits that escape being killed give rise to larvae which stand a poor chance of survival, as they must come into contact with the insecticide on the hairs near the scalp and on the scalp itself when they go there to feed. This point emphasizes the importance of the method of applying the agent—viz., it should be rubbed into the scalp and the hair near the scalp, where the lice go to feed. The fact that in heads treated with lethane a few first-stage larvae often appear from the 5th to the 8th day, confirms the observation that its lethal action does not persist for more than 5 to 6 days. Every case so far treated with D.D.T. emulsion has been cured by one application. This result is to be expected, as the duration of protection with D.D.T. exceeds the incubation period of the nits (6 to 8 days).

Conclusions

The ideal substance for treating pediculosis is one which kills all the lice and all the nits immediately, or, failing that, one which kills all the lice immediately and which persists in the hair during the incubation period of the nits so that it kills off the larvae as they hatch out. No drug has been found which will kill all the nits in the hair on one application. It is difficult to apply a substance in sufficient concentration to affect every nit without damaging the scalp or adjacent skin. 2% lysol is the agent which is most effective on the nits, and in this concentration it is safe to use. Ascabiol, sassafras oil, and carbolic acid solution come next in order of efficiency, but in practice none of these ovicides gives a 100% kill.

Among the substances tested, the nearest approach to an ideal is D.D.T. emulsion, which kills all the lice and persists in the hair long enough to kill all the larvae. Lethane has a similar action but does not persist so long, and some larvae which hatch towards the end of the first week after treatment may survive. D.D.T. emulsion has other advantages over lethane hair-oil. Its smell, which is not unpleasant, quickly disappears and the hair looks natural after treatment. If desired, the hair can be washed, as D.D.T. is insoluble in water, and the washing does not appreciably affect its action. Lethane has an unpleasant, persistent smell; it gives the hair a greasy appearance, and the head must not be washed for 10 days. No toxic reaction or irritation of the scalp or skin has been noted after the use of lethane hair-oil or of D.D.T. emulsion.

Summary

A series of laboratory and clinical tests is described in which an attempt is made to compare the efficiency of a number of "cures" for pediculosis capitis. Some of the substances in common use are shown to be either ineffective or definitely inferior as insecticides and as ovicides. Any success obtained by their use can be ascribed largely to the mechanical removal of the lice by the careful toothcombing which is usually an important part of the treatment.

D.D.T. emulsion and lethane hair-oil stand out as the two insecticides of value in the treatment of pediculosis. D.D.T. is

preferable to lethane because one treatment properly carried out should cure every case. This substance will not, however, be available till after the war. Lethane will cure a large proportion of cases with one application, but two treatments at a week's interval will give certain cure. In order to obtain good results the details of the application of lethane should be carefully observed. Two or three teaspoonfuls of the oil are used for one treatment. The hair is parted, and 2 or 3 drops from the teaspoon or pipette are dripped on to the scalp. This is repeated in from 12 to 20 different areas all over the scalp. With the finger-tips the scalp is vigorously rubbed for two minutes to ensure equal distribution of the oil. Any oil which trickles down the forehead or behind the ears should be wiped off with cotton-wool and vaseline applied.

The following substances proved ineffective in the treatment of pediculosis: 20% solution of dettol, derbac soap, concentrated infusion of quassia, 12.5% formalin soap mixture (M.O.H. Memo., 1940), 0.1% aqueous solution of mercuric chloride, oils of cedarwood, citronella, and lemon-grass, and lauryl thiocyanate.

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LOCAL EFFECTS OF INTRAMUSCULAR INJECTION OF SOLVOCHIN*

BY

FRANK HAWKING, D.M.

(From the National Institute for Medical Research, London)

Solvochin is a soluble preparation of quinine, designed for intramuscular injection and supplied by the Camden Chemical Co. Ltd. According to Cooke and Wingfield (1944), 2 c.cm. contains 7½ gr. of quinine base together with phenazone. The reaction is pH 7.2. It has been recommended by Cooke and Wingfield (1944) and others for the treatment of malaria, on the ground that intramuscular injection is painless; some hundreds of injections were given by these observers without any serious complication, although a tender inflammatory induration was once noted.

The present investigation was undertaken to study the action of this preparation upon the tissues at the site of injection and to compare it with those of mepacrine and of quinine dihydrochloride (Hawking, 1943, 1944). The technique was the same as that used in the previous studies. The solution in the ampoule of solvochin was diluted with sterile isotonic saline, 1 c.cm. being made up to 7.5 c.cm., so that 0.5 c.cm. contained 16.3 mg. of quinine base. This corresponded to 20 mg. quinine dihydrochloride in 0.5 c.cm. injected during previous studies (Hawking, 1944). Injections were made intramuscularly into the thighs and loins of rabbits and also subcutaneously on the abdominal wall. Altogether 14 intramuscular injections were made and 4 subcutaneous ones. Two control injections with 0.5 c.cm. normal saline were also made intramuscularly; no sign of local injury due to these control injections was found. The animals were killed after 1 to 8 days. The site of injection was inspected macroscopically, and pieces of tissue were fixed in formol-saline and studied by the usual histological methods, staining with haematoxylin and eosin and with haematoxylin and van Gieson.

Results

Macroscopic Appearances.—In the muscles of the *loin* there was a dark-red fusiform mass (necrosis) with a narrow yellow border (leucocytic reaction); typical dimensions were 3 cm. by 0.9 cm. by 0.6 cm. In the *thigh* the picture was more varied. In some cases there was a dark-red mass 2 by 1 by 0.8 cm. lying longitudinally in the surface of the muscles along the sciatic nerve; in other cases there were small punctate haemorrhages, or the surface of the muscles appeared whitish and roughened. The muscles of the rabbit's thigh are divided by many planes of loose connective tissue, and solutions injected into the thigh are usually distributed along these planes, *between* the muscles rather than inside them. In the loin the muscles form a compact mass, and solutions injected are confined to the interior of the muscle. At the site of *subcutaneous* injection there was no macroscopic evidence of tissue-reaction.

Histological Appearances.—In the *loin* there was an area of coagulative necrosis with variable amounts of haemorrhage as described above. At the margin of this area there was a fairly thin zone (1 to 2 mm.) of leucocytic reaction. On the first day after injection many of the leucocytes were polymorphs, and fibrinous fluid was sometimes present; after 5 to 8 days most of the leucocytes were large mononuclears, and granulation tissue with fibroblasts was present. After 8 days some of the necrotic muscle fibres were becoming calcified. In the *thigh* the amount of necrosis was variable. In some slides there were long areas of necrosis and haemorrhage as described above. In others the necrosis was limited to the superficial layers (2 to 6 fibres deep) on the surface of the muscles. Adjacent muscle fibres were shrunken and basophilic. The neighbouring connective tissue was moderately distended with fluid and lightly infiltrated by leucocytes. After 8 days granulation tissue was present. In the *skin* there was necrosis of the subcutaneous layer of muscle for a short distance, and in one case there was necrosis of the epithelium over a small area. The adjacent connective tissue showed a little fluid and a few leucocytes (small round cells).

Discussion

The lesions produced by the injection of solvochin containing 16.3 mg. of quinine base were indistinguishable in extent from those caused by the injection of a corresponding amount of quinine dihydrochloride, as seen in the previous study (Hawking, 1944).

Summary

Solvochin was injected intramuscularly and subcutaneously into rabbits. Necrosis of the muscle was caused at the site of injection. The lesions were indistinguishable in character and extent from those caused by the injection of a corresponding amount of quinine dihydrochloride.

Acknowledgments are due to the Camden Chemical Co. Ltd. for kindly supplying the solvochin used, and to Mr. F. J. Higginson for the histological preparations.

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Medical Memoranda

Foreign Body in Lung for Thirty-one Years

This case is published not only for its own interest but to reinforce a plea for the more frequent use of the bronchoscope in diagnosing intrathoracic lesions. The passage of a bronchoscope involves comparatively little disturbance to the patient and can almost invariably be done under local analgesia. The presence of even gross sepsis is therefore no contraindication.

CASE REPORT

A man aged 67 was admitted to the West Norfolk and King's Lynn General Hospital under Dr. Holmes Watkins on Oct. 27, 1943. There was a history of old tuberculosis of the lung, but he had been quite well for many years. On Sept. 22 he began vomiting dark fluid, and a barium meal showed a large atonic stomach, but no evidence of ulcer or neoplasm. Screening of the chest revealed what appeared to be a cavity at the right base, and a skiagram showed a large patch of pneumonitis there. A profuse purulent sputum grew *Str. viridans*, pneumococci, and *Micrococcus catarrhalis*. No tubercle bacilli were seen.

On Nov. 3, at Dr. Watkins's request, I undertook a bronchoscopy. Premedication was by omnopon and scopolamine, and in addition he was given an amethocaine hydrochloride pastille to suck 20 minutes beforehand. Under cocaine analgesia the bronchoscope passed quite easily, and when it entered the right bronchus a well of pus was seen. This was aspirated and a dark foreign body was seen lying across the bronchus about 4 cm. down from the bifurcation of the trachea. It was removed without great difficulty and found to be about three-quarters of an inch of the vulcanite mouthpiece of a pipe.

Questioned subsequently, the patient recollected an accident in 1912, when he fell from his bicycle and his pipe was broken in his mouth. His palate was lacerated at the time but healed well, and he had never thought any more about it. Unfortunately, infection in the lung spread rapidly, and he died on Nov. 15.

The astonishing thing is that a foreign body of this size could have remained blocking the bronchus for 31 years without giving rise to serious trouble. It is possible that this may be due to the fact that the airway through the centre of the vulcanite had remained patent and that he was therefore able to get enough air backwards and forwards through it to ventilate his lung. Careful examination of the vulcanite showed no corrosion or disintegration at all.

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Recurrent Dislocation of Ankle due to Rupture of External Lateral Ligament

It is still a fact that many cases of recurrent dislocation of the ankle due to a rupture of the external lateral ligament pass undiagnosed and untreated. Such a case usually presents itself with a history of a recent sprain. On examination the ankle is swollen, bruised, and painful. However, on questioning, the patient admits having had previous sprains of varying severity. On the other hand, the case may present itself with a history of recurring slight sprains and a general feeling of weakness in the ankle-joint.

The outstanding fact in the history of a case of ruptured external lateral ligament is an original injury of some severity. Further examination of the ankle does not elicit any more inversion than is found in a normally sprained ankle without a ruptured external ligament. Straight radiographs, both lateral and antero-posterior, show no evidence of the ruptured ligament. For this to be demonstrated the muscle spasm has to be relieved by an injection of novocain on the outer aspect of the joint. The result is as shown in the accompanying radiograph (Fig. 1).

A Suggested Operation

The only treatment for an ankle with a rupture of the external lateral ligament is operation. The following technique was devised by me.

At operation the old rupture is quite apparent. The ligament is repaired by splitting the tendon of the peroneus longus from above downwards. The detached end is then threaded through the external malleolus and through the os calcis (Fig. 2). The value of this method is that it is easy to perform and that it reconstitutes the ligament. At the same time no muscle is damaged, as the remaining half of the tendon hypertrophies.

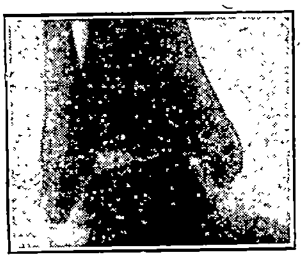
FIG. 1

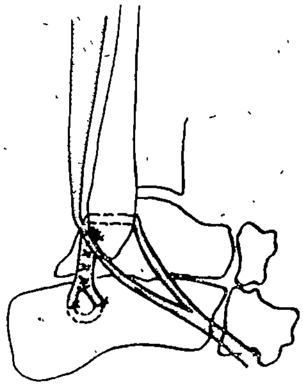
FIG. 2

FIG. 1.—Radiograph showing dislocation of the astragalus.
FIG. 2.—Diagram showing half of the peroneus longus tendon threaded through the external malleolus and the os calcis, and back again on itself.

The radiograph shown is that of a patient upon whom I operated. When first seen she was aged 32. On examination she had what appeared to be a severe sprain or a fractured ankle. Her history, however, revealed that this occurred every few months. She also clearly remembered a severe sprain as a child. This undoubtedly was the time that the ligament was ruptured. Operation revealed the old tear of the ligament. The patient has had no further trouble since the operation.

I should like to thank Mr. A. T. Fripp, F.R.C.S., as it was while assisting him at one of his cases that I devised this operation.

E. HAMBLY, M.B., B.S., F.R.C.S.,
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Reviews

SOCIAL WORK FOR THE TUBERCULOUS

Social Work for the Tuberculous—A Practical Guide. By Harley Williams, M.D., and Irene Harbert. (Pp. 153. 5s.) London: National Association for the Prevention of Tuberculosis.

The presentation of information on social work, in any of its many forms, in a concise and readable manner, is a difficult task, and that side of it devoted to tuberculosis is no exception to the rule. The authors of this book are therefore to be congratulated on having produced a valuable guide containing a storehouse of useful knowledge in so small a compass as 153 pages. The title of the book is a little ambiguous, but the subject-matter is for the most part a clear and well-constructed summary of the management of the tuberculous patient in his home and gives an excellent account of the assistance which is available under Memorandum 266T and the help provided by care committees. It is agreed that "if its principles and ideals are grasped the care worker will be more confident in her own judgment."

In detail, however, there are some points which need correcting and revision. Where the book touches on clinical matter there is a certain degree of confusion, and in some places it gives rather misleading information. For instance, a positive skin test does not always mean there has been contact with an open case of pulmonary tuberculosis: it may result from drinking infected milk. It would have been useful to have more information on the subject of pensions and the help given by the British Legion in this direction. There is a tendency to draw a too optimistic picture of the assistance which the tuberculous patient will receive under the Ministry of Labour and National Service rehabilitation scheme, and there is little guide as to the employment of the "open case" except in the village settlements. Certain paragraphs will no doubt be redrafted in future editions, for this book will be helpful to social workers for many years to come.

A useful index to agencies for personal aid is given at the end of the book as well as a general index. The well-defined and clear fount of type makes the text easy and pleasant to read without fatigue.

INDUSTRIAL OPHTHALMOLOGY

Industrial Ophthalmology. By Hedwig S. Kuhn, M.D. (Pp. 294; illustrated. 32s. 6d.) London: Henry Kimpton. 1944.

Industrial ophthalmology is not synonymous with a study of industrial eye injuries any more than ophthalmology in general is merely the study of the causes of blindness. Different occupations require different degrees of visual acuity, stereopsis, muscle balance, adequate illumination, and capacity for quick visual judgments. Furthermore, different industries involve varying degrees of ocular fatigue, and danger of damage from mechanical or toxic factors. The conditions under which some industrial processes have to be carried out may be so trying that special measures are needed to enable the worker to see clearly and comfortably for prolonged periods. Studies on these and kindred aspects have appeared in the periodical press and in monographs, but there is no systematic survey of industrial ophthalmology as a whole. It is perhaps also no exaggeration to say that there is as yet no comprehensive formulation of the problems.

The appearance of Dr. Hedwig Kuhn's *Industrial Ophthalmology* is therefore a welcome portent, for here at last is an attempt to survey the field as a whole. The numerous photographs of factories, workrooms, and machines, and of workers concentrated on particular tasks are in themselves a substantial contribution to the formulation of the problems of industrial ophthalmology. Incidentally they also show how much has been done in isolated factories, here and there, to meet some of the problems. The chapter devoted to eye protection shows forcibly enough that this is not merely a matter of goggles; like all general remedies goggles tend to conceal more dangers than they have overcome. The introductory chapter, with its stress on the need for tests to eliminate those who are visually unfit for particular tasks, is particularly illuminating; to most ophthalmologists the whole concept and its application will prove distinctly new. The chapter on visual skills is an excellent essay on the adaptation of workers to their jobs. Even at this stage in the development of industrial ophthalmology it is clear that, as distinct from an encyclopaedic knowledge of the details of various industrial processes, there are certain general principles that are applicable throughout industry and readily adapted. To have shown this is a substantial achievement for a pioneer effort in the writing of a textbook on a new subject. Dr. Kuhn's book in addition contains a mass of detailed information, and there are particularly useful sections on toxic hazards and on danger from radiant energy. It is regrettable that the high achievement of this book is marred by the inclusion of a considerable amount of irrelevant and ill-balanced information, and by a style that lapses alternately into purple passages and sheer slang.

THE SICK AFRICAN NATIVE

The Sick African. A Clinical Study. By M. Gelfand, M.B., Ch.B., M.R.C.P., D.M.R. (Pp. 372; illustrated. 25s.) Capetown: The Post-Graduate Press in association with the Stewart Printing Co., Ltd. 1944.

Most textbooks on tropical medicine in describing diseases in the Tropics consider these mainly from the point of view of the European who is merely a visitor in a foreign land. Only those diseases which are not found in his own country—the so-called tropical diseases—are dealt with, while those which are common to both tropical and temperate countries receive little consideration. In *The Sick African* the author deals almost entirely with the native, and considers the European only in so far as his susceptibility and response to certain diseases differ from those of the African.

The native is a very different person from the European. He has little or no education, is under the influence of the witch doctor, and is always afraid of offending the spirits of his ancestors. He is fatalistic, and is often reluctant to consult a white man about his symptoms. When he does so it is with difficulty that he is persuaded to carry out a long course of treatment, for immediately his symptoms abate, though cure has not been effected, he will leave hospital and not return for further advice or observation. On this account treatment must be as rapid as possible, even though it is understood that this is not entirely satisfactory. The solution of many of these difficulties, in the author's opinion, is the African-trained native doctor, who understands the native mentality and speaks his language as no European can ever hope to do. All these and many other aspects of medical practice among Africans are discussed in the two introductory chapters of the book. There follow others on malaria, bilharziasis, hookworm disease, leprosy, yaws, and the many other conditions to which the native is liable. It is noted that he far more commonly suffers from those diseases which occur in temperate climates than he does from those that are purely tropical. Dr. Gelfand has had a wide experience of native practice, and the advice he gives as to the methods of handling and treating the native will be invaluable to all who find themselves in the position of having to carry on this kind of work.

As Col. A. P. Martin says in his foreword, this is a book which in an outstanding manner meets the needs of all workers in the African field of tropical medicine.

LIP-READING AND DEAF AIDS

Lip-reading and Hearing Aids. By Irene R. Ewing, M.Sc. Second edition. (Pp. 73. 4s. 6d.) Manchester: The University Press. 1944.

It has long been known that deaf children acquire the art of lip-reading with comparative facility and require relatively little teaching, while for adults the process is more difficult, and it has been said sometimes to be impossible. The services of Mrs. Irene Ewing to the deaf are well known, and one of them is the compilation of this little book, which describes the nature and scope of lip-reading and the correct approach to the problems of both teaching it and learning it. The difficulties are seen from the sides of both teacher and pupil. The importance of combining lip-reading with the use of a proper hearing aid, so that the use of one sense organ reinforces the activity of the other, is established, and Mrs. Ewing shows that by following her methods the assumption that adults cannot learn lip-reading is ill founded. Those who are becoming deaf or have suddenly become deaf and are determined to make a serious effort to overcome the disability will find not only that this little book is of great assistance but also that it brings a message of needed encouragement and hope. The methods described are not intended for children.

Notes on Books

Messrs. E. and S. Livingstone of Teviot Place, Edinburgh, have published a third edition of Miss Lois Oakes's *Illustrations of Bandaging and First Aid*, which received praise in these columns on its first and second appearances. It is a very useful introduction to the art of bandaging and is likely to fill for long to come a niche in first-aid literature. The material has been revised for the new edition and several new features added—for example, a section on how to "blanket" a stretcher, how to lift and lower a patient, and how to remove an unconscious person from a smoke-filled room. An addition is four pages of coloured pictures entitled "Typical War Wounds," taken from Mr. Hamilton Bailey's book *Surgery of Modern Warfare*. The volume is very freely and clearly illustrated throughout. Its price remains at 6s., postage in this country 6d. extra.

Preparations and Appliances

A CHEAP AND EFFECTIVE SUBSTITUTE FOR UNNA'S PASTE

Lieut. J. J. Wild, R.A.M.C., writes:

In 1943, faced with the shortage of elastic bandages and a large number of chronic ulcers of the leg, mainly varicose requiring out-patient treatment, I decided that a substitute for Unna's paste must be found. With the kind co-operation of Mr. Soulsby, the pharmacist at North Middlesex County Hospital, a preparation was evolved which not only fulfilled this purpose, but has proved superior to Unna's paste in two ways at least, namely: (1) No heating is required before application. (2) Low cost and easy availability.

The Preparation.—The basis of the preparation is methyl cellulose, a water-soluble tragacanth substitute. This goes under various trade names. The product used by me was "W.F.Z.," supplied by Imperial Chemical Industries, Ltd. (South-Eastern Division, Dyestuffs Section), Belmont, The Ridgeway, Mill Hill, N.W.1. This is a commercial grade of methyl cellulose, and contains traces of heavy metals so that it is unsuitable for internal administration or topical application to open wounds. Nevertheless, bearing these points in mind constantly, I have found that it is harmless to the intact skin.

Details of Preparation.—"Cellofas W.F.Z.," described as a technical grade of methyl cellulose, is a cream-coloured fibrous cellulosic material. In low concentration in water it has the property of forming a viscous solution, which dries slowly in air, giving a celluloid-like film which redissolves in water. The current cost is 2s. 10½d. a lb. The substitute is easily prepared by taking 95 parts of water and 5 parts of W.F.Z. Leave overnight, stir thoroughly, and then adjust the proportion to 3% with water. Add 20% of zinc oxide and stir well. No doubt lighter concentrations, such as 5% W.F.Z. and 30% zinc oxide, could be used, but this would not pour and would give a stiffer paste. W.F.Z. is not an antiseptic, and will support growth of fungi. For this reason it has always been freshly prepared for my use. No attempt has been made to sterilize the preparation as it does not come into contact with the open lesions. But should this be thought necessary, autoclaving should not affect it.

Method of Use.—The preparation is applied cold on to a wet bandage with a brush, and layers of wet bandage are impregnated with it as for Unna's paste. The final bandage is a dry one and serves to protect the patient's clothing. Drying occurs in a few hours, and the patient is instructed to moisten the dressing if it gets too hard. This procedure is rarely necessary. About four layers of bandage are usually enough.

Clinical Applications.—(1) Varicose ulcers: All ulcerated areas and vulnerable skin are covered with lint after applying the required dressing; then the supportive dressing is applied. (2) Thrombophlebitis: Used as a supportive bandage. (3) For lower limbs after plaster-cast immobilization: I used the preparation for this purpose, in preference to adhesive elastic supportive bandages, for eight months at the Miller General Hospital, Greenwich; no skin reactions were observed. (4) As an occlusive dressing in suspected dermatitis artefacta.

The preparation has been in constant use at the North Middlesex County Hospital for two years, without trouble. The paste is entirely satisfactory, and, bearing in mind the high cost of Unna's paste and the need for economy in glycerin and gelatin at this time, it is gratifying how efficient a substitute this preparation has proved. It might even be deemed to have superseded Unna's paste.

My thanks are due to Mr. Soulsby, the pharmacist, to Sister Peers, and her nursing staff at the hospital for their willing co-operation in evolving this preparation.

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TREATMENT OF INFECTIVE HEPATITIS

Function and structure in the liver of experimental animals can be profoundly modified by diet. If an excess of fat is given the liver first becomes fatty and later undergoes a diffuse fibrosis of the portal type.[1] Presumably the accumulation of fat interferes with the activities of the cells. The evil effect of fat can be prevented by the so-called lipotropic factors, which promote the transfer of fat from the liver to the depots. Choline and methionine are the most important of these. Choline is a component of lecithin, while methionine is one of the essential amino-acids; it contains sulphur and also has some chemical affinity with choline. If the proportion of protein in the diet is greatly reduced more critical and dramatic changes may occur in the liver, similar to those of acute and subacute necrosis in man.[2] After a latent period the necrosis occurs abruptly and is often fatal. It can be prevented by methionine but not by choline. Finally it has been shown that in dogs which have been depleted of protein the resistance to hepatic poisons is impaired. Miller and Whipple[3] have shown that if these protein-depleted dogs are given methionine shortly before chloroform anaesthesia they will be protected from poisoning. A combination of choline and the sulphur-containing amino-acid, cysteine, has a similar effect, but not choline alone. Protection can be given up to 4 hours after the anaesthetic, but not later. Very similar results have been obtained in neo-arsphenamine poisoning. Two points must be made about the relation between protein metabolism and liver poisons. The first is that the favourable effect of protein supplements or thio-amino-acids has been observed only in animals which had been depleted of protein; there is no evidence that they are of value in animals which have been receiving an abundance of protein. The second point is that the effect is purely prophylactic, and that a superabundance of proteins and amino-acids has not been shown to be of value in the treatment of experimental animals with hepatitis. In fact the reverse is the case. Bollman and his collaborators[4] have shown that if the dog's liver is damaged by ligating the common bile-duct or by administering a daily dose of carbon tetrachloride, a high-protein regimen is actively harmful and accelerates the development of ascites and hepatic insufficiency. In another series of experiments,[5] in which rats were subjected to repeated exposure to carbon tetrachloride, the average duration of survival on a normal mixed diet was represented by the figure 100; the duration of survival on high-carbohydrate, high-protein, and high-fat diets was found to be equivalent to 205, 104, and 59 respectively.

It is appropriate to consider the bearing of this experimental work on the treatment of infective hepatitis and allied conditions in man. There is enough evidence to suggest that in the recent epidemics of jaundice in the Mediterranean theatre of operations and elsewhere the relative incidence has been much lower in native troops, but the relative mortality has been higher; the difference in mortality may well be due to the prophylactic value of the higher protein content of the diet of white troops. In treatment there has been a tendency to increase the protein as well as the carbohydrate in the diet at the expense of the fat, but it cannot be said that any convincing evidence has been obtained to justify such a break with tradition. Beattie[6] has claimed that the average time spent in hospital in a large series of patients with acute hepatic dysfunction is inversely proportional to the protein intake. As the appetite is inversely proportional to the severity of the illness, this may be only another way of saying that the duration of stay in hospital is directly proportional to the severity of the illness. Beattie also speaks favourably of the value of casein digests, cystine, methionine, and choline, but he indicates that, owing to the great variability of infective hepatitis, it would be impossible to prove a statistical effect from these supplements without very large numbers of cases. Turner and co-workers,[7] whose experience is based on over 4,000 cases of homologous serum jaundice, state bluntly that methionine and choline failed to yield beneficial results. Richardson,[8] in a small series of cases of infective hepatitis not yet published, has failed to demonstrate any effect with choline. Peters and co-workers[9] have observed no more than a slight benefit from cysteine and methionine in the treatment of post-arsenical jaundice. It is important to realize the conditions of this trial. Mild cases of jaundice and patients jaundiced for more than 14 days were excluded from the analysis, so that only 150 out of a total of 468 patients were left in the trial. The duration of illness in the methionine-treated cases averaged 20 days, as compared with 26 days for the controls, and there was considerable individual variation. So small an effect in so carefully chosen a group may be statistically significant and yet remain clinically insignificant. In the present number of the *Journal* we are publishing details of therapeutic trials of methionine in infective hepatitis by groups of workers at Cambridge and Oxford. In these two series there were 68 treated cases and 68 controls. The conclusion is reached that treatment with methionine has no significant effect on the severity or duration of infective hepatitis or the incidence of relapses. It may be pertinent at this point to reflect on the cost of treatment with methionine. In a recent price list of fine chemicals methionine was quoted at 7s. per gramme. The daily dose is 5 grammes, and the average duration of treatment 14 days. This would work out at nearly £25 per patient, and the cost would be unlikely to be reduced more than 50% by large-scale production, as the synthesis of methionine is difficult. Moreover, more methionine might mean less mepacrine and less D.D.T. Finally, it would appear that methionine may have an important place in the treatment of burns[10] and exfoliative dermatitis.[11] In the present phase of scarcity, therefore, there can be little excuse for recommending methionine in the treatment of jaundice.

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[1] McHenry, E. W., and Patterson, J. M., *Physiol. Rev.*, 1944, **24**, 128.

[2] Glynn, L. E., and Himsworth, H. P., *J. Path. Bact.*, 1944, **56**, 297.

[3] *J. exp. Med.*, 1942, **76**, 421.

[4] *Ann. intern. Med.*, 1938, **12**, 1.

[5] *J. Amer. med. Ass.*, 1943, **121**, 1413.

[6] Royal Coll. Surg. England, Scientific Report, 1943–4. See also articles in *British Medical Journal*, 1944, **1**, 209; and **2**, 651, 847.

[7] *Ann. intern. Med.*, 1944, **20**, 193.

[8] Richardson, J. S., unpublished.

[9] *Quart. J. Med.*, 1945, in publication.

What, then, are the indications for treatment in infective hepatitis? The first is rest in bed, which should be continued until the liver is no longer tender and the urine is free from bile, preferably by the delicate Hunter reaction. The routine diet should be high in carbohydrate, low in fat, and high in proteins. The emphasis should be on the carbohydrate, and fat should not be reduced to a level at which the food becomes dry and unpalatable. Palatability of the diet and avoidance of undernutrition are indeed primary factors in the treatment of a disease in which loss of appetite is the leading symptom, and Turner came to the sobering conclusion that patients who were allowed to choose their own diet did at least as well as, and in some instances perhaps better than, the average. Fresh milk is often well taken; the cream which separates on standing can be removed, though this is not absolutely necessary. Dried milk is often rejected. Fruit drinks ensure a large intake of fluid, carbohydrate, and vitamin C. Regularity and frequency of food intake are probably of greater importance than exactness in the composition of the diet, and Turner believes that if patients were given an infusion of glucose for each meal avoided or vomited some disasters might be obviated. Routine treatment with dextrose and insulin,[12] however, is of no advantage, and the same appears to be true of extra vitamins, calcium salts, and liver extract. There is a suggestion that both liver extract and plasma may produce unpleasant reactions. In conclusion, it would seem that infective hepatitis provides one more example of the care that must be taken in applying knowledge gained in the field of nutrition to the treatment of infective disease.

THE ABUSE OF REST

One of the things which most impressed the medical visitor to the United States twenty years ago was the sight of young women sitting about the lounges of the hotels in Rochester, Minnesota, five days after their thyroid glands had been resected for toxic goitre. The idea that a thyrotoxic patient should be kept in bed for weeks or months had been so deeply ingrained that it was a shock to find the rule broken with apparent impunity. Pressure on beds at the Mayo Clinic was heavy in those days, and now that pressure on beds is everywhere heavy the value of rest is being questioned in every field of therapeutics. A recent symposium in the *Journal of the American Medical Association* speaks roundly of the abuse of rest and the evil sequels of recumbency. Rest is blamed for bone atrophy, muscular wasting, vasomotor instability, constipation, cathartic habituation, backache, and many other chronic disabilities. In later life it favours the onset of bladder trouble, pulmonary oedema, and uraemia. Harrison[1] points out that John Hunter and Sir James Mackenzie suffered from angina pectoris, and their hearts bore the scars of cardiac infarcts at necropsy; yet both men worked hard for some twenty years after the beginning of cardiac symptoms and probably ten years after serious cardiac infarction. Yet neither ever remained in bed for any long period of time. Harrison argues that there is no proof that rest in bed, carried out for many weeks after symptoms have disappeared, is of value in the physical management of the patient with congestive failure, angina pectoris, or myocardial infarction. He brings evidence from animal experiments to suggest that nowadays we confine the patient to bed needlessly long after a coronary thrombosis, and hints that this may even favour a second thrombosis or a pulmonary embolus. Harrison's views did not go without challenge. It all depends on what you mean by rest, as Dr. C. E. M. Joad would say. There is general condemnation of strict recumbency, particularly when it is enforced by sedation and punctuated by periods of violent exertion on the bed-pan; but not even "global war" can alter the fact that the rate of metabolism and the work of the heart are diminished by rest. Levine[2] is undoubtedly right when he points out that strict bed rest in heart failure may bring about pulmonary congestion from redistribution of blood and oedema fluid, and pulmonary embolism from the thrombi which form in the stagnant blood in the legs when the calf veins are compressed in the horizontal position. These risks can be diminished by a modicum of activity and the use of a chair until oedema and congestion have been relieved by appropriate medication. But in advising that rest need not be prescribed for a longer period than two or three weeks after the more acute and alarming symptoms of a coronary thrombosis have subsided Harrison perhaps overstates the case. Both in coronary thrombosis and in acute rheumatism the majority of physicians would feel it wise to keep their patients at rest until the inflammatory process has subsided, though this need not mean strict recumbency, and the use of the commode need not be forbidden. It is difficult to defend any arbitrary period of confinement to bed, and treatment should be suited to the individual on the basis of the severity of the attack and the course of the fever, the leucocyte count, and the erythrocyte sedimentation rate.

The value of rest in pregnancy and after confinement is a fruitful topic of debate, and in both this country and America there are numerous advocates of a reduction in the lying-in period. This is not a simple problem, for it is linked up with the establishment of lactation and the psychology of motherhood. It will be generally agreed, however, that rest and regular hours of infant feeding can sometimes be too dearly bought; mother and child are reciprocal parts of the family whose integration in the puerperium is no less important than the involution of the uterus. Convalescence from a surgical operation is a simpler problem, and Powers[3] presents some striking figures for 100 consecutive patients who were allowed to sit in a chair and to walk on the first day after major operations. He indicates that local complications such as the breakdown of wounds or hernia are actually less common in these circumstances, while the remote complications of operation are greatly reduced. The patient is not "deconditioned," as he is by prolonged rest in bed, and the return to work is accelerated. In orthopaedic surgery the aim has long been to localize rest as sharply as possible and avoid general immobilization, and anyone who has seen the work of our new accident services will have been surprised by the short time in which patients are able to get about in comfort after fractured skulls or disabling injuries. Menninger[4] concludes the series of articles with an amusing criticism of the Weir-Mitchell treatment and of similar measures whereby it is hoped to cure psychological illness by rest cures, relaxation treatments, or holiday trips. "The things that disturb people are not what they hear on the radio: they are what is in their hearts." In psychological breakdown due to exposure to prodigious stress, such as occurs in battle casualties, prompt and complete rest is indeed of enormous benefit, and it must be secured by heavy sedation. But when men break down under conditions of peace they do so from the turning inward of aggressive tendencies, and they require not rest but mental reorientation, physical exertion, and the directed use of muscles to prevent the accumulation of this self-destructive energy.

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[10] Croft, P. B., and Peters, R. A., *Lancet*, 1945, **1**, 266.
[11] Peters, R. A., ibid., 1945, **1**, 264.
[12] Lenz, O., *Acta med. scand.*, 1944, **116**, 447.

[1] *J. Amer. med. Ass.*, 1944, **125**, 1075.
[2] Ibid., 1944, **126**, 80.

This American symposium is written under the influence of wartime shortages of beds and doctors, and some of it has a flavour of special pleading. Nevertheless it should be of value in making us question customary procedures, particularly in hospital practice. In recent years a number of these traditional procedures have been revised. The ritual purgation of patients[5] is no longer condoned, and the patient with a haematemesis is fed. Morphine is regarded as one of the best drugs for renal dyspnoea, instead of being frowned on, as in the past. A hospital is now known to be a dangerous place for a small infant, and it may be equally bad for the old and feeble, who never again pick up the thread of activity once they have let it drop. Absolute rest gained a well-deserved reputation in tuberculosis, but it may be a veritable bed of Procrustes if it is applied to every form of serious illness. Whenever we put a patient to bed we should ask ourselves what we hope to achieve; and it must be something more than a tidy ward, a convenience for examination, or a substitute for a convalescent room. The folly of treating obesity in bed, or of balancing the diet and insulin in a diabetic under conditions of complete rest, is only too common a sight in hospital wards. In every illness, too, we should ask ourselves how the individual patient reacts to rest in bed. For many it is a sheer delight, but for others it is a tedious ordeal which produces a continual mental strain and is much less restful than a discreet amount of activity.

ENCEPHALITIS IN RUBELLA AND MEASLES

As it is often difficult to distinguish atypical rubella from scarlet fever and measles, particularly in the adult, it is as well to be chary of attributing severe complications to the mildest of these three infectious diseases—rubella. But they nevertheless occur in some outbreaks. Polyarthritis, for example, was a feature of rubella in the early days of the present war. A much rarer complication is damage to the nervous system. Bénard's[1] experience of this must be unique, for he encountered no fewer than 13 cases with meningeal symptoms among 291 soldiers treated for rubella in a Versailles military hospital. Reviewing 36 recorded cases of meningo-encephalitis following rubella, Falger[2] notes that 22 were in adults, and, in all, 8 patients died. His own patient, a woman of 26, began with a mild attack of rubella, fell into a deep coma on the eighth day after the eruption, and died within 24 hours. Many of the recorded cases have been mild, and it appears that the complication is either rapidly fatal or clears up completely.

The encephalitis of measles is a more serious matter. Post-mortem examination of the brain in rubella encephalitis shows that the type of reaction is inflammatory; a degenerative, demyelinating process is seen in post-vaccinal and measles encephalitis. The fatality rate for measles encephalitis is high, but varies from epidemic to epidemic. In a follow-up study of recovered cases Litvak and his colleagues[3] found permanent changes in 22 out of 32 (69%)—a proportion approximating to the 65% already recorded by Ford.[4] The permanent manifestations were as varied as the acute stage, but it is interesting to note that, in patients observed over many years, neurological disorders faded gradually and were replaced by disorders of behaviour. In the large New York epidemic reviewed by Litvak only 1 in 1,300 cases of measles developed encephalitis—an incidence considered to be unusually high. The exact cause is still in doubt. The common view is that the histological changes are caused by toxins from a systemic virus infection, and are not the result of a direct attack by the virus. Even if the encephalitis were due to the virus of measles it still remains unlikely that measles serum would have any effect on virus fixed to nerve tissue. In practice the results of even large intravenous doses of convalescent measles serum have been unconvincing, although Mitman[5] noted a rapid response to the intravenous injection of 20 c.cm. of serum obtained from a patient convalescing from measles encephalitis. Until it has been shown beyond doubt that measles serum is useless the physician in charge of a case will feel inclined to give the patient the benefit of the doubt and inject serum when the signs of encephalitis appear. No sulphonamide compound has any action in measles other than on secondary invaders such as haemolytic streptococci and pneumococci. The initial phase of the disease is not influenced by sulphonamides, nor, it appears, is measles encephalitis.

THE HOSPITAL ALMONER

Not long ago the principal function of the hospital almoner was regarded as assessing how much a hospital patient might be expected to pay for his maintenance. Sir William Beveridge, in an address to the Institute of Hospital Almoners the other day, said that he himself had had that same notion until later he learned that the almoner fulfilled a much wider medico-sociological purpose. Her job was that of "helping people, both through the best use of their own capabilities and through the resources of the family and the community, to overcome personal and social difficulties and to achieve the fullest possible measure of health and independence." New personal problems constantly arose in sickness which could be solved only by personal help of this kind, and therefore, in addition to what was provided from the medical and nursing side, the work of the almoner had its own distinctive scope and importance. He mentioned that when preparing his report he interviewed a group of almoners and asked them whether, if the financial assessment side of their work were taken away, it would make an enormous difference to their duties, and he was assured that what they believed to be their most important duties would remain. Even the earlier notion of the almoner's role had its value, for the financial assessment was designed to ensure that no one went without necessary hospital treatment owing to lack of means. There were, however, better ways of bringing about the same result. One of them was represented by hospital contributory schemes; but still more to be preferred, in his view, was a universal and compulsory system of insurance and a provision such as the Government contemplated in the White Paper. The criticism had often been urged against such schemes that they discouraged personal initiative. But the material benefits proposed in his report were only the minimum provision, and ample room was left for individual effort to obtain more than the minimum. The whole idea of giving people social security, said Sir William Beveridge, was to free them from material anxiety so that what were sometimes called the things of the spirit might be cultivated. There were those who said that in seeking to ensure material security for all he was taking a low aim. His reply was that, on the contrary, the low aim was taken by those who supposed that unless people were afraid of starvation they would sit down and do nothing.

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[3] *J. Amer. med. Ass.*, 1944, **125**, 1079.
[4] Ibid., p. 1087.
[5] Witts, L. J., *Lancet*, 1937, **1**, 427.

[1] *Bull. Mém. Soc. méd. Hôp. Paris*, 1921, **45**, 1443.
[2] *Acta med. scand.*, 1944, **118**, 282.
[3] *Amer. J. Dis. Child.*, 1943, **65**, 265.
[4] *Johns Hopk. Hosp. Bull.*, 1928, **43**, 140.
[5] *Lancet*, 1937, **1**, 687.

RESEARCH AT THE PHARMACEUTICAL SOCIETY

The annual report of the College of the Pharmaceutical Society for 1944 is of considerable interest. Work which has begun under Prof. H. Berry on an antiseptic for Gram-negative organisms has made a promising start. It is generally known that we now have in penicillin, the sulphonamides, proflavine, and other recently introduced antibacterial substances a means of ridding wounds from Gram-positive cocci, anthrax, and the gas-gangrene organisms. Hitherto, however, there has been no means of removing *Ps. pyocyanea* and *Proteus vulgaris*. Prof. Berry has found that β-phenoxyethyl alcohol, which he calls "phenoxyetol," is active against *Ps. pyocyanea* in a concentration of 0.4%. Since this substance can be mixed with penicillin and does not interfere with the action of penicillin (or of the sulphonamides or proflavine) phenoxyetol can be used in conjunction with penicillin. Clinical trials have been undertaken. Phenoxyetol is a liquid which does not affect the unbroken skin, and its antibacterial action is not diminished by serum. It was first tried by Dr. J. Gough for tuberculous cavities secondarily infected with *Ps. pyocyanea*, in a 2.2% aqueous solution. This has also been used for burns and superficial wounds. Daily applications eliminate *Ps. pyocyanea* in some cases and reduce their numbers in others; when that micro-organism is eliminated clinical improvement occurs even though staphylococci increase. Phenoxyetol incorporated (2%) in penicillin cream keeps the cream sterile during its use in the wards by killing air-borne organisms which produce a penicillinase. Moreover, the cream kills *Ps. pyocyanea* as well as organisms sensitive to penicillin.

The other direction in which striking progress is being made is in the study of the release of the cortical hormone from the suprarenal glands. The beginning of this work, which is carried out by Dr. Marthe Vogt, was described in last year's report. It has now been shown that the intravenous infusion of adrenaline stimulates the suprarenal cortex, and that this effect is obtained with doses of adrenaline which may be liberated in the body when the splanchnic nerves are stimulated. Within a few minutes of the beginning of an adrenaline infusion the output of cortical hormone rises to several times its resting value, and remains there for some time after the adrenaline infusion stops. Dr. Vogt has shown that this effect of adrenaline is a direct action on the cortical tissue and is likely to be related to the large rise in the oxygen consumption of the suprarenal gland which occurs when adrenaline is injected. We have here the clue to the relation between the suprarenal medulla and cortex, which has been a puzzle for 70 years. Although the cortical hormones are the centre of interest in many laboratories in America because of their great importance in the body, hitherto progress has been confined to the chemistry of these hormones, their action when injected, and their excretion. This advance in knowledge of their liberation in the blood is in a new direction by methods of great technical difficulty on which Dr. Vogt is to be warmly congratulated.

UNITED FRONT FOR MENTAL HEALTH

A provisional National Council for Mental Health was formed in the early part of 1943 to take over the work of the Mental Health Emergency Committee and to continue the activities of the Central Association for Mental Welfare, the Child Guidance Council, and the National Council for Mental Hygiene. It is hoped that before this year is much older the amalgamation will be completed. Meanwhile this partly amalgamated body, as its first report indicates, has carried on a many-sided work. It has set up facilities for mental health training for medical officers and other professional workers such as teachers and health visitors. It has paid close attention to the subject of education of the parent. Under its auspices the services of educational psychologists have been lent to local education authorities and others. Information has been disseminated on the setting up of child guidance clinics, of which, at the date of this report, there were 47 in England and Wales with full staffs, and 18 others under medical direction but without a fully qualified psychologist or psychiatric social worker. The social case work department, which is concerned with children under guardianship, mental defectives, maladjusted children, and others, dealt with over 3,000 cases during the year. The council is also responsible for 13 homes of different types, such as emergency homes for mental defectives and agricultural hostels. These last, which are for men on licence from certified institutions, have proved one of the most successful experiments in the community care of mental defectives. There have been some failures in adjustment, of course, but far more successes. It is added that during this early period of amalgamation into the National Council each of the several bodies has learned to understand and appreciate what the others are doing, and the varied experience which each has brought has increased the vitality, widened the horizon, and heightened the value of the work as a whole.

We announce with much regret that Sir Thomas Lewis, M.D., F.R.S., died on March 17 at Rickmansworth. Last December the Presidents of the Royal Society and of the Royal College of Physicians awarded him the Conway Evans Prize in recognition of his great contribution to medical knowledge on the normal and abnormal mechanisms of the heart and the circulation of the blood.

COAL AND ATMOSPHERIC POLLUTION

Dr. A. Parker, Director of Fuel Research under the Department of Scientific and Industrial Research, in a Chadwick Lecture at the London School of Hygiene on coal in relation to atmospheric pollution, said that estimates made before the war put damage to health, buildings, materials, and agriculture in Great Britain by smoke, sulphur, ash, or grit, arising from the use of coal, at not less than fifty million pounds a year. Though it was not possible to prevent pollution entirely, methods were available under which considerable reduction could be achieved. He emphasized, however, that progress would have to be gradual if the demands for various fuels were not to overstep the supply, and there must be a suitable balance if our resources of the different types of coal were to be used to the best advantage.

Efficient Use of Fuel

The wider use of efficient methods for cleaning coal at the colliery before it reached the consumer would reduce the amount of ash, dirt, and sulphur in the coal or coke and the amount of grit carried to the atmosphere. A reduction of pollution would result from more efficient use of fuel because less fuel would be burnt. Efficiency figures showed that there was much room for improvement which could only be achieved in reasonable time by well-planned scientific investigation and technical development, combined with intelligent and skilled operation.

On the domestic side, under ordinary household conditions, the overall efficiency of the open coal-fire was not more than about 20%. The corresponding figure for the general purpose appliances in which coal was used for space heating, provision of hot water, and cooking was somewhat greater because of the heat taken up by the water, but it was probably not more than 25%. Much effort was now being expended in designing open fires to provide not only radiant heat but also convected heat from air heated by passage through ducts adjacent to the fire, the warm air being discharged into other rooms. With systems of this kind the average householder might get an efficiency of 30% in place of 20% with the ordinary open fire. The idea was not new, but the problem was to design a fire not too costly to make and instal and very simple to operate. Dr. Parker estimated that as an overall figure it was unlikely that efficiency in the use of the 60 million tons of coal we burnt for industrial purposes exceeded 50%.

Smoke and Grit in Furnace Gases

With large modern boiler installations equipped with mechanical stokers, little or no smoke need be produced; but such installations with forced draught carried appreciable quantities of ash or grit into the chimney gases. In some instances the grit had caused considerable nuisance in the locality of the boiler house. Most of this grit could be removed from the chimney gases by efficient grit-catchers such as had been installed at the largest electricity generating stations. At certain of the larger electricity power stations in thickly populated areas coals containing not more than 1% of sulphur were chosen for firing the boiler furnaces. In addition, these power stations were equipped for the operation of processes which removed most of the oxides of sulphur from the chimney gases before discharge to the atmosphere. But these processes of treatment to remove sulphurous gases, however, were not easily operated and were expensive. Some efficient but cheaper method was needed to reduce the quantity of oxides of sulphur discharged, suitable not only for the largest but also for smaller boiler installations. It had not been possible in the past, with the large numbers of hand-fired boilers at numerous industrial works, to avoid the emission of smoke, particularly for a time after stoking. Extensive work by the Fuel Research Station during the last few years had developed equipment to modify the doors of marine and Lancashire boilers whereby the emission of smoke could be practically eliminated. This gave, at the right time and in the right way, the extra air required to burn the smoky volatile matter evolved from the fresh coal for the necessary period after stoking.

Pollution from Domestic Fires

The domestic open fire gave out more smoke per ton of coal burned than any other appliance in general use; and about half of the smoke pollution arose from domestic appliances, though they consumed less than a quarter of the total coal used. There were designs of open fire which would reduce the amount of smoke to about a half of that with the open fire of usual type, but they had not yet been tried out in general use by the average householder. Emission of smoke during the early stages of burning up after lighting seemed to be unavoidable. With open fire-grates of suitable design there was no difficulty in satisfactorily burning coke, provided that the coke was in pieces of suitable size.

Substitution of gas for solid fuel would avoid pollution by smoke and grit and would reduce pollution by sulphurous gases to a negligible amount. The use of electricity in place of solid fuel avoided the emission of smoke, but would not prevent pollution by grit and sulphurous gases unless the generating stations were equipped to remove the grit and sulphur from the chimney gases. In general, however, gas and electricity were too expensive for continuous heating in the average house, but they had advantages for short-period intermittent heating and for cooking. In respect of domestic appliances it would seem that encouragement should be given to the use of coke, gas, and electricity in place of coal, so far as was economically practicable, if atmospheric pollution was to be greatly reduced.

COMMITTEE ON REMUNERATION OF GENERAL PRACTITIONERS

The committee recently set up under the chairmanship of Sir Will Spens by the Minister of Health and the Secretary of State for Scotland to advise on the range of total professional income of a registered medical practitioner in any publicly organized service of general medical practice is inviting evidence from the organizations directly interested. The committee will, however, be prepared to receive evidence from interested bodies or persons other than those specially invited. It is requested that those wishing to place their views before the committee should submit memoranda to the Joint Secretaries of the Committee, Ministry of Health, Whitehall, London, S.W.1, before the end of April.

Some reference to the B.M.A.'s procedure for collecting the evidence it proposes to place before the committee will be found in the *Supplement* this week at page 43.

AWARDS TO CIVIL DEFENCE M.O.s

The *London Gazette* has announced the appointment as M.B.E. (Civil Division) of Dr. BALDEV SAHAI KAUSHAL, medical officer, mobile unit, Civil Defence Casualty Service, Dr. JAMES LEITCH KEIR LAWSON, medical officer, light mobile unit, C.D. Casualty Service, Dr. HERBERT STANLEY KNIGHT and Dr. CHARLES HARVEY BATEMAN, medical officers, C.D. First-aid Service, and Dr. WILLIAM THOMAS GARTHORPE BOUL, officer-in-charge, C.D. Casualty Service. DAVID JAMES, staff officer, ALFRED DANDY, BENJAMIN ANDREW GARWOOD, and FREDERICK MARSHALL, party leaders, C.D. Rescue Service, have been awarded the B.E.M. The citations read as follows:

Dr. Kaushal has served with the Civil Defence since the beginning of the war and on more than one occasion has entered confined spaces in dangerous debris in order to give aid to a casualty. When a bomb dropped in the gardens in front of his house he sustained injuries which caused him to lose consciousness. After some minutes he recovered and it was possible to get him into an ambulance. On hearing, however, that there was a person under the debris he refused to go to hospital and attended to the casualty, giving an injection of morphine. He would not leave the site until he was assured that all casualties were cleared. Dr. Kaushal has shown courage and devotion to duty and has been the means of saving many lives.

Dr. Knight has been out on duty at a very considerable number of incidents caused by enemy action, encouraging everyone by his coolness and cheeriness, and inspiring them by his efficiency and perseverance. Dr. Knight has always been ready to tackle any job, no matter how difficult. He has climbed up into partly demolished premises, down into debris-filled basements, and has crawled through tunnels to render first aid and to succour the injured. At one incident, which took nearly 27 hours to clear up, Dr. Knight stood by the whole night and showed great fortitude in remaining until all the casualties were brought out. Dr. Knight has shown courage, devotion to duty, and tenacity of purpose.

Dr. Lawson's courage and constant and expeditious attendance at air-raid incidents during a period of over four years has set a very high example of devotion to duty. On one occasion he was told that a woman with serious injuries had been released from under debris and was lying on the first floor of a wrecked building. The two upper floors of the premises had been shattered by blast, leaving the roof and attic floor overhanging in an unsupported position. Dr. Lawson immediately obtained a ladder and, without thought for his own safety, crawled through a small aperture in the wreckage and gave morphine injections to the casualty.

Houses were demolished by enemy action and people were buried in the debris. Dr. Bateman and Mr. James worked almost continuously in very dangerous circumstances under the wreckage, James directing the rescue operations which enabled the doctor to attend to the trapped casualties. Although the wall above was in danger of collapsing on them, they tunnelled 12 feet into the wreckage to reach a trapped woman crushed by the debris. The doctor remained to give her injections and looked after her until she was released. Dr. Bateman and James showed courage and determination and saved the life of the casualty.

Four people were trapped under the debris of houses which had been demolished by enemy action. Garwood directed rescue operations in a very skilful manner. After tunnelling into the debris and locating the casualties, he set to work to free them. Working for 45 minutes in a confined space, close to a smouldering fire, he managed to rescue two of the victims. To prevent his collapse, he then had to be relieved, much against his wishes. Dandy then went into the tunnel and, by jacking up the debris, was able to enlarge the space. He worked with extreme skill and care and rescued a boy and attempted to rescue a man who was in an extremely difficult position. By this time Dandy had been working for approximately 40 minutes and was ordered to leave the cavity and come out for a rest. Marshall, relieving Dandy in the excavation, endeavoured to enlarge the cavity by working with additional jacks. He cut away timbers and floor joists, and removed a block of masonry which was holding down the casualty across the legs, by carefully breaking it to pieces with hammer and chisel. The man was rescued after two hours. Dr. Boul very courageously burrowed down under the wreckage with Garwood to render medical attention and remained under the debris until the last casualty was extricated. During this period he sustained the male victim who was lying face downwards almost in the fireplace, in which there was a fire smouldering, his legs being trapped by masses of masonry and timber. Dr. Boul supported him in this position throughout the two hours taken to carry out the rescue, subject all the time to falling debris and the danger of shifting wreckage.

Reports of Societies

EXFOLIATION OF BLADDER LINING

At the February meeting of the Section of Obstetrics of the Royal Academy of Medicine in Ireland the President gave an account of complete exfoliation of the epithelial lining of the bladder in a patient aged 38 years. She had been married four years, and had had one previous pregnancy, which ended in abortion at 8 weeks in 1941.

On admission the patient appeared gravely ill, with a rapid weak pulse. There was a history of retention of urine with overflow for 14 days, and constipation for 21 days. The abdomen was distended and tender. Her last regular menstrual period had been in July (four months before admission), but her history was not very reliable. She had had some further vaginal haemorrhage in August. At the time of admission she had been bleeding slightly per vaginam for some four days, and was in great pain. About an hour later she gave birth to a foetus whose age was estimated at about 4½ months' gestation. The placenta followed rapidly. Bimanual examination disclosed a large solid mass filling the true pelvis and extending above it into the abdominal cavity. The cervix uteri was displaced upwards and backwards. The case was considered to be one in which a pregnancy had occurred in a large myomatous uterus. Subsequent events proved this diagnosis wrong. A catheter was passed and 14 oz. of foul bloody urine were withdrawn. A self-retaining catheter was introduced and left *in situ* for seven days. Her blood urea was 203 mg. per 100 c.cm. of blood. Her urinary output from the time of the introduction of the catheter was maintained between 40 oz. and 70 oz. a day. Her blood urea had fallen to 34 mg. per 100 c.cm. Progress was satisfactory after removal of the self-retaining catheter: occasional urinary stoppages were relieved by catheter. Three weeks after admission she complained of severe pain, and a dark-grey mass about 1½ in. thick protruded from the urethra, coming away easily with traction. It was a large portion of the epithelial lining of the bladder. After passage of this cast she was incontinent, but two months later had regained some control. Cystoscopic examination showed that not more than 1½ oz. of water could be retained in the bladder, which appeared to be lined with granulated tissue and bled very easily. Later examination showed some epithelial lining to be present. Bimanual vaginal examination disclosed a uterus normal in size; no evidence of tumour.

Dr. J. F. Cunningham said the condition was rare now, but used to occur more frequently. It occurred only in association with pregnancy. There was a gradual obliteration of the urethra, causing bladder distension with ischaemia and sloughing of the epithelial lining. Later, the bladder could be stretched so that normal function could be recovered.

Dr. J. S. Quin did not consider the condition was confined to pregnancy, nor did he agree with Dr. Cunningham that it was one of ischaemia, but rather one of acute infection of the bladder.

ARRHENOBLASTOMATA

The North of England Obstetrical and Gynaecological Society met on Jan. 19 for the first time since the outbreak of war. Prof. Farquhar Murray of Newcastle, the retiring president, introduced the new president, Dr. A. A. Gemmell of Liverpool.

Dr. C. P. Brentnall described a case of arrhenoblastoma of the ovary associated with pregnancy and labour.

There were no undue symptoms until the woman reached the fourth month of pregnancy, when evidence of virilism began to appear; masculine distribution of hair appeared on the abdomen, chest, and face; the voice became deeper and the clitoris enlarged. There were none of the usual defeminizing phenomena: the breasts, instead of atrophying, showed the usual changes associated with pregnancy, and the amenorrhoea of pregnancy could not be described as defeminizing. Glycosuria was constantly present—probably another case of the Achard-Tiers syndrome. The woman was delivered by Caesarean section, and the ovarian tumour removed under local analgesia. Lactation began and continued normally. The phenomena of virilism disappeared in six months after operation, except for the deeper voice. The child appeared to be normal except for the external genital organs. There was no doubt that she was a female pseudo-hermaphrodite. The clitoris was much enlarged, the labia majora were enlarged and corrugated. There were no labia minora, and no external entrance to the vagina. The urethral orifice was situated at the base of the clitoris, and the perineum extended unbroken to the anus. On the fourth day of life there came from the urethra the discharge of blood and mucus which is not uncommon from the vagina of newborn girls, and this was taken as a proof of the presence of a normal uterus. The methods of Nature and the laboratory in administering androgens to pregnant mammals were discussed. In this particular case it appeared, from evidence in the mother and child, that androgen from the ovarian tumour reached the child in effective quantity during the third month of foetal life, and resulted in the partial masculinization of the external genitalia.

Dr. J. W. A. Hunter described a case of arrhenoblastoma of the ovary.

The patient was a single girl aged 19. Her periods had begun at 11 years and were regular until she was about 15. At that time her voice became deep and her abdomen enlarged. Nine months later menstruation ceased and the breasts were reduced in size. Eighteen months after this hair appeared on the face, legs, and chest. She came to hospital because of the very marked increase in size of the abdomen. A hard tumour could be felt, reaching nearly to the xiphisternum. There was free fluid in the abdomen, and at the time of her admission to hospital she had a pleural effusion. A large tumour with an enormous blood supply was found when laparotomy was performed. It was removed with great difficulty. No metastases were seen. The patient's condition while in hospital was never good, and in spite of blood transfusion she died about 12 hours after the operation. Points of interest were the very large size for arrhenoblastoma, and its enormous adventitious blood supply.

Dr. J. W. Bride described another case of arrhenoblastoma of an immature type.

The patient was single, aged 32. She complained of menorrhagia for five or six months. Examination showed hirsutism, especially of the face, necessitating daily shaving. Intellect dull. There was a masculine distribution of hair on the abdomen. A hard mobile mass was palpable in the abdomen. The clitoris was greatly hypertrophied. Laparotomy showed a solid ovarian tumour about the size of a foetal head, and this was removed. Two years later the clitoris was much smaller, the hair on the face was much less, and she was only needing to shave once or twice a week. Her general health was good.

Adreno-genital Syndromes

Dr. A. A. Gemmell described a case of adreno-genital syndrome due to bilateral cortical hyperplasia of the adrenals.

The patient came complaining of primary amenorrhoea and some abnormality of the vulval region. She was of male configuration with no breast development, but had no facial hirsuties. Her voice was of female timbre and she had a normal feminine outlook. On examination under anaesthesia on April 26, 1944, the phallus was found to be 2 in. long, and no other abnormality was apparent. On May 5 Dr. Hain of Edinburgh estimated the ketosteroids as 35 mg. per 24 hours, and pregnanediol as 60 mg. per 24 hours. In June these had increased to 74 mg. of ketosteroids and 73 mg. of pregnanediol. On June 6 Mr. C. A. Wells amputated the phallus, and laparotomy was performed. The uterus was small and the ovaries appeared normal. Biopsy of the right ovary showed atretic and normal immature follicles and two large follicles and one with both granulosa and theca layers. Both adrenals were enlarged. A diagnosis of congenital bilateral suprarenal hypertrophy was made, and on the 27th Mr. Wells removed the left suprarenal by the transcostal route. It appeared elliptical in shape, and measured 3.5 in. by 2 in. by 0.5 in. It weighed 23 grammes after fixation. Vines's stain showed an androgenic reaction. There were no fuchsinophil cells in the outer zone. In the midzone 25% of the cells gave a positive stain, and less than 25% in the inner zone. The ketosteroid and pregnanediol levels fell to 32 and 31.5 mg. on estimation; they had risen again by Jan. 3. In December last menstruation had still not occurred, and there had been no enlargement of the uterus and no change in voice.

Mr. T. N. A. Jeffcoate described a case of adreno-genital syndrome due to an adenoma of the adrenal cortex.

The patient was a single woman, aged 30, complaining of primary amenorrhoea, and growth of hair on the cheeks, chin, and upper lip. The hirsuties had been present for 16 years, having gradually developed soon after the age of 14. She had a deep voice and a muscular and masculine figure with male distribution of hair. The breasts were undeveloped, and the nipples deeply pigmented. There were slight hypertrophy of the clitoris and a septate vagina with a hypoplastic cervix. Psychologically she was mainly feminine, interested in clothes and babies; sexually she was neutral. At laparotomy a tiny infantile uterus was found. The ovaries were pale, with numerous tiny cysts due to atretic follicles. Biopsy was performed to confirm that the glands were ovarian. The left suprarenal was felt to be larger than the right and appeared spherical. The patient recovered from the operation and later a ketosteroid secretion test was performed. The result of 140 mg. per 24 hours was the final link in the chain of evidence. Mr. C. A. Wells of Liverpool agreed to explore the left adrenal through the left loin three weeks after laparotomy. In the upper pole of the gland he found a rounded tumour which shelled out easily; and this was removed together with a small portion of normal tissue. About half the adrenal was left behind. The tumour, roughly ovoid in shape, was 2 in. in diameter, greenish purple in colour, dull red on section, owing to considerable extravasation of blood. Microscopically it was seen to be composed of cells recognizable as of adrenal origin. They showed a strong positive reaction to Vines's stain. Although at the time it was suggested by the pathologist that the tumour was of a low grade of malignancy, the patient was alive and well 2½ years later. The results of the removal were classical. Eight weeks after operation the patient menstruated for the first time, and had done so regularly since them. The uterus had grown to about normal adult size. After 2½ years the voice was unchanged, the clitoris unchanged, the breasts enlarged, and the skin of finer texture. The figure was slightly more feminine. The hair did not drop out dramatically as was often described, but was slowly becoming more feminine in distribution, and after electrolysis was showing diminished tendency to return. The ketosteroid excretion within one month of operation had dropped to 3 mg. in 24 hours. Psychologically she had become slightly more feminine, more modest, and less self-conscious.

The Whipps Cross Hospital Medical Society held a clinical meeting on March 9. The successful results obtained from the use of penicillin were demonstrated in a number of patients, including a case of interlobar empyema treated by aspiration and local application of penicillin, a cured case of staphylococcal septicaemia, an air-raid casualty who had sustained a ruptured liver, and a case of meningitis. A number of pathological specimens were also shown. The next meeting will be held on April 6 at 8.30 p.m., when Dr. Stanley White will show a film entitled "Sex Hormones: Physiology, Diagnosis, and Treatment."

The annual general meeting of the Society of Public Analysts and Other Analytical Chemists held on March 9 at Burlington House, London, marked the seventieth anniversary of the Society. It was reported that in the past year the usual activities had been maintained, the financial position remained very satisfactory, the membership had increased by 117 to 1,197, and the circulation of the Society's journal, the *Analyst*, in spite of paper restriction, had increased. There had also been important developments. In pursuance of the policy decided upon a year ago, the Society had formed, within the framework of its constitution, two groups concerned with particular branches of analysis—viz., the Microchemistry Group (chairman, Prof. H. V. A. Briscoe) and the Physical Methods Group (chairman, Mr. R. C. Chirnside). These groups will hold meetings from time to time in London and elsewhere. The proceedings ended with the presidential address of the retiring president, Mr. S. Ernest Melling, who, after reviewing some of the outstanding events of the past year in the Society's affairs, made some observations on the subject of water and water supplies. The address will be published in the *Analyst*.

Advisory Councils of Industrial Health are a recent development and are composed of members of employers' organizations, trades unions, and the medical profession. The object is to promote industrial health in the area concerned, making suitable reports and recommendations when indicated. The intention is for such a council to act as a single body, and not as an association of three types of representatives. The first such council was formed in Leeds two years ago. Another one was set up in Derby in March, 1944, and a further one in Burton-on-Trent in September, 1944. A joint meeting of these three councils was recently held in Derby, and representatives were invited from neighbouring towns where such councils are contemplated—Sheffield, Birmingham, Coventry, and Grantham taking part. Each of the existing councils described the work done and future work contemplated. Co-ordination and liaison between all such councils was arranged, and it was decided that the next joint conference be held in Derby in May, 1946. It is evident that the number of such councils will increase considerably, and that it will be only a matter of time before it is a national movement.

Correspondence

Estimation of Heat Radiation in Clinical Practice

SIR,—The article on "Estimation of Heat Radiation in Clinical Practice" by Drs. D. S. Evans and K. Mendelssohn (Dec. 23, 1944, p. 811) is important because it is in essence a plea for better scientific measurement of all physical radiations allowed to reach the body. The old adage, "To measure is to know," surely holds good in the case of radiant heat and infrared, as in the case of *x* rays or radium or other physical influences brought to bear upon patients.

There is, however, one point that is overlooked in this article which is of considerable clinical importance, and that is, that the great majority of cases treated by infra-red or radiant heat have interposed between their skins and the source of heat either a single piece of lint or a sheet or towel. It would have been of great interest to have known what difference in wavelength is effected by such a procedure.

The majority of patients that attend at my rheumatic clinics have been treated during part of their illness by radiant heat and massage or infra-red and massage. In a small percentage of these cases the patient asserts that considerable benefit was derived; but there is never any evidence of any clinical details of technique, as to how the radiant heat or infra-red was given.

That radiant heat or infra-red can be potent for harm has been shown decisively during the war in the treatment of shock and similar conditions. In a survey of a number of Air Force stations receiving wounded, crashed, and shocked patients, there was unanimity of opinion that a very small quantity of radiant heat did good, that it did more good when the patient was treated in his flying clothes, and that if the radiant heat was left on for any length of time its effect was rapidly harmful. It would seem that the patient's clothes prevented any considerable quantity of ray energy reaching the body; and the short time enabled the clothing to be warmed without becoming a source of radiating energy. As a result, the body-envelope of air is heated by conduction and convection.

On the strength of these observations the R.A.F. Electro-Medical Research Unit developed a means of conveying air slowly and smoothly at varying temperatures, free from direct radiation, to the patient, so that he can be subjected to a simple form of air conditioning.

Investigations are proceeding on these lines. In the meantime a warm welcome should be given to every effort to make accurate measurements of physiotherapy methods when applied to the body.—I am, etc.,

London, W.1. C. B. HEALD.

Ovariotomy or Caesarean Section?

SIR,—Prof. S. J. Cameron (March 3, p. 307) has invited opinions from his colleagues on their methods of dealing with ovarian cysts in pregnancy. Here is the experience and practice of one whose opportunities must have fallen far short of his own. First the experience: (1) several ovariotomies (the exact number is not readily available) performed between the 16th and 32nd weeks of pregnancy; (2) three ovariotomies during the early puerperium—two on account of twisting of the pedicle, the other because of infection in the cyst; (3) five ovariotomies and Caesarean sections in women near term or in labour.

No one will seriously challenge ovariotomy in groups (1) and (2), even if, as in many cases, the cysts are symptomless when first discovered. Torsion of the pedicle is more frequent in pregnancy (20%) and the puerperium (40%), the cyst if it is pelvic will offer an obstruction in labour, and, finally, we can never be happy about an ovarian tumour until it is excised and sections have been examined. It is the third group around which discussion will develop. In four patients the dermoid cysts were pelvic (obstructive), and in three of these the patients were in labour and the cervix was fully dilated. Forced down by strong pains and the presenting part, the bulging tumour and overlying vaginal wall were visible just within the vulva in two of these patients. One cyst was found to be firmly adherent to the floor of the pouch of Douglas. The fifth tumour was a multilocular cystadenoma and was situated in the left hypochondrium (non-obstructive).

I have based my practice of first performing Caesarean section and then ovariotomy on the following grounds: (1) Considerable forward dislocation of the pregnant uterus or even complete eventration may be necessary before obstructive cysts can be delivered if manipulations are to preserve the integrity of the cyst wall and safeguard the thin-walled veins in its pedicle. (2) Some cysts may be adherent, and the difficulties and dangers of delivering them from behind the pregnant uterus are even more pronounced. (3) After evacuation of the uterus there is a marked decrease in the calibre of the veins of the pedicle; this is easily ligated, and as a result of the relaxation of the broad ligaments can be buried without drawing structures together under tension. (4) Only one anaesthetic is necessary, which may not be so unless the condition of the cervix is such as to justify immediate vaginal delivery. (5) The lower-segment operation is always used, the risk of subsequent rupture of the scar is very remote, and there is no question of condemning these women to a series of repeat operations. In one of my cases of obstructive cysts the patient was not in labour. By adding abdominal delivery to ovariotomy such a course seemed at least more humane, and under modern conditions and with present-day technique the maternal risk can have been increased by only an infinitesimal degree.

It must, however, be admitted that there are arguments on the other side. One can readily imagine that in an occasional obstructive case in which, from repeated vaginal examinations or from other interference, infection may be presumed or is clearly evident, the cyst might be drawn out of the pelvis and the infant delivered either by version or by forceps with advantage to the mother. This could be done by an assistant while the abdomen was open, the ovariotomy then carried out, and the pedicle dealt with under the most favourable technical conditions. The older vaginal methods of dealing with obstructive cysts carry too many risks to warrant them any place to-day outside the history of obstetrics.

In the latter part of his letter Prof. Cameron has raised another subject when he avows his belief that the classical should be selected in preference to the lower-segment operation in cases of placenta praevia. In 1932 I performed the first lower-segment operation for placenta praevia in the Liverpool Maternity Hospital, and three years later began to carry out this procedure in such patients under local analgesia. I published in 1939 the details of my first forty-three patients, and since then this number has been considerably added to, still without maternal mortality. In the same publication I considered fully the arguments against the lower operation; indeed I set them out so fairly and prominently that several people have confessed that, on reading this section, they were deterred once and for all from ever using this method in cases of placenta praevia. In fact, most of the arguments were the conjectural outpourings of theoretical minds, and in actual practice it was found that things just did not work out in the way that had been supposed. The literature shows quite clearly that the majority of those who use the lower-segment operation as their standard procedure also employ it without demur in their patients with placenta praevia. It shows, too, that the maternal mortality of this operation in placenta praevia is certainly not higher than the classical.

Since 1932, 175 patients with placenta praevia have been delivered through the lower segment. In ninety-seven patients local analgesia was used. There were three deaths, none in the last 100—post-partum haemorrhage (spinal anaesthesia), diabetic coma (general anaesthesia), peritonitis (general anaesthesia, intrapartum infection with rigors at time of operation). Local analgesia is invaluable as our chief means of preventing uterine atony and post-partum haemorrhage; ergometrine and pituitrin act swiftly and powerfully without first having to overcome the relaxing effects of general anaesthesia. Since the beginning of 1942 there have been fifty-one abdominal deliveries, all but two by the lower-segment operation, and in thirty-one of these the anaesthesia was local. So it would seem that a certain uniformity of practice exists in this hospital, whenever abdominal delivery is selected as the method of treating cases of placenta praevia.

But these perhaps are not the most important things after all. It is evident from the closing part of his letter that Prof. Cameron and I are in full agreement on the main issues. With the lavish use of blood and plasma, anaesthesia carefully chosen and carefully administered, courage, energy, and operative ability on the part of the obstetrician, no exsanguinated woman should die if she once gets as far as a bed in a well-equipped and well-staffed maternity hospital. Bed is enough, for, as he obviously and rightly implies, mere transference to the theatre table may gravely jeopardize the chances of such women.—I am, etc.,

Liverpool. C. McINTOSH MARSHALL.

Sulphonamide Therapy in Otitis Media

SIR,—Nine months ago I drew attention in the *Journal* (June 3, 1944, p. 747) to some of the dangers attributable to sulphonamide therapy in suppurative conditions of the middle ear and mastoid, and in the intracranial complications arising therefrom. The article stimulated a correspondence which continued for many weeks, but some widely divergent views were expressed, and as a result no unanimity of opinion emerged to act as a guide in assessing the need for using these drugs in otitic infections.

Some correspondents supported the free, if not indiscriminate, use of these drugs both before and after drainage, and denied that masking of symptoms occurred as a result of sulphonamide therapy. Such views are in direct conflict with those expressed last week at a representative meeting of otologists in London, at which this subject was under discussion. Stronger views than were contained in my article in condemnation of the indiscriminate use of these drugs were expressed by many speakers, and much emphasis was laid upon the masking effect and also upon the deafness which can result from the action of sulphonamides. Sensitization of the patient, rendering him drug-fast, and damage to the kidney were also factors causing disquiet. In the milder forms of acute otitis it is probable that resolution would be just as complete, and in some cases with better hearing, if the drugs were withheld.

Now that a sufficient time has elapsed since the introduction of sulphonamides to enable observers to take stock and assess both the value and danger of these drugs in otitis, it would be useful if a clear expression of opinion from otologists were available to those who feel uncertain about the indications for the use of such a two-edged weapon in cases of otitis media.—I am, etc.,

London, W.1. A. R. DINGLEY.

Trichlorethylene in Midwifery

SIR,—I do not remember seeing an adverse report on the use of trichlorethylene as an analgesic in midwifery. Freedman (*Lancet*, 1943, **2**, 696) using his inhaler and Edwards (*Brit. med. J.*, 1943, **2**, 795) using Marrett's inhaler were satisfied as to its efficiency and relative safety.

I have been using it for some years, and believe it to be superior to nitrous oxide in many respects. I have noted no undesirable effects. Originally I used an inhaler of the draw-over type, which I designed and had made, but I found this somewhat clumsy. It occurred to me that the old-fashioned Clover or Hewitt's modification would possibly answer the purpose.

This I have found to be the case, and in the last 40 or 50 cases in which I have used it I have been well satisfied with the results. My practice is to place about 1 oz. in the container, to remove the rebreathing bag, and to fix the indicator at between the 1/4 and 1/2 positions, with a small piece of rubber tubing compressed to go between the container and indicator.

The patient uses the inhaler herself in the same manner that she uses a nitrous-oxide-and-air machine. As the head is crowned and when delivery is taking place the indicator can be moved to "Full on." If trichlorethylene is administered with the indicator in this position for some minutes perineal repairs can be carried out, although the patient will not be relaxed. It is my belief that the fact that trichlorethylene does not cause muscular relaxation is of definite advantage in midwifery, since the uterine tone seems to be maintained. This is, of course, a property of nitrous oxide, but trichlorethylene has the obvious advantages of portability and cheapness.—I am, etc.,

Mount Vernon Hospital, Northwood. D. C. DEVITT.

Barotrauma

SIR,—The following facts regarding the history of aviation medicine of the ear may be of interest in view of the letter by Mr. F. W. Watkyn-Thomas (March 3, p. 310).

The earliest account of aural symptoms caused by flying was given in *1783* by Charles—a French physicist. He invented the hydrogen-filled balloon, and during his first flight to over 1,500 fathoms—i.e., over 9,000 ft.—he apparently suffered from a mild anoxaemia from which he was roused by severe pain in his right ear and "glandes maxillaires." Charles attributed the earache to expansion of the air within the cavities of the ear during ascent.

As a result of the study of the symptoms experienced by Charles and by many other balloonists and of his own observations in the decompression chamber, Paul Bert wrote the following comprehensive account of the effects of barotrauma on the ear in *La Pression Barométrique,* which was published in *1878*:

> "Pains in the ears have been noted by all observers during compression as well as decompression. All have given the exact explanation of them; they have shown that since the Eustachian tube, obstructed for different reasons, does not permit the compressed air—i.e., during descent—to enter the tympanic cavity, the tympanic membrane is pushed back and distended, causing pain which may be unendurable. Sometimes it is even ruptured. . . . Similar symptoms, but less severe, accompany decompression (i.e., during ascent). They can be checked by opening the tube, either by swallowing or—and this is a more certain method—by making a strong expiration with the nose and mouth closed. These repeated procedures result in re-establishing the permeability of the tube, the obliteration of which is a frequent cause of deafness. . . ." (Hitchcock's translation, 1943.)

In *1918,* at the request of the military authorities, Mr. Sydney Scott visited France to investigate the aural disabilities which were occurring in flying personnel. As a result of his observations he formulated a series of rules (published in 1919), of which the following form a substantial part of the prophylactic measures adopted to-day to prevent barotraumatic disabilities:

> "(*a*) Airmen should not fly with a cold in the head or sore throat, or when unable to inflate both Eustachian tubes at will.
>
> (*b*) Airmen who can open the Eustachian tubes by swallowing should use chewing-gum to stimulate the flow of saliva and keep on swallowing—especially during descent.
>
> (*c*) Airmen who cannot rely on swallowing to open the Eustachian tubes repeatedly and rapidly should make a rule of self-inflating the ears by Valsalva's method and should begin to do so at the commencement of descent—repeating the procedure once, say, every 1,000 ft.—and not wait until they land."

It was not until *1937,* however, that the signs and symptoms of tubal dysfunction during flight were described as an *entity* by Armstrong and Heim, and they designated the syndrome "aero-otitis media."—I am, etc., JOHN E. G. MCGIBBON.

SIR,—Your correspondent Dr. A. B. Alexander (Feb. 24, p. 276) brings up the difficult question of the nomenclature of otitic barotrauma. This has been the subject of much discussion among interested Service otologists, both British and American. The term "otitis media" at once calls to mind an infective lesion of the middle ear, and the prefix "aero" does not dispel this. We agree that inflammation is an inevitable sequel of the trauma, and therefore have no objection to the implication of inflammation suggested by the adjective otitic. The only non-inflammatory change that can be seen on otoscopy is the inward displacement of the membrane: all other visible changes are inflammatory. Thus "otitic" is, in our opinion, the correct adjective, as it gives the correct geographical site of the lesion and also implies the secondary inflammatory changes.

We consider that the condition is essentially traumatic, and do not think that the term "barotrauma" is in any way misleading. The tympanic membrane ruptured by atmospheric pressure is just as much an injury or trauma as the lung ruptured by oxygen delivered from a cylinder, and few would dispute the traumatic nature of the latter.

"Tubo-tympanic pressure syndrome" is a cumbrous term which is not self-explanatory. No satisfactory reason for its adoption has yet come to our notice, and until some adequate reason for changing the nomenclature is brought forward we propose to continue to call the series of changes produced by atmospheric pressure in an unventilated middle ear "otitic barotrauma."—I am, etc., E. D. DALZIEL DICKSON,

Central Medical Establishment, R.A.F. Air Cdre., R.A.F.

The Medical Film

SIR,—Your leader of Jan. 20 (p. 87) on the medical film has just reached me. It is so much to the point that I feel disposed to add to it.

Some ten years ago a small party, including myself, convinced of the value of the film as an instrument of education, and having suffered as students from some of its early and boring misapplications, began to produce surgical teaching films, with the support of several of the senior honorary members of the staffs of the Manchester Royal Infirmary and Salford Royal Hospital. Production ceased at the outbreak of war for obvious reasons, but by that time a number of films had been made (including one which was awarded the Bronze Plaque of the Royal Photographic Society), and we were agreed on certain basic principles governing the technique of the film in medical teaching.

The present-day student audience is fundamentally a section of the ordinary film-going public which by long use has come to accept nothing short of perfection in photographic and cinematic technique. Therefore, the slightest suggestion of "amateurishness"—whether in photography, lighting, cutting, or continuity—is immediately recognized, and not only excites adverse comment but diverts the student's attention from the real purpose of the film. It is not enough merely to photograph an operation and screen the result. Weeks of preliminary work are required, and the script must be as finished as for any entertainment film. Cutting and timing after shooting are as essential in teaching medicine as they are in a Hollywood "musical," and a film that takes days to shoot may take months to cut.

The ideal medical production unit is built round the professional side, and not vice versa. We were fortunate in finding the whole team—cameramen, lighting technicians, cutter, and so on—from those who were either qualified or at least final-year students. In the majority of cases the senior "honorary" who "sponsored" the film decided the general line to be taken, and thenceforth acted as adviser rather than as director, as this latter job demands a degree of technical knowledge of the cinema which is rarely coupled with professional eminence. The technicians were found among the younger members. A wholly professional team makes for very smooth working, especially in the operating theatre, where the presence of laymen is always a handicap and may be a danger.

The Manchester Unit consider that the film should be used as a supplement to clinical teaching, and that its use in such a way, like the summary at the end of a chapter, can be instrumental in clarifying the student's ideas. It cannot replace actual clinical instruction in the infinite variety of cases (although its limited value in this respect is discussed below), for by its very nature the film must be dogmatic. Technically, first-rate colour is essential, and this demands skilled photographers. The value of sound is debatable. At present sound projectors are rarities in medical schools, and in any case the "summary" film is often better for the skilful use of silent titling and cartoon. Visual memory in most of us is more reliable than auditory.

The film has other more specialized applications. It is an ideal instrument for teaching the principles of operative technique, since intelligent camera work can put every member of a large class in the position of the surgeon or at least of the first assistant—a marked improvement on the usual unseeing huddle of students at an actual operation. Long-focus lenses bring the finest detail into satisfying close-up. In passing, few surgeons operate easily for the camera without practice. Hands must be kept out of the "line of fire," even at the cost of some discomfort.

The third great use of film—that which your leader refers to as "Prof. X's series of films of tics and tremors"—requires different handling. Here we feel that individual case films, indexed like ordinary case notes, should be available centrally to illustrate actual cases. A lead title and catalogue number should identify them, and printed notes should be available for the teacher. They should remain silent, and be used exactly as the present-day lecturer uses an actual patient for demonstration. In effect they constitute a series of selected patients, untiring, and constantly "on tap" at all stages of their disease. Such film-strips—they are not true films—can be assembled as required, with a few feet of black spacer-strip between cases, and the projector used to run each case through, stopping on the spacer until the next case is required. We used this method for Mr. Robert Ollerenshaw's presidential address to the Orthopaedic Section of the R.S.M. a few years before the war to demonstrate in London a series of patients who lived in the North and who were therefore not available for the meeting.

Finally, I can confirm from my own experience, both in the Service and before, the efficiency of the film as an instrument of education. But it must be properly used, otherwise we shall build up a barrier of conservative opposition to this development from people who say that the film is no good, but who really mean that *bad* films are no good. The Scientific Film Association may be "interested in means rather than ends," but unless the means be skilfully handled the end will not be achieved. Perhaps the formation of a Section of Medical Cinematography of the R.S.M. may be the answer.

My apologies are due to the other members of the team for not consulting them, but they are scattered over various theatres of war. I trust they will not think I have misrepresented them.—I am, etc.,

ROBERT G. W. OLLERENSHAW,
C.M.F. Major, R.A.M.C.

Nursing and Tuberculosis

SIR,—The grave responsibility of nurses' health does not seem to be anyone's business. Your medical correspondents look at the case from the point of view of infection. The letter from J. Eyre (March 10, p. 345) sets out, more ably, the whole picture.

Infection is only part of the problem. The maintenance of resistance is highly important. The factors which contribute to breakdown in health often form the environment in which the average nurse must live and work during training. Her span of day is long—13 and sometimes 14 hours. Her working week is at least 48 hours, often longer, and in addition she is the servant of an examining body. Meals are frequently badly spaced, so that she works hard at high pressure when hungry and tired.

At one time the nurse in training was called a probationer; now she is designated "student nurse," but the status has not been changed. Sister tutors have been appointed to help her. It is their heartbreak to see, more intimately than others, these young girls of all classes, arriving keen and anxious to serve, become discouraged and disheartened: discouraged by the double burden of work and study far too great for anyone to carry for long, and disheartened because they are not taught at the bedside. To the medical men they are only the "hewers of wood and drawers of water," and as for the busy ward sister she is first of all a foreman and must get the work done. She is interested and would teach if she had time, but there is no time.

The bookstalls display considerable literature on health care. Our young people come to hospital to learn how to put this into practice, only to find they must make bricks without straw; the tools are not provided; and, moreover, they may be expected to live and work under sordid unhygienic conditions that would not be tolerated in the homes from which they come.

Supervision of nurses' health has been dealt with in a pamphlet issued by the King's Fund. And yet we find raw recruits to sanatorium nursing sent on duty without any instruction on the precautions to be taken to prevent the spread of infection and safeguard their own health. They may be given an initial medical examination with *x*-ray examination of the chest, or this may be deferred for several weeks. Up to the present this recommended measure is not made a condition of recognition of nurses' training schools, not even of sanatoria. When a nurse becomes liable to "direction" under the Ministry of Labour regulations an initial medical examination, including *x*-ray examination of chest, is required before she is permitted to nurse cases of pulmonary tuberculosis. A nurse becomes liable to "direction" when she has had 12 months' nursing experience. It is evident, therefore, that what is the right of the worker of 12 months' experience is not demanded for the raw recruit who enters a sanatorium for training.

Your correspondent is right: "make do and mend" have reached saturation point. An entirely new approach to the training of nurses is needed if *nursing* is to survive.—I am, etc.,

London, W.2. EVELYN C. PEARCE.

Penicillin: Price and Manufacture

SIR,—I am very much obliged to Dr. Frank Hartley for his instructive letter (March 3, p. 307) on the subject of the price of penicillin. Even now, however, we have not been told what the price of penicillin is or why there is any need to make a secret of it. What exactly does Dr. Hartley mean by saying that the rumoured price is in excess of the real one by 1,000%? Does he mean ten times as much? If so, I can only imagine that the 1,000 was used to make the figures more impressive, like expressing a mile in terms of millimetres.

I think Dr. Hartley need hardly be surprised that there is still a widespread impression in the public mind that there is a "penicillin ring." I can't quote chapter and verse, but the impression was surely launched by the Minister of Health in the House when he stated that the manufacture was to be given over to one or two large firms, as only these would be efficient enough. It was as a result of this statement that most of us who were already making the stuff decided to "pipe down." Now it appears that, apart from any ordinary trade associations, the firms in question are welded together by the Therapeutic Research Corporation, of which Dr. Hartley is secretary. It is surely asking too much to expect the public to believe that such an organization has never discussed the question of price.

It is good, however, to hear that some competition is at last being permitted, but it is very hard to see why this was not encouraged from the first. There are surely ample safeguards in the law as it stands to ensure that bad stuff is not sold to the public, and it is merely ridiculous to restrict the manufacture and then subsequently announce that there is none for general public use. One gets an uncomfortable feeling that this is a highly characteristic piece of bureaucratic interference which augurs ill for the future of medicine.

I hope someone will tell us what is done with "time-expired" penicillin. I know of one large hospital where it is all destroyed on the day of expiry, but is it, in actual fact, any the worse for being time-expired if kept in refrigerator?—I am, etc.,

Haywards Heath. J. W. SHACKLE.

The Metric System and Medicine

SIR,—By the time this letter reaches you there may have been further correspondence of which I am unaware. Some of your correspondents have rightly stressed the danger of using dual mensurations. In a recent medical article one found the abbreviations "g., gr., gm."—small wonder that one of my assistants needed my help in their interpretation. Again, in a modern obstetric textbook appears "cm." and "in.," in the same paragraph and separated by only a few lines. Since Sir John Anderson has given an emphatic "no" to the question of adoption of the metric system in Britain, and since there seems to be no doubt that our obsolete and complicated method of weighing and measuring is to be perpetuated for generations to come, I should like to make a final plea. In all medical articles and books might the metric equivalents be put in parenthesis? Especially does this apply to prescriptions. I can assure those authors who take the trouble to do this that they would receive the silent thanks of the many foreign doctors who wish to read British medical publications.—I am, etc.,

Istanbul University. W. C. W. NIXON.

Child Guidance Clinics

SIR,—Without wishing to express disagreement with the main argument of Dr. Ralph A. Noble's letter (March 10, p. 345), there are certain statements of fact in relation to child guidance clinics which require correction. In the explanation of the grouping of the clinics set out in the list prepared by this Council it is expressly stated that "owing to difficulties of staffing it has now been decided that newly established clinics and clinics where there have been changes of staff should remain unclassified until after the war." Consequently the 15 listed as Group 1 Clinics are those which were in existence at the outbreak of war and where no changes of staff have occurred since. The facts are that 47 clinics are fully staffed—i.e., with a complete team of psychiatrist, psychologist, and psychiatric social worker—and only 3 not under medical direction (a comparative table is given in the report of the Provisional National Council for Mental Health for 1943). Some of the clinics are under the administrative direction of a school medical officer who is directly responsible to the Education Committee. But in the great majority the psychiatrist is responsible for clinical direction. The Council has from its inception done its utmost to ensure that child guidance work in this country shall be carried out by fully staffed clinics under psychiatric direction, and has always had the fullest co-operation in attaining this objective from the Ministries concerned.—We are, etc.,

Alan Maberly,
R. G. Gordon.
Medical Directors, Child Guidance Council.

The Services

Col. E. A. Sutton, C.B.E., M.C., late R.A.M.C., has been appointed D.D.M.S., and has been granted the acting rank of Major-Gen.

Temp. Surg. Lieut.-Cmdr. R. St. J. R. Johnston, R.N.V.R., has been mentioned in dispatches for outstanding courage, leadership, and skill during the build-up of the Normandy bridgehead.

Capts. P. Delap and L. F. McWilliams, R.A.M.C., have been awarded the M.C. in recognition of gallant and distinguished services in the field.

The *London Gazette* has announced the appointment as M.B.E. (Military Division) of Fl. Lieut. R. C. Dickson, R.A.F.V.R. The citation reads as follows:

> One afternoon in November, 1944, an aircraft landed from an operational sortie, but when it had proceeded some 600 yards up the runway an explosion occurred and the aircraft burst into flames. Fl. Lieut. Dickson, the medical officer of the unit, immediately hastened to the scene and, on arrival, found one member of the crew lying clear of the wreckage. After giving this airman a cursory examination, Fl. Lieut. Dickson gave instructions for him to be removed to hospital immediately. By this time ammunition and pyrotechnics in the aircraft were exploding continuously. The petrol tanks were blazing furiously and liable to explode at any moment. Undeterred, Fl. Lieut. Dickson went to the aircraft to help another member of the crew who was trapped in the burning geodetics, his boots being on fire. Displaying complete disregard for his own safety, Fl. Lieut. Dickson tore away the geodetics with his bare hands, injuring himself in the process, and freed the airman, whom he then dragged to safety. Fl. Lieut. Dickson's courage and devotion to duty on this occasion undoubtedly saved two lives. He has at all times shown outstanding devotion to duty and has done much to maintain the morale of air crews and ground personnel during difficult periods.

DENTAL UNITS FOR THE NAVY

At the Royal College of Surgeons on March 8 two Red Cross and St. John Dental Units were presented by Field-Marshal Sir Philip Chetwode, on behalf of the Joint War Organization, to the Admiralty for the use of the Royal Navy. Sir Alfred Webb-Johnson, President of the College, who was accompanied by the Vice-Presidents (Sir Girling Ball and Mr. C. Max Page) and the members of the Council, said it was a happy idea to hold this ceremony at the Royal College of Surgeons because it could be regarded as the academic headquarters of British dental surgery. By far the greatest number of dental surgeons practising in this country were licentiates of the College, which was also the home of the finest Odontological Museum in the world. The fullest advantage could be obtained from this gift only if adequate numbers of skilled technical assistants were provided to help in the dental service. The accepted policy of the College was that dental surgeons, particularly those in public services, should be relieved of much of the details of dental prosthetics and of routine oral hygiene, which should, however, be carried out under their direction. The provision of an adequate number of technical assistants would leave the dental surgeons much more time for real operative dental surgery and for scientific work. It was in communities like schools, factories, and the Services that this work could be organized most efficiently and the greatest benefit result for the greatest number. An example had been set by the Royal Air Force, and he trusted that the Royal Navy would adopt the same plan. Sir Philip Chetwode said that the Red Cross and St. John were happy to hand over these units to the Navy. Surg. Vice-Admiral Sir Sheldon Dudley, Medical Director-General of the Royal Navy, in accepting the units with gratitude, said that he could testify to the celerity with which Red Cross and St. John answered an appeal for help.

Obituary

R. M. DOWNES, C.M.G., M.S., F.R.A.C.S.

Major-General, Australian Army Medical Services

It is now known that Major-Gen. R. M. Downes, war historian, Australian Medical Services, and Major-Gen. G. A. Vasey were killed in an aeroplane accident which occurred off the North Queensland coast on March 5. The Commonwealth Prime Minister, Mr. Curtin, who announced the accident, said it was a shocking blow to Australia.

Rupert Major Downes was born at Adelaide on Feb. 10, 1885, son of the late Major-Gen. M. F. Downes, of Dedham, Essex, and of Brighton, Victoria. He was educated in England at Haileybury College and in Australia at Ormond College, and entered Melbourne University as a medical student, graduating M.B., B.S., and eventually taking the M.D. and M.S. degrees. He joined the A.A.M.C. in 1908 and served during the last war with the A.I.F. In 1916–17 he was A.D.M.S., Anzac Mounted Division, and during the next two years held the post of D.D.M.S., Desert Mounted Corps and A.I.F. in Egypt. He was mentioned in dispatches and created C.M.G. in 1917. He served for thirteen years after the last war as D.D.M.S., 3rd Military District, and Director-General of the Commonwealth Medical Services, with the rank of major-general, from 1934 until last year, when he relinquished that post and was made medical historian to the Australian Army.

Gen. Downes had been consulting surgeon to the Children's Hospital, Melbourne, and the Victoria Eye and Ear Hospital, lecturer on medical ethics in Melbourne University, and honorary surgeon to the Governor-General of Australia, 1927–31. He became a Foundation Fellow of the Royal Australasian College of Surgeons in 1926. He joined the B.M.A. in 1911, was president of the Victorian Branch in 1935–6, and represented his Branch at the Aberdeen Meeting just before the outbreak of this war. The sympathy of the profession of this country goes out to their colleagues in Australia and to the widow and children of a very distinguished public servant.

HAROLD CHAPPLE, M.Ch., F.R.C.S., F.R.C.O.G.

We regret to announce the death at his home in London on March 8 of Mr. Harold Chapple, senior obstetric surgeon to Guy's Hospital. Following an illness in January he had just begun to work again when he collapsed in his consulting-room, and after only two days' illness he died.

Chapple was born in Australia on Feb. 13, 1881, and took his B.Sc.Adelaide before coming to this country; the result was that he started medicine rather later than most. He studied first at Cambridge and then in 1905 went to Guy's for his clinical work. He qualified M.B., B.Ch. in 1908. In 1910 he became F.R.C.S.Eng., and in 1911 M.Ch. After two years as registrar he was appointed obstetric surgeon to Guy's Hospital in 1913 on the death of Mr. Targett, and apart from the time that he spent in the R.A.M.C. during the war 1914–18, he continued to work there until the time of his death.

J. B. B. writes:

In his earlier years he was joint author of two textbooks, and from time to time he contributed to the journals, but it was not on the academic side that Chapple was outstanding; rather it was in his approach to the practice of his specialty. All his life he insisted on treating the patient as a patient, and no one was more aware of the psychological aspects of gynaecology. Above all, however, he was masterly in his handling of the apprehensive patient and the difficult patient, and he was able to inspire the greatest confidence in all. As a surgeon he was always thoughtful and painstaking, obtaining excellent results in consequence. His charm of manner and extreme courtesy were notable in his dealings not only with patients but also with junior colleagues, nurses, and students alike. He was more observant, however, than many realized, and those who were poor at their work were soon recognized. Even up to a short time before his death he would assist a new registrar with an operation and remain patient to the end, however slow the operator might be. His patience and calm were really quite extraordinary, but it was curious to realize that with the outward calm and unruffled manner Chapple was sometimes worrying about a patient, and worrying to excess.

As a young man at Guy's Chapple was renowned for his vigorous enjoyment of life and his many accomplishments. He was an excellent games player, getting equal pleasure whether winning or losing. While at Cambridge he won his blue for tennis, playing in a famous six which included Wilding. In addition he played rugger, swam, sang, and was a really good actor. Up till recent years he made golf his recreation and often played for the Medical Golfing Society. In 1939 he was elected president of the society, and remained so until he died. On golfing occasions, and indeed on many others, he was most excellent company, whether host or guest, and he excelled as a raconteur.

In 1938 Chapple was taken suddenly ill one evening in his consulting-room and for several days was near dying from a coronary thrombosis; he was always sure, however, that he would recover, and eventually he did, to start work again some six months later. It was from this time that one realized the courage that he possessed; even when most ill he could still joke, and ever afterwards he would never let his disability damp his zest for life. In 1940 when he should normally have retired from Guy's he chose to carry on, and regularly twice a week he journeyed to Pembury to teach Guy's students and to operate. He felt strongly about the war and the necessity to do a job of work so long as Britain and the Empire were engaged in a deadly struggle for life. For many years he had talked of the danger inherent in the German way of thought and life, and for long had foreseen this war. His loyalty to this country was only equalled by his love for his native country: he was always proud of being an Australian, and this would show in little ways—for example, his affection for the blue of the R.A.A.F. His was a lovable spirit and he will be sadly missed by many friends. In 1911 he married Irene, daughter of Sir William Arbuthnot Lane. To her and to their two sons we extend our deep sympathy.

D. M. MacM. sends the following tribute:

I have been asked to write an appreciation of my dear friend, Harold Chapple. I would epitomize his character in three words—charm, courtesy, and consideration. To few men has it fallen to be so beloved not only by their patients but by all with whom they have worked—sisters, nurses, students, and doctors. Harold loved life, loved his work and all humanity. He often said to me: "How lucky you are to have all types of patients—whereas I deal only with women." Loving his chosen branch of our profession as he did, yet he was essentially a man's man, a tennis blue, a good golfer and good companion. In his work he was of the very best: a first-class accoucher with (as he expressed it) a niblick in his bag to get out of the bunkers with which maternity abounds; as a surgeon a first-class operator. His plastic perineorrhaphies were truly brilliant and brought years of good health to very many women who had endured previous years of constant suffering. In over 30 years of helping him operate I have never known him lose either his temper or his nerve in the theatre no matter what crisis may have arisen; no wonder the theatre sisters and nurses loved to work for him. As a teacher he was exceptional. He loved the young and they in return venerated him: one of his most valued possessions was a signed photograph of himself and a class of students with the proud caption of "Pass list 100%." But my happiest memories are away from work—on the golf course and around the table—a wonderful host and a wonderful pal, witty, charming, and entertaining. He died, as he would have wished, in harness, helping others to the very end, and with his passing leaves a gap that it is impossible to fill—loved and missed by his friends and patients both in the Borough and in the more stately homes of the West End.

LORD DAWSON OF PENN

Lord Moran, P.R.C.P., sends the following tribute, which appeared in the *Sunday Times*:

It will be a long time before any member of the medical profession will again influence opinion in England as Lord Dawson did between the two wars. I am not sure that I can explain this to those who did not know him. He stood apart from others, not so much for his pre-eminence as a physician, but rather because he possessed a gift which is more prized than any other by men of affairs: he knew instinctively what the average man was thinking and how he would react to some measure or action that had been taken by the official world. He was, of course, born with that gift, but he had developed and perfected it over the years until his judgment in such matters was impressive. This almost intuitive knowledge of what was happening in men's minds contributed to his success in practice—and no doctor in his time was more successful. Once when I had seen a patient with him and we had to explain to half a dozen relatives the gravity of the complaint, he appeared to divine at once what was passing through their minds, and he was able to quieten their fears in turn before they had even found expression.

Like his Royal patient, King Edward VII, Lord Dawson was more interested in men than in books. He learned from experience, so that he had come to have a profound knowledge of the ways of men. His name was a household word for two generations; all the prizes that the world can give were his. Great professional success makes day of night, but he never hurried over anything, and he gave as much care to the humblest commoner as to the King of England.

He was quite unspoiled by success, and never lost his curiosity in young people. He spoke to them as one of themselves, and they opened their hearts to him. Lord Dawson himself seemed until quite lately to be untouched by time. His eager spirit continued to regard life as great fun; it was still an adventure that had not lost its freshness. In mind and body he remained alert; even in going upstairs he would take two steps at a time. Then came distressing illness. He wrote to me after his first operation: "So far so good, but not very far." And after the second and more serious operation he remained undefeated. He insisted on being kept in touch with affairs, and one of those summoned to his bedside has told me that it was an hour and a half before he was allowed to depart. He had enjoyed a strenuous life, and now he was resolved to go on working to the end.

Sir Frederick Menzies writes:

I should like to be allowed to pay my humble tribute to the memory of Lord Dawson of Penn. Although I knew him slightly before the war began in 1914 it was not until the year 1919 that our acquaintance gradually developed into a real friendship. This was mainly due to the fact that very soon after Dawson returned from war service it became obvious to me that he was one of the first of the eminent members of our profession to appreciate the great developments which were then rapidly taking place in the work of the Public Health Services, notably in connexion with tuberculosis, maternity and child welfare, venereal diseases, and the school medical services, and the still greater developments which were likely to arise in the near future as a result of the report of the Maclean Committee on Poor Law Reform. In these and in many other directions Dawson saw far ahead of many of his contemporaries in voluntary hospital circles, more especially because he fully realized the effect which these responsibilities, placed by Parliament upon local government authorities, must have upon the future relation between voluntary hospitals, particularly medical school hospitals, and the local government authorities throughout the length and breadth of the whole country. From 1919 to 1939 Dawson never ceased to work hard towards the greatest measure of harmonious co-operation possible between the voluntary hospital organizations and the local government authorities of the County of London. I can personally testify to the enormous amount of time, diplomacy, and tact which he whole-heartedly devoted to this task, the immense sacrifice which he must have made in his own private professional life, the wise counsel and statesmanlike attitude which he adopted all through this period, filled as it was with many difficulties and much controversy. But it is pleasing to be able to record that far more than any other individual member of our profession he did succeed to a very considerable extent in bringing about a large measure of valuable co-operation between voluntary organizations and public authorities, of which a striking example was the British Postgraduate Medical School at Hammersmith Hospital.

To me one of the most remarkable features of Dawson's extraordinarily busy life was the fact that I never remember him being in a hurry at any time from early morning up to late at night. He possessed in full that marvellous gift of making you feel that when you were in his presence for any purpose you were the only person in the world at that moment in whom he was interested and that you had all the rest of his day at your disposal if you wanted it. Add to this priceless gift the fact that he had an exceptionally charming personality, a delightful sense of humour, a heart of gold, a vast fund of common sense and worldly wisdom, a statesmanlike attitude towards problems of national importance, and it becomes easy to understand how and why he rose to greater heights than were ever previously attained by any member of our profession in the social, political, and scientific world. No doubt many of his friends will bear their testimony to his professional abilities and achievements, but may I add a purely personal experience of him as the "beloved physician." In the spring and summer months of 1934 I was confined to bed by a long and wearisome illness, during which Dawson came to see me at frequent intervals. Ultimately he advised me to go to a seaside nursing home at Hayling Island. A few weeks later I received about midday a telephone message from his London residence to the effect that he was coming to see me about 5 p.m. He arrived and spent some time in thoroughly overhauling me, followed by a very encouraging prognosis. Then he sat down by my bedside and we talked about many subjects of mutual interest. At 7 p.m. he said, "Well, now I must leave you." I said I supposed he was going to spend the night with a relative of his whom I knew was at that time living in the neighbourhood of Hayling Island. He replied: "Oh, no; I am only on my way to Scotland for a holiday, and to-night I shall motor as far as Cheltenham, and to-morrow from there to Ruthin Castle, and then on to Balmoral." That incident was characteristic of Dawson's wonderful kindness and thoughtfulness. He had deliberately travelled hundreds of miles out of his way to see and to cheer up a sick friend. I have no doubt that, if space permitted, many hundreds of his friends and colleagues could give similar examples, and in every case without the remotest idea on Dawson's part of either fee or reward. It is therefore not to be wondered at that to so many of us he was Bertie Dawson, the wise as well as the beloved physician.

Dr. ALFRED COX writes:

May I be allowed to add a postscript to your grateful tributes to Lord Dawson? It was during the Centenary Meeting of the Association that I saw most of him, and I vividly remember the grace with which he presided over the many functions which fell to his lot at that time, and the ungrudging way in which for two years he gave time and thought to every detail. The two strongest impressions of him left on my mind were the way in which he kept his mind, as well as his body, young; and the fact that all his honours had left him completely unspoiled. It was always a pleasure to deal with him.

Your reference to Lady Dawson would have pleased him, for during our Centenary programme it was charming to see how implicitly he relied on her help and how she infused into everything she did—and it was much—that grace and charm which seem to have been Nature's gift to the partnership. The affectionate sympathy of everybody who had the honour of working with her husband goes out to her at this time, and we hope it may help her.

HAROLD FARLEY SEYMOUR, M.D.Lond., F.R.C.S.Ed., F.R.C.O.G., who died on March 6 at Rottingdean, was born in 1879 in Plymouth, and was educated at Plymouth College, and afterwards at the London Hospital. He qualified M.B.Lond. in 1901, and after holding various resident appointments at the West London Hospital he settled in general practice in Worcester City. He soon took a special interest in obstetrics, and obtained the M.D.Lond. in Obstetric Medicine in 1906. During the last war he served in the Royal Navy, and after release he settled in Brighton, took the F.R.C.S.Ed. in 1920, and then moving to Hove he specialized in obstetrics and gynaecology. In this specialty he quickly established a county reputation. He was made a foundation member of the Royal College of Obstetricians and Gynaecologists, and in 1937 the Fellowship was conferred upon him. He held many appointments, including that of honorary surgeon to the Sussex Maternity and Women's Hospital and honorary gynaecological surgeon to the Hove Hospital. Harold Seymour was a most industrious, conscientious, and proficient worker. Throughout life he was dogged by ill-health, with which he battled with unflinching courage. He was greatly admired by all his patients, for whose benefit he never spared himself, and he was esteemed and respected by his colleagues. Apart from his chosen work, which came first, his only other interest was mountain climbing. He was a member of the Alpine Club and the Swiss Alpine Club. He was a charming and courteous host, and will be greatly missed by a large circle of friends and patients.

Medical Notes in Parliament

PAPER FOR BOOKS

In the House of Lords on March 14 Lord ELTON called attention to the excessive restrictions on the supply of paper for book publication and moved for Papers. He said the facts were that up to the end of last October every publishing house which had been in existence before the war was entitled to an allotment of 40% of its pre-war consumption of paper. That meant in the aggregate 20,800 tons. There was also a small quantity of 1,700 tons which was distributed by the Board of Trade on the advice of a committee of publishers sitting under the chairmanship of Sir Walter Moberly. That brought the grand total up to 24,400 tons. There was a total distribution to all users for all purposes of 447,000 tons, of which 100,000 tons went to the Stationery Office and 50,000 to the War Office. Then last October there was an increase from 40% to 42½%—an increase of 1,300 tons, together with an increase of 600 tons in the Moberly pool—1,900 tons in all. Despite a recent deputation from Members of Parliament, the only later increase in the allotment had been one of an additional 1,000 tons for this Moberly pool, which was a selective pool, through which extra tonnage was given to applicants on merit.

No one expected that book production should flourish in war as in peace, but thus excessively pruned, under severe restrictions, books could not possibly play their part in the war effort. Liberated Europe needed British books to fill a five-years gap in their own libraries. They needed them to discover how the British lived and thought during these five years, and they needed them to take the place of Germany as the primary source of textbooks for the Continent. At home there was a desperate need for educational books for training the additional teachers required under the new Education Act, and for pupils as a result of the raising of the school-leaving age; books would soon be needed, too, for the returning university students. They were needed for the general public and for the Services. For the ordinary book allotment 10,000 more tons of paper a year were wanted.

The EARL OF HUNTINGDON asked whether it would not be possible (1) to give a higher priority to and allow a larger percentage of paper for books; (2) to release gradually from the Forces men and women who were either experienced printers or bookbinders or who had had experience of work in publishing houses; (3) to give some priority to the replacement of book-making machines which had got out of order; and (4) to import more pulp or more means of making paper as soon as the shipping situation allowed. He understood that a grass that had been discovered in New Guinea made extremely good paper.

Viscount MERSEY, speaking for Lord Samuel, said that the Red Cross had asked for about 500 books from educational libraries; 30% were reported as "not available," 30% were entirely unobtainable, and the balance were obtainable in very small quantities. Lord LANG said that the root of the difficulty was failure to regard the supply of books as a matter of very real, practical, national importance.

The EARL OF JERSEY supported the motion, but said he was astonished at the moderation of Lord Elton's demand for 10,000 tons. He would put it at three times that amount.

MEDICAL TEXTBOOKS AND JOURNALS

Viscount BUCKMASTER raised the question of the supply of paper for medical publications. He said that medical publications, in which he included journals and periodicals, were so restricted that it was difficult to see how the study of medicine could be pursued or how medicine could be practised in the manner expected. Publishers were now quite unable to supply the basic minimum of books needed by medical students. No one would dispute that anatomy was an essential part of the medical knowledge of a doctor. He could not imagine anyone being anxious to undergo an operation by a surgeon who had not a fairly full knowledge of it. The leading work, *Gray's Anatomy*, was quite unobtainable. He had tried to get it, either new or second-hand, without success. The same applied to *Buchanan's Anatomy* and *Cunningham's Anatomy*. In physiology, matters, if anything, were worse. In one class 15% of the students could not beg, borrow, or by any means short of theft obtain a copy of any of the leading works. How could men pursue their studies under such conditions? These facts about students' books were shocking, but there was also the medical man in practice, who would find it hard indeed to keep abreast of modern medical knowledge. It was not merely that writers were prevented by the shortage of paper from writing books, but there was a shortage of journals and periodicals. The latter were the arteries through which medical knowledge and information circulated. Yet here was an alarming position. The editor of one of these journals advised him that he had a waiting list of 1,500 doctors seeking to become subscribers and to obtain copies; also that he was quite unable to meet the demands for his journal from the liberated countries. This was unfortunate. The editor of another assured him that he could not in any way meet the demands of his subscribers, that his correspondents were drastically cut down, and that much medical knowledge of the first importance could not be passed on. It was not only the medical man in practice who needed these journals; they were essential to the medical research worker. He must have the power to express his findings as and when he pleased. He must keep in touch with the progress of his fellow workers in this country and abroad, especially in the United States. A Fellow of the Royal Society had told him that his colleagues in research did not expect to have a single paper published until 1946. How could they continue their work in such conditions? What sort of encouragement was that to give them? If the advance of medical knowledge was retarded the community as a whole was penalized.

A good example was provided in the field of social medicine. The Goodenough Committee had urged that this should receive every possible encouragement. Many young men and women were seeking to work in this sphere. Here was something which one would think would appeal to the Government, who would at least be anxious to encourage it, but the Ministry of Supply had refused the B.M.A. one ton of paper a year for starting a *Journal of Social Medicine*, a journal in which workers in this field might enjoy that free expression of opinion so essential to their work. These restrictions were not only disheartening to medical men, they were damaging to the public also, and at a time when ever greater demands were being made on medicine. The number of doctors had greatly increased—it was something like 12% more than in 1938. Even with these figures it was clear that the total demands of paper for the medical world were negligible compared with the amount in daily use. Even if all restrictions were now removed it would be a long time before supplies could catch up with demand, and he urged the Minister, to whom he had written personally on this matter, to do his utmost to see whether some additional grant could be made before we lost ground which could never be regained.

The **EARL OF SELBORNE**, Minister of Economic Warfare, who replied, said that the Government was aware of the immense importance of books, especially at this time. But although we had more ships to-day than ever before, shipping shortage was greater than ever owing to other demands. Lord Elton had asked for 10,000 tons of paper; Lord Jersey had said that 30,000 tons was needed. He had been advised that the paper would not at the moment be procurable in America; we had in fact acquired all the paper that we could in America, so that an additional 30,000 tons, or even 10,000 tons, was not possible. Moreover, every ton of shipping just now was required for pursuing the war and for feeding the liberated peoples of Europe. Paper was not the only bottle-neck in the matter; labour in the printing and publishing trades was also in very short supply. We were faced with a shortage of paper in America, with the biggest shortage of shipping that we had yet experienced, and with the greatest shortage of man-power in all trades. On the top of that was a very greatly increased demand for books.

The Government had tried to divide the paper supplies equitably. A bigger allocation for books could only be obtained either by importing more paper and releasing more man-power, which was not possible at present, or else by making cuts in the allocations to other industries. It was not the book publishers who had had to submit to the biggest cuts. They were now receiving something like 42% of their pre-war requirements; newspapers, on the other hand, receive only 25%.

As regards medical books, about which Lord Buckmaster had spoken very strongly, he was advised that partly as a result of the efforts of the committee presided over by Sir Walter Moberly the publication of medical books at this moment amounted to 80% of what it was before control. But if there were the deficiencies Lord Buckmaster had mentioned then this was a matter which required the most serious consideration from the authorities concerned, and he would draw the attention of the President of the Board of Trade to the remarks made on that question.

Lord **ELTON** withdrew his motion.

What is Immunity?

Mr. **ALFRED EDWARDS** inquired on March 6 whether the Army Medical Department used the word "immunity" to mean "protected from a disease"; or what was the meaning of the word in reference to vaccination and the various inoculations. Sir **JAMES GRIGG** said the term "immunity" was used by the Army Medical Department to describe the effects of protective treatment against certain diseases. There were degrees of immunity, which necessarily varied in accordance with certain factors—for example, the resistance of the patient to a particular parasite.

Recruitment of Doctors

Sir E. **GRAHAM-LITTLE** inquired on March 8 whether the Minister of Health had considered an example submitted to him of the dissatisfaction among senior medical officers serving abroad at the small proportion of newly qualified medical practitioners called up for military service abroad in exchange for senior officers and the large number drafted into the E.M.S. at home. Mr. **WILLINK** said he had considered a letter which Sir Ernest had forwarded, but pointed out that the great majority of newly qualified medical practitioners fit for military service were already being called up after short periods in resident hospital appointments, which were necessary to provide the experience required for subsequent military service. Resident hospital posts were limited in number to the minimum wartime establishments approved for each hospital by the Central Medical War Committee. It was the policy of that committee wherever possible to call up the holders of the senior posts after a certain period so that a proper flow of young practitioners through these posts to the Forces could be maintained.

Notes in Brief

The process is continuing of release by the Service Departments of members of the Women's Auxiliary Services with nursing experience, including mental nurses, who desire to return to civilian nursing.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

Sir Lionel Ernest Howard Whitby, M.D., has been elected a Honorary Fellow of Downing College.

The Raymond Horton-Smith prize has been awarded to F. T. C Prunty for his M.D. thesis on "Hyperfunction of the Adrena Cortex."

The Council of the Senate gives notice of an election to Imperia Chemical Industries Fellowships in the Easter Term, with tenur from Oct. 1, 1945. The beginning of tenure may be deferred for candidate engaged on national service, or on other work of nationa importance, until he is released from that work. The Fellowship have been established for original research in Physics, Chemistr Engineering, Metallurgy, Pharmacology, Chemotherapy, or in subject related to one or more of these branches of science. Fellow will ordinarily be required to carry out their research in Cambridg and part of their duties will be to undertake university teaching o the recommendation of the Head of the Department in which th Fellow is working. Persons of either sex may be elected. A Fello who on election is not a member of the University or of Girton o Newnham College will be admitted, if a man, as a member of th University, or, if a woman, as a member of Girton or Newnha College. Fellowships will be tenable for periods to be determine in each case by the managers, but not exceeding five years in al The annual stipend will normally be £600, but may be varied; will be subject to deduction of 5% under the University Supe annuation Scheme. A Fellowship will not be tenable with stipendiary Fellowship of a College, or with any University studen ship or scholarship, or with any University office. Applications mus reach the Registrary, at the University Registry, not later tha April 30. They should contain particulars of the subject in whic the candidate proposes to research, and must be accompanied by statement of his career (including date of birth), by copies of an papers he may have published, or by references thereto, and by th names of at least two referees. Not more than two testimonia may be sent. The Universities at which Imperial Chemical Industrie Fellowships are tenable are Birmingham, Cambridge, Durham, Edi burgh, Glasgow, Liverpool, London, Manchester, and Oxford. Fo conditions of candidature at Universities other than Cambridge th notices issued by those Universities should be consulted.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

Dr. Macdonald Critchley, F.R.C.P., will deliver the Croonian Le tures on "Problems of Naval Warfare under Climatic Extremes before the Royal College of Physicians of London (Pall Mall Eas S.W.) on Tuesday and Thursday, May 8 and 10, at 4.30 p.m.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

RESTORATION FUND

The King has honoured the Royal College of Surgeons of Englan by making a donation to the Fund for the Restoration and Develo ment of the College, which suffered serious damage by enemy actio in 1941. His Majesty is Visitor of the College, and the Preside and Council and all Fellows and Members are extremely gratef for this further mark of His Majesty's favour and for the consta encouragement the King has given to them in the heavy task whic lies before them.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the incidence of infectious disease declined, there being 736 fewer notifications of measles, 21 of acute pneumonia, 83 of scarlet fever, and 77 of whooping cough.

Except that Yorks West Riding reported 41 fewer case than last week, the local trends of scarlet fever changed littl Whooping-cough was less prevalent in the north; in the sout there was a small rise. The notifications of measles continue to mount in the south; the combined areas of London an the south-eastern and south-western counties had an increas of 524. Leicester had 203 more cases than last week, an Nottinghamshire 147; but Derbyshire had 257 fewer, Lanca shire 190, Cheshire 181, Warwickshire 180, Durham 15 Middlesex 146, Staffordshire 141, Essex 129, and Yorks Eas Riding 115.

The incidence of dysentery continues high. There wer fresh outbreaks during the week in Buckinghamshire (Ame sham R.D. 13, Eton R.D. 20), Dorsetshire (18; Sherborne U.D 13), Southampton (16; Bournemouth C.B. 5; Andover M.B. 11)

Notifications in London rose from 34 to 69; of these, 31 were reported in Stoke Newington, and the remaining 38 involved seventeen boroughs. Other large returns were Lancashire 29, Yorks West Riding 27, Essex 27, Middlesex 18, Surrey 17, Gloucestershire 15, Devonshire 14, Cheshire 13.

In *Scotland* 29 fewer cases of scarlet fever were reported, and 20 of measles. Notifications of dysentery rose by 30, the incidence of this disease having increased by 100% since January. The largest returns of dysentery were in Edinburgh 35, Glasgow 35, Falkirk 23, Renfrew County 19. There has been a widespread attack of violent sickness and mild dysentery in Southern Scotland. The illness lasts two or three days, but leaves the patient weak and unfit for work for another week. The cause of the outbreak has not been discovered.

In *Eire* there were 8 more cases of diphtheria than last week, but the notifications of measles were halved.

In *Northern Ireland* diphtheria notifications fell from 25 to 7, and measles from 93 to 87.

Influenza

If judged by the number of deaths from this cause in the great towns the seasonal rise of influenza mortality during this winter has been unusually light and of very short duration. Taking for comparative purposes the period when the weekly deaths were 50 or more as the peak of the epidemic curve, the following distribution is obtained for the great towns.—

	1944–5	1943–4	1942–3	1941–2	1940–1	1939–40	1938–9
No. of consecutive weeks when deaths were 50 or more	8	13	14	11	16	16	19
No. of deaths in these weeks	532	5,435	1,211	791	2,391	4,798	3,376
Average number of deaths per week	67	418	87	72	149	300	178

Quarterly Returns for Scotland

The birth rate during the December quarter was 18.8 per 1,000, the highest rate for a fourth quarter since 1930. Infant mortality was 64 per 1,000 registered live births, this being 8 below the average of the five preceding fourth quarters. Maternal mortality was 3.0 per 1,000 live births; this rate is considerably lower than that of any previous December quarter and almost the lowest for any quarter in Scotland. The general death rate of 13.1 per 1,000 was the same as the five-years average. The death rates from all forms of tuberculosis and from respiratory tuberculosis were 72 and 58 per 100,000, and were respectively 1 and 3 above the five-years average. There were 46 deaths from diphtheria, 42 from whooping-cough, 7 from measles, and 6 from scarlet fever.

The preliminary return for the whole of 1944 shows that the birth rate was 19.2 per 1,000, and was the highest rate recorded for Scotland since 1930. Infant mortality, at 65 per 1,000 live births, was the same as in 1943, the lowest rate recorded in Scotland and 12 below the pre-war average (1934–8). The general death rate was 12.9 per 1,000, and 0.7 below the average of the five preceding years. 183 deaths—the smallest number ever registered from this disease—were attributed to diphtheria. Deaths from other infectious diseases were: whooping-cough 179, cerebrospinal fever 94, measles 46, scarlet fever 9, typhoid and paratyphoid fevers 6. Deaths from all forms of tuberculosis and respiratory tuberculosis numbered 3,935 and 2,978 respectively, compared with 3,959 and 2,976 in 1943.

Week Ending March 10

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,424, whooping-cough 1,502, diphtheria 472, measles 25,049, acute pneumonia 813, cerebrospinal fever 77, dysentery 412, paratyphoid 5, typhoid 5.

The second series of postgraduate scholarships for nurses (the first were given last year), which are being awarded by the Hospital Saving Association out of its 21st birthday funds, include two scholarships for nursing administrators of approximately £250 each; two for nurse dietitians of £250 each; four for nurse teachers of £250 each; four for health visitors of £105 each; six for industrial nurses of £65 each; and four for midwife teachers of £75 each. In future years the H.S.A. may vary the scholarships in number or in kind. As last year, the scholarships will be available at any of the recognized training centres, and are open to nurses who are registered in the general part of the State register and have trained in a voluntary or local authority hospital within the area of King Edward's Hospital Fund for London. Candidates will be required to sit for a competitive examination conducted by the Royal College of Nursing, from whom, at 1A, Henrietta Place, Cavendish Square, W.1, application forms and all particulars may be obtained.

No. 9

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended March 3.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	77	5	33	8	1	53	8	19	5	4
Deaths		2	—				1	—		
Diphtheria	470	21	141	112	7	681	35	176	110	25
Deaths	10	1	1	4	—	13	1	1	3	—
Dysentery	399	69	165	—	—	218	33	82	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	—	—	—	—	—	1	—	1	1	—
Deaths		—					—			
Erysipelas			51	10	3			35	9	3
Deaths		—					1			
Infective enteritis or diarrhoea under 2 years				16					7	
Deaths	58	10	13	12	4	56	6	9	15	2
Measles*	22,480	986	433	25	87	1,987	279	218	425	1
Deaths	18	—	1	—	—	2	—	1	6	—
Ophthalmia neonatorum	67	5	19	1	—	69	6	20	—	—
Deaths										
Paratyphoid fever	3	—	2 (B)	—	—	4	1	3 (B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	905	48	15	14	3	983	63	16	12	10
Deaths (from influenza)	39	6	4	—	1	50	3	4	3	2
Pneumonia, primary			254	21				282	24	
Deaths		48		6	10		50		11	11
Polio-encephalitis, acute	—	—				4	—			
Deaths		—					—			
Poliomyelitis, acute	4	—	—	—	1	6	—	—	—	—
Deaths		—					1			
Puerperal fever			16		1		2	9		1
Deaths										
Puerperal pyrexia‡	124	10	13	1	2	154	6	14	1	3
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,461	53	199	23	35	1,997	118	223	25	77
Deaths	2	—	—	—	—	2	—	—	—	—
Smallpox	—	—	—	—	—	8	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	13	1	1	16	1	3	—	—	5	3
Deaths	—	—	—	1	—	1	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,462	66	163	79	6	1,914	187	103	49	11
Deaths	10	—	1	2	2	13	4	1	1	1
Deaths (0–1 year)	413	49	64	33	26	470	73	70	54	28
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths	4,959	701	611	230	156	5,962	1,153	645	278	175
Annual death rate (per 1,000 persons living)			13·9	14·8	§			14·8	18·1	§
Live births	7,008	765	820	332	267	7,277	894	865	485	258
Annual rate per 1,000 persons living			16·4	21·4	§			17·6	31·7	§
Stillbirths	213	28	33			244	33	38		
Rate per 1,000 total births (including stillborn)			39					42		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

Celebrations in connexion with Lawson Tait's Centenary will be held in Birmingham at the end of next June. The Midland Medical Society, the Women's Hospital, and the University are sponsoring the arrangements. It is probable that these will consist of an oration in Tait's honour and other functions as circumstances permit.

A meeting of the Medical Society for the Study of Venereal Diseases will be held at 11, Chandos Street, W., to-day (Saturday, March 24) at 2.30 p.m., when a communication on "Early Syphilitic Infection treated by Intensive Arsenotherapy and by Penicillin" will be given by Surg. Capt. T. R. Lloyd-Jones, R.N., and Surg. Lieut.-Cmdr. F. G. Maitland, R.N.V.R.

A meeting of the Middlesex County Medical Society will be held at West Middlesex County Hospital, Isleworth, on Tuesday, March 27, at 5.30 p.m., when Sir Joseph Barcroft, F.R.S., will speak on "Movements of the Human Foetus," illustrated by a film produced by Dr. Deane, Miss Titcombe, and members of the obstetric staff. At 6.15 p.m. Mr. Frank Law will talk on "Ophthalmoscopy in General Medicine."

Dr. Robert Sutherland will give an address on "The Principles and Methods of Health Education" before a meeting of the Polish Medical Association in the United Kingdom at B.M.A. House on Tuesday, March 27, at 5 p.m.. A discussion will follow. All interested persons will be welcome.

A meeting of the Paddington Medical Society will be held at St. Mary's Hospital, W., on Tuesday, March 27, at 9 p.m., when Mr. F. A. Juler will give a lecture on "Modern Remedial Measures in Ophthalmology."

A meeting of the Scottish Group of the Association of Industrial Medical Officers will be held in the orthopaedic department of the Western Infirmary, Glasgow, on Wednesday, March 28, at 2.30 p.m., when papers will be read by Prof. C. W. Illingworth on "The Peptic Ulcer, with Special Reference to Factory Conditions," and by Mr. Roland Barnes on "Treatment of the Painful Shoulder, and the Problem of Resettling in Industry." Clinical cases will be demonstrated. Medical practitioners interested in industrial medicine are invited to attend.

The Royal Society has now been informed that H.M. Treasury has made provision in the estimates for the fiscal year 1945-6 for the following grants which are administered by the Royal Society: for scientific investigations, £14,000; for scientific publication, £7,000; for scientific congresses, £1,600. In view of the greater amounts to be available if these estimates are accepted by Parliament, and of present changing conditions, the Royal Society has decided that more frequent allocation is desirable. The last dates, therefore, in 1945, for receiving applications for grants from the Parliamentary grant-in-aid for scientific investigations will be March 31, July 31, and Nov. 30, and the last dates for receiving applications for grants from the Parliamentary grant-in-aid for scientific publication will be June 15 and Nov. 15.

According to a joint statement by the Ministries of Supply and Health production of penicillin is now increasing rapidly and distribution is being expanded. Supplies will shortly be sent by the Ministry of Health to more than 200 large hospitals, which will issue it to smaller hospitals as required. Most of the cases treated with penicillin will be in hospitals, but general practitioners will be able to get supplies for patients who cannot be taken to hospital. It is too early yet to say when distribution will start through ordinary commercial channels.

As a result of severe damage to the in-patient department of the West End Hospital for Nervous Diseases, London, it has been necessary to abandon the buildings for the present. Temporary in-patient accommodation at the Princess Louise Hospital for Children, North Kensington, has been obtained by the courtesy of the committee of management. The out-patient department of the hospital continues as usual (with daily clinics excepting Saturday) at Welbeck Street, W.1.

A portrait by Mr. Frank Salisbury of the late Mr. L. R. Braithwaite, the distinguished Leeds surgeon, was unveiled in the board room of the General Infirmary at Leeds on March 2 by Mrs. Braithwaite, after it had been presented by Mr. Digby Chamberlain, on behalf of the subscribers, to the chairman of the Board of Management. A replica has been accepted by the Royal College of Surgeons of England, of which at the time of his death Mr. Braithwaite was a vice-president.

Sir Robert Hutchison has been appointed consulting physician to the Royal Dental Hospital of London in succession to the late Sir Humphry Rolleston.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, British Medical Journal, B.M.A. House, Tavistock Square London, W.C.1. Telephone: EUSTON 2111. Telegrams: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded fo publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association. Telephone: EUSTON 2111. Telegrams: *Medisecra Westcent London.*

B.M.A. Scottish Office: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Pregnancy and Acute Rheumatism

Q.—*A woman of 25 had acute rheumatism at the ages of 10 and 17 Since then she has enjoyed good health and was able to complete her training as a nurse. On routine medical examination a diagnosis was made of mitral stenosis, but she was accepted for military service. She now wishes to know if it would be safe for her to have a baby. Examination reveals no evidence of heart disease except a systolic murmur. Since the second attack she has restricted her activities—no cycling, no swimming, no hill-climbing. What advice should be given?*

A.—In assessing the prognosis for pregnancy in a patient who has had rheumatic fever it is important to know what effect, if any, the disease has had on cardiac function. Three main facts must be taken into consideration: the nature of the cardiac lesion, the degree of cardiac enlargement, and the exercise tolerance. In this case precise data on these three points are not given. It is stated that a diagnosis of mitral stenosis was made, although there is apparently only a systolic murmur and no diastolic murmur. Possibly the diastolic murmur can be elicited only after exercise. The degree of cardiac enlargement is not stated, nor is there evidence of the present state of the patient's exercise tolerance, since only voluntary restriction of activity is noted. But as she has been able to carry out her training as a nurse successfully, it seems that her exercise tolerance is not seriously impaired. If *exercise tolerance is good and there is no cardiac enlargement*, this patient could reasonably be expected to go through two or even three pregnancies without any risk of deterioration in the cardiac condition. Careful supervision would be essential. If a serious breakdown of cardiac function should occur during pregnancy, the patient should be advised not to become pregnant again. In any case, pregnancies should be spaced so as to ensure an interval of two to three years between each child. The chief danger in this case would lie in a fresh attack of rheumatic fever, especially if this occurred while the patient was pregnant. The chance of this is slight.

Thallium Acetate, Hirsutism, and Baldness

Q.—*Can you tell me if thallium acetate can be used for hirsuties other than by internal consumption?*

A.—Over 30 years ago Dr. Sabouraud of Paris was consulted by a number of patients suffering from baldness. All of them had been victims of an epidemic of enteritis, prevalent at that time in Paris Sabouraud, with his acute mind, discovered that the baldness occurred only among patients who had been given acetate of thallium by the mouth in the treatment of the epidemic, and that led him to use acetate of thallium in an ointment for superfluous hairs. The practice has been entirely abandoned because it has been found that acetate of thallium acts only if absorbed in amounts sufficient to cause fall of hair—a dose that is always dangerous in an adult. The answer to the question is that treatment of this kind is either valueless or dangerous.

Raynaud's Disease

Q.—*A woman aged 45 has Raynaud's disease. The first and second fingers of each hand have some small black patches of gangrene on them. There is no albumin or sugar in the urine, and the blood pressure is normal. Any suggestions for treatment, apar from operation, would be welcome.*

A.—Gangrene of the fingers in Raynaud's disease is nearly always associated with thrombosis of the digital arteries; recovery, with the recanalization of these arteries and the opening up of smal collaterals. The blood-flow to the affected digits can be increased to the limit which the vessels will carry by a cervico-dorsa sympathectomy, or alternatively by keeping the body warm. The crease in blood-flow produced by warming the body adequately is t least as great as after sympathectomy. The only difficulty is to aintain an adequate degree of heat. If the patient is in bed, four six hot-water bottles arranged near the trunk, and changed every to 6 hours, usually suffice. If the patient is up, a warm atmosphere and thick clothing to the body are the best methods.

Ethyl Alcohol and Shortage of Spirits

Q.—*It is impossible to obtain spirits for use as a stimulant in the ards, and the Government has prohibited the manufacture of sal olatile; so I have recently given patients diluted ethyl alcohol, oloured and flavoured, as a substitute. Is there any medical objecion to ethyl alcohol being given in place of brandy or whisky?*

A.—There is no objection on medical grounds to the use of suitbly flavoured and diluted ethyl alcohol. It can act as a stimulant nly by reflex from local irritation. After absorption it is purely epressant.

There is a strong reason why alcohol should not be used in this anner, and that is that there is a shortage of it. We have been sked to avoid prescribing tinctures on that account.

Post-operative Venous Thrombosis

Q.—*Is a patient with recent post-operative thrombosis of the deep emoral veins liable to embolism if allowed to walk or move unduly? he routine for patients who develop unilateral oedema of leg during he post-operative period is immobilization; how long should this e maintained?*

A.—Direct evidence of the kind here asked for is difficult or mpossible to obtain, but certain conclusions may be drawn from ndirect evidence. In 1941 N. W. Barker and other workers at he Mayo Clinic investigated 1,260 cases of venous thrombosis after peration; among these there were 273 cases of clinically diagnosed lio-femoral thrombosis, of which only 18 were followed by fatal ulmonary embolism. The embolus commonly came from a recent hrombus in the apparently unaffected limb; when it came from the wollen limb it was always within the first four days of the clinical ymptoms. They conclude: "After thrombo-phlebitis has developed nd existed for more than three or four days the thrombus does not etach to form an embolus, but emboli may occur if a new thrombus orms in a proximal vein or in a vein elsewhere in the body" (*Proc. Mayo Clin.*, Jan. 15, 1941, p. 33). From this we may infer that ovement of the affected limb is not likely to lead to detachment f the primary thrombus after the fourth day. The chief aim should e to prevent thrombosis in other veins by the use of heparin or llied drugs. When a patient develops oedema of one leg after peration, it is usual to immobilize the limb for a period of from to 6 weeks.

Enlarged Prostate and Defaecation

Q.—*A man aged 68 has a moderately enlarged, non-malignant rostate, without much urinary frequency. His chief trouble is the ccasional tendency to defaecate when he is about to micturate.*

A.—Difficulty in micturition due to prostatic obstruction is always liable to cause a patient to feel that he may defaecate at the same ime as he is emptying his bladder. There is no remedy for this xcept either to deal with the obstruction or to ensure that the lower bowel is empty.

Certification of Lunatics

Q.—*What is the legal process, now, as to certification of lunatics? I am told that I cannot alone certify anyone, but must call in the elieving officer, even for a "three-day order."*

A.—The ordinary procedure of certification in lunacy requires two medical certificates, which are issued by two independent practitioners in support of a petition presented by the nearest relative of the patient to a judicial authority, who signs a reception order authorizing the patient to be received and detained. There are, however, circumstances in which a patient can be lawfully detained on one medical certificate. If a patient is likely to injure himself or others unless he is restrained at once, he may be received into care on an urgency order. This is signed by the nearest relative available and supported by one medical certificate, which need not be given by the usual medical attendant. The patient must be received within two clear days, and the order remains in force for seven days only. Such an order may be used for the reception of a rate-aided patient, but then it must be signed by the public assistance officer. Similarly, a summary reception order made by a justice of the peace for the reception of a rate-aided patient is supported by one medical certificate. This kind of order may also be used for a person of unsound mind not rate-aided who is wandering at large, or not under proper care and control, or cruelly treated or neglected.

The expression "three-day order" does not seem to correspond to any order recognized by the Lunacy and Mental Treatment Acts; and it is not legally necessary in the circumstances outlined above for the certifying practitioner to associate himself with the relieving officer unless an urgency order is used for the reception of a rate-aided patient.

Urea and Migraine

Q.—*What is the rationale of treating cases of migraine with urea? Has any work been published to show in what proportion of cases this is successful, or which type of case is benefited? How long should the treatment be continued?*

A.—An association between water retention and attacks of migraine is frequently observed, an oliguria making its appearance immediately before or coincidently with an attack. In some patients the water retention may be explicable, though in a somewhat speculative way, by dietetic, endocrine, or neurological hypotheses. A high carbohydrate intake is often associated with water retention, especially in women, and cases of migraine associated with such a diet have often been reported (e.g., Hare, *The Food Factor in Disease*, London, 1905). In many women a water retention of endocrine origin occurs immediately before the menstrual period, a time at which some patients are liable to severe headache. The headache is relieved coincidently with a profuse diuresis when menstruation is well under way. I have seen a patient in whom there was clinical evidence of a functional derangement of the hypothalamus (obesity, sexual weakness, disturbance of the sleep rhythm, excessive sweating, hyperpiesis) and in whom migraine and extreme oliguria (amounting almost to anuria) alternated with diuresis and freedom from attacks. He was permanently relieved by diet and diuretics. J. A. Brown (*B.M.J.*, 1943, **2**, 201) reported the case of a man whose migraine was accidentally relieved during a urea-concentration test, both he and Sir Walter Langdon-Brown (*B.M.J.*, 1943, **2**, 430) referring to the findings of Goldzieher that in migraine there may be severe water retention. A full bibliography can hardly be given in a short reply, but the evidence that in *some* cases there is a relation between migraine and water retention is strong though by no means complete. It is quite certain that many patients do not fall into this group at all. Treatment by means of a low-carbohydrate, low-fat, low-fluid, low-salt, high-protein diet combined with diuretics (e.g., urea 15 grammes t.d.s.) is worth trying in every case. It certainly works in some. The treatment can often be "slackened off" gradually, but to some extent it must be continued permanently.

"Grumbling Appendix"

Q.—*What is the mechanism which produces a "cure" in a moderately severe case of gastroptosis where a grumbling appendix is removed. The patient had considerable mental anxiety prior to the gastroptotic condition, and the writer can recollect being informed by an eminent London surgeon that a grumbling appendix does not exist.*

A.—It is extremely doubtful whether such a pathological condition as chronic appendicitis exists, though recurrent appendicitis and peri-appendicular adhesions following an acute attack of appendicitis might be included under the heading of a "grumbling appendix." Abdominal pain and distress due to enterospasm may occur as symptoms of an anxiety neurosis, particularly in the asthenic visceroptotic type of patient. Many factors contribute to the relief produced by operation: on the superficial level, confinement to bed, withdrawal from a distracting environment, sympathy, etc.; on the deeper level, symbolic removal of the bad internal object which is responsible for the anxiety, self-punishment, etc. The policy is merely one of appeasement of the neurosis, the "cure" is likely to be short-lived, and other symptoms of the neurosis are likely to become increasingly troublesome.

Application of Unna's Paste Bandage

Q.—*A patient who must be up and about finds elastoplast unsuitable for his varicose ulcer of the leg. What treatment do you suggest?*

A.—The best treatment for this patient is the small but important operation of simultaneous ligature and injection of the varicose veins. It will cause incapacitation for a week. Failing this, an Unna's paste bandage is the best remedy. The ulcer and leg are cleaned with methylated ether: the "sulpha" drugs should be avoided, because some patients prove to be hypersensitive to them with a closed bandage, and develop an intractable dermatitis.

The application of the Unna's paste bandage is important. First, the leg should be elevated for at least half an hour and a firm cotton bandage applied with a view to reducing the swelling. The preparation of the Unna's paste bandage is as follows: An ordinary three-inch cotton bandage is loosely re-rolled, at the same time clearing the edges freely of the cotton shreds. It usually needs two, possibly three, bandages for one leg. These are autoclaved and then dropped into a jar of boiling Unna's paste for a quarter of an hour. The bandages are lifted out into a sterile receiver until they are cool: they are therefore sterile. Longitudinal strips of three thicknesses of bandage are placed over the front, sides, and back of the leg: these are to prevent the transverse turns of the bandage cutting into the skin, and are essential if the application is to be comfortable and retained—as frequently they are—for 6 to 12 months. The bandage begins at the root of the toes with the foot in a comfortable dorsiflexed position: this also is necessary to minimize the transverse creases which are the cause of discomfort to the wearer. The bandage is applied with a moderate amount of tension, special care being taken that it is free from creases, twists, and folds. It takes several minutes to apply, but when it is recalled that the correct application will heal the ulcer and will stay on for months, it is worth the trouble. Each turn of the bandage overlaps its predecessor by two-thirds, so that the final Unna's paste casing is three thicknesses plus the three thicknesses of longitudinal strips. These dressings are always well tolerated; it is the exception to find a patient whom they do not suit. Finally, the wet bandage is dried off by the application of an ordinary cotton bandage beginning at the knee and passing downwards; the bandage will be found to lie better when so applied. Plaster-of-Paris is useless for encouraging epithelization, and, moreover, is unnecessarily inconvenient.

Patients with ulcers must wear stout shoes from early morning to last thing at night; ladies should be advised to procure a boy's shoes, which are made in wider fittings and are robuster than ladies' shoes. The local cobbler will raise and smarten up the heels.

Recurrent Polyneuritis

Q.—*A woman of 72 has had three attacks of severe polyneuritis in the past 10 years. Each attack lasted 2 to 3 months, with symptoms, except for slight numbness, subsiding completely between the attacks. She has had a myocarditis and complete achlorhydria for some 15 years. What are the aetiology, treatment, prevention, and prognosis? Should vitamin B be taken regularly either by mouth or by injection, and if so, in what dosage?*

A.—Recurrent polyneuritis is a rare disorder, the cause of which is not known. There is evidence that in some cases avitaminosis may be one factor in its aetiology, and in the case reported the complete achlorhydria is perhaps more consistent with a metabolic than an infective cause. If the laboratory facilities are available, something might be learned by measuring the patient's urinary excretion of vitamin B_1. For prophylaxis the patient should take all the vitamins of the B group. Tablets providing 1 mg. each of vitamins B_1 and B_2 and 15 mg. of nicotinic acid amide are on the market, and one of these three times a day would give an adequate dosage, assuming absorption from the alimentary canal to be normal. It would also be wise to give an intramuscular injection of liver extract in doses of 2 to 4 c.cm. once a month. If another attack of polyneuritis occurs the same treatment should be continued with the addition of a daily injection of 10 mg. of vitamin B_1, and the physical treatment appropriate to polyneuritis. The prognosis is uncertain and further attacks may occur.

Nose-picking and Nail-biting

Q.—*A boy of 7 years (adopted at 6 weeks old, and brought up knowing this fact) has been biting his nails and picking his nose for about a year. He is getting worse. What should be done?*

A.—Judging from the facts given, this case appears to be one of mixed aetiology. The constitutional factors should first be investigated, especially the calcium metabolism; for parathyroid deficiency often gives rise to such tics. Psychologically, the Freudians regard nail-biting and nose-picking as sexual manifestations related to masturbation, and this view is often borne out by the facts. But, taken in itself, nail-biting reveals a state of tension, and is evidence of repressed assertiveness or aggression. (Children suffering from pent-up energy, say before an examination, often bite their nails.) The thwarting may be caused by undue external discipline, but it may also be the result of conditions in the child's own mind; these latter require special investigation by a child psychiatrist. The thwarting may, in fact, be due to the feeling of inadequacy caused by the physiological deficiency already referred to. As a first-aid measure, the child should be encouraged to do things with his hands, both in order to employ his hands and also to give outlet to his assertiveness and to give him confidence. But he must not be pressed to achieve things, as this would increase the tension.

Caesarean Section after Vaginal Fistula

Q.—*A primipara with small pelvic measurements took some 24 hours to reach full dilatation, and finally, after manual rotation of a persistent occipito-posterior head, had a forceps delivery of a live child. Three days later, despite passing urine normally, she developed a cysto-vaginal fistula. This was successfully repaired five weeks later. She is now pregnant again, three years after the first child. The scar of the repair is sound and of a hard unyielding consistency. In view of the past history and the tough anterior vaginal wall, is the correct treatment to perform Caesarean section at or near term?*

A.—The usual procedure is to advise Caesarean section for cases of this kind. The contracted pelvis may be responsible for another difficult delivery, with a tight fit between the head and the pelvis, so that the old operation scar may be damaged and the fistula recur. The majority of obstetricians would unhesitatingly perform Caesarean section at term in such a case.

Children's Wards and Cross-infection

Q.—*How should a children's ward be designed to reduce cross-infection?*

A.—Cross-infection in a children's hospital or unit can best be countered by including a large proportion of single rooms (up to 50% of the available beds); by small wards of 4 to 8 beds; by good ventilation and lighting; by a sufficiency of wash-hand basins in the wards, sterilizers in the annexes, and modern labour-saving equipment; and, most important of all, by an adequate and properly trained nursing staff. The sources, modes of spread, and methods of control of "hospital infection" should be taught to all nurses early in their career. There can, of course, be no standard pattern of ward, but a modern and well-designed unit has lately been described by Jacoby (*Arch. Dis. Childh.*, 1944, **19**, 26). This unit of 35 beds consisted of one 6-bedded ward, four 4-bedded wards, two 2-bedded wards, and four single-bedded wards, with the usual annexes, milk-room, and *accommodation for nursing mothers*. But design alone will not accomplish much if the administrative and nursing precautions given in detail in M.R.C. War Memo. No. 11 are not put into effect. Thus examination and distribution of cases on admission must be done by an experienced R.M.O.; children under a year must be nursed in single rooms; great care must be taken with the preparation of infant feeds; masks should be worn by nurses and medical staff as required; visitors should be discouraged; and passive or active immunization of patients should be practised whenever practicable.

LETTERS, NOTES, ETC.

Psychiatry in the Services

A medical psychologist writes: The answer to the question on page 283 of the *Journal* of Feb. 24 regarding psychiatry in the Service can hardly go unchallenged. In the first place psychiatry does no include *all* acts of behaviour; that is the province of the wide science of psychology. Psychiatry, as its name implies, means healing, and therefore deals only with abnormalities. Nor can one let go unchallenged the writer's exclusion of the "lack of moral fibre" from the concern of the psychiatrist, for this may, among other things, be due to constitutional disorders such as are to be found in the asthenic type. In any case the writer contradicts himself, for if psychiatry deals with all acts of behaviour, why does he tell the psychiatrist to "stick to his last" and not deal with lack of moral fibre, but to leave that to the executive authorities? Is not this a form of behaviour?

Coloured Film of Casualties

Mr. W. McADAM ECCLES, M.S., F.R.C.S. (London, W.1) writes: Since damage and casualties are still occurring in Southern and sometimes Northern England, though the day of their cessation is drawing near, it is not inappropriate to remind medical officers and others associated with Civil Defence and A.R.P. that the unique coloured film of "Casualties" is still available for exhibition after having been shown to many thousands of workers. Particulars can be obtained from the manager, Mr. J. Magrill, 17, St. Quintin Avenue, London, W.10.

Treatment for Superficial Eye Infections

Dr. SHEILA MILLAR-DANKS (Dulwich Hospital, S.E.22) writes: I read with interest Dr. Graydon Hume's letter (Jan. 27, p. 129) concerning superficial eye infections. I was aware of the benefit of a stable solution of ephedrine and silver vitellinate for nasal use having read the correspondence on the subject in the *Journal* in December, 1943, and January, 1944, but its value for eye infections was new to me, and especially the fact that stabilization of the solution eliminated argyrosis. Although post-anaesthetic conjunctivitis is becoming a rarity due to the increase in the use of closed methods of anaesthesia and decrease in the employment of ether as an anaesthetic agent, it still occurs where the open method of administration is used. Possibly the solution suggested by Dr. Graydon Hume would be efficacious in dealing with the condition.

Corrections

An old Guy's man wishes to register a correction of the item of news published on March 10 at page 353 recording a medical dinner at Delhi. The Director-General, I.M.S., Lieut.-Gen. J. B. Hance, is a Cambridge and Guy's man, not an alumnus of Edinburgh.

The number of cases of pneumococcal meningitis which Dr. El Davis stated had been seen in a sister hospital to his own was eight not eighty as given in the report in the *Journal* of March 17 (p. 379)

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IMBALANCE OF VITAMIN B FACTORS

PYRIDOXINE DEFICIENCY CAUSED BY ADDITIONS OF ANEURIN AND CHALK

BY

MARION B. RICHARDS, M.A., D.Sc.

(From the Rowett Research Institute, Aberdeen)

In the clinical literature during recent years there have been numerous indications of a certain interrelationship or antagonism between various factors of the vitamin B complex. Pellagrins, after treatment with nicotinic acid, often show signs of beriberi or of ariboflavinosis (Spies, Vilter, and Ashe, 1939; Sebrell and Butler, 1938; 1939; Sydenstricker *et al.*, 1940). There are recorded instances also of converse antagonisms. Thus Bichel and Meulengracht (1941) report a case of pellagra arising after treatment of the Plummer-Vinson syndrome with riboflavin (i.e., vitamin B_2); and Salvesen (1940), Brændstrup (1940), and Lehmann and Nielsen (1939) all found signs of pellagra in patients who had been given large injections of vitamin B_1. There is little doubt that in many of these cases the deficiencies in the diet were multiple, and it is assumed that successful treatment of the predominant deficiency with a single factor of the B complex showed up other deficiencies which had previously been masked. At the same time there is the possibility, in some cases at least, that secondary deficiencies were induced by the excessive dosing with one particular factor of the B complex, and that the unbalanced proportions of the different factors gave rise to a deficiency which was not present under the original conditions. Spies, Vilter, and Ashe (1939) made the significant remark, without apparently realizing its possible implications, that in pellagrins treated with nicotinic acid and continuing on their usual diets, *the associated deficiencies* (i.e., of B_1 and riboflavin) *often became worse.*

One or two attempts have been made, but without much success, to induce symptoms of deficiency of one B factor by excessive dosing with another. Klopp, Abels, and Rhoads (1943) found a transitory increase in urinary excretion of riboflavin in some patients after administration of thiamine (i.e., B_1), but could not induce either clinical or chemical evidence of riboflavin deficiency in these individuals even when large amounts of thiamine were given daily for 73 days. Unna and Clark (1942) could find no evidence of adverse effects on the growth of rats following administration of excess of individual vitamins in the presence of deficiencies of other vitamins of the B complex.

Effect of Overloading with B_2

Recent experiments on rats in this Institute, however, have produced clear-cut evidence of the adverse effects that may be caused by a disturbance of the balance of the vitamin B factors in the diet, and have shown that overloading with one component, B_1, can produce a definite deficiency of another component, B_6. The experiments were designed to follow up a series of which the results were reported a year ago. In studies of the influence of the dietary factor on reproduction and lactation the results showed the beneficial effects on the breeding performance of rats of additions of chalk, dried yeast, and milk to a poor human diet (Richards, 1943). On the other hand, addition of pure vitamin B_1, as aneurin, seemed to have a definitely harmful effect, as the weaning weights of the young rats were low and the mothers were in very poor condition after rearing their litters. It was therefore suggested that caution must be exercised in the addition of vitamin B_1 to a poor diet, and the present experiments were planned to investigate this point more closely. Using a synthetic diet* as basal ration in place of the human dietary of the earlier experiments, vitamin B_1 (as aneurin) was given at 3 levels—low, medium, and high—and these 3 levels were repeated in 3 additional groups which received also a supplement of chalk.

In the growth tests, which lasted from weaning till the rats were mated at about 115 days of age, the chalk group at each level of B_1 intake showed a higher weight increase than the corresponding group without chalk, but these differences were not great. The groups receiving high B_1, both with and without added chalk, were somewhat lower in weight than the corresponding groups on medium B_1, but there was no noticeable difference between the animals in their general condition. Thus the growth tests, like those of Unna and Clark (1942), gave no very marked evidence of untoward effects arising from the variations in the diet. It is generally recognized, however, that a diet which may be reasonably adequate for growth, and even for reproduction, may not be adequate for successful lactation, and the lactation test in these experiments, even when the diet was improved by milk supplements, revealed differences between the groups which had been quite unsuspected from the growth test and the reproduction records. In certain cases the litters failed completely to survive to weaning; in others a few members of the litter survived, but were much below normal weight and in very poor condition; while in some instances litters which were nearly normal in weight and apparently quite healthy suddenly showed the convulsive fits which enabled their condition to be diagnosed as pyridoxine (i.e., B_6) deficiency. Chick, El Sadr, and Worden (1940)

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* The synthetic diet was planned to be approximately equal in caloric value and Ca content to the original poor human diet, which contained a large proportion of white bread. It consisted of: white flour (untreated with chalk or aneurin) 1,020 g., commercial casein 400 g., dried brewers' yeast 32 g., salt mixture (McCollum 185) 33.3 g., margarine 180 g., radiostoleum (containing 1 g. α-tocopherol acetate in 50 c.cm.) 2 c.cm., KI 0.00616 g., and $MnSO_4.4H_2O$ 0.0616 g. In the groups which received extra calcium, chalk was added in the proportion officially recommended in making "fortified" white bread. A small amount of aneurin was added to the basal diet to make the B_1 content equal to that of the original basal group in the human dietary experiments. In the groups with "medium" aneurin, the amount added was equivalent to the difference in B_1 content between white and national wheatmeal flour, and to the "high"-aneurin groups 10 times this amount of B_1 was given. There were thus 6 groups in the experiment:

I. Basal + low B_1 .. II. Basal + medium B_1 .. III. Basal + high B_1
IV. As I + chalk .. V. As II + chalk .. VI. As III + chalk

The Ca intake for Groups I, II, and III worked out at approximately 0.33 g. per 1,000 Cal., and for Groups IV, V, and VI at 0.81 g. per 1,000 Cal. The B_1 intake for Groups I and IV was approximately 198 i.u., for Groups II and V 554 i.u., and for Groups III and VI 3756 i.u. per 1,000 Cal. The B_1, KI, and Mn supplements were added as dilute solutions daily to the liquid used in making up the ration, which was fed as a stiff paste. In the breeding tests, milk supplements were added to the diet—10 and 20 c.cm. per head respectively to half of each group in the first test, and 20 c.cm. per head in the second test reported the occurrence of fits of an epileptiform nature in rats maintained for long periods on a diet deficient in vitamin B$_6$. The seizures were characterized by hyperexcitability and circular running, tonic-clonic convulsions, and a comatose recovery period. Still more apposite, from our point of view, were the findings of Daniel, Kline, and Tolle (1942), who reported similar seizures in young rats while being nursed by mothers on pyridoxine-deficient diets, the symptoms appearing suddenly towards the end of the lactation period. The syndrome was "characterized by frantic running about the cage, accompanied by loud cries and convulsive seizures," and the symptoms could be prevented or cured by pyridoxine supplements. Patton, Karn, and Longenecker (1944), who studied the incidence of sound-induced seizures, also recently reported the occurrence of spontaneous convulsions in young rats suckled by mothers maintained from parturition on pyridoxine-free diets.

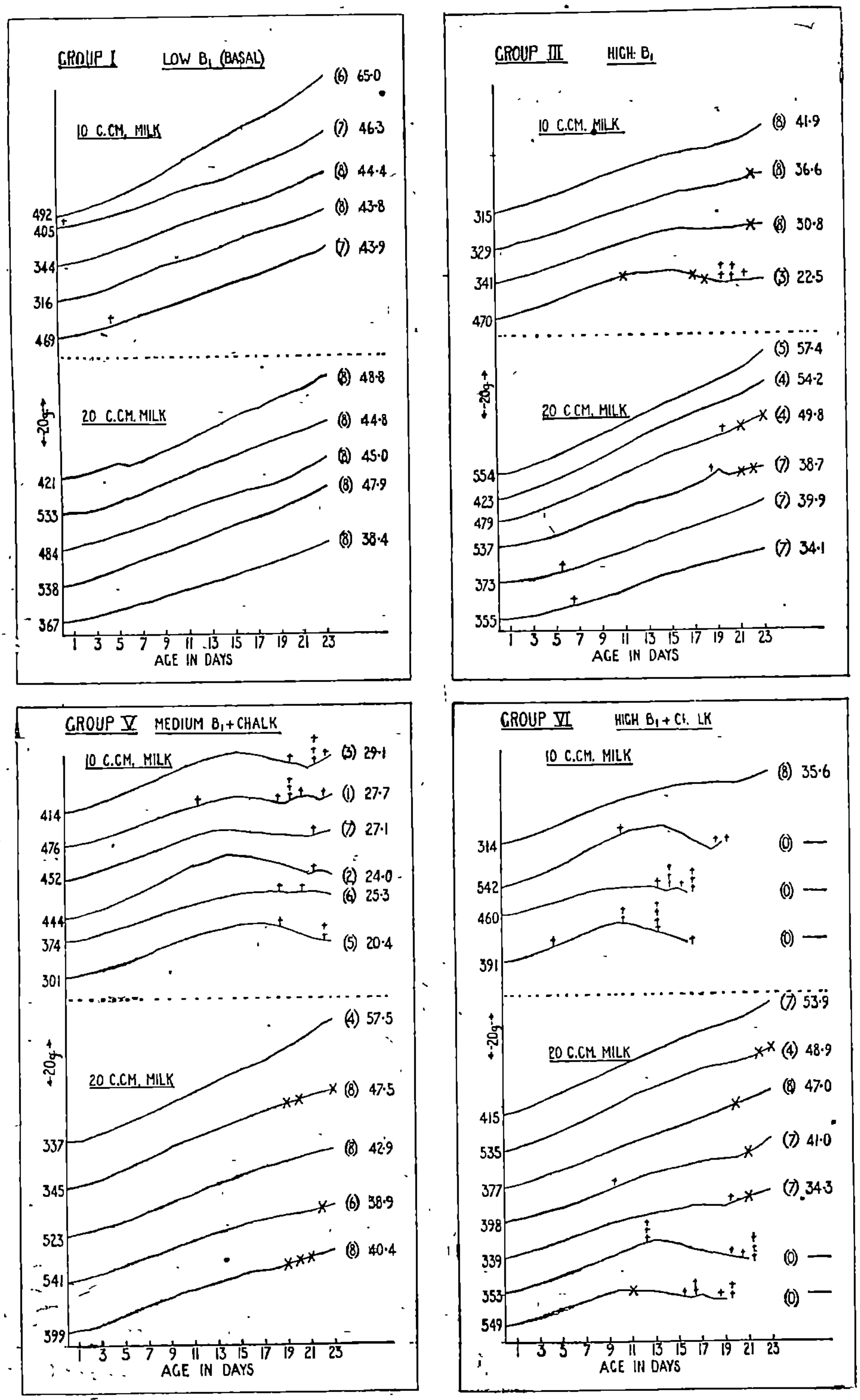

CHART I.—Showing average weight in grammes per rat from birth to weaning for individual litters. At the left of each graph is the number of the doe. At the right of each graph, in brackets, is the number of young reared. At the right of each graph, unbracketed, is the average weaning weight of the litter. † indicates the death of a rat. × indicates the occurrence of fits.

These descriptions fitted so exactly the symptoms observed in our young rats that there seemed to be little doubt that we were dealing with a conditioned pyridoxine deficiency, since the only variables in the diet were the vitamin B$_1$ and chalk. Comparison of the groups showed that the lactation performance deteriorated as the level of B$_1$ increased, and that conditions were made worse by the addition of chalk. At each level of B$_1$ the group receiving chalk was worse than the corresponding group without chalk. Thus the best group was Group I—the basal group with low B$_1$ and no added chalk. The litters were approximately normal in their weight curves, whether the milk supplement was 10 or 20 c.cm.; and convulsions were not observed in any of the litters. The worst group was Group VI, with extra chalk and high B$_1$. In this group 10 c.cm. milk was quite inadequate to ensure successful lactation, only one litter surviving to weaning stage. In the section of this group receiving 20 c.cm. milk, 5 litters reached weaning stage, with approximately average weaning weight, but 6 of the 7 litters in the group showed the typical convulsions. In Group V, which had extra chalk with medium B$_1$, 10 c.cm of milk again proved insufficient, although the performance was better than in the high B$_1$+chalk group with 10 c.cm. milk. Representatives of 6 litters reached weaning stage, but there were many deaths during lactation, and the few survivors were low in weight and in poor condition. Convulsions were not observed in rats which were very puny and sickly. With 20 c.cm. of milk the lactation performance was again much improved. Deaths during lactation were reduced to zero, and weaning weights were approximately normal, but the characteristic fits were observed in 3 litters. Group III, with high B$_1$ and no added chalk, was about equal in performance to Group V, with medium B$_1$+chalk, and much better than the group with high B$_1$+chalk. One instance of convulsions was observed in Group II, with medium B$_1$ and no chalk and two instances in Group IV with low B$_1$+chalk. The lactation performances of 4 of the groups are summarized in Chart I which shows the average weight curves of the individual litters from birth, and indicates the occurrence of convulsions. Groups II and IV are not included, as the weight curves showed little departure from normal.

The breeding test was repeated, to obtain confirmation of these results and to test whether the onset of convulsions in the worst groups could be prevented by giving the does a supplement of pyridoxine from parturition. This supplement was given to half the does in Groups III, V, and VI. All rats in this test received a supplement of 20 c.cm. milk, since the 10-c.cm. supplement had proved insufficient in certain groups to bring the young to weaning and convulsions seemed to occur more readily when the young rats were fairly normal in weight. Chart II gives the results for Group VI, receiving high B_1 + chalk, from which it will be seen that the previous findings are amply confirmed. Seven out of eight litters showed the characteristic convulsive fits, several of them having repeated attacks. Although fits were not actually observed in the eighth litter, it seemed probable that they may have occurred (possibly overnight) when no observer was present, for it was noted that the general condition of the young in this litter at weaning was very similar to that of another litter in the group in which fits had been observed day after day. Moreover, the weaning weights of the young in these two litters were practically identical—38.3 and 37.8 g.

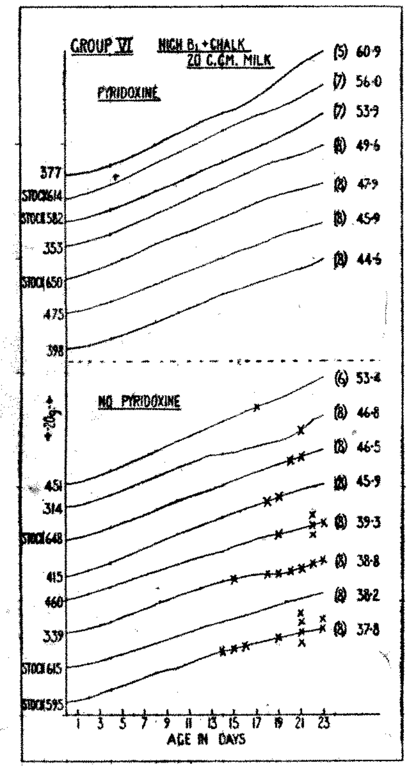

CHART II.—The weight graphs in the upper half represent litters from does which received a daily supplement of 40γ pyridoxine from parturition. The graphs in the lower half represent litters from does which received no pyridoxine. "Stock" indicates that the doe was a stock rat placed on the experimental diet two weeks before mating.

Pyridoxine Supplement.—Seven does in this group were given a pyridoxine supplement of 40 microgrammes daily from parturition, and none of their litters showed convulsive fits. The young progressed quite normally, and the average weaning weight was 49.7 g., as against 41.9 g. in the section of the group which received no pyridoxine supplement. In this experiment also the group with medium B_1+chalk was approximately equal to that with high B_1 and no chalk. In each of these groups 2 litters showed fits, and again not a single fit was observed in litters the mothers of which received pyridoxine supplementation.

It may be noted that a slight difference is observable through all the groups in this test when compared with the corresponding groups in the previous breeding test. Fresh supplies of flour, casein, and dried yeast had to be used in the repeat experiment, and it is unlikely that the new supplies would agree exactly with the old in their contents of all the B factors. A decrease in the B_1 content of the basal ration, or an increase in the B_6 content, or both, would tend to minimize the lack of balance of the B constituents, and the findings of the second test are consistent with such a difference in the basal ration. The lack of balance is somewhat less than in the first test, so that the occurrence of fits in any one group is less pronounced than in the same group of the previous experiment. Thus in Group III (high B_1 with no chalk) only 2 litters showed fits, although 5 litters were affected in the previous test, and no instance of fits was noted in the second test in either Group II or Group IV. But the worst groups come in the same order as before, and the fits were entirely prevented in all groups when pyridoxine was given.

Comment

It seems abundantly clear, therefore, that pyridoxine deficiency was the cause of the symptoms observed, that this deficiency was induced by excess of vitamin B_1 and by excess of chalk, and that the effect was enhanced when both vitamin B_1 and chalk were present in excess. Patton and colleagues (1944), who used two pyridoxine-deficient diets in their experiments, one containing much higher amounts of thiamine, riboflavin, and pantothenic acid than the other, found fewer spontaneous seizures in litters from mothers receiving the smaller amounts of the B vitamins. This is in accordance with our findings in regard to B_1.

While it is a deficiency of B_6 that has become primarily obvious in our experiments, it seems likely that deficiencies of other B factors may also have been induced by the excess of B_1. It happens that pyridoxine deficiency produces this spectacular effect in the young rats, and thus can be very readily recognized when other deficiencies may be overlooked. As a matter of fact, skin lesions, which developed during the mating and lactation periods in practically all the females of Groups V and VI, indicated the presence of some deficiency other than that of pyridoxine. The lesions of the extremities which are said to be characteristic of pyridoxine deficiency did not appear, but there was loss of hair on parts of the body, which might possibly be indicative of a B_2 deficiency, and numerous body sores. The bald patches occurred mainly on the forehead and round the ears, and in some cases the under side of the body was practically denuded of hair. The body sores took the form of isolated septic spots, with loss of surrounding hair. György (1934) and others (e.g., Chick *et al.*, 1935) have shown that if the diet of rats is deficient in both B_2 and pyridoxine the florid dermatitis specific for B_6 deficiency does not become evident until B_2 is supplied. The amount of dried yeast in the diet was intentionally kept at a somewhat low level, to avoid masking any adverse effects of the additions of vitamin B_1. It is thus possible that the supply of B_2 was suboptimal, and liable to be converted to a definite deficiency by excess of B_1, just as happened with pyridoxine.

The high dose of vitamin B_1 given in our experiments is, of course, far in excess of the amount likely to be found in any ordinary human diet, and the amount of pyridoxine in an ordinary mixed diet will probably be such that there is little risk of a deficiency being induced by the amount of B_1 present. Danger may lie, however, in the present-day tendency to prescribe vitamin B_1 somewhat indiscriminately, as a dietary adjunct and to give large doses of B_1 orally or by injection in the treatment of various diseases. It is precisely in such cases, in which the patient is probably on invalid diet that is liable to be unbalanced, that a large excess of B_1 may entail unexpected and dangerous results. In the case described by Brændstrup, for example, the patient, a chronic dyspeptic treated with ulcer diet, was given large injections of vitamin B_1, totalling 220,000 i.u. in 3 weeks. When signs of pellagra developed, treatment with a preparation containing the entire B complex permitted recovery. Apart from the development of pellagra, untoward symptoms of various kinds have been recorded after dosing with vitamin B_1. Steinberg (1938), who treated cases of chronic arthritis with large doses of vitamin B_1, records that in a few patients vitamin B_1 therapy caused "typical lesions of herpes zoster," irritation of the peripheral nerve plates, and spasm of smooth muscle. The pain and irritation ceased when B_1 therapy was withdrawn. Leitner (1943) also describes two cases in which injection of pure vitamin B_1 over long periods produced unfavourable effects. In one case the symptoms resembled those of thyroid overdosage, and included insomnia, headache, giddiness, and palpitation. It may well be, in view of our results, that such untoward effects are evidence of some vitamin deficiency induced by the large excess of the single vitamin.

Little is known as yet regarding human requirements of pyridoxine, but some results recorded by Spies, Bean, and Ashe (1939) are of interest. They found that 4 patients who had been treated successfully for pellagra and beriberi, but who remained on their deficient diets, complained of such symptoms as extreme nervousness, insomnia, irritability, abdominal pain, weakness, and difficulty in walking. All the symptoms disappeared within 24 hours of an injection of 50 mg. of pyridoxine. Later, Spies, Ladisch, and Bean (1940), studying the urinary excretion of B_6 in human subjects, found indications of B_6 deficiency in patients suffering from other clinical deficiency diseases. It is thus evident that pyridoxine deficiency can arise in man under certain circumstances.

It is becoming increasingly recognized that in the treatment of pellagrins with nicotinic acid it is essential to provide other members of the B complex and to prescribe a liberal and well-balanced diet. Our experiments would suggest the necessity for adopting a similar procedure for other B factors, and in particular, when B_1 therapy is indicated, for supplying the whole B complex instead of the single vitamin. It was suggested in the previous paper (Richards, 1943) that the improvements effected in a poor human diet by means of such simple supplements as inorganic calcium, milk, and dried yeast provided a useful pointer for the post-war feeding of the starved populations in Europe. The present results emphasize the need for caution in any attempt to improve the diet of these populations by indiscriminate addition of large supplements of single synthetic B vitamins.

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DUCT PAPILLOMATA OF THE BREAST

A PLEA FOR CONSERVATIVE TREATMENT

BY

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There is too great a tendency to-day to regard duct papillomata of the breast as malignant or potentially malignant, and therefore requiring amputation of the breast. To my mind it shows a lack of thought, of experience, and of a thorough examination of every breast removed, when such opinions are held. Local amputation of the breast is an easy operation, and it is wishful thinking to say that because a young woman has a blood-stained discharge from the nipple the breast should be removed owing to the possibility of cancer supervening. It is quite true that a blood-stained discharge from the nipple may be caused by carcinoma, chronic cystic mastitis, or papilloma: it is the responsibility of the surgeon to make a differential diagnosis of these three conditions.

Duct papillomata are nearly always found in the larger ducts, and are therefore situated beneath the nipple or the areola. The majority of these tumours are single, but in some cases multiple papillary growths are to be found in the ducts. The common single papilloma often has a stalk, and some pathologists have termed them "single-stalk" papillomata. They always occur beneath the nipple, and frequently cause bleeding from it.

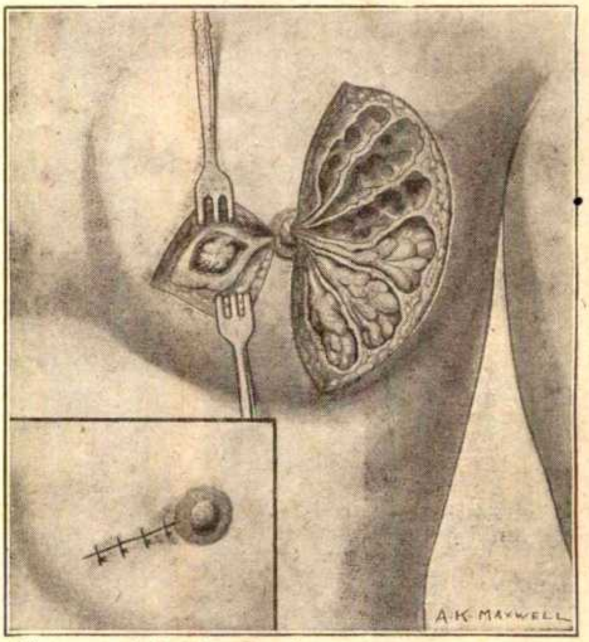
It is difficult to be dogmatic about the common age when symptoms develop, but it can be said that duct papillomata are uncommon before the age of 25, although I have removed one from the breast of a girl aged 20. A small proportion of patients have papillomatous growths elsewhere, the commonest site being the skin.

The clinical course of these cases is interesting, as the papillomata grow very slowly and may continue for many years. The haemorrhagic discharge from the nipple is intermittent, and may be serous with no sign of blood. At times a small tumour may be felt in the region of the nipple. This swelling may be tense or soft, and may entirely disappear after a discharge of blood-stained fluid from the nipple.

In many cases the thickened duct can be felt by careful palpation; quite often it is situated under the areola, and pressure on it will cause a haemorrhagic discharge from the nipple. There is no sign of any hardness or infiltration, such as would be felt if a carcinomatous condition had supervened on the papilloma.

Treatment

Every case must be examined carefully and at definite intervals until it is certain that a dilated duct can be felt. When this is established a local excision of the dilated duct, with the papilloma, can be undertaken (see Fig.). An incision is made radiating from the nipple over the dilated duct. The skin edges are held apart, the cystic dilatation is opened, and the intracystic papilla is completely excised. The operation is simple, and no damage is done to the ducts on either side. The skin incision is closed with a few interrupted sutures, and when healed is hardly noticeable. Every papilloma excised should be examined microscopically for any evidence of malignant disease. The patient should be examined at three-monthly intervals during the first year; after this time a yearly examination will suffice.



Diagrammatic drawing of an intracystic duct papilloma. The outer side of the breast is dissected to show the lactiferous ducts during the period of lactation. Inset: the skin incision united by sutures.

Having performed this operation on 52 cases during the last 30 years I have no doubt that it is the very best form of treatment. What are the alternatives? They are radiotherapy and amputation of the breast. Radiotherapy is usually of little use in curing the condition. The papillomata are not radiosensitive, and at the best fibrosis of the rest of the breast occurs; this is often painful, and produces a functionless breast.

Local amputation of the breast in young women produces a very unsatisfactory state of affairs. The patients become introspective, worry a lot, and tend to become chronic invalids. Many drift to the out-patient departments of the neurological hospitals. I have case reports of 20 unmarried women under 30 years of age who have been subjected to local removal of one or both breasts because of a history of a blood-stained discharge from the nipple. These women are afraid to marry because they consider that they are not normal. This state of affairs must not be allowed to continue, as it means a life of constant misery.

The following up of operation cases is most important if we are to get a clear idea of the real value of conservative surgery. Of my 52 cases of duct papilloma of the breast I have "follow-up" records of 35; six patients are abroad and I cannot trace them. However, the clinical history of three cases will show the real advantage of conservative surgery for duct papilloma.

Case Histories

Case 1.—A nurse, aged 24, who had just finished her training in a London hospital, was seen in July, 1915, with a history of a blood-stained discharge from the left breast for some nine months. Nothing could be felt on examination and no discharge was visible from the nipple. The patient was told to come and see me when there was any further discharge from the nipple. In Sept., 1915, she came again, and a small cystic lump could be felt just lateral to the nipple in the lower and inner quadrant of the breast. A slight blood-stained discharge could be expressed from the nipple. Operation was undertaken, and a small intracystic papilloma was excised. The papilloma had a definite stalk, and microscopically was quite innocent. The patient left hospital a week later. She was seen in 1919 before her marriage, as she was concerned about the effect of pregnancy on the breast. The breast was quite normal, and there had been no discharge from the nipple since the operation. The patient was reassured that no ill effects would supervene if pregnancy took place. She was seen again in 1936 because of cholecystitis due to gall-stones. She had five children—three boys and two girls—and had breast-fed all of them without any difficulty whatever. Cholecystectomy was carried out in July, 1936, and recovery was uneventful.

Case 2.—A married woman aged 32 was seen in Jan., 1920; she was sent to me to have her right breast removed because of an intermittent blood-stained discharge. She was a big woman with large firm breasts. A small lump the size of a pea could be felt in the lower and outer quadrant of the breast. She was prepared to have the breast removed, but was advised to undergo excision of the lump instead. Local excision of the papilloma was carried out and the growth was found to be innocent. The patient was last seen in 1939, when she was in good health; the breast was quite normal, although somewhat atrophic. Her periods had stopped some three years previously.

Case 3.—An unmarried woman, aged 26, a well-known golfer, was seen in 1922 because of a blood-stained discharge from the left nipple. There was little to make out on clinical examination, and the patient was told not to worry and to forget about her breast. She was seen in 1923 and again in 1924, and on neither occasion could anything be felt in the breast, although there was a slight intermittent discharge of blood-stained fluid from the nipple. When seen in May, 1925, a small lump could be felt in the lower part of the breast just below the nipple. This was excised, and proved to be a simple papilloma. Six months later the patient married and was not seen again till 1932, when her child, aged 6, was operated upon for appendicitis. Her breasts were then quite normal and there had been no discharge from the nipple since the operation. She had not breast-fed her child, as her doctor thought it might cause trouble in the breast. This idea, which still prevails in some quarters, is quite erroneous.

Conclusion

These three cases clearly demonstrate the value of conservative surgery in the treatment of duct papilloma of the breast. Every hospital of any size has specimens of small innocent papillomata because of which the breast had been removed. Conservative surgery will not provide such nice museum specimens, but it will produce contented and very thankful patients.

B. Levant (*J. Urol.*, 1944, **52**, 63) records a fatal case of sarcoma of the penis in a negro aged 29. Deep *x*-ray therapy was beneficial. Biopsy from an inguinal gland, though confirmatory of metastases, hastened the spread of the tumour, with general systemic failure.

"NEUTRAL PROFLAVINE SULPHATE" (MONOSULPHATE OF 2:8-DIAMINO-ACRIDINE)

ITS LOCAL ACTION IN INFECTED WOUNDS INVOLVING BONE

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It has been realized for a considerable time that the high acidity of proflavine sulphate *B.P.* is a serious drawback, and various methods have been suggested for countering this, such as a preliminary neutralization with sodium bicarbonate or the addition of a buffering salt. There is now available, however, "neutral proflavine sulphate," which possesses all the activity of the *B.P.* salt and yet gives a neutral solution. The relationship of neutral proflavine sulphate to proflavine sulphate *B.P.* may be compared with that of quinine sulphate to quinine bisulphate—i.e., the neutral sulphate has one equivalent of acid, while the *B.P.* salt contains two equivalents. In a 0.1% solution neutral proflavine sulphate is stated to have a *p*H of 6.5, as contrasted with *p*H 2.5 of proflavine sulphate *B.P.* Our brief experience with a sample of neutral proflavine sulphate indicates, however, that its action towards the tissues is the same as that of proflavine sulphate *B.P.*, and consequently, like it, should be used (1) in small doses of from 0.2 to 0.5 g. in discharging wounds, and (2) diluted to 0.5% in sulphathiazole powder for local application to wounds subjected to fresh débridement. We would also suggest that the optimum concentration of proflavine sulphate *B.P.* in sulphathiazole–proflavine powder is 0.2%, rather than the strength of 1% at present employed prophylactically in "debrided" wounds.

The cases treated were with us for only a short time. They comprised gunshot and similar wounds with compound fractures (often comminuted) which had been infected and relatively untreated for from six months to two years. The majority had had repeated sequestrectomies, with, in some instances, sulphonamides locally and/or orally in support. By the time of our observations general nutrition was restored; none of the patients were more than slightly anaemic (less than 80% Hb). Neutral proflavine sulphate powder, sterilized as are the sulphonamides, was applied to the wound area at the time of the last sequestrectomy and the wound lightly packed. In a few cases it was applied 2 to 14 days after sequestrectomy, and in others it was inserted into sinuses from the depths of which sequestra had been removed earlier. Thus the powder was applied to surfaces with granulations forming and established and with exudate in varying amount, as well as to wounds "debrided" afresh, with curetted and guttered bone, curetted sinuses, etc., in which no granulation tissue and little exudate or pus was present.

Technique of Treatment

At first, having regard to the relatively neutral character of neutral proflavine sulphate, doses of from 1 to 5 g. were applied, the former to small and the latter to large wounds. Many patients complained of some burning pain, which during the first 24 to 48 hours was accompanied by moderate pyrexia (101–102° F.), partly attributable to surgical measures. Locally, the soft tissues around the wound were inflamed, and brawny oedema extended for a short distance. The immediate wound margin was of firm, rubber-like consistence. On removing the excess neutral proflavine sulphate on the 4th, 6th, or 10th day the wounds were dry and the appearance of the walls everywhere up to but not involving the skin margins was that of "tanning"—superficial coagulative necrosis—to a depth of 2 to 4 mm. This was most pronounced in freshly "debrided" wounds, which were relatively dry, and less pronounced where there had been some bleeding and exudation following operation; and absent, or almost so, in cases with discharging sinuses. In these latter instances the main coagulative effect of neutral proflavine sulphate had been expended on protein precipitation in the exudate—serous, sero-sanguineous, or purulent—which could thus be said to have a "sparing" effect on the subjacent tissues.

Generally, the results obtained were not good; the doses used, even in the case of the larger wounds, were much too great, and the wounds suffered an added immediate chemical inflammation of 1 to 4 days' duration. When, however, the doses employed were smaller but still twice or thrice the recommended maximum of 0.5 g. suggested for proflavine sulphate *B.P.*, the results were more satisfactory. The treatment of sinuses met with varied success, and, as in the case of the major wounds, this depended largely on the completeness of surgical removal or reduction of the bulk of the infection. This last is a fundamental surgical principle which scarcely need be illustrated. Nevertheless, our experience is that it is not always followed, as it does not appear to be generally understood that all chemotherapeutic treatment is but an adjuvant to surgical procedure; and whether the agent be penicillin, an amino-acridine, or a sulphonamide, the chance of success attending its use is in varying proportion to the degree of completeness of, and to the interval of delay of application after, radical surgical treatment. This notwithstanding, we had hoped that with neutral proflavine sulphate a greater latitude would be observed on account of the greater solubility of this salt in the tissue fluids; but this was not so, as the following case illustrates:

Case I

Male aged 26. Gunshot wound right leg 9 months previously. Two months after injury: osteomyelitis lower third right tibia with sequestrum and involucrum; treated in plaster. 4th to 9th month: wound opened, explored, and drained at intervals. 8th month: inner wound broke down; wound opened up, two sinuses guttered, two cavities found in tibia and levelled up; sterile neutral proflavine sulphate powder, 5 g., applied, lightly packed; light plaster cast applied.

After operation patient complained of moderate pain for 24 to 36 hours. No fever. 6th day: excess neutral proflavine sulphate removed; whole area showed "tanning" (superficial coagulative necrosis); margins slightly indurated. 22nd day: saucerized wound, neutral proflavine sulphate coagulum adherent in parts; pus welled up from posterior part of tibia—another cavity probably existed. 32nd day: outer wound broke down and discharged; advisability of amputation considered. 37th day: outer wound discharge less. Patient later transferred.

In this case it is apparent that the entire extent of the diseased bone had not been defined; later, *x*-ray examination showed diffuse osteomyelitis of the lower two-thirds of the tibia. The remaining foci in the sclerotic bone had not been sterilized by the diffusion of neutral proflavine sulphate from the depot in the under aspect of the "coagulum," because either the organisms were inaccessible or the amount of dye diffused was not sufficient.

In all of the cases in which superficial coagulative necrosis or "tanning" occurred the rate of healing was definitely impaired, despite the fact that the wound was sterile when the "coagulum" remained dry. Thus in a wound which appeared likely to close completely at a reasonably early date, despite slight to moderate degrees of infection, a stationary period resulted from the damage to the superficial layers, and was followed by a period of slow recovery to the previous rate and eventual healing. This is illustrated in the following case:

Case II

Male aged 23. Gunshot wound left leg, with compound-fracture of tibia and fibula of 8 months' duration. Treated in plaster cast within 14 days of injury. Five weeks after injury: sequestrum of end of upper fibular fragment removed; exuberant granulations cut away; sulphathiazole applied locally; entrance wound 4 in. by 2 in., exit wound 6 in. by 3 in. 4th month: sequestrectomy. Later, patient up and walking, foot-drop improving, wounds healing. 6th month: sequestrectomy of tibia through old wound. Two days later, on arrival of neutral proflavine sulphate, 1 to 1.5 g. of the sterile salt was put into the open wound. During the next four days the patient complained of severe burning pain and there was oedema of the wound area; slight pyrexia. Excess neutral proflavine sulphate removed 10 days later, when appearances of "coagulation" were seen. Four weeks after sequestrectomy: healing slowly; shallow eschar-covered "ulcer," 2 in. by 1/2 in., remains. Six weeks after sequestrectomy: almost healed.

In the next case, despite the fact that neutral proflavine sulphate was not applied until two weeks after major surgical treatment, the discharge dried up and the wound healed, chiefly because of the completeness of the surgical procedure and the relatively limited nature of the infection in the humeral head; and, to a less extent, on account of the "sparing" action of the exudate—coagulation or tissue damage being minimal despite the relatively large amount of neutral proflavine sulphate employed.

Case III

Male aged 30. Gunshot wound right shoulder, involving the shoulder-joint, with fracture of humerus and scapula, sustained one year previously. Put up in plaster spica "soon" after injury. Bony ankylosis. Discharging sinuses for many months, increasing latterly. 12th month: sequestrectomy and curettage, much soft bone removed from humeral head; tube drains; skin stitched. One week later: pain on movement, slight discharge. 2nd week: tubes removed, sterile neutral proflavine sulphate, 1 to 1.5 g. powder, inserted into cavity in head of humerus. No great inflammatory reaction, but slightly increased discharge. 3rd week: wound dried up; appearance of "tanning" minimal. 6th week: almost healed. 8th week: healed.

It will have been observed that in none of these cases was any sulphonamide—e.g., sulphathiazole—given orally to supplement the local chemotherapeutic treatment. This is at variance with our recommendation with regard to the necessity for both oral and local administration of sulphathiazole at the time of full surgical treatment in like cases of bone infection (Heggie, Kendall, and Heggie, 1942), but in the present instance the omission was intentional, so that the value of the neutral proflavine sulphate alone might be assessed.

Bacteriostatic and Bactericidal Action

After the application of neutral proflavine sulphate powder the wounds were not necessarily always sterilized; this varied with the kind of wound, its state, the amount of discharge, and, as regards neutral proflavine sulphate, the degree of coagulation produced, and the resulting availability in solution of that salt from the depot in the coagulum. Sterility was most certain to result when application was made at the time of full surgical treatment and the "tanning" effect of neutral proflavine sulphate was distinct—that is, when the infected focus was removed and remaining surfaces were sterilized by coagulation. In other cases, slightly to moderately infected and discharging, reduction of the bacterial flora first, with sterility later, was not uncommon. This was to be expected, and is in keeping with the known slow bactericidal effect of the amino-acridines: their chief action is bacteriostatic; they limit bacterial proliferation, while leucocytic and tissue defences play their part. In wounds of the thigh or gluteal region, reinfection with coliform organisms occurred—and in this regard we would emphasize the need (sometimes overlooked) for attention to the marginal skin of wounds, and the peculiar desire of some folks to change dressings too often. In other wounds, infection with *Proteus* and *Ps. pyocyanea* remained: these organisms were most numerous, and *Ps. pyocyanea* was most persistent. Raven (1944) has reported like changes in the bacterial flora of infected wounds when using proflavine sulphate *B.P.*

In vitro the bacteriostatic and bactericidal actions of neutral proflavine sulphate and proflavine sulphate *B.P.* are practically identical, though the latter is slightly more active (next immediate tube in a series of falling dilutions). With a series of six freshly isolated strains of *Staph. pyogenes* and *Esch. coli*, and using a large inoculum—1 million in 10 c.cm. of broth—neutral proflavine sulphate was bactericidal within 24 hours, to staphylococci at 1 in 2,000 and to the coliform organisms at 1 in 4,000. With similar inocula in broth, organisms from the series of wounds treated with neutral proflavine sulphate were killed within 24 hours by the following dilutions of that salt:

Ps. pyocyanea	1/1000 and 1/2000
Staph. pyogenes ..	1/2000 (1); 1/4000 (4); 1/6000 (1)
Coliforms	1/4000 (1); 1/6000 (1)
Staph. albus	1/12,000 (2)
Diphtheroids	1/12,000 (2)
Proteus forms	1/12,000 (3)
Str. haemolyticus ..	1/12,000 (1); 1/24,000 (1)

The efficiency of neutral proflavine sulphate can be judged easily from consideration of the following facts:

(*a*) The bacteriostatic effect of the proflavine salts (in serum) on *Staph. aureus* and *B. coli* is evident at dilutions of 1/200,000 and 1/100,000 respectively (Browning *et al.*, 1917).

(*b*) Neutral proflavine sulphate is soluble in serum to the extent of 1 in 300.

(*c*) The amino-acridines are not rendered ineffective by pus or the breakdown products of tissues.

It is obvious, however, that neutral proflavine sulphate must be available in solution to the tissues, and its concentration in the tissue fluid should be such as rapidly to effect complete bacteriostasis, without damaging the tissues even slightly.

Discussion

It is obviously important to consider the solubility of any antiseptic. Albert and Gledhill (1943) treated a specimen of 2:8-diamino-acridine with one equivalent of sulphuric acid and obtained a "neutral sulphate" which would remain in 25% aqueous solution at 15° C. for a week. The solubility of amino-acridines, however, as those authors point out, is easily affected by small amounts of impurities; and the purified salts do in fact usually show a decreased solubility. Our sample of neutral proflavine sulphate, which has been shown by analysis to have the correct acid-base ratio, will dissolve to the extent of 1 in 4 in warm water, but the solution begins to crystallize after 24 hours at 15° C. The *p*H of a 0.1% solution is 6.5, compared with *p*H 6 reported by Albert.

When serum is added to neutral proflavine sulphate powder in a test-tube the powder slowly becomes moistened and syrupy, and the supernatant serum reaches dye-saturation point (0.3%) within 6 to 12 hours. When, however, serum or albumin in 4% solution is added in equal volume to a range of saline dilutions of neutral proflavine sulphate precipitation at once occurs in the 4.5% to 0.6% solutions, being most pronounced in the range 4.5% to 1%, and showing proflavine crystals as well as protein precipitates in the 4.5% to 2.0% range. If fresh serum be now added to the combined precipitates or to the protein precipitate alone, the serum takes up the dye, to saturation or equilibrium, without further precipitation, and most of the dyestuffs may thus be recovered. Similar precipitation of protein occurs with saline solutions of proflavine sulphate *B.P.* in the range 0.75% (maximum solubility) to 0.25% (trace), but not in the 0.2% solution. Proflavine sulphate *B.P.* is highly acid, with a *p*H 2 in 0.1% water, being extensively hydrolysed in solution; so it is possible that neutral proflavine sulphate is dissociated to some extent in saline solution and the *p*H value of the stronger neutral proflavine sulphate saline solutions is nearer the isoelectric point of plasma proteins (*p*H 4.5); alternatively, in the stronger and more acid solutions the serum proteins behave as an alkali and are precipitated as sulphates, being linked to the sulphuric acid radical dissociated from neutral proflavine sulphate.

Now we can appreciate what occurs in wounds treated with amino-acridine powders. Serous, sero-sanguineous, and purulent exudates protect underlying tissues and granulations from coagulation necrosis (the protein-precipitating action of proflavine sulphate *B.P.* and neutral proflavine sulphate) by their proteins suffering precipitation—greatest when the water content is high enough to permit of solution of the sulphates to protein-precipitating concentration, and least, or absent, when the fluid (non-cellular) portion approximates serum in composition; for, it will be recalled, the powder dissolves slowly in serum without any precipitation. Thus, in one of our unsuccessful cases neutral proflavine sulphate powder was almost all recovered from a protein–proflavine "cast" of the discharging through-and-through sinus treated. When proflavine sulphate *B.P.* is applied to a freshly "debrided" wound some of the powder dissolves in the oozing blood and serum to a maximum concentration of 0.3%; but much more dissolves in the tissue fluid, where, in lower protein and greater water and electrolyte content, it is more easily soluble—to 1%, 2%, or more in the case of neutral proflavine sulphate and approximating 0.4% to 0.6% when proflavine sulphate *B.P.* is used. Being thus above the critical levels of 0.5% (neutral proflavine sulphate) and 0.2% (proflavine sulphate *B.P.*), precipitation of the protein (coagulation necrosis) of the proximal tissue cells occurs to a depth of 2 to 4 mm. Depending on the concentration of proflavine first attained, a certain amount of fine crystals of that substance also may be deposited. Clinically, in proportion to the amount of proflavine present to excess in wounds, an inflammatory reaction is set up, with capillary haemorrhages and oedema. This oedema occurred in many of our cases, and lasted for one to two days as a rule, although occasionally it took four days to subside. In the guinea-pig 50 mg. of neutral proflavine sulphate powder, suspended in saline and injected subcutaneously in the abdominal wall, resulted in local haemorrhagic necrosis of muscle and much inflammatory oedema of the loose areolar tissues; while contiguous subjacent bowel wall became necrotic, and the liver showed superficial haemorrhage and necrosis.

From our observations we cannot recommend the use of the sulphates of proflavine as pure powders in the treatment of wounds except under certain conditions. In this we are in agreement with a like statement of Russell and Falconer (1943), made as a result of their animal experiments with the three amino-acridines—proflavine sulphate *B.P.*, 2:7-diamino-acridine, and 5-amino-acridine. A reason for the excellent results obtained by Mitchell and Buttle (1942) with proflavine sulphate *B.P.* in infected wounds of 5 to 12 days' standing is afforded by the "sparing" action of the purulent exudate present at that time and the fact that the infection was not yet "established" in bone. This is also true of similar cases recorded by Raven (1944). With neutral proflavine sulphate a like result is shown by our Case III. This is the only type of case in which it would be permissible to use the proflavines as powders, alone; for if the dose were limited to 0.2 to 0.5 g. for each application no added chemical inflammation or coagulation necrosis would be likely to occur. (There is no point in using sulphathiazole–proflavine powder in such cases. It would be of practically no additional value as a bacteriostatic, for the pus and tissue-breakdown products would surely neutralize the sulphathiazole.)

As regards the prophylactic use of the proflavine sulphates, we would suggest that for local application in powder form they be diluted with sulphathiazole to 0.5% in the case of neutral proflavine sulphate and 0.2% for proflavine sulphate *B.P.* The latter dilution is one-fifth of the concentration advocated by McIntosh and Selbie (1943) for the treatment of war wounds in general and of gas gangrene in particular; but we suggest these concentrations as they are the highest possible of employ if coagulation necrosis is to be avoided and tissue damage kept to a minimum. By lowering the concentration of the proflavine sulphates to these levels their bactericidal and bacteriostatic values are practically not reduced, for the amino-acridines are rapidly bactericidal at a concentration of 0.2% (Garrod, 1940).

We have remarked already (Heggie *et al.*, 1942) on the practical difficulty of ensuring the regular distribution, and the availability for solution, of sulphonamide powders in irregular wound cavities, to combat which we discarded the powder form in favour of a saline–glycerin–tragacanth sludge as a vehicle for sulphathiazole. Now in the case of neutral proflavine sulphate we employ a simple pouring tragacanth gel, containing a 0.5% saline solution of the drug, for use in the prophylactic treatment of wounds. The good results obtained to date may be attributed to the early stage at which compound fractures and flesh wounds have been received. Nevertheless, healing has not been impaired, bacteriostasis has been good, and we consider the use of this method worthy of further clinical trial. At most, 10 c.cm., containing 0.05 g. of neutral proflavine sulphate, has been used in any one wound at any one time.

Summary and Conclusions

Neutral proflavine sulphate has a place with the acid proflavine sulphate *B.P.* in the treatment of recently infected discharging wounds. When these amino-acridines are so used as pure powders, alone, and in small doses of from 0.2 to 0.5 g. (repeated at 5 to 15 days' intervals, if and as necessary), infection is reduced, discharges diminish and soon cease as the wound becomes dry, and healing proceeds. In such cases the proflavine sulphates produce little or no tissue necrosis, owing to the "sparing" action of the exudates, in which, after probably some measure of protein precipitation, they dissolve and diffuse to the tissues in effective bactericidal and bacteriostatic concentration.

When applied to freshly "debrided" wounds, or wounds with little exudate, a chemical inflammation occurs, attended by superficial coagulation necrosis to a depth of 2 to 4 mm., due to solution of the sulphates in the tissue fluid to a protein-precipitating concentration. Healing, at first arrested, is generally retarded, occurring under or after separation of the eschar. In saline solution the lowest concentration of these salts at which protein precipitation occurs is 0.6% and 0.25% of neutral proflavine sulphate monoacid and proflavine sulphate *B.P.* respectively. It is suggested, therefore, that the optimum concentration of these salts in a sulphathiazole–proflavine powder, for use prophylactically in war wounds, should be 0.5% for neutral proflavine sulphate and 0.2% for proflavine sulphate *B.P.*, and, having regard to the difficulty of effectively applying powders to irregular wound cavities, saline-tragacanth gels of either of the proflavine sulphates, alone, and in the strengths mentioned, might be employed instead.

Our thanks are due to Col. F. Holmes, O.B.E., for his kind permission to carry out this investigation in the hospital under his command; and to Dr. R. P. Liston, of Imperial Chemical (Pharmaceuticals) Ltd., for providing the sample of neutral proflavine sulphate. To Major O. N. Bailey, R.A.M.C., surgical specialist at the hospital, and Capt. H. R. W. Lunt, R.A.M.C., graded orthopaedic surgeon to the hospital, our thanks are also due for the notes on the cases under their care and for their observations on the treatment.

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HEREDITARY HAEMORRHAGIC TELANGIECTASIS

BY

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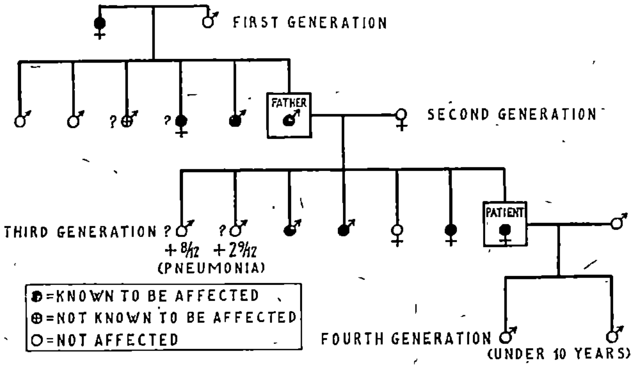
This comparatively rare disease is also known as Rendu-Osler-Weber's disease or Goldstein's heredofamilial angiomatosis. It is defined as a hereditary dystrophy of the capillaries, the disease being transmitted as a Mendelian dominant and affecting both sexes equally. The diagnosis is based on the following criteria: (1) it is hereditary and not sex-bound; (2) the presence of telangiectases or angiomatosis; (3) the tendency to haemorrhage (Goldstein); to which a fourth may be added—the multiplicity of the lesions.

Although W. Legg first described a case in 1876, he presented it as a case of "haemophilia." Rendu in 1896 distinguished it from haemophilia, and Osler in 1901 described all its features. Parkes Weber described a family in 1907 and reviewed the literature in 1924. Goldstein (1932) made an extensive review of the literature, mentioning about 100 families (affecting 600 persons); but Hurst thought this review only caused confusion, since it included every kind of purpura and haemophilia and even a case of familial nephritis. Hurst and Plummer believed this condition to be more common than the number of cases on record would indicate; Price goes further in expressing the belief that it may be as common as haemophilia. The disease should not be diagnosed unless the patient shows multiple telangiectases with haemorrhage and comes from a family one or more members of which are known to have been affected in the past (Hurst and Plummer). Levy in 1933 stated that there were 320 known cases, all familial, though sporadic forms may arise. Hurst and Plummer (1932), Hampson (1932), and Yates (1932) made valuable contributions by reporting complete family histories of this condition. More recently (in 1944), while the case recorded below was being studied with a view to publication, since it shows unusual features, Campbell published a very similar case, and, following this, Wolfsohn added yet a further case to the literature.

Case Record

Mrs. C., aged 31, was admitted to hospital for a dilatation and curettage for incomplete abortion. Apart from this she wanted her blood condition investigated as she felt worried about it. The history was that since the age of 10 she had suffered from epistaxis, which soon became frequent and uncontrollable. She bled more from the right nostril than the left. Bleeding would start spontaneously at any time, day or night. It increased in frequency from once fortnightly to nearly every alternate day. It formerly ceased spontaneously, but now she has to control it by application of cold water and finger pressure. In some severe attacks she "bled white," having lost 1 to 1½ pints (her estimate) in the course of 1½ to 2 hours, which was the longest time bleeding continued. As a result she was always anaemic as a girl, suffering from lassitude and periodic swelling of the ankles, which prevented her from carrying out ordinary household duties. When free from attacks for a more prolonged period—i.e., two or three weeks—a strikingly high colouring of the cheeks had been observed. In such an instance her blood picture was: Hb, 112%; R.B.C.s, 6,250,000; C.I., 0.9; W.B.C.s, 7,000; and on the strength of this and the history of bleeding she was diagnosed as a possible case of "polycythaemia" and told to avoid red meat, and the iron which she was taking regularly was discontinued. She also complained of headaches, which started at the age of 10. Often these headaches, which were parietal and frontal, preceded the epistaxis, and the only thing which seemed to make them better was a "good nose-bleed." She never had vomiting, fortification spectra, or blurring of vision. At about the same age she noticed that some red spots had appeared on her face. The first was on the right upper lip, then next on the tongue and cheeks and in the mouth. Lately she had discovered a few on the ends of her fingers. She has never bled from these spots. In the family history we find that her father had similar spots all over his face and fingers. One such bigger spot used to bleed. He also had severe headaches preceding epistaxis; the latter came from spidery naevi on both sides of the nasal septum. His case was regarded as thrombocytopenic purpura, but no blood reports are available. Transfusion was considered, though his heart condition was thought to make this too hazardous a procedure, so it was not performed. These symptoms increased in severity in middle life, and he died at 66 from severe loss of blood and mitral stenosis.

Further details of the family history are shown in the accompanying chart. Nearly all had epistaxis and telangiectasis, but a history of headaches could not be ascertained.



The obstetric history is that the patient has *two* live children and there have been two miscarriages. Menses are regular; there is no excessive loss. On the contrary, the tendency is to lose less now than formerly. Tonsillectomy was performed at 18, after which she had violent bleeding. There is no history of haemorrhage from anywhere else. A careful examination of the patient was carried out 8 weeks after her dilatation and curettage. Signs of anaemia were present—e.g., pale conjunctivae, lips, and koilonychia. Multiple asymmetrical telangiectases were present, mostly distributed over the upper lip and tip of the tongue, and on the cheeks; they were flat round spots with a red centre and paler periphery. It was remarkable that their colour disappeared, diminished, or remained unchanged on vitropression, according to their size, intensity of colour, and situation. Thus the very dark ones and the larger spots on the cheeks would be unaffected, but the smaller spots on the lips and tongue would disappear. This confirms the finding of Aubertin *et al.* (1933). The blood pressure was 130/70, and Hess's test was negative. Anterior rhinoscopy revealed a spidery naevus 1½ in. by 1/4 in. on the right septum about 2 in. from the external nares. This had a scab on it, and bled with the slightest trauma. Several other spots were present on the left anterior turbinate and in the hypopharynx. The liver and spleen were impalpable. The cardio-respiratory system showed nothing of note. The blood picture (after a haemorrhage) was: Hb, 66% (Sahli); erythrocytes, 4,400,000; C.I., 0.8; leucocytes, 9,500; reticulocytes, 1.5%; Wintrobe V.I., 0.80; differential white count, normal; coagulation time, 2½ minutes; bleeding time and clot retraction, normal; platelets, 400,000. Some weeks later the blood showed: Hb, 55%; R.B.C.s, 4,500,000; C.I., 0.6; platelets, plentiful.

A series of skull radiographs were taken and examined, stereoscopically for a calcified angioma or naevus, but no abnormality was found.

Discussion

In the differential diagnosis haemophilia, pseudo-haemophilia, erythraemia, the purpuras, leukaemia, Banti's syndrome, and hypertension have been excluded. The unusual feature was that in this case epistaxis caused evident clinical anaemia (Lévy), but at times there was polycythaemia. In view of the fact that this occurred when the patient was free from an attack for some 3 weeks or more, it is suggested that it was due to a physiological bone-marrow response to repeated haemorrhages: such over-compensation is known to result from excessively frequent blood donation by healthy persons. No previous reference to polycythaemia in this condition could be found, though Lévy in 1933 stated that the haematological picture may vary. The headaches were another unusual feature. Campbell's case differs in that the headaches have a more pronounced migrainous character, though they do not justify the use of the term "migraine," which is usually applied to a well-defined clinical entity. There are no previous case reports of this condition being associated with headaches, excepting the mention by Osler (1938) of the association of Lindau's syndrome in angiomatosis—a calcified pial angioma accounting for the headaches and other complaints (glaucoma); Hurst in 1932 also mentioned the possibility of angioma of the brain. It is suggested that in both Campbell's case and the present one the headaches may be due to a relative polycythaemia causing engorgement of the cerebral vessels and terminating by epistaxis. In two cases of the second generation of this patient's family epistaxis could not be definitely ascertained; the presence of the malady is, however, not excluded, since they may have been "frustrated forms" (Lévy, 1933). It is interesting to note that this patient did not suffer from menorrhagia—which is in agreement with the literature. A study of the family history favours Campbell's view that the prognosis of the disease is better than that given by Osler, although the condition obviously aggravates concomitant disorders. The immediate treatment of epistaxis is to control it by the inflated-finger-stall method; later, cauterization of the bigger naevi may be carried out—though new naevi are likely to appear.

Summary

A case of hereditary haemorrhagic telangiectasis with a family history of four generations and presenting some unusual features is reported. The literature is discussed in relation to this case.

My warm thanks are due to Mr. G. O. Taylor, Honorary Surgeon, Dorset County Hospital, for allowing me to publish the case; and to Dr. T. V. Cooper, County Pathologist, for the pathological investigations, for indicating the probable diagnosis of the case, and for help and encouragement in preparing this report.

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The Ministry of War Transport has notified owners and masters of merchant ships that dimethyl phthalate is now included in the medical scales and should be used as a repellant against mosquitoes when vessels are in malarious areas. The instructions for use are: After sunset a few drops of the liquid should be placed in the hand and applied to the exposed parts of the body, avoiding the eyes, the forehead just above the eyebrows, and areas around the mouth. The liquid should also be applied to the clothing if mosquitoes are biting through it. The effect of the repellant lasts for only about four hours, and a further application should be made when mosquitoes renew their attack. As dimethyl phthalate is a solvent for lacquer, paint, and plastic articles, it should not be smeared on spectacles, watch-glasses, fountain-pens, etc.

NEWER CONCEPTS OF BREAST-FEEDING

BY

M. WITKIN, M.D., F.R.C.P.Ed.

The decline of breast-feeding among civilized races gives the greatest concern to the medical profession. It is the endeavour of the paediatrician to explore every possible avenue in order to remedy this disconcerting state of affairs. With this objective I wish to draw attention to the importance of expressing some breast milk immediately *before* each feed, and the advantage of giving at each nursing *both* breasts instead of one. This routine distinctly helps the proper establishment of lactation.

Most textbooks on paediatrics stress the importance of completely emptying the breast *after* each feed. It is claimed that this is a *sine qua non* for the maintenance and stimulation of an abundant milk supply. It is mainly for this reason that only one breast is permitted at a feed. Although mothers are instructed to empty the breast completely after each nursing, relatively few carry this out—first, because it is very irksome, and, secondly, because the improvement observed is almost negligible. The emptying of the breast at the *end* of each nursing is in my experience not nearly so helpful as the expression of some milk *just before* baby is fed.

The lactating mammary gland consists of 12 to 20 lobes round the nipple. Each lobe is a miniature mammary gland and is composed of smaller lobules. Each lobule consists of a number of alveoli lined with large epithelial cells. The relationship of the lobules and the alveoli to the main duct of the lobe is analogous to that of a bunch of grapes to its stalk. Each alveolus possesses a duct, and the alveolar ducts from each lobule unite to form larger ducts, and finally form the main canal which expands in the areola as the lactiferous sinus. These sinuses, which serve as milk reservoirs, contract at the base of the nipple and pursue a straight course to its summit, perforating it by separate orifices considerably narrower than the ducts themselves. The surface of the nipple is corrugated and provided with secondary papillae. It is perforated by from 12 to 20 excretory ducts, the orifices of which appear at the bottom of these corrugated papillae.

Failure in a large percentage of breast-feeders can be traced to a block either within the lumen of these fine ducts or at their exits. Such obstruction must lead to an accumulation and damming back of milk in the sinuses, ducts, and the whole parenchyma concerned. The effect of such back pressure is engorgement and a lumpiness in the mammary gland which, unless relieved, may lead to resolution and retrogression of that particular sector of the breast. In this way the baby is deprived of a quantity of milk which would otherwise have been contributed by that portion of the gland. In the course of days other ducts may become similarly occluded, with further loss of nourishment for the baby. Thus the condition becomes distinctly aggravated. The mother finds that she has on her hands a restless and unhappy baby, failing to thrive and plagued with intestinal colic as a result of insufficient food and excessive swallowing of air.

The destiny of the breast parenchyma, when there is duct occlusion within either the areola or the nipple, is as follows: There is a damming back of the milk throughout the lobe concerned, and if several are so involved the breast becomes distinctly heavy and painful. Instead of the tissues being lax and freely mobile so as to enable the infant to pull the areola well into its mouth, they become tense, hot, and unyielding, and the baby finds great difficulty in grasping the breast. Its efforts are mostly spent on the base of the nipple rather than well over the areola, with the result that the papilla often cracks. This not infrequently leads to an ascending infection and sometimes to a breast abscess.

Importance of Expressing Some Milk before Feeding

The question which immediately presents itself is, What factors are responsible for occlusion of the lactiferous ducts? It is quite obvious that such minute canals could easily become blocked either by milk products within the areolar sinuses or nipple ducts; or through the viscosity of colostrum in the early days affording resistance to outflow. The openings of the ducts on the surface of the mammary papilla are often occluded by coagulated milk, toilet powder, or desquamated epithelium due to the friction of clothing on the nipple itself.

If we examine the manner in which milk leaves the breast of a mother whose baby is adequately and successfully fed we find, on manual expression, the number of jets expelled from the nipple are many—12 or more. They do not appear all at once—usually three or four at a time—depending on the site of pressure exerted on the areola by the thumb and forefinger of the expressing hand. This demonstrates that the successful functioning of the breast depends mainly on the patency of the ducts. In cases where difficulty prevails we find only one or two jets appearing, and no more. This obviously is accounted for by the occlusion of the remaining ducts either within the areola or nipple or at their exits. The food thus meets with resistance in leaving the breast. It is obvious, therefore, that the baby of such a mother cannot possibly be satisfied or thrive. Should this be discovered in the early days of the infant's life one is able, in a large percentage of cases, to correct the abnormality by teaching the mother to express some milk from each breast (about one or two teaspoonfuls before each feed) and advising feeding from *both* mammae at every nursing.

The technique of manual expression is simple. The mother should wash her hands thoroughly and dry them with a clean towel. The nipple and areola should be cleaned with pledgets of cotton-wool dipped in boiled water, and dried. A clean glass or other receptacle will be necessary to receive the fluid. It is more convenient to employ the hand opposite the mammary gland concerned. The mother should grasp the breast between the thumb above and the forefinger below, just outside the margin of the areola, which is pressed and squeezed with a firm but gentle follow-up action converging on the base of the nipple; this pressure, terminating with a slight pull behind the base of the papilla, coaxes out the milk. About 30 to 60 expressions are made per minute. Both breasts are treated in similar fashion *before* each feed; this should not take more than five minutes. Should the mother regard the expressed milk as a waste she can offer this to her baby by spoon or dropper, suitably warmed, after the breast feed. Immediately after the ducts have been cleared by this preliminary expression the baby is given one breast for 5 minutes and then the other for 15 minutes. As a result of this manœuvre the milk will be found to flow more freely and abundantly. The child will thus obtain a larger quantity of nourishment, be more contented, and thrive.

Mothers are emphatic that this method of preliminary expression is far more beneficial and easier of execution than the common teaching of completely emptying the breast *after* each feed. Provided the ducts are patent and their openings function properly there will be no engorgement. Once the outflow of milk becomes free and conditioned the breasts take care of themselves and become adapted to the demands of the child.

Importance of Giving Both Breasts at Each Feed

In my experience the use of *both* breasts at each suckling is a distinct advantage over the orthodox teaching. The mother is instructed to nurse her baby 5 minutes on one breast and 15 minutes on the other. Provided the ducts and sinuses have been cleared by preliminary expression in the manner described there is no fear whatever of the breasts retrogressing as a result of not being "completely emptied" after each performance. We are apt to forget that when a baby feeds on one breast the other gland is reflexly stimulated. This would serve no useful purpose unless it was Nature's intention that both breasts should be suckled from.

When only one breast is employed at a feed the gland is relieved once in 8 hours in the four-hourly feeding schedule and once in 6 hours if three-hourly feeds are given. This definitely is not sufficient stimulation. In bilateral feedings both breasts are relieved every 3 or 4 hours, and this method is far superior in establishing milk flow. As the lactating breast is constantly secreting milk, complete emptying is almost impossible. The teaching that any milk left in the breast after feeding eventually seals its doom is in my experience a myth.

Who would venture to assert that the successfully breast-fed baby completely empties the mammae at each feed? I feel convinced that Nature no more expects it to inhale and exhale *completely* with each inhalation and exhalation or the lacrimal glands to drain *completely* with each bout of weeping in order to sustain its subtlety. Once outflow is free and fully established, resolution seldom occurs so long as the mother and child are well.

It must be impressed on the mother that all healthy babies consume half their feeds within the first two minutes; that within five minutes they have swallowed two-thirds or three-quarters of the total feed, and that very little milk, if any, is consumed after 20 minutes of suckling. It is for this reason that I recommend only 5 minutes on the first breast and 15 minutes on the second, or sometimes 5 minutes on the first breast, 10 minutes on the second, and again 5 minutes on the first.

The importance of not allowing the child to spend more than 20 minutes at each feed cannot be exaggerated, as infants who are fed for periods of 30 to 45 minutes or longer almost invariably give trouble. After 15 or 20 minutes the child swallows large quantities of air, which cause colic, restlessness, crying, and sleeplessness. Furthermore, the gums and tongue become painful. If the mouth of such an infant is carefully examined the teething edges of the gums and the tip of the tongue are often found to be raw, inflamed, and angry-looking. This explains why such a child often refuses the breast. The mother in turn suffers as a result of the considerable trauma on the nipple through prolonged suckling.

There are other desiderata of vital importance. The mother, needless to say, must be willing and keen to feed her baby. She must be prepared to devote most of her time to the new arrival, especially during the first two months. She should make all necessary arrangements at least 15 minutes before each feed—about 5 minutes of which should be devoted to the toilet of the nipples and their preliminary expression. She should be seated comfortably in a low chair and so placed that the nipple falls easily into the baby's mouth, and should ascertain that the infant can breathe freely through its nostrils. While she is feeding her infant she should be alone in her room and not disturbed, in order to give her undivided attention to her babe.

Summary

- Every mother should express some milk from *both breasts* just before each feed. This is more helpful than emptying the breast *after* the feed. This procedure ensures the patency of the lactiferous ducts and free outflow of milk. The use of both breasts at each feed, 5 minutes on the first and 15 minutes on the second, is strongly recommended. The above procedures obviate feeding troubles in many cases.

UNILATERAL HYPOTONY DURING ANAESTHESIA

BY

INA BRITTAIN, M.B., B.Ch., B.A.O.

AND

G. J. C. BRITTAIN, M.D.

Apart from the findings of Lyle and Fenton (1934) there appear to be no references in the current literature with regard to a decrease in the intraocular tension during anaesthesia, and none in which a unilateral reduction in intraocular tension is described from any cause during general anaesthesia.

It is the object of this contribution to show that during anaesthesia a unilateral reduction in intraocular tension may take place from pressure exerted on the globe by a badly adjusted rubber face-mask. The condition was first discovered after an anaesthesia of 1½ hours' duration, under which an extensive repair was necessary for a badly crushed and lacerated hand. Pre-operative medication consisted of morphine 1/6 gr. and hyoscine 1/150 gr.

The patient, a man aged 45, was induced with pentothal sodium followed by nitrous oxide and oxygen, using a closed-circuit technique. Small amounts of pentothal sodium were added from time to time during the course of the operation, 15 c.cm. (0.75 g.) in all being used. On removal of the face-mask at the end of the operation it was at once noticed that the inflated rubber rim of the mask had been resting directly over the right globe and there was a small reddened area extending from the inner third of the supraorbital margin to the centre of the infraorbital margin in a direct line across the lids. The right pupil was found to be widely dilated and the left contracted. (Anaesthesia was at this time light, the patient being only in the upper plane of the third stage.) A very sluggish light reflex was obtained on the right side, and the intraocular tension was found on palpation to be so much reduced that it was thought a posterior rupture of the globe might have been overlooked before the start of the operation. An examination of the fundus was attempted, but owing to the dryness of the cornea no detail could be defined. A more accurate estimation of the tension was obtained by the use of the Schiötz tonometer, showing the tension in this eye to be below 10 mm. Hg. The tension of the other eye was within normal limits. (See Case 1, Table I.) On examining the patient the day after operation it was found that the tension in the right eye had improved. No history of any previous eye symptoms could be obtained from the patient and there was no history of injury. The tension continued to improve and the patient was seen by the honorary ophthalmic surgeon, who confirmed the decrease in tension and absence of any other pathological condition. On the tenth day after operation the tension was equal to that in the other eye and the visual acuity was normal in both eyes.

As this case was of considerable interest from both the ophthalmological and the anaesthetic points of view, it was decided in future to examine cases as a routine immediately after operation—both where the anaesthetic mask had been fitting closely over one eye and otherwise—in order to determine whether any changes in the intraocular tension had taken place; also to try to discover whether the condition was produced purely by pressure from a closely fitting mask, or if the type of anaesthetic used, the condition and age of the patient, or length of operation helped to play any part. A unilateral reduction in intraocular tension was demonstrated in 13 cases (Table I) by such an investigation, carried out after routine operations on 300 cases at the Derbyshire Royal Infirmary.

It can be seen from this table that cases occurred after all types of operation, irrespective of age, nature or length of operation, or type of anaesthetic in use. The only constant feature in each case was the fact that the mask had been fitting moderately tightly over one eye, although in no instance had any extreme pressure been applied. The degree of "tightness" of the mask was just sufficient to ensure that no leakage occurred with the closed circuit in use. Although pentothal sodium was employed for induction and/or maintenance of anaesthesia in six of these cases, with the exception of three cases (Nos. 1, 12, and 13) the lowering of intraocular tension was no greater than with any of the other anaesthetic agents in use. It should, however, be noted that it was in these three particular cases out of the whole series that the greatest decrease in intraocular tension occurred. The type of mask used in all cases was either the McKesson or the ordinary face-mask with an inflatable rubber rim, held in place by Clausen's harness.

TABLE I

Case No.	Age	Operation	Length of Operation	Anaesthetic	Tonometer Readings	
					Immediate	When Normal
1	45	Lacerated hand	1½ hours	Pentothal, N_2O & O_2	R. below 10 mm. Hg L. 25 mm. Hg	On 10th day
2	22	Compound fracture and laceration of leg	1 hour	N_2O & O_2, ether	R. 14 mm. Hg L. 25 mm. Hg	6 hours later
3	76	Strangulated inguinal hernia	¾ ,,	N_2O & O_2, cyclopropane	R. 18 mm. Hg L. 25 mm. Hg	10 ,, ,,
4	50	Suprapubic cystotomy and ligature of vas	20 mins.	N_2O & O_2	R. 20 mm. Hg L. 10 mm. Hg	10 ,, ,,
5	35	Perforated gastric ulcer	40 ,,	N_2O & O_2, ether	R. 16 mm. Hg L. 25 mm. Hg	48 ,,
6	47	Radical mastectomy	1 hour	Pentothal, N_2O & O_2, ether	R. 15 mm. Hg L. 28 mm. Hg	9 ,, ,,
7	72	Strangulated inguinal hernia	¾ ,,	N_2O & O_2, ether	R. 12 mm. Hg L. 28 mm. Hg	4 ,, ,,
8	54	Compound fracture-dislocation of ankle	¾ ,,	Pentothal, N_2O & O	R. 25 mm. Hg L. 15 mm. Hg	8 ,, ,,
9	22	Appendicectomy	1 ,,	N_2O & O_2, vinesthene	R. 14 mm. Hg L. 27 mm. Hg	5 ,, ,,
10	56	Excision of vulva	1¼ hours	N_2O & O_2, trilene	R. 12 mm. Hg L. 30 mm. Hg	5½ ,, ,,
11	42	Intestinal obstruction	1½ ,,	Pentothal, cyclopropane, oxygen	R. 28 mm. Hg L. 15 mm. Hg	7 ,, ,,
12	52	Crushed hand	1 hour	Pentothal, N_2O & O_2	R. 10 mm. Hg L. 28 mm. Hg	9 ,, ,,
13	58	Intestinal obstruction	1¼ hours	Pentothal, cyclopropane, oxygen	R. 30 mm. Hg L. below 10 mm. Hg	11 ,, ,,

Following on the above observations, it was decided to try to produce the phenomenon artificially in the unanaesthetized patient, and we are indebted to several colleagues who volunteered for the experiment. An ordinary mask was strapped over the face in such a way that the inflatable rim covered one eye, using only moderate pressure. After 30 to 40 minutes the mask had to be removed owing to severe pain experienced in this eye, and it was then noticed in all cases that the tension of the eye in question was decreased. This was confirmed by tonometer readings (see Table II). Some blurring of vision and pain in the affected eye were noticed for two to three hours, and the intraocular tension had returned to normal within six hours or less in all cases. Examination of the fundi revealed no abnormality.

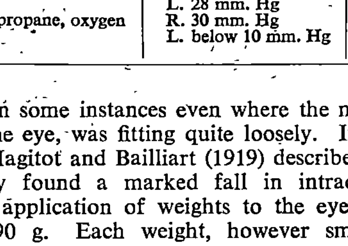
TABLE II

Case	Length of Time Mask kept on Face	Tonometer Readings	When Normal
A	½ hour	R. 28 mm. Hg *L. 13 mm. Hg	2 hours later
B	½ ,,	*R. 14 mm. Hg L. 25 mm. Hg	5 ,, ,,
C	40 mins.	R. 24 mm. Hg *L. 10 mm. Hg	4 ,, ,,
D	35 ,,	*R. 15 mm. Hg L. 20 mm. Hg	5
E	½ hour	*R. 15 mm. Hg L. 28 mm. Hg	2½ ,, ,,

* Denotes eye on which pressure was exerted.

The findings obtained seem to indicate that the reduced tension is entirely due to the pressure exerted by the face-mask, and when this fall in tension occurs during anasthesia no other factor plays any great part in its production. As the configuration of the face varies considerably with the individual it is not always easy to adjust the mask to conform accurately to the contour of a particular face and thus maintain the air-tight connexion so necessary for use with a closed-circuit technique. Careful choice of the individual size and shape of the mask must be made, otherwise the rim will in many cases unavoidably rest wholly or in part on the globe of one eye, producing an abnormal pressure on this eye and a fall in the intraocular tension.

The degree of pressure exerted by the face-mask in these cases was not severe, and changes in the intraocular tension were noticed in some instances even where the mask, although pressing on one eye, was fitting quite loosely. It is interesting to note that Magitot and Bailliart (1919) described experiments in which they found a marked fall in intraocular tension following the application of weights to the eye which varied from 10 to 90 g. Each weight, however small, caused a diminuition in tension in normal eyes. Pressure exerted by an anaesthetic mask is of course far in excess of 90 g. On the application of artificial pressure to the globe there is a transient rise in intraocular pressure which leads to the expulsion of the intraocular fluid through the canal of Schlemm and a consequent fall in the tension, which is in turn followed by a prolonged rise due to the effects of the vascular reaction involved (Duke-Elder, 1940). The gradual rise to normal tension in the affected eye noted in this series of cases has taken on an average 6 to 9 hours, although Case 1 took as long as 10 days. This gradual return to the normal intraocular tension is immediately followed in all cases by a rise in tension above the normal (as compared with the other eye), which may be maintained for several hours—nine hours being the longest recorded here, while on the average it has been two to four hours (see Graph). This is followed by a return to the normal tension, at which it remains constant.



Graph showing time taken in an average case for the tension to return to normal, followed by a rise above normal lasting between 2 and 4 hours.

This rise above the normal tension, which is occasionally pronounced and may be prolonged, is of importance, as it seems likely that an acute glaucomatous attack may in this way be precipitated in a susceptible patient. It may be that the development of an acute glaucoma, which on rare occasions follows operation and which has previously been ascribed to premedication with atropine, may really have been due in whole or part to this phenomenon. It is necessary to point out that in this series of cases hyoscine and not atropine was used pre-operatively; all readings were taken with the Schiötz tonometer, and in conscious patients gutt. holocaine 1% was used as a local analgesic.

Summary

Thirteen cases of unilateral hypotony have been described following anaesthesia in a series of 300 cases.

The aetiological factor has been shown to be the pressure exerted by the rim of a badly adjusted face-mask, and the importance of the choice of a correct size and shape of mask is stressed.

The nature, length of operation, age and condition of the patient, and type of anaesthetic used, seem to play little or no part in the production of this unilateral hypotony, although pentothal sodium, which is known to cause a bilateral reduction in tension, no doubt tends to exaggerate the effects caused by pressure, as instanced by Cases 1, 12, and 13.

The possibility of the occurrence of acute glaucoma in the affected eye should be borne in mind, as the lowered intraocular tension is followed by a rise above the normal which may last for some hours.

We are indebted to Mr. C. H. Bamford for his continued help and encouragement during this investigation, and also to the other members of the honorary surgical staff for permission to publish their cases.

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PSYCHOLOGICAL REACTIONS IN THE WOUNDED

BY

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Apparently it is a fairly commonly held view that the wounded who develop neuroses have only slight injuries and that those who are severely wounded rarely suffer from neurosis. The reason given is that those who have severe wounds are sure of being removed from the fighting area, at least for some considerable time, while the man with a slight wound may return to the front line in the course of a few days. According to those who hold this view, the neurosis is therefore an escape mechanism.

Investigation of a Group admitted with Neuroses

The development of a neurosis cannot be explained in this simple manner, and in order to ascertain the true facts of the relation of wounds and neurosis, 54 patients who had been wounded and were admitted to the neurosis centre here were investigated. Of these, 39 were suffering from anxiety states, 8 from depression, and 7 from hysterical states. Their wounds were divided into three categories—viz., severe, moderate, and slight. In the first category were included, for example, mortar wounds of the right side of the face and the right leg (compound fracture), penetrating wounds of the chest, petrol burns of the face, neck, arm, etc. Among the moderate wounds were included g.s.w. of the right calf, g.s.w. of the left shoulder and forearm, shrapnel wounds of the mouth, etc.; while the slight wounds consisted of bullet wounds of the fingers, superficial shrapnel wounds of the arm, etc. No head wounds were included, because of the special circumstances and symptoms associated with the post-concussive and post-traumatic syndromes.

On this basis 24 patients had sustained severe, 26 moderate, and only 4 slight wounds. In assessing the category into which the patient should go, the wounds were regarded as being less severe than they actually were, so that over-emphasis was not laid on the severity of the injury. It will be seen, therefore, from these figures, that those with slight wounds are not the ones who predominantly develop neuroses. In investigating these cases, however, several interesting points emerged.

First, constitutional predisposition is the most important factor, and was present in 46 of the 54 cases. This consisted of a neurotic, psychopathic, or psychotic family history, a neurotic personality (timid, worrying, moody, seclusive, inadequate, etc.), or a poor work record. In 23 cases there was a combination of a positive family history and a neurotic personality. This constitutional element is by far the most important factor in determining a neurosis, but by no means the only one.

Another striking feature is that of these 54 patients 46 had what may be called extremes of length of service. In other words, the men who had short service—viz., from 1 to 1½ years—and then went into action, or those with 4 years or more, and were wounded, seemed to be more prone to break down. This may be due in the former to a lack of confidence and the fact that they had not been in action before. By this it is not suggested that all men who go into action for the first time and are wounded develop neuroses; but these men had, as stated, a constitutional predisposition. When men have been in action together for some time a marked feeling of camaraderie develops which helps to give the neurotic a feeling of confidence.

Many of the men with long service had been through severe stresses already—viz., the evacuation from Dunkirk, fighting in N. Africa, Italy, Tunisia, Burma, etc.—and the cumulative stresses, together with four to five years' separation from their families, were sufficient to produce neuroses in constitutionally predisposed persons. Many of these patients, although somewhat anxious and apprehensive in action, were able to carry on until they saw their pals being killed at the same time that they themselves were wounded, and this often precipitated a neurosis.

A personal worry is often the final precipitating factor. For example, one patient who was wounded by a flying bomb in Belgium was perfectly all right until he realized that his family was in a part of this country exposed to flying-bomb attacks. He then became anxious and apprehensive. Another patient, who was at Arnhem, had mild anxiety symptoms, which became acute on arriving in this country when he found out that his wife, who was pregnant, had been bombed out and had no home to which to take the baby when it arrived. Much can be done by the welfare authorities to help patients in clearing up their domestic worries.

Another factor in some cases was the extent to which the wound would interfere with the patient's peacetime career. Here reassurance or the use of the Ministry of Labour scheme for retraining of disabled men can help in overcoming this difficulty. The proportion of volunteers to conscripts was 22 to 32, and did not seem to be of any great significance. Nor did the question of age, which ranged from 19 to 38.

Analysis of a Group admitted for Surgical Treatment only

At the same time that those wounded who were admitted with diagnosed neuroses were examined, 38 wounded patients on the general side of the hospital were examined from the psychiatric point of view. Of these 38 cases, 18 were regarded as seriously wounded, 17 moderately, and 3 slightly. Although these patients were admitted for treatment of their surgical conditions only, 17 were suffering from definite anxiety states. All the 17 showed marked constitutional predisposition, and of the wounds 10 were regarded as moderate and 7 as severe.

In addition to these 17 patients, who required active psychiatric treatment, 11 others had anxiety symptoms for several weeks after they were wounded. These symptoms consisted of anxiety dreams in which they relived their battle experiences, palpitation, sweating, and a feeling of tenseness. Many of these men were considerably upset by air-raid alerts and sudden noises, whereas they previously had been quite unperturbed by them. When tied to their beds by extensions, etc., several complained of a feeling of helplessness when the alert went, and said they felt their "stomachs" turn over, they sweated, and their hearts thumped. Most of these patients were considerably helped by being given sodium amytal 3–6 gr. at night, and none of them showed any marked constitutional features.

Two of these cases of frank neurosis were first diagnosed by the sister of the surgical ward, as on coming round from the anaesthetic after their operation the patients began to abreact their battle experiences. The psychiatrist on duty was called by her, and he continued the abreaction; and a day or two later these patients stated that they felt much less tense and anxious than before the operation. The remaining 10 patients showed no neurotic symptoms and had very stable personalities.

The age distribution and length of service were similar to those for the group admitted with neuroses, while the proportion of conscripts to volunteers was also comparable.

The degree of severity of a wound bears little or no relation to the development of a neurosis. Constitutional predisposition in the form of a positive family history, neurotic personality, or poor work record is the most important factor, while personal and domestic worry, severe battle stress, and length of service appear to be contributory factors.

It seems certain that a large proportion of wounded (in this series 28 out of 38=73%) suffer from undiagnosed anxiety or other neurotic symptoms, and it would seem important to question each battle casualty in base hospitals as to whether he suffers from battle dreams or other anxiety symptoms. In many cases the mild symptoms will clear up on giving sodium amytal, while the more severe cases should be referred to a psychiatrist.

Medical Memoranda

Uraemia and Heat-stroke: An Exercise in Diagnosis

The following case illustrates the importance of thinking again when signs and symptoms point to a certain diagnosis but the general clinical picture is not typical of, or even consistent with, the disease diagnosed. As my primary object in publishing it is to illustrate a diagnostic argument, I will describe the case as the problem presented itself and not as a clinical case sheet.

Case History

A lad aged 20 complained of pain in the right groin, and frequent micturition with pain in the penis, after a route march in Italy. His M.O. found a tender swelling in the groin which was "reduced easily into the scrotum" and must have been the right testicle. He was admitted to the V.D. wing, where he continued to complain of dysuria and started vomiting. He had had two days' constipation. There was a rash on his body which was thought to be a sweat rash. He was transferred to the surgical division because strangulated hernia was suspected and there was no sign of venereal disease.

The surgeons found that there was a heavy albuminuria; the urine, in fact, solidified on boiling. There were also granular casts. He was somewhat vague mentally and lethargic; his tongue was dirty, and his temperature 101° F. He complained of weakness in the legs. The blood urea was estimated and found to be 108 mg. per 100 c.cm. The triumphant diagnosis of nephritis with uraemia was made, and the case was shown to the physicians as a *fait accompli.*

The physicians, however, had the bad taste to remark that the case conformed with no known type of nephritis. This was looked upon as a confession of ignorance, but it was argued that nephritis did not account for the frequent desire to pass small quantities of urine or for the pain on micturition. It could not be a case of terminal renal failure as the urine was highly coloured and well concentrated. If, on the other hand, it was acute nephritis severe enough to cause uraemia, why was there no haematuria, oedema, or hypertension? (The blood pressure was 105/90.)

A period of contemplation on renal and extrarenal causes of uraemia ended with the sudden revelation that it might be a case of heat-stroke. The patient was questioned again, and stated that the route march took place at the end of a "scheme" which had entailed several days' marching in the heat of the sun. On the final day he had been taking turns in carrying a heavy weapon in addition to his own equipment. Memory was refreshed by reference books, and it was established that the following symptoms may occur in heat-stroke: Mental changes, especially abnormal behaviour, leading in some cases to charges of insubordination; weakness and cramps; frequent micturition with pain in the penis; albuminuria; high blood urea; vomiting; loss of knee-jerks. The knee-jerks were tested and found to be absent. A qualitative test showed that chloride was virtually absent from the urine.

The forecast was made that with rest, fluids, and salt the patient would be cured in a few days. This was received with much scepticism, for in the minds of the surgeons albuminuria and uraemia could only mean Bright's disease. On the following day the blood urea was 88 mg., the mental condition had improved, the albumin was much less, and there were very few casts. Next day the albumin was less than 0.5 g. per litre. Two days later he was much brighter: no albumin, blood urea 48 mg. Five days later he was mentally normal and getting up: no albumin, blood urea 20 mg. per 100 c.cm., urinary chloride still somewhat diminished.

The mental state described in heat-stroke was nicely illustrated in this case. On the first day the patient described his urinary symptoms and the site of his pain in adequate but very vulgar terms, embarrassing in the presence of the ward sister. This was not considered to be diagnostic, as he came from the East End of Sheffield, but two days later gentility had returned and his nomenclature was completely revised.

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A Simple Test for the Detection of Bile Pigments in Urine

It has been shown that "adsorption colorimetry" may provide a convenient method for the estimation of coloured substances such as mepacrine (Yudkin, 1945a, 1945b). The principle of this technique is the adsorption of the coloured substance on to a measured amount of white adsorbent powder, the intensity of the colour produced being proportional to the amount of the substance. "Adsorption colorimetry" may also be used for a qualitative test, and the present communication describes a simple method for the detection of bile pigments in urine by this technique. It requires only one reagent.

The Test

Materials.—Test-tubes; silica gel powder (preferably sifted so as to pass 60 mesh but not 120 or 130); a scoop delivering 0.25 ml.

Method.—Take about 10 ml. of urine in a test-tube. Add about 0.25 ml. of silica gel powder by means of the scoop. Shake up the powder in the urine at intervals of 1 or 2 minutes by holding the top of the tube and swirling sharply once or twice. After ten minutes allow the tube to stand for a minute or two while the powder settles and then gently pour off the urine. Add a few millilitres of water, allow the powder to settle again, and gently pour off the water. A brown coloration of the silica gel indicates the presence of bile pigments. Mepacrine is also absorbed in these conditions, but its presence can be determined from the history of the patient and by the yellow colour developed on the adsorbent.

Sensitivity.—Some deeply coloured urines, containing no bile pigments, give a slight yellowish-brown colour. This is readily distinguished from the deeper and browner colour produced by even small quantities of bile pigment. By making dilutions of urine containing excreted bile pigments it was shown that the method of "adsorption colorimetry" will readily detect appreciably smaller quantities of pigment than those detected by the current "bedside" tests. It is, for example, about 15 times more sensitive than the iodine test and about 8 times more sensitive than Gmelin's (nitric acid) test. It compares favourably with the more elaborate laboratory tests, being, for example, only slightly less sensitive than the Fouchet test. With pure bilirubin dissolved in urine the approximate limits of sensitivity were as follows:

Test	Minimal Detectable Concentration, mg/100 ml.
Iodine	3
Gmelin's	1.5
Silica gel	0.2
Fouchet	0.1

Comment

An indication of the usefulness of the test in practice is given by the results of the analysis of 100 samples of urine. Of these, 58 samples were negative by all of the four tests mentioned; 42 were positive by both the adsorption and the Fouchet test; 8 were also positive by Gmelin's test; and only one was positive by the iodine test. All but one of the 42 positive samples were from patients with known hepatic damage. In these instances, therefore, the adsorption test was just as useful as the more elaborate Fouchet test and decidedly more useful than Gmelin's or the iodine test.

Silica gel powder, already sifted, may be obtained from Silica Gel, Ltd., Aldwych House, W.C.2.

John Yudkin, M.D., Ph.D., F.R.I.C.,
Captain, R.A.M.C.

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Major Rolfe M. Harvey (*Amer. J. Roentgen.*, 1944, **52**, 487) states that 18 of 500 consecutive cases of atypical pneumonia had fractured ribs, and in 9 of them the fractures were multiple. The occurrence of these fractures was not related to the severity of the pneumonia, and he believes they are caused by the severe, dry, irritating cough of this condition. He therefore suggests that, when excessive pain in the chest arises in the course of an atypical pneumonia and is difficult to account for by pleurisy, the possibility of a fractured rib should be borne in mind.

Reviews

SEX ENDOCRINOLOGY

Office Endocrinology. By Robert B. Greenblatt, M.D., C.M. Second edition. With foreword by G. Lombard Kelly, M.D. (Pp. 243; illustrated. 22s.) Springfield and Baltimore: Charles C. Thomas; London: Baillière, Tindall and Cox. 1944.

This small, eminently practical, and informative book can be thoroughly recommended to those who are overwhelmed by the intricacies of present-day endocrinology, and have need of a simple and direct guide to the use of hormones in practice. The subject-matter is limited almost entirely to male and female sex endocrinology, and consists of a collection of post-graduate lectures in an abbreviated form. Theoretical and experimental data are mostly omitted, though there are chapters on the development of the gonad and the physiology of the ovary and menstruation—and excellent chapters they are, stating the latest views concisely and simply and giving just enough information to provide the background for hormone therapy. Not only is the management of such conditions as amenorrhoea, menorrhagia, and cryptorchism described, but also the more difficult and obscure symptom-complexes such as obesity, libido, hirsuties, menstrual malaise, headaches, and nervous-tension states. Full details of hormone preparations and dosage are given throughout, and there is a valuable summary of the main actions of the various principles, together with a list of their proprietary preparations (British ones unfortunately omitted). Simple diagnostic techniques, such as endometrial biopsy, vaginal smear examination, testicular biopsy, and the method of implanting hormone pellets, are also described.

The book bears witness to some differences in outlook which obtain in America as compared with this country. Thus there is only scanty reference to stilboestrol and other synthetic oestrogens which have never found much favour in the U.S.A. On the other hand, male hormone therapy for disorders in the female, which is not extensively employed in this country, is recommended, often as the treatment of choice, for nearly every condition mentioned. Such treatment is comparatively new and its proper place has not yet been determined, but it evidently has a strong advocate in Prof. Greenblatt.

Many will object to the use of the term "medical curettage" to denote the induction of uterine haemorrhage or endometrial shedding by hormonal means, but the book contains little that warrants criticism. It is both instructive and fascinating, and those who turn to it as a practical guide can hardly fail to be stimulated to pursue the subject further in the more academic writings to which reference is made at the end of each chapter.

ARTIFICIAL PNEUMOTHORAX

Artificial Pneumothorax in Pulmonary Tuberculosis: Including its Relationship to the Broader Aspects of Collapse Therapy. By T. H. Rafferty, M.D. Introduction by Henry Stuart Willis, M.D. (Pp. 192; illustrated. $4.00 or 21s.) New York: Grune and Stratton; London: William Heinemann.

Artificial pneumothorax has been increasingly used during the past 25 years at least, yet (as Dr. Henry Stuart Willis puts it in the introduction) "a detailed study from England a few years ago left one in a totally equivocal state of mind as to its merits." He presumably refers to F. J. Bentley's report to the M.R.C. in 1936 on "Artificial Pneumothorax: Experience of the London County Council." But Dr. Rafferty shows how impossible it is to assess statistically "the real long-term value" of artificial pneumothorax, particularly as not enough material of patients treated on modern lines and followed up for an adequate period is at present available. Nevertheless he leaves little doubt about its important place in the treatment of pulmonary tuberculosis provided indications and management are based on certain definite principles—principles that must show full appreciation of the differences between effective and ineffective pneumothorax, and include wider use of bronchoscopy and pneumonolysis. Complications occur or bad *remote* results will often follow when these principles are ignored.

While it is now generally recognized that collapse measures other than artificial pneumothorax are preferable in certain circumstances, it may appear revolutionary to reject the idea long held that an artificial pneumothorax should always be attempted before a thoracoplasty is done. But the technique and results of this operation have so greatly improved in recent years that a *primary* thoracoplasty is, according to Dr. Rafferty, indicated (1) in those in whom the extent of the disease calls for permanent collapse, (2) in those in whom there is great risk of pleural infection, and (3) in those in whom interference with bronchial drainage, due to bronchial tuberculosis, renders pneumothorax dangerous. From this we may anticipate the author's clear demonstration of the danger signs in artificial pneumothorax if complications are to be avoided. Of special interest in this connexion should be the sections on tracheobronchial tuberculosis and on the tension cavity—subjects which have only very recently received the attention they deserve. It should no longer be necessary to stress the very important role of pneumonolysis in obtaining an effective pneumothorax, but Dr. Rafferty maintains that "logic and increasing experience therefore seem to dictate the course of severing nearly all adhesions that can be severed with safety, unless there are definite contraindications or unless the adhesions clearly are removed from the diseased areas." Moreover, he leaves the impression that complications after pneumonolysis should be rare if the operation is done wisely, early, and well. Since there is a general tendency to be reluctant to abandon a pneumothorax (and in this one is perhaps influenced by the possible immediate psychological reaction of the patient), Dr. Rafferty rightly insists that artificial pneumothorax should be regarded as an exploratory procedure, to be abandoned at once, before any harm ensues, if it proves inadequate—to be regarded thus, we would add, by the patient as well as by the physician.

In the concluding chapter certain minimum standards are suggested as "possibly adequate" in the application of collapse therapy. No one who has studied this monograph will consider these too exacting, or fail to be convinced that the treatment of pulmonary tuberculosis should be undertaken only in institutions where full surgical facilities are immediately available.

This is evidently not intended to be a comprehensive text-book on collapse therapy of pulmonary tuberculosis, so that a few omissions or scant consideration of some aspects of the subject may be forgiven. But, in addition, the author leans very heavily indeed on the results of other workers, the illustrations are few and the skiagrams not well reproduced, and the style is often ponderous or tends to suggest dogmatism, which may alienate some readers. Nevertheless most will agree with Dr. Willis that "the refreshing point of view which Dr. Rafferty presents in his book bespeaks the best thought on this subject." Certainly no one connected with the treatment of pulmonary tuberculosis should fail to read the book. It should perhaps be mentioned that phrenic paralysis followed by pneumoperitoneum is not discussed, but this combined collapse measure has only very recently been introduced, and its use in relation to collapse therapy as a whole must still be regarded as in an experimental stage.

CHILD GUIDANCE

An Introduction to Child Guidance. By W. Mary Burbury, M.B., B.S., D.P.M., Edna M. Balint, B.Sc., and Bridget J. Yapp, M.A. (Pp. 200. 7s. 6d.) London: Macmillan and Co. 1945.

This is an excellent little guide to the whole subject of child guidance written by a team of experienced and enthusiastic workers who know how to collaborate and pool their knowledge. It is written in simple language and is easy to read, even by those not versed in modern psychological technicalities, and can be strongly recommended not only to doctors but to all who are interested in the social services. The book makes it clear that in guiding the child it is essential that the whole situation in which the child finds himself—home, street, and school—must be studied, and that both the child's relations to others and their reactions to him must be fully appreciated, hence the value of the team of psychiatrist, educational psychologist, and psychiatric social worker. The psychological treatment of the child is quite different from that of the adult, since he cannot be expected to co-operate verbally and intellectually as does the grown-up. Emotional rapport is necessary, however, and none will be successful with him who does not love children. Play, drawing, story-telling, and indirect implications from observations at home and at school, of parents and-teachers, are used. There is little formal analysis even with adolescents, but an indirect application of analytical knowledge is essential.

It is of course impossible to convey on paper exactly how child guidance is done, because each case is an individual problem which is worked out as much by the emotional rapport of all those concerned as by any formal process, but those who wish to know as much as possible about the subject without learning and practising the art themselves should read this book.

Notes on Books

A yearbook which we had hoped not to see again in its existing form is the *Fire Protection and A.R.P. Year Book* (London: Lomax, Erskine and Co. Ltd.; 7s. 6d. post free), but with the prolongation of the war the letters "A.R.P." still have a lively meaning. This little annual contains an extraordinary amount of well-compacted information on various aspects of civil defence. The section on equipment for first-aid stations, rescue parties, wardens' posts, and ambulance satchels is particularly useful, and so are the articles interpreting recent Acts of Parliament and statutory rules and orders. There is also a directory of various services. We hope that next year this work will appear in "civvies"; there is scope for a manual of the kind in peacetime. Ordinary fires, apart from those due to enemy action, are said to be on the increase, and the toll of accidents on the roads and in industry is hardly likely to grow less, so that to keep as many people as possible informed on fire protection and first aid will be a useful service.

A pamphlet on *The Estimation of Vitamin A*, by Mr. N. T. Gridgeman of the Research Laboratories of Lever Brothers and Unilever Ltd., Port Sunlight, Cheshire, has been privately printed, and copies are being distributed free of charge to many individuals, institutions, and libraries. Application should be made to the author, care of the company at that address.

Preparations and Appliances

TWO PIECES OF SUCTION APPARATUS

Lieut. P. F. Jones, R.A.M.C., writes:

I have recently heard that two simple pieces of apparatus employed by me as a house-surgeon have been found of continuing use in the hospital. No originality is claimed for the fundamentals of either apparatus, but as they require no special materials in their assembly I venture to present them here.

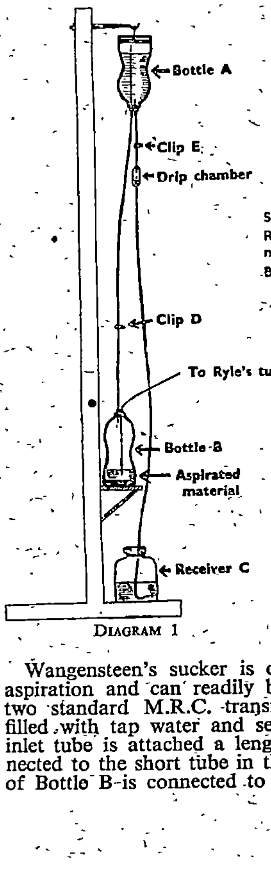


Diagram 1

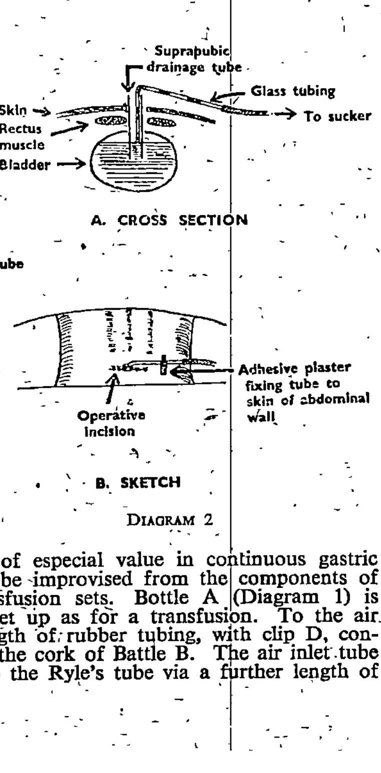


Diagram 2

Wangensteen's sucker is of especial value in continuous gastric aspiration and can readily be improvised from the components of two standard M.R.C. transfusion sets. Bottle A (Diagram 1) is filled with tap water and set up as for a transfusion. To the air inlet tube is attached a length of rubber tubing, with clip D, connected to the short tube in the cork of Battle B. The air inlet tube of Bottle B is connected to the Ryle's tube via a further length of tubing. The tubing from Bottle A to the drip chamber is continued into the receiver, C. When both clips are open, water flows from Bottle A into Receiver C. The vacuum created above the water in A is transmitted to Bottle B, which acts as a reservoir for the aspirate drawn into it: the character and volume of this material can be seen at a glance. When emptying Bottle B, or filling Bottle A, both clips should be closed. One important detail is that the tubing in Receiver C should dip below water—otherwise air will be sucked back into Bottle A at intervals, and the negative pressure temporarily lost.

This apparatus was first assembled one night at 1 a.m. in a space of fifteen minutes and maintained continuous and satisfactory gastric suction for three days. This success was repeated in a number of adult cases and also on a six-months-old infant with severe post-operative vomiting.

The sucker can also be used, in conjunction with the second device, for suprapubic drainage. All that is needed is a piece of quarter-inch glass tubing, 10 in. long, having arms 2 and 8 in. long set at an angle of 80 degrees to each other.

At operation, rubber tubing with an internal diameter of at least half an inch is used as the suprapubic drain, and is allowed to project three-quarters of an inch above the skin. When the patient returns to the ward, the short arm of the sterilized glass tubing is placed in the lumen of the drainage tube and the long arm is strapped to the abdominal wall and connected up to the sucker (Diagram 2). The urine which fills the suprapubic tube is sucked off through the glass tube at a level below that of the bladder wall as the patient lies in bed. It can never, therefore, reach a level at which it can soil the skin or seep up around the drainage tube. The patient is kept dry and comfortable and his wound heals rapidly.

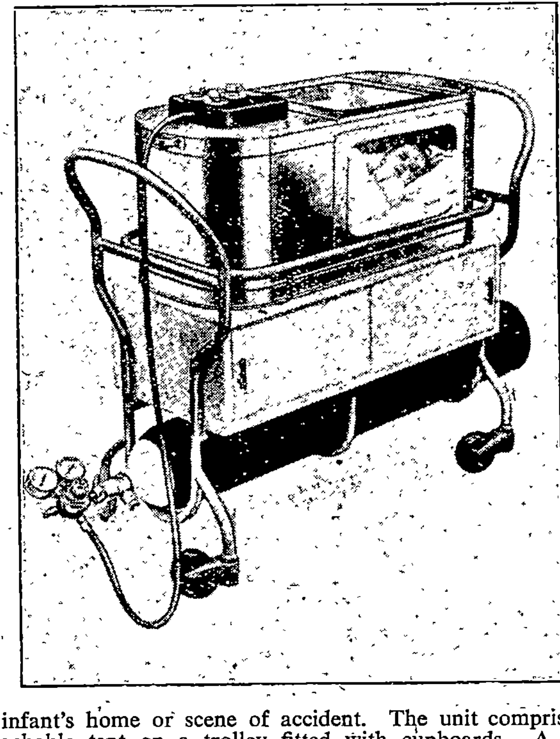
The best dressing was found to be plain gauze over the wound and fluffed cotton-wool around and over the tubes, the whole being held in position by a many-tailed bandage.

It is a pleasure to acknowledge the advice and encouragement given me by Prof. J. Paterson Ross and Sister E. C. Hall in the development and maintenance of these devices. I have to thank the D.D.M.S., Paiforce, for his permission to submit this note for publication.

MOBILE OXYGEN TENTS

The 24-hour rental service for the dispatch of all types of modern oxygen tents to hospitals and private patients, which has been available in London and the Home Counties during past years from Oxygenaire, Ltd., 8 Duke Street, W.1, has been extended to three new areas. Oxygenaire tents can now be delivered on loan for urgent cases in these areas by telephoning at any time of the day or night to the following: Oxygenaire (Bristol) Ltd., Abson 81; Oxygenaire (Birmingham) Ltd., Calthorpe 1737; Oxygenaire (Manchester) Ltd., Sale 5218.

The accompanying illustration represents the latest design in infants' mobile oxygen tents for transportation by ambulance to infant's home or scene of accident. The unit comprises a detachable tent on a trolley fitted with cupboards. A high oxygen concentration can be rapidly obtained from a control panel fitted with a circulation control, de-oxygenator, and extraction control. The temperature of the tent can be regulated from a compartment for hot-water bottles.



WORK OF A FIELD AMBULANCE IN THE BATTLE OF NORMANDY

BY

F. S. FIDDES, M.B., Ch.B.

Major, R.A.M.C.

The title of this article has been chosen for convenience rather than accuracy, for it is proposed merely to give a statistical review of the cases handled in the advanced dressing stations successively established by the headquarters company of a field ambulance during the period July 1 to Aug. 24, 1944. It is not intended to discuss the tactical and administrative considerations which are so important in the field, or to describe the layout adopted or the scope of medical work attempted. The arduous and often gallant work of the bearer companies will receive no more than this passing mention, as will the work of the ambulance drivers, whose scarred vehicles bore witness to their hazardous employment. It is gratifying, however, to be able to record that in all respects the training and planning of the waiting years were proved sound and well adapted to meet the strain of actual war.

The period under review has been arbitrarily entitled the Battle of Normandy. It began with the earliest attempts to break out of the bridgehead, which, though still small, was well established by the end of June. It included a spell of very bitter fighting in the vicinity of Caen and on the Orne River. It ended with the virtual closure of the Falaise-Argentan gap and the liquidation of the German Seventh Army.

During the 55 days thus covered an advanced dressing station was fully established and open on 45 days, on seven successive sites. The remaining 10 days are accounted for by three days in rest and seven days occupied in movement or in harbouring during movement. The total number of cases handled was 2,641, of which rather more than half (1,476) were attributable to battle conditions (battle wounds, battle accidents, and battle "exhaustion" cases), and rather less than half (1,165) were of incidental origin (accidental injuries, sick and dental cases). The average number of cases dealt with while in action was therefore 55 to 60 a day, the greatest number on any single day being 250.

With the personnel and equipment available, it is considered that 250 cases in one day is about as many as can be handled by the headquarters company of a field ambulance without loss of efficiency, especially if that total includes a high proportion of battle casualties and if resuscitation is being carried out in the cases which require it. This is not to say that greater numbers have not been dealt with within 24 hours with the assistance of reserve bearer company personnel, but as a general statement it is probably correct. Seriously and extensively injured men need handling with skill and care, and adequate first-aid measures in such cases occupy a considerable time. That the expenditure of time involved is worth while was repeatedly made obvious by the extraordinary improvement in the patient's general condition after careful manipulation, adequate dressing and splinting, ingestion of fluid, and the short rest, quite apart from the beneficial effects of transfusion in those cases in which it was considered necessary.

Type of Casualty and Disposal

The categories into which the various "casualties" fall and their disposal are summarized in Table I.

TABLE I.—*Type of Casualty and Disposal*

Type of Casualty	Died	To F.D.S. for Resuscitation	To C.C.S.	To F.D.S. for Minor Cases	Returned to Unit	Total
Battle wounds ..	12	83	792	72	64	1,023
Battle accidents ..	—	2	62	13	14	91
Battle exhaustion	—	—	—	313	49	362
Accidental injuries	—	1	91	28	78	198
Sick	—	—	115	291	298	704
Dental cases ..	—	—	—	—	263	263
Total ..	12	86	1,060	717	766	2,641

From Table I it will be seen that 1,863 cases required evacuation. The running time taken by ambulance cars to reach the C.C.S. varied at different stages of the advance from 1 hour to 3 hours, or even more by night or when much other traffic was on the road. In general, however, the time was relatively short, and if the patient could be dispatched in satisfactory condition one had little fear of undue deterioration during transport. The motor ambulance convoy service was excellent. When a Divisional field dressing station was established as a resuscitation centre it was normally sited close to or even alongside the advanced dressing station. Consequently there was no loss of time in the evacuation of those grave cases which needed transfusion and other resuscitation measures. Where no such centre was available, resuscitation and transfusion were carried out in the A.D.S.

Evacuation of exhaustion and minor cases to the Divisional F.D.S. established for their reception was carried out in field ambulance cars, and presented no real problems. If the necessity for ambulance cars in the forward area precluded their availability for such rearward evacuation it was usually possible to borrow from the field ambulance in reserve for this latter purpose.

Battle Casualties: Wounds

Actual battle wounds provided the most numerous type of casualty dealt with, totalling just over a thousand, of whom approximately 50% were lying (stretcher) cases and 50% walking (sitting) cases. This differs from the "traditional" expectation of 40% lying and 60% walking, but is in agreement with the previous recorded experience in this war. The increased incidence of lying cases is possibly due in part to the greater disabling power of modern missiles, as has been suggested. But another explanatory factor may be found in the improved conditions of evacuation from the forward areas and the lower casualty rate as compared with the war of 1914–18. The use of carriers and jeeps, and the ability of small ambulance cars to maintain a good service from the regimental aid post, have made long hand-carrying fairly exceptional and ambulance accommodation fairly liberal. Consequently a certain proportion of cases have rightly been made stretcher cases who in other circumstances might necessarily have been encouraged to remain as walking cases, at least till the dressing station was reached.

The total of 1,023 battle-wound cases was made up as shown in Table II.

TABLE II.—*Incidence of Battle Wounds*

British military	908
German military	93
French civilian	22
Total	1,023

The majority of the German military wounded were brought in during the later stages of the period under review. Prior to that, the taking of German wounded was comparatively rare, so that it must be supposed that their collection and evacuation was proceeding satisfactorily. In the later stages, however, German forward medical posts were overrun before their occupants could be evacuated, and a number of German wounded were brought in who had lain out for days and were consequently in bad condition. The only cases of established gas gangrene seen in the A.D.S.—three in number—were in German wounded.

TABLE III.—*Disposal of Battle-wound Cases*

Dead or dying on admission	12
To resuscitation centre (Div. F.D.S.)	83
To C.C.S.	792
To F.D.S. for minor cases	72
Returned to unit (or home, in case of civilians)	64
Total	1,023

The total recorded in Table III as sent to C.C.S. included 30 cases given special resuscitation measures in the A.D.S. before evacuation, making the total of cases requiring resuscitation (i.e., Group I cases) 113—say 10 to 12%. Fourteen cases were transfused with plasma in the A.D.S., and approximately 50 out of the 83 cases transferred to the resuscitation centre were transfused there. All such cases were evacuated to the C.C.S. with continued transfusion in progress. It can reasonably be assumed that a certain proportion of the other cases would be considered to require transfusion at the C.C.S. before, during, or after surgical treatment; and if this assumption is agreed, then the present series of figures seems to conform fairly well with the general proposition that has been made—namely, that 10% of battle casualties need transfusion at some stage in their evacuation. Perhaps the percentage should be slightly higher.

There were many cases of multiple wounds, of course, but where one wound was obviously major in comparison to the remainder, the case has been classified according to the location of that major wound (Table IV). Only two of the penetrating chest wounds and two of the penetrating abdominal wounds are recorded as not being

TABLE IV.—*Location of Battle Wounds*

Site of Injury		Severe	Mod. Sev. or Slight	Total		%	% Anticipated
Head		32	37		69	6·7	5
Face	Facio-maxillary	7	47	54	80	7·8	4
	Eyes	2	10	12			
	Ears (blast)	2	12	14			
Neck		3	14		17	1·6	
Chest	Penetrating	23	2	25	55	5·4	5
	Non-penetrating	2	28	30			
Abdomen	Penetrating	22	2	24	40	3·9	5
	Non-penetrating	2	14	16			
Back		11	53		64	6·3	—
Upper limbs	Above elbow	26	116	142	288	28·2	30
	Elbow	4	16	20			
	Below elbow	20	106	126			
Lower limbs	Above knee	51	131	182	354	34·6	36
	Knee	8	39	47			
	Below knee	26	99	125			
Multiple injuries		13	38		51	5·0	—
Blast injuries		3	2		5	0·5	—
Total		257	766		1,023	100·0	—

severe. Even such a small number calls for explanation, however, where penetrating wounds of that nature are concerned. Unfortunately, the reasons for considering them as being only of moderate severity were not recorded and cannot be recalled by the medical officers concerned. The incidence of wounds of the back and buttocks (the latter included among the wounds of lower limbs—above knee) might seem surprisingly high. The explanation is that mortar and air-bursting shells inflict a high number of such injuries on soldiers lying prone on the ground or even in slit-trenches or ditches.

For interest and comparison, the final column of Table IV shows, where comparable, the anticipated percentage location of wounds. These figures were used as a basis for training and preparation, and are themselves based mainly on last-war statistics, as very little corresponding information has been found available regarding battle casualties in this war up to date. There is a fairly close correspondence. Moreover, it will be noted that where the actual incidence of wounds is higher than that anticipated, it is in sites where the incidence of severe cases is also high—head, face, and neck, chest, and abdomen. As the figures upon which the anticipated incidence was based were chiefly those furnished by base and home hospitals, the correspondence would have been closer if the mortality of such cases *en route* had been allowed for—i.e., if the anticipated incidence in the field of such severe cases had been slightly increased and the incidence of leg and arm wounds correspondingly reduced. If, after the war, the statistics from our base and home hospitals show a similar discrepancy it will be interesting confirmatory evidence that the severely wounded man in this war has in fact a better chance of survival than his predecessor of 1914–18.

Table IV shows that approximately 25% of the total were severe cases. It is possible, however, to indicate degrees of severity in greater detail, and to correlate these with ultimate disposal, as has been done in Table V. This, while admittedly a general approximation, is useful to bear in mind when planning the accommodation and routine of an A.D.S., and; though it is hoped that the necessity for such planning will soon be past, it is included for that reason.

TABLE V.—*Severity of Cases and Disposal*

Dead or dying	1%	
Very severe	12%	For resuscitation
Severe	12%	To C.C.S.
Of moderate severity	50%	
Relatively slight	12%	
Slight	12%	To F.D.S. for minor cases, or R.T.U.
Trivial	1%	

The important lesson to be drawn from Table V is that one case in four or five will be severe or very severe, and will require skilled handling by possibly two or three orderlies and perhaps the personal attention of a medical officer for a very appreciable period of time—anything from 10 minutes up to an hour. These are the cases which stand in greatest need of early and skilled first aid, and these are the cases which tend to suffer most during rush periods or if the daily total rises to undue proportions. Hence the earlier remarks on the desirable maximum of 250 cases a day for an A.D.S.

The complete absence of wounds from aerial bombing in Table VI will be noted as a reminder of the great part in the campaign played by a dominant Air Force. Shell wounds—mortar or H.E.—accounted for three-quarters of all battle wounds seen. High-explosive shells claimed the greatest number of victims overall; but if infantry battalions alone are considered, the relative frequency of H.E. and mortar wounds would be reversed. The very high proportion of H.E. and mortar wounds reflects, of course, the relatively static, bitter to-and-fro fighting which occupied a considerable part of the period under review. Proportions may vary somewhat with altered circumstances, but it is unlikely that any of the other agents mentioned in Table VI will equal the mortar and the field gun. The aerial bomb is their only possible rival if one excludes chemical warfare and the possible secret weapons of the future

TABLE VI.—*Causative Agent*

Shell wounds	H.E.	310		692
	Mortar	251		
	?	131		
Gunshot wounds	M.G.		62	171
	Rifle		26	
	Pistol		6	
	?		77	
By mines and booby traps				34
„ grenades				26
Effects of H.E. blast				19
Burns (from phosphorus grenades or direct hits on vehicles)				6
Wounds of uncertain origin (mostly H.E. or mortar)				75
Total				1,023

Battle Accidents

The term "battle accident" has been reserved for those injuries whose occurrence was linked directly with battle conditions (Tables VII and VIII), such as a gunshot wound due to the accidental discharge of a weapon when creeping through a hedge during an attack, or a sprain or laceration due to a fall in advancing over rough ground in the dark or to a hasty jump into a slit-trench to avoid enemy fire. The total of such injuries dealt with was 91, all British military, of which 9 were severe injuries. In 9 cases vehicles were involved. The cases were disposed of as follows: To C.C.S., 64; to F.D.S. for minor cases, 13; returned to unit, 14.

TABLE VII.—*Location of Injuries in Battle Accidents*

Site of Injury		Severe	Mod. Sev. or Slight	Total		%
Head		3	2		5	5·5
Face		0	3		3	3·3
Chest		0	3		3	3·3
Abdomen		1	2		3	3·3
Back		0	2		2	2·2
Upper limbs	Elbow and above	0	5	5	29	31·8
	Below elbow	2	22	24		
Lower limbs	Knee and above	0	17	17	42	46·2
	Below knee	1	24	25		
Multiple		2	2		4	4·4
Total		9	82		91	100·0

TABLE VIII.—*Battle Accidents: Nature of Lesion*

Sprains, bruises, and crush injuries	40
Gunshot wounds	16*
Abrasions, cuts, and lacerations	13
Fractures (not associated with gunshot wounds)	12
Burns	10
Total	91

* Includes 6 cases in which the Sten gun was the weapon concerned.

Accidental Injuries

In a large mechanized army, operating in a congested and battle-ravaged area, a high incidence of accidental injury might well be anticipated (Tables IX and X). The total of 198 such cases treated is therefore surprisingly small, especially when it is added that only 9 of these were severe injuries, and—most surprising of all—in only 7 cases were mechanical vehicles involved. In explanation it should perhaps be remembered that the field ambulance was concerned almost entirely with soldiers of a first-line fighting formation—that is to say, with young men of high medical category, hardened and trained for warfare—and among such the proportion of "accident-prone" individuals who survive the training is probably small.

TABLE IX.—*Location of Accidental Injuries*

Site of Injury		Severe	Mod. Sev. or Slight	Total		%
Head		0	7		7	3·6
Face		0	12		12	6·1
Chest		1	7		8	4·1
Abdomen		1	3		4	2·0
Back		0	4		4	2·0
Upper limbs	Elbow and above	2	6	8	75	38·1
	Below elbow	1	66	67		
Lower limbs	Knee and above	0	24	24	86	43·1
	Below knee	2	60	62		
Multiple		2	0		2	1·0
Total		9	189		198	100·0

The disposal of accidental-injury cases was as follows: to C.C.S., 92; to F.D.S. for minor cases, 28; returned to unit, 78. The high proportion of cases returned to unit is due to the fact that the total includes many such accidents as could be dealt with by primary suture or other initial treatment in the A.D.S. and subsequent treatment in unit lines, or by daily attendance at the A.D.S. for a relatively short period.

TABLE X.—*Accidental Injuries: Nature of Lesion*

Sprains, bruises, and crush injuries	54
Gunshot wounds	52
Burns and scalds	45
Abrasions, cuts, and lacerations	38
Fractures (not associated with gunshot wounds)	9
Total	198

The total of 52 gunshot wounds includes 10 cases in which the Sten gun was the weapon concerned. The incidence of Sten gun accidental injuries, and some slight knowledge of the weapon itself, suggest that it is rather more "chancy" than other small arms in common use, and more likely to cause accidental injury in circumstances not involving carelessness or stupidity. In 15 to 20 cases of "accidental" G.S.W. the suspicion of possible self-infliction was aroused.

It will be noted that burns and scalds, rare as battle wounds or battle accidents, occupy quite a high place among accidental injuries. These accidental burns were mostly of hands and/or face, and fortunately few were severe. In spite of repeated warnings and injunctions the cause was almost invariably carelessness in the use of petrol cookers, and it would seem that the British soldier simply cannot be brought to regard petrol with due respect.

Battle-exhaustion Cases

"Exhaustion" is the term currently employed to cover all psychiatric casualties while they are in forward areas. In the total of casualties under present consideration 362 such cases are included, varying widely in severity and type; for the term is one of convenience, and the proper sorting and full psychiatric diagnosis of "exhaustion" cases were ultimately decided by the psychiatrists. From the A.D.S. 313 cases were evacuated to the F.D.S. established for their disposal, and 49 were returned to unit. The great majority of those evacuated did in fact rejoin their units also, after a relatively short absence. The total of such cases may appear high, but is probably no greater than was anticipated by those with knowledge of previous campaigns. The really high incidence was encountered in the earlier stages of the battle, and it is interesting to speculate on the various factors possibly involved: the standard of officering, the standard of discipline, the severity or the duration of strain, age group and battle experience, the role of the unit—attack or defence—inherent psychopathic inferiority, nationality or race, domestic or other difficulties, and so on. Much has already been written on the subject, and no doubt much more will still be written, but not in the course of this article, which states merely the incidence of exhaustion cases for comparison with other types of casualty.

Sick

The total sick dealt with by the A.D.S. was 704, of whom 681 were British military cases and 23 were French civilians. The disposal of sick was as follows: to C.C.S., 115; to F.D.S. for minor cases, 291; returned to unit, or home in the case of civilians, 298. Obviously, therefore, much of the sickness was of a minor nature, and the general health of the British military personnel was in fact very satisfactory indeed.

TABLE XI.—*Incidence of Diseases*

Medical		
Alimentary system:		
Acute infective gastro-enteritis	206	256
Other diseases	50	
Skin conditions:		
Various	100	127
Insect bites	27	
Fibrositis, lumbago, etc.		35
Pyrexia of uncertain origin		32
Eyes		21
Ears		16
Respiratory system		16
Tonsillitis		15
Infectious diseases:		
Gonorrhoea (relapse)	5	53
,, (fresh)	1	
Syphilis (fresh)	1	
,, (continuation treatment)	34	
Malaria	5	
Infective hepatitis (?)	4	
Diphtheria	1	
Chicken-pox	1	
Rubella	1	
Miscellaneous		55
Surgical		
Major surgical conditions		18
Minor ,, ,,		60
Total		704

The presence in Table XI of 206 cases of acute infective gastroenteritis, mostly occurring within a fortnight, is a reminder of the ever-present menace which epidemic disease is to an army in the field. Fortunately the clinical form of the disease was relatively mild and of short duration. For the other alimentary complaints dealt with—chiefly mild gastritis—the change of diet and, occasionally, dietary indiscretions could usually be held responsible. Constipation was fairly common, with haemorrhoids as an occasional sequel.

The skin diseases were chiefly impetigo, boils, and tinea cruris or pedis, the latter proving very disabling in a number of cases. The lack of fresh food, the frequent difficulty of washing and bathing, and a probably inadequate fluid intake may have been factors in the production of skin disease, although the figures are not alarming. On the subject of bathing, it is suggested that the British army mobile bath facilities could be greatly improved. It should be stated, however, that only 4 cases of louse infestation were treated.

Insect bites were very common and troublesome, and the total of 27 included in Table XI refers only to those cases in which gross oedema, infection, or lymphangitis and adenitis were present. The main reason for referring to them is to suggest the desirability of an effective anti-insect cream or lotion for military campaigns even in temperate climates.

The incidence of fibrositis, lumbago, etc., is probably low, considering the conditions under which the troops lived in an unusually wet July.

The total of pyrexia of uncertain origin includes the usual quota of febrile coryzas and "influenzal" conditions, but serious diseases of the respiratory system were rare, comprising only two cases of pleurisy with effusion, one of tuberculous haemoptysis, and one other case of suspected active pulmonary tuberculosis.

The eye conditions treated were chiefly conjunctivitis and blepharitis—associated with driving in much dust—foreign bodies, and occasionally corneal ulceration. Eye lotions were always kept available for unit drivers, and also made available for visiting dispatch riders and vehicle drivers.

Aural conditions were mainly otitis externa, wax in the meatus, and Eustachian catarrh. Fresh otitis media was not seen, but several chronic suppurative cases came to light which had not been downgraded and eliminated from the units before embarking.

The case of diphtheria occurred in a French civilian; the chicken-pox was in a soldier who believed he had contracted it in a civilian house; while in the case of rubella no probable contact could be discovered. Continuation treatment for syphilis in the forward areas was a new departure and proved satisfactory, marked irregularity in attendances being uncommon, and invariably the result of circumstances rather than negligence. Few malaria recurrences were seen, but in some formations with previous service in Sicily and Italy conditions were otherwise.

The major surgical conditions seen were acute and subacute appendicitis, one case of testicular torsion, hernias, and badly infected hands. The minor surgical conditions were mainly carbuncles and less severely infected hands.

Dental Cases

The 263 dental cases seen included a disproportionate number of L. of C. troops, whose dental fitness before embarkation was obviously lower than that of the more regularly "vetted" infantry battalions. Broken denture replacement worked fairly satisfactorily, having in mind the difficulties due to movement of units, etc. The total recorded does not of course include the battle wounds of a facio-maxillary nature, in connexion with which the valuable advice and co-operation of the dental officer were normally sought.

Conclusion

These figures, and the comments thereon, have been compiled as opportunity afforded during the swift and dramatic sweep through France and Belgium which followed the Battle of Normandy. With the waterways of Holland and the defences of the Reich still ahead, the work of the field ambulance is not yet ended. But the figures from that early decisive period in Normandy form a completed chapter in themselves which may be found of general interest. For his encouragement and permission to submit this article for publication I am indebted to Lieut.-Col. M. DeLacey, R.A.M.C., and if the article had been of enough merit to justify a dedication, that dedication would undoubtedly have been to the "other ranks" of the Corps with whom it has been such a pleasure to be associated in action, and whose skill and co-operation with the medical officers have made possible what we believe to be a fairly satisfactory record of service.

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SALMONELLA INFECTIONS

The micro-organisms classified as *Salmonella* strains comprise a bacteriological group allied to typhoid and dysentery bacilli but culturally and serologically distinct. Their wide distribution and the variety of diseases they cause in man and animals make them of great practical importance. All the members of the group seem to be true parasites, pathogenic to man or to animals or to both man and animals, and they do not occur anywhere as harmless saprophytes. It is true that they have been isolated from certain internal organs, such as the mesenteric glands and spleen of apparently healthy pigs—by Scott in this country and by Ruben, Scherago, and Weaver in the U.S.A.—but the probable explanation is that they are survivals from earlier infections of these pigs. The same applies to rats and mice, and it has been repeatedly shown that if a large series of rats is examined living *Salmonella* strains can be isolated from a small percentage of them. Salmonella infections of rats and mice, with a heavy mortality and with carrier survival in a proportion, are fairly common. Salmonellas are responsible for many animal epidemics and affect many animals, including pigs, cattle, and especially calves, horses (with a strain not pathogenic to man), rabbits, guinea-pigs, rats, mice, dogs (occasionally), and a variety of birds, including fowls and ducks. The strains affecting hens are nearly always either *S. pullorum* or *S. gallinarum,* types hitherto regarded as entirely non-pathogenic to man. Recently, however, there has been some evidence that *S. pullorum* may occasionally be a cause of human illness. Ducks, on the other hand, are affected with several *Salmonella* strains pathogenic to man, and it is well attested that infected ducks' eggs have been responsible for many outbreaks of food-poisoning. Sheep are only rarely attacked by any salmonella infection.

With such widespread infections in domestic animals and animals having access to man, opportunities for transference to man are many, and *Salmonella* strains are of much importance as a cause of human disease. These infections fall clinically into three groups. One form is long-continued fever of the enteric type, often indistinguishable clinically from typhoid fever, and diagnosed only by serological and bacteriological methods: paratyphoid fever is the recognized example. A second type is that of severe acute gastro-intestinal irritation with rapid onset and comparatively short duration, which we recognize as a common variety of food-poisoning. It occurs in the form of outbreaks associated with the consumption of a particular food infected with a living *Salmonella* strain. In paratyphoid fever the incubation is long, but in this second type it is usually 12 to 24 hours. Until comparatively recently these were the only clinical varieties recognized, but over the past few years there have been many cases reported of infections with a *Salmonella* strain resulting in a septicaemia with a high mortality. Usually they appear as isolated cases, not in outbreaks, with no indication as to the source of the infection and without demonstrable relationship to other cases. The infection probably takes place through the intestine, but for unknown reasons blood infection occurs and general infection and localization in different organs. Thus the clinical manifestations are varied. S. Bornstein,[1] in a review of the salmonella problem, refers to clinical cases of endocarditis, meningitis, osteomyelitis, and other more rare conditions.

In connexion with these clinical varieties two points naturally arise—i.e., whether each is associated with different *Salmonella* strains, and whether in the same outbreak the clinical manifestations are all of one kind, or mixed. *Salmonella* types are identified only to a small extent by cultural and pathological characteristics, and mainly by elaborate serological classification. Many new strains are identified each year, and there are over 100 different types. Their identification is not just a game for the bacteriologist, but supplies two points of practical value. One fact which emerges is that certain salmonellas tend to become selective as regards both their hosts and the type of disease which they cause. The most widely distributed strain of all—*S. typhi murium*—is promiscuous in its hosts and widespread in its manifestations. At the opposite pole, *S. paratyphosum B* is parasitic only to man, and for the most part causes only paratyphoid fever. As in all salmonella infections this behaviour is not absolute, for occasionally gastro-intestinal symptoms may predominate and there are a very few genuine records of this organism appearing in hosts other than man. Again, *S. pullorum* is a common infection in hens but harmless to man, with possible but rare exceptions. In paratyphoid fever there is a blood infection with long-continued fever; human carriers, especially temporary carriers, are common, and, with clinically unrecognized cases, are the main methods of spread. In food-poisoning from other types the opposite occurs: the attacks are short, there is no blood infection (except in fatal cases), the clinical picture is acute gastro-intestinal irritation, and in general the bacilli are rapidly eliminated after a few weeks; only two or three chronic carriers have been recorded in the literature. The type of organism does, to some extent, therefore, affect the clinical manifestations, but there is a good deal of overlap. Type differentiation is also of use in relation to the distribution of salmonellas in various animals. A number of examples have been given already, but a further illustration is *S. enteritidis* Dublin. This strain is a common cause of infection in calves and cows, and correspondingly has been responsible for a number of milk-borne outbreaks, almost all of the acute gastro-intestinal type.

A consideration of these facts throws much light upon the methods of spread of salmonella infections and enables us to devise measures of control. In all cases the vehicle is infected food, apart from case-to-case infection in paratyphoid fever. For example, in a study of 40 outbreaks of paratyphoid fever Savage[2] reported 31 from infected food (cream products 16, milk 8, ice cream 2, other foods 5), 2 spread by water (and 1 was watercress), 3 from case-to-case infection, and 4 not ascertained. Outbreaks of the food-poisoning type always result from the consumption of salmonella-infected foods, especially made-up and man-handled foods.

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[1] *J. Immunol.*, 1943, **46**, 439.

When the actual path of the infection from the salmonella source to the food is examined clear differences emerge. In paratyphoid fever the human carrier is either a chronic carrier, as is so common in enteric fever, or, more usually, a temporary carrier or an unrecognized ambulant case. It is useless to look for an animal carrier, because the paratyphoid bacillus does not infect animals. In food-poisoning of salmonella type it is of little value to look for a human carrier (apart from a case connected with a recent outbreak of food-poisoning), for persistent carriers are of great rarity. On the other hand, the *Salmonella* strains which cause food-poisoning are all associated also with disease in animals, and this fact must be remembered when looking for the source of their introduction into food. The infection may be caused directly by eating the flesh of an animal suffering from a salmonella infection, through milk drawn from a cow so suffering, from infected ducks' eggs, or most commonly from sound food infected indirectly, as from faeces of rats or mice. In the control of salmonella infections their wide distribution must therefore be borne in mind. The control of carriers and unrecognized cases is of essential importance in paratyphoid fever. An attack on animal diseases associated with salmonella infections is a long-term indirect method, but not a particularly promising one, of attacking food-poisoning. In all types of salmonella infection the care and preparation of food along the lines of strictest cleanliness are likely to yield the best results. In particular, special attention is needed to prevent manipulated food from being kept, before consumption, at temperatures which allow multiplication of *Salmonella* organisms. Again and again it has been shown that a particular food—such, for example, as ham or a made-up dish—has been eaten fresh without harm, while the same food kept for a number of hours at a moderate temperature has become toxic and its consumption has set up a severe outbreak of food-poisoning. Outbreaks of food-poisoning are especially frequent during the hot months of the year.

SIR WILLIAM GOWERS, 1845–1915

This is the centenary year of the birth of one of the greatest clinicians and teachers of clinical medicine of the nineteenth century, Sir William Gowers, born on March 20, 1845. At this time, when the future of medical education and of clinical medicine as we have known it are the subject of discussion so eager and so widespread, it is appropriate that we should turn back for a moment to consider what lessons one of the great clinicians of a past generation may yet have to teach us.

Few, alas, are left among us who saw Gowers in action as a clinical observer and teacher, but for these few the recollection of his clinical acumen, the fruit of a vast experience stored in his mind in orderly fashion and ready for instant recall, and of the inspiring quality of his teaching, is imperishable. There still lives among neurologists, handed down by those who were his colleagues or his pupils, a store of legends of his astonishing diagnostic skill and insight and of those forceful personal qualities in which the Victorian generation of physicians was so rich. The lesson of this is that at the very foundation of sound medical practice lies a wide and deep familiarity with its material: the patient and his illness. Nothing can replace this, nor can all the ingenuity of the laboratory, nor the penetration of the skiagram, provide a substitute for direct observation at the bedside, the clinic, or the consulting-room, and the unceasing contemplation of this direct experience. The complete physician, in fact, must be a connoisseur of clinical material, and not the least factor in the acquisition of this measure of skill and intuition is the careful and systematic recording of what has been observed. It is necessary to stress these points in view of the increasing reliance by doctors upon the special methods of the numerous and too autonomous departmentalists, and of the increasing tendency of the student to regard note-taking as a form of drudgery.

For those of us who have been born too late to savour the richness of the clinical medicine of some fifty years ago, we still have the published writings the great figures of the period have left us. In Gowers's famous textbook and in the numerous smaller manuals he wrote we find clinical medicine at its peak, and its recording in a fluent, logical, and vital English that we too often look for in vain in modern medical writing. To any one of Gowers's publications the professed neurologist of to-day may turn with profit to his knowledge, with keen pleasure to his feeling for words, if he be so happy as to possess one, and with some sense of a recapture of the personality of their author. Nor was Gowers purely the neurologist. In his later years he was pleased to recall the benefit he had received from the two years in general practice with which he began his medical career, and his was the first haemoglobinometer. His writings, too, abound in evidence of a broad and balanced knowledge of clinical medicine in all its aspects. It is indeed largely to Gowers and his contemporaries in neurology that we owe it that neurology is still rooted in general medicine, and thus finds it unnecessary to-day to claim a special place for itself in the medical curriculum.

In medical literature we have our English classics, but we regard them too little. Among them the published works of Gowers hold a distinguished place. Of particular value to those not specially interested in neurology are his published clinical lectures, which reveal a perfect balance of observation and of judgment, and a broad outlook that every clinical teacher might take as an example. During his lifetime his reputation was international, and his name is yet a household word among neurologists everywhere. Historical justice therefore requires that we should now recall him as one of the founders of modern British medicine.

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[2] *J. Hyg.*, Camb. 1942, **42**, 393.

BROMIDES AND BARBITURATES

From a recent review[1] of the literature on the neuropsychiatric effects of barbiturates and bromides a number of interesting points emerge. Bromides have a depressing action on the entire nervous system; and the same is believed to be true of barbiturates, though some authorities think they have a selective action on mid-brain vegetative centres. Their neurological effects are slightly different. Nystagmus, convulsions, and a positive Babinski are fairly frequent in cases of barbiturate intoxication, but they have not been reported in bromism. The disturbances of motility in cases of barbiturate poisoning have a cerebellar character and are different from the apraxic awkwardness observed in bromide cases. Curran considers that paraphasic speech disturbances, visual hallucinations "at a distance," confabulatory memory defects, and some other symptoms are of diagnostic value in the oblivion of bromide poisoning.

Drug psychoses make up a perceptible proportion—about 1%—of all admissions to mental hospitals in the U.S.A. They are about four times as common in men as in women, and the patients have usually begun to use the drugs in the third and fourth decades. According to insurance statistics barbiturates are responsible for about 6% of the suicides and 18% of the accidental deaths of policy-holders. In the U.S.A. morphine addicts who have been unable to get the drug have in some cases taken to using nembutal. Laboratory tests for bromides in the blood are simple and satisfactory; tests for barbiturates are in a less advanced state and do not appear to be of practical value.

The treatment of bromide intoxication consists in stopping the drug, forcing fluids, and giving sodium chloride. In the treatment of barbiturate intoxication of severe degree gastric lavage is followed by the administration of 30 to 60 grains of magnesium sulphate. Intravenous dextrose (5%) is recommended. Picrotoxin has been found valuable by many workers, and a 0.3% solution should be given at the rate of 1 c.cm. a minute until corneal reflexes reappear and the patient responds to powerful stimuli. It will have to be repeated at hourly or two-hourly intervals, and 3 to 6 mg. an hour will be required. One patient is recorded as having been treated in this way for 78 hours, receiving a total of 559 mg. of picrotoxin before he regained consciousness.

Although the dangers of barbiturate intoxication cannot be minimized, they are not now taken quite so seriously as they were before the war. A great majority of the fatalities must be due to suicide. The barbiturates are now very extensively employed, particularly in anaesthesia, as hypnotics, for the treatment of epilepsy, and in psychiatry for producing various degrees of sedation up to continuous narcosis. For these purposes they would prove in practice irreplaceable. Though they all belong to the same chemical family, they vary very widely in their physiological effects and can be employed for a great diversity of uses. It seems that the family is still a prolific one, and that further additions will supply us with drugs with new uses and with greater safety factors than in the past.

THE SCHIZOPHRENIC TESTIS

At the end of the last war Sir Frederick Mott found in the testes of schizophrenic patients histological changes which were for the most part interstitial in nature and ascribed by his critics to such conditions as chronic tuberculosis, from which many of Mott's patients died. It seemed impossible to get round this source of error until examination by biopsy was introduced. Hemphill, Reiss, and Taylor[1] have now reported on testicular biopsies in 90 schizophrenic patients and have compared them with the findings in a control series of 25 patients suffering from other forms of mental disorder. Over half the schizophrenics showed regressive changes, which were found in only three of the other patients, and they were known to be subjects of endocrine or organic disorder. The changes found by Hemphill and his colleagues are not those described by Mott, but consist of an atrophy chiefly affecting the tubules and their contents, with hyalinization of the basement membrane, arrest of spermatogenesis, progressive degeneration of epithelial elements, and eventual destruction of the tubule. Of all schizophrenics those with a paranoid form of psychosis were almost immune to these changes, which were found in their most advanced form in chronic catatonic and deteriorated patients, and in early cases. In his extensive genetic investigations of schizophrenia Kallmann[2] has reported much-reduced fertility in catatonic and hebephrenic patients, less reduction in patients with schizophrenia simplex, and normal fertility in paranoid schizophrenics. These clinical groupings correspond very closely with those of Hemphill, Reiss, and Taylor.

That advanced testicular changes may be found in patients with an early but a florid psychosis is of much interest; severe atrophy was found in one boy of 15 who had been ill for only a few weeks. This suggests that a biopsy may be of clinical value, for both diagnosis and prognosis. It is to be hoped that other workers will be encouraged to try it out.

The interpretation of these findings is far from easy. Hemphill[3] finds that the changes are not correlated with disturbance of the output of 17-ketosteroids, with age of patient or duration of illness, with bodily habitus or family history. There is no suggestion that any part of the aetiology of schizophrenia can be sought in these testicular changes. Hemphill considers that an endocrine imbalance with relative gonadotrophic failure may be responsible both for the tubular atrophy and, in a susceptible constitution, for the schizophrenia.

WAR AND THE AMERICAN BIRTH RATE

The war of 1914–18 did not affect the American birth rate to the same extent as that of many European countries. The rate for France fell from 18.8 per 1,000 to 9.5 in 1916; in Germany from 28.0 to 13.9 in 1917; in England and Wales from 24.2 to 17.7 in 1918; while in America the birth rate declined from 25.0 in 1915–16 to 22.4 in 1919. The casualties among the young males and the smaller number of potential parents born during the war had an effect on the birth rates of the belligerent nations which has not yet completely disappeared. The present war is likely to have a greater influence on the American birth rate than the last. Grabill[4] has given a short review of the recent trend and its possible course. Measures that may help to postpone a large fall in the American birth rate are the deferment of fathers from service for as long as possible, free maternity care for wives of Service men, family allowances, tax-exemption allowances for married couples and for children, and other benefits. Some of these were in operation before the war and were not brought in with the specific aim of encouraging the rearing of families. By 1932 the birth rate in the U.S.A. had fallen below 80 per 1,000 married women aged 15 to 44, the level necessary for the replacement of the population. The monthly birth rate fluctuated round the replacement level until the end of 1939, when the rate began to rise, with occasional peaks, until the end of 1942, when it was about 105 per 1,000 women. It then fell to 91 by March, 1944, though it rose sharply on two occasions in this period.

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[1] Curran, F. J., *J. nerv. ment. Dis.*, 1944, **100**, 142.

[1] *J. ment. Sci.*, 1944, **90**, 681.

[2] F. J. Kallmann, *The Genetics of Schizophrenia*, New York, 1938.

[3] *J. ment. Sci.*, 1944, **90**, 696.

[4] *Amer. J. Sociol.*, 1944, **50**, 107.

The rise in the birth rate during the present war has occurred because of the abnormal marriage rate, and more women had their first or second child, but the birth rates of the third or more order of birth have steadily continued to decline. There has been, apparently, no change in the size of family, and the return of the marriage rate to a normal level will be accompanied by a fall in the birth rate. Grabill predicts, on the basis of potential fathers in the U.S.A., that the birth rate will steadily decline as more men are sent over-seas, and will reach a minimum of about 16.0 per 1,000; and that in the long-run the post-war trend will be again downward unless some fundamental changes occur.

Grabill notes some interesting coincidences between fluctuations in the birth rate and certain political and social events. The small fluctuations before the war tended to occur 9 to 10 months after some economic activity. The lowest rate in the period studied was that of September, 1933, 10 months after the 1932 election. A small peak occurred about 10 months after Roosevelt took office in 1933. In 1940 the rising trend of the birth rate was checked 9 months after the outbreak of the European war, and the rate remained almost stationary for several months. A small peak occurred in April, 1941, 10 months after the Selective Service Bill was introduced into Congress, and was followed by a larger peak with an interval of 10 months after the passing of the Selective Service Act. The birth rate passed through another stationary period 10 months after the passing of the Lend-Lease Act; the rate again began to rise 10 months after the signing of the Atlantic Charter. A very large rise occurred in October, 1942, 10 months after Pearl Harbour. Another large peak corresponded with the 10–11 months interval after Allied victories—Libya, Africa, Stalingrad, and naval victories over the Japanese—and after the minimum draft age had been lowered from 20 to 18 years.

THYMECTOMY FOR MYASTHENIA GRAVIS

The physiological researches of Harvey and his colleagues[1] have done much to explain the sort of disturbance which is present at the myoneural junction in patients with myasthenia gravis. After considering many possibilities they came to the conclusion that the most likely cause of the failure of cholinergic transmission from nerve to muscle in these cases was the presence of an unknown inhibitor substance released into the blood stream. The varying amounts of this substance would explain the varying clinical course of the disease, with its characteristic remissions. Gammon, Harvey, and Masland[2] produced evidence that this hypothetical substance might well be derived from the thymus gland. Thus a rational basis was offered for the empirical operation of thymectomy in myasthenia gravis.

Whatever the explanation of its beneficial results, the operation has been performed with increasing frequency in the past three years. In 1936 notable improvement occurred in the condition of a myasthenic patient after removal of a benign thymoma by Blalock.[3] After that Blalock and his colleagues determined to test the effect of total thymectomy in myasthenic patients without thymic tumours, and they published[4] the results in the first six cases in 1941. Blalock has now reported[5] upon the results in 20 operative cases, all of them severe myasthenics, many gravely ill with little chance of spontaneous remission. The daily dosage of prostigmine required before operation was always high—sometimes up to 900 mg. Only two of the patients had a thymic tumour. The interval after operation was from 5 months to 2 years 9 months. The results expressed in five groups of patients are very briefly that (1) 4 patients died after operation, one after 8 months; (2) 3 showed little improvement; (3) 5 were moderately improved; (4) 5 were considerably improved, one well able to continue without any medical treatment; and (5) 3 patients are "essentially well." The most phlegmatic reader of Blalock's paper will be impressed by the conservative interpretation he has put upon his results, for he has almost ignored the patients' protests of improvement and has set his standards firmly upon objective criteria. Of the second group he says: "The three patients state that they are somewhat improved, but I am inclined to believe that they are too optimistic." Even so the results are good and in 8 cases extraordinary; they establish thymectomy as a recognized form of treatment for myasthenia gravis. Churchill and Cope[6] have obtained results in 14 cases which are similar to those of Blalock, and, like them, they selected for treatment only greatly incapacitated patients. The severe cases of myasthenia in these two series were "bad operative risks," so the operation cannot be looked upon as severe for milder cases; the next step should be to extend it to them, with suitable controls. Blalock knows no way of predicting before operation which patients will be helped by thymectomy, although those with a benign tumour seem to benefit most. The chronic myasthenic does not appear to respond so well as the acute severely ill patient, and the bulbar symptoms do not clear up so readily as the general muscular fatigue and weakness. Further and larger series of cases will give the answer to many of the outstanding questions.

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The Council of the B.M.A., at its meeting on March 21, received the report of the Negotiating Committee. After full discussion the Council decided to make a report with recommendations to a special Representative Meeting which will begin on May 3. The report of the Council is a confidential document in that it cannot be published, but it will be sent direct to every member of the profession, whether belonging to the Association or not. The Council decided to ask Divisions to make arrangements for an early meeting or meetings of the profession to discuss the report and instruct Representatives.

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The twenty candidates nominated by the Council of the Royal Society for election into the Fellowship and elected on March 22 include Dr. Leonard Colebrook, honorary director of the research laboratories of Queen Charlotte's Hospital and now pathological consultant to the Army with the rank of colonel, and Prof. J. H. Gaddum, of the Chair of Pharmacology in the University of Edinburgh. Miss Marjory Stephenson, biochemist, and Mrs. Kathleen Lonsdale, physicist, are the first women to be elected F.R.S. in recognition of scientific work. Among the other new Fellows is Dr. H. Davenport Kay, director of the National Institute for Research in Dairying and at one time biochemist to the London Hospital.

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[1] *Johns Hopk. Hosp. Bull.*, 1941, **69**, 566.
[2] *Biol. Symp.*, 1941, **3**, 291, Lancaster, Pa.
[3] *Ann. Surg.*, 1939, **110**, 544.
[4] *J. Amer. med. Ass.*, 1941, **117**, 1529.
[5] *J. thorac. Surg.*, 1944, **13**, 316.
[6] Quoted by Blalock [5].

Reports of Societies

FACTORS IN BLOOD COAGULATION

A discussion on blood coagulation was held at the Section of Experimental Medicine and Therapeutics, Royal Society of Medicine, on March 13, Dr. E. N. ALLOTT presiding.

Dr. R. G. MACFARLANE said that for more than fifty years blood coagulation had been an academic battleground for physiologists. The mystery of the conversion of a liquid into a solid had attracted many workers. It was known, of course, that two things might go wrong with coagulation of the blood: the blood might fail to clot when it was desired, and might clot when it was not desired, but very little could be done to prevent this.

The purpose of coagulation appeared to be to prevent loss of blood from the body. A defect in coagulation brought about a tendency to a rather peculiar haemorrhagic diathesis—a generalized tendency to prolong bleeding from any injured vessel. But blood coagulation was only a part, though an essential part, of the haemostatic mechanism. The primary factor was the contraction of the injured vessel. Secondary functions of coagulation were repair of wounds and warding-off infected areas. Blood coagulation might be a metabolic process which was going on all the time in the body, and the act of clotting merely an adaptation to meet a particular set of circumstances.

According to most theories clotting was the end-result of a series of separate events. Some which had been described, however, might well be artefacts produced by manipulation. The general theory of blood coagulation might be wrong altogether, and clotting might be a continuous process. Why did blood remain fluid in the vessel? In the first place, in the undamaged vessel there was no foreign surface to activate the kinase in the plasma. Whether coagulation occurred or not depended upon the rate of production of kinase and thrombin. If the rate exceeded that at which they were neutralized, coagulation took place.

The defects of the clotting system were shown first of all in haemophilia, in which the blood failed to clot in normal time. In this condition blood seemed to have the necessary fibrinogen and thrombin, but it would not clot. It had been shown that in haemophilic blood there was from five to eight times the amount of antikinase present in normal people. The treatment of haemophilia might be general or local. Substances which gave the best results were those of high kinase content: Russell viper venom was fairly successful. It was a sort of superstition that calcium deficiency was responsible for bleeding; but he had never observed it, and he did not know why so many people gave calcium when they suspected that the patient might bleed. There was a hereditary condition in which there was no fibrinogen at all, so that the blood was completely uncoagulable. He had seen two patients with this condition, both of them the offspring of first-cousin marriages. Another very rare condition was one in which the fibrolytic activity was such that the clots dissolved as soon as they were formed.

Burns were very different from abrasions in that they healed slowly. The superficial burn went on weeping and a solid scab was not formed. The delay in healing might be due to the absence of a natural covering of dried membrane. The Americans had made a plasticized fibrin membrane, which had the advantage from the point of view of a haemostatic dressing in that it was non-irritant and not likely to lead to any ill effects. The plasticized membrane could also be used as a dural substitute in brain operations, preventing the formation of adhesions between the brain and the scalp, which so often happened with other types of dressing.

Physiology of Vitamin K

Dr. H. SCARBOROUGH said that in the physiology of vitamin K the key part was played by the liver. It was in the liver that vitamin K was synthesized into prothrombin, which then passed out into the blood stream and took part in the coagulation process. Vitamin K, administered either orally or parenterally, must pass the liver before it could have any effect. Disturbances of vitamin K metabolism were reflected in a low level of prothrombin in the plasma. There was evidence that deficient intake of vitamin K was responsible for neonatal bleeding (it had been estimated that from 25 to 40% of neonatal deaths were due to intracranial haemorrhage). It was not entirely known why this bleeding tendency arose, but even in normal children plasma prothrombin was low at birth and fell after birth, particularly in premature infants. The administration of vitamin K to the mother could increase the prothrombin in the child, and this suggested that one of the causes of the neonatal bleeding was an impaired maternal contribution. A low prothrombin level in the child was related to toxaemic states in the mother.

Vitamin K could be administered to the infant. Indications for such administration were maternal toxaemia, prematurity, instrumental delivery, cases in which breast-feeding by the mother was impossible, and any cases in which an operation had to be performed on a newborn child. Many conditions could be prevented by routine administration of vitamin K to the mother. If the absorption of fat was defective some vitamin K was not absorbed and a haemorrhagic tendency might develop. Low levels of plasma prothrombin were found in some cases of disturbed intestinal motility—for example, in intestinal obstruction and long-continued diarrhoea and vomiting. These conditions led to a fall in plasma prothrombin, and treatment, controlled by the estimation of the plasma prothrombin level, was a matter of some urgency. The level also fell, often steeply, three or five days after a surgical operation, though the fall might occur within as short a time as a few hours. A normal prothrombin level before operation was no guarantee that post-operative haemorrhage would not occur as a result of the low prothrombin level. The level might fall rapidly after chloroform poisoning. In chronic liver diseases the fall was comparatively slow, and in liver disease, generally, very low levels were reached only rarely. Even a badly damaged liver was capable of synthesizing prothrombin. The level had no constant relation to the type of hepatic or biliary disease present.

Dr. Scarborough, speaking of dicoumarin as an anticoagulant, said it had lately been used in the treatment of threatened gangrene and of thrombo-lymphangitis; but the indications for it were not precise. Dicoumarin had rather a prolonged action, and even when it ceased to be administered its effect upon the prothrombin might continue for a week or a fortnight. It required very careful control by daily determination of the prothrombin. Its absorption was probably irregular, there was a considerable latent period before it became effective, and there was wide individual variation in the response to administration. It was certainly a toxic drug, and might give rise to haemorrhage difficult to control, though recent claims had been made that the prothrombin level resulting from dicoumarin administration might be lifted again by colossal doses of vitamin K. Dicoumarin increased the sedimentation rate; it was said to decrease clot resistance and firmness of clot in animals, and in many it produced capillary dilatation.

Finally Dr. Scarborough mentioned heparin, which could be used in all those conditions in which dicoumarin might find a place. It had advantages, but also disadvantages, making treatment difficult to control. Coagulation time might be prolonged by heparin to as much as two hours without dangerous effects occurring. The aim was a coagulation time of 15 or 20 minutes, but this was most difficult to attain, especially upon intravenous administration of heparin. Experiments were now being made with subcutaneous injection.

Discussion

The PRESIDENT said he had been interested in Dr. SCARBOROUGH'S rather pessimistic views on heparin. He agreed it was extremely difficult to assess its value. He mentioned the case of a patient with gross venous obstruction in the upper part of his body who was put on dicoumarin. There was little change in his prothrombin time, but three days after his last dose he had haematuria, bleeding from the gums, and epistaxis; the case eventually cleared up.

Dr. FREUND spoke of the value of calcium injections in the treatment of embolism. Mr. A. L. BACHARACH asked what was known about the changes in the intestinal flora during neonatal life. A good deal was known about the differences between human milk and cow's milk, but not everything, and one of the things not known was the effect, if any, on the intestinal flora. It would be interesting to compare the prothrombin time of breast-fed infants during the first fortnight of their lives with that of infants immediately put on the bottle. Different types of milk might have an effect on the intestinal flora, which was expressed in a different production of vitamin K. Major CLIFFORD WILSON described observations on soldiers with acute hepatitis, and said he had come to think that such phenomena as epistaxis were not connected so much with defective vitamin K absorption as with vascular phenomena associated with the hepatitis.

Dr. ELI DAVIS referred to a group of 500 cases in all of which some form of purpura was present and in which search was made for the vitamin K factor. In this number he had found only four definitely, and two others possibly, which gave strong evidence of prothrombin deficiency. Apart from this 1% of cases of purpura of all types, the general prothrombin index was between 85 and 100.

Dr. SCARBOROUGH, in reply, said he had not meant to suggest that the low prothrombin level was the sole cause of bleeding. He had studied 74 cases of scurvy and all had a prothrombin index of over 90. A low prothrombin index in an acute form of liver disease was quite unusual, and even when it did occur it was a fleeting manifestation.

Medico-Legal

BOGUS DOCTOR SENTENCED

Described by Judge McClure as "just an impostor," Richard Charles Vernon Grey (28) was sentenced to 12 months' imprisonment at the Central Criminal Court on March 9. After a second trial—the jury had disagreed at the first—he was found guilty of obtaining by false pretences £45 14s. from Dr. M. C. Irwin of Harringay, and sums of £26 14s. 6d. and £12 12s. from Dr. J. E. Price Watts of Chigwell.

Mr. Anthony Hawke (prosecuting) said Grey went to an agency which provided locumtenents and gave the name of a doctor who was on the *Register*. He said he was a bachelor of medicine and of surgery, and that he had held two medical appointments, one at Newcastle and the other at Manchester. As a result he obtained posts with a number of doctors. They, of course, accepted that he was fully qualified and on the *Register*. In no case was there any dispute about the quality of his work, which he carried out satisfactorily, but he would never have received payment for his services, nor such appointments, had the doctors concerned known the true facts.

Dr. Price Watts said that last September he required an assistant and engaged the defendant, Grey, who worked for him for a fortnight in October and a week in November. He received 12 guineas a week and all found. Grey was satisfactory and behaved as one would expect a doctor to do, and he was very interested in his work, but had he known that Grey was not a doctor he would never have considered employing him. He paid Grey for services rendered, but they were the services that he expected from a qualified doctor.

Dr. Irwin said that in November he required an assistant and engaged the defendant. "I thought he was a qualified practitioner and I arranged for him to do my Sunday duty and evening surgery. He was with me for the best part of two months and I paid him some £45. He showed skill, medical ability, and interest in his work."

Det. Sgt. L. Woolner said that on Jan. 26 he saw Grey and charged him with an offence under the Medical Act—namely, posing as a medical man. Grey replied, "There is not much use denying it." The defendant then made a written statement, and in this he explained that while serving with the R.A.M.C., from which he was discharged on medical grounds in June, 1942, he conceived the idea of becoming a doctor. He had had previous medical training, but did not wish to disclose the details. "From 1942 until October, 1944, I attended clinics in Manchester and London, where it was taken for granted that I was a medical student," he wrote, "and consequently I was allowed to attend lectures, out-patient clinics, and demonstrations. In October, 1944, I went to the agency and said I was a qualified practitioner, filled in an application form, and was given a selection of jobs to go to." Grey went on to explain in his statement that he was combining his work as a locumtenent with carrying on a consultant's practice as a psychologist in Harley Street. He did not give evidence in the witness-box. After the jury had found him guilty Det. Sgt. Woolner said Grey had six previous convictions. His first offence was stealing a doctor's doorplate, and the case was dismissed under the Probation of Offenders Act. In 1940 he was sentenced to three months' imprisonment for unlawfully representing himself to be a naval officer and for making a false statement with a view to obtaining an identity card. He now asked for three other cases of obtaining money by false pretences to be taken into consideration.

Correspondence

Shall We Nationalize Medicine?

SIR,—Lord Horder and I are old friends. Indeed, although he pretends to find something sinister in the word, I do not believe he would reject the idea of our being considered "comrades"! This being so he will not resent my selection for criticism of one or two assumptions and inconsistencies which found their way into his recent address at Cardiff (*Journal*, March 17). There is still need for clear thinking and free debate on such big issues.

First of all it is an assumption that State medicine must necessarily impose controls on the professional thought and actions of the doctor and spoil his age-long human relationships with his patients. There is no reason why "free speech on medical matters, free criticism of medical affairs, and free publication of scientific work" should not be preserved under a national system planned and organized to secure a more equitable distribution of health services, better co-ordination within those services, payment for those services from central sources, and universal contributions instead of directly from the patient's pocket, often at a time when he can least afford it.

The suggestion that the doctor should not be "political" implies a further assumption that he cannot be both a good doctor and a good citizen. One cannot develop one's functions fully as a doctor and a citizen without being interested in policies affecting the welfare of the community, and this is only another way of saying without "being political." Let us agree that it would be quite improper to mix politics with practice; and that it would be equally improper in the teaching of social medicine (which, like clinical medicine, has its scientific disciplines as well as its humanistic motives) to discuss political programmes for the solution of problems which can, and should, be as critically and dispassionately studied as bedside or laboratory problems. But it is surely wholly proper that doctors, when fitted and able to do so, should play a part in local government; that they should support parties which seem to them to work best in the national interest; and that they should sometimes occupy seats in the House of Commons—or even in the House of Lords! In these places what are they but politicians—left, right, or centre? The advocacy of 85% extraction flour—which you, Sir, actually refer to as the "political loaf" in your leading article of March 17—is surely political. Incidentally such advocacy requires State controls and opposes certain interests, and puts the people's health above individual "free choice."

And surely it is inconsistent to say that we doctors should remain "detached from political colour" and in the next breath to affirm that "many of us believe that to nationalize medicine is not only an unnecessary innovation but one which is unlikely to give the best results in medicine in this country. *If we find the public uncertain it is our bounden duty to convince it of this.*" Is it then non-political publicly to oppose a national service but political to support it? As Lord Horder reminds us, we stand convicted, with our legislators, for not having raised our voices more loudly about the environmental, nutritional, and other conditions which have maintained a vast and unnecessary amount of disease in our midst. The improvement of these conditions could certainly do more for national health than the extension and reorganization of the medical and other health services, but we are all entitled to speak according to our conscience, our experience, and our knowledge on either or both of these correctives.

I have advocated a full national medical service—to be introduced gradually with a system of five-year plans and appropriate priorities—because I sincerely believe it to be ultimately in the best interests of both the people and the profession of medicine. Until we have tried it, however, neither Lord Horder's assumptions nor mine can be proved the more correct. British medicine owes so much to him and he has done so much for his colleagues, students, and patients that his word commands a very great respect, but in a matter of prognosis he himself would not wish it to be considered final and authoritarian.—I am, etc.,

Oxford. JOHN A. RYLE.

Ludwig's Angina

SIR,—I have had a considerable experience of Ludwig's angina and have studied the literature and case reports for many years.

Oedema of the epiglottis is frequent, but I have not seen laryngeal obstruction. Tracheotomy instruments have always been ready when operating on these cases, but I have never had to use them. I believe that the reported fatalities are due to sudden heart failure. These patients are exhausted, ill, and suffer from severe toxaemia. Danish surgeons say the injection of novocain into the masseter and internal pterygoid muscles abolishes trismus.

If the U.S.A. Davis gag is used intubation is facilitated and the anaesthetic is continued during intubation. Moreover, the direct laryngoscope can be used with the Davis gag in position. Most surgeons agree that the abscess is found in the submaxillary gland fossa deep to the gland and superficial and deep to the mylohyoid muscle. In one case sepsis around an impacted wisdom tooth produced a lateral retropharyngeal abscess. A good exposure and access to the abscess was obtained by the Davis gag. All acute retropharyngeal abscesses should be opened with the use of this gag. Ludwig's angina can be drained by a large bow incision; the wound is opened widely by retractors and the abscess is found by dissection. When the abscess is found a finger is introduced to break down loculi and a small vertical incision is made to the lowest point of the abscess. A drainage tube is inserted for 48 hours only.

All these cases and deep abscesses in the neck so treated have made an uneventful and rapid recovery. I do not consider that the removal of the submaxillary gland or incision from the mouth into the neck is desirable or necessary. Also a drainage tube passed from the mouth into the neck wound causes discomfort, impedes feeding, and is unnecessary. —I am, etc.,

London, W.1. E. D. D. DAVIS.

Enteritis in Scotland

SIR,—A current outbreak of enteritis in Scotland is rousing public interest and causing comment in the Press and elsewhere. The ailment has been loosely described as "dysentery," but neither the pathogenic germs of this nor of other enteritic diseases have been isolated. The illness is mild, causing personal inconvenience and waste of industrial time rather than serious physical disability. In the absence of positive bacteriological evidence, may I put forward a theory based on personal experience?

Our wartime diet includes a much greater amount than formerly of tinned and other preserved foods, containing chemical substances, usually sodium nitrate, sodium nitrite, boric acid, and sulphur compounds. There must be few of us who do not ingest a certain amount of these chemicals weekly. It seems reasonable to suppose that a chance arrangement and superimposing of some of these common foods may give just that amount of cumulative irritation to set up an enteritis. In addition to tinned foods, one must not forget that preservatives are present in sausages and in "mince"—i.e., the uncooked minced beef sold by butchers—both very popular items of diet in Scotland, particularly in industrial areas. On at least six occasions during the past year a sudden enteritis, affecting my own household and others, was preceded by a meal of sausages which were fresh, palatable, and highly reputable.

It is a striking testimony to the purity of our food and water supplies that in the sixth year of war we are still without an epidemic of enteric infection. I would suggest that the amount of preservatives, in our home-produced food at least, might now be safely lowered for our national convenience.—I am, etc.,

Dyce, Aberdeenshire. MARGARET S. M. MCGREGOR, M.D.

Conservative Treatment of Duodenal Ulcer

SIR,—A recent statement by a speaker at the Royal Society of Medicine that perforated duodenal ulcers rarely recover without surgery prompts me to write concerning a conservative treatment of this condition.

I noticed when operating on perforated duodenal ulcers that often one had to remove an omental plug before suturing the perforation, and that often when assisting at a subtotal gastrectomy the patient had previously had a duodenal "leak" which had healed. After making these observations I decided to attempt a conservative treatment of perforated duodenal ulcer.

My small series of patients were six men—three between the ages of 20 and 30 and three between the ages of 60 and 65. On admission the clinical diagnosis of perforated peptic ulcer was in each case confirmed by a colleague. Immediately the diagnosis was confirmed morphine 1/4 gr. was given intravenously and an intravenous drip of 5% glucose in saline begun. Next the stomach was emptied by a wide-bored stomach tube, which was then removed, and a Ryle's tube passed nasally into the stomach and left *in situ*. The stomach was aspirated every half hour for the first 24 hours, every hour for the next 24 hours, and every 3 hours for the subsequent 24 hours. During the whole time the Ryle's tube was in use frequent mouth washes were given. For the first 24 hours morphine 1/4 gr. was given every 4 hours if abdominal pain returned, but I did not find it necessary to give it after that time. The intravenous glucose-saline was continued for the whole of the first 3 days, after which the patients were put on a Sippy diet, and in no case were there any ill effects and each patient made an uninterrupted recovery.

After a month each patient was examined radiologically and in each case the presence of a duodenal ulcer was confirmed. I am very grateful to Mr. G. W. Beresford, F.R.C.S., for his permission to carry out this method of treatment.—I am, etc.,

Southlands Hospital, Shoreham. E. W. BEDFORD-TURNER.

Incidence of Peptic Ulcer

SIR,—Sir Henry Tidy's interesting article on the incidence of peptic ulcer (March 10, p. 319) has social implications. The only factor I can think of which could affect the incidence of gastric ulcer in women about 1913 is that the period in question coincided with the cessation of tight lacing.

The increase in the incidence of duodenal ulcer perforations in men at the time of the worst London "blitz" may be accounted for by the greater exhaustion on the part of men than of women. Nearly all men in London at that time were doing frequent night duty in addition to daily work. Women constantly lost sleep too, but those with children at least rested when the children rested. And men smoked more—especially at night.—I am, etc.,

Leeds. R. A. MURRAY SCOTT.

Immunization against Tetanus

SIR,—There must have occurred to many practitioners in rural areas the desirability of inoculating substantial sections of the civil population with antitetanus toxoid. I refer particularly to workers on farms and small-holdings and those connected with horses, etc. How often do patients present themselves with injuries received in the course of their occupations, sometimes contaminated with dirt to a greater or lesser degree, and the problem always has to be considered whether or not to give antitetanic serum prophylactically. It is impracticable to do so in every case, and, as recent correspondence in the *Journal* has shown, tetanus not infrequently results from insignificant injuries.

Experience during this war has demonstrated the great value of inoculation of soldiers with antitetanus toxoid, and I write to suggest that the organization which must have been set up for the production of the toxoid in sufficient quantities should be used after the war (earlier, if possible) for the benefit of susceptible sections of the civil population.

There is the interesting question whether or not inoculation should be a general practice, comparable to that adopted and urged for children in the case of diphtheria. I should be interested to learn the views of your readers on this point.—I am, etc.,

Sturry. L. J. GREEN.

Identification of Gas Cylinders

SIR,—We have read with interest the note on the "Identification of Gas Cylinders" (March 17, p. 381), and particularly the concluding sentence that accidents due to misidentification of gas cylinders are not, unfortunately, rare, and that if the anaesthetists would agree upon standard markings doubtless manufacturers would at once meet their wishes.

Unfortunately the matter is not so simple as your contributor apparently believes, since the solution of the problem involves negotiation and agreement between several interested parties in this country and over-seas; it is not dependent on the anaesthetists alone.

Steps to deal with the situation that exists have been taken already by the Council of the Medical Defence Union and the Association of Anaesthetists acting in conjunction with national manufacturers of gaseous anaesthetics and anaesthetic apparatus. At a conference of these parties it proved practicable to secure the adoption of and the assurance of the immediate application of a "short-term policy" whereby the manufacturers undertook to carry out the following improvements related to the identification of gas cylinders:

1. The effective colouring of cylinders containing gaseous anaesthetics to enable the cylinders and their contained gases to be identified unmistakably by the colour employed.
2. The labelling or stencilling of the cylinders with the appropriate name of the contents or the chemical formula.

A "long-term policy" dealing with the undermentioned aspects of the problem was prepared and submitted to a special committee established under the aegis of the British Standards Institution. This committee consists of representatives of the professional, technical, and commercial interests involved and it has a reference calling for an examination and report upon suitable measures that may be adopted for the avoidance of accidents arising from errors of identification of gas cylinders and on other cognate matters relating to the use of coloured tubing, adapters, outlets, safety valves, etc. It is eventually hoped that a common measure of agreement will be secured with regard to standard specifications on these several items of equipment that are commonly employed by anaesthetists in their work.

The "long-term policy" envisages:

1. The incorporation of safety valves in cylinders containing gaseous anaesthetics.
2. The use in hospital and private practice of non-interchangeable couplings.
3. The use in hospital and private practice of an approved colour scheme for anaesthetic tubing.
4. The regular periodic servicing and inspection of anaesthetic apparatus in hospitals by approved manufacturers.
5. The use of fixed metal tubing in place of rubber tubing on integral machines.

Manufacturers are anxious to assist in every direction possible, but emphasize the impracticability of introducing extensive and costly changes in the midst of a war when labour problems are acute and material is in short supply. International standards and specifications will also call for consideration by the committee, and it is sincerely hoped that progress will be made to obviate the confusion arising from the interchanging and use of gas cylinders of foreign origin.—We are, etc.,

JAMES FENTON,
President, Medical Defence Union.
ARCHIBALD D. MARSTON,
President, Association of Anaesthetists.

SIR,—Every practising anaesthetist will applaud your medico-legal note (March 17, p. 381), since each of us is looking forward to the time when all cylinders are distinguished not only by colour but also by size of nozzle. I believe that the Association of Anaesthetists is at this moment actively engaged in obtaining this, and their efforts are receiving the sympathetic attention of manufacturers. Accidents are not heard of because most of them terminate favourably, but if Prof. Macintosh's suggestion were adopted that all anaesthetic deaths should be reported we should learn a lot about connecting up cylinders wrongly.—I am, etc.,

London, W.1. R. ERSKINE-GRAY.

SIR,—It is to be hoped that anaesthetists and hospital authorities will give careful attention to the medico-legal problem involved under the heading "Identification of Gas Cylinders" (March 17, p. 381).

With this problem in view the anaesthetic apparatus in the new operating theatre at the South Middlesex Emergency and Fever Hospital was specially designed. Here we do not rely on any colour system (as your contemporary recommended), but employ such devices as non-interchangeable yokes and couplings, so that a tragedy such as you describe is rendered impossible. By means of an automatic alarm system employing apparatus of a type used for many years in industry, and not "Heath Robinson" devices, another prevalent cause of anaesthetic deaths—namely, unobserved failure of oxygen supply—is eliminated.

All safety devices cost money, but where human lives are at stake this is of secondary importance. Pious recommendations are of no avail, but these deaths *could* be prevented by a suitable Act of Parliament compelling manufacturers and hospital authorities to adopt certain standards of safety in design, testing, and installation.—I am, etc.,

Twickenham. NORMAN R. JAMES.

Barotrauma

SIR,—Dr. A. B. Alexander (Feb. 24, p. 276) has suggested that the aural lesion produced in certain circumstances by changes of atmospheric pressure should be described as a "tubo-tympanic pressure syndrome" on the grounds of greater accuracy. With diffidence the following reply is submitted to his criticism of "otitic barotrauma," the term used by the Royal Air Force for the last three years. The former term is more general and therefore less accurate; it could be stretched to cover the case of the aviator who has "got away with" flying with a cold and has managed to maintain sufficient ventilation through his Eustachian tubes during descent to avoid damage to his drums, although experiencing symptoms. Such a patient would not be considered to be suffering from "otitic barotrauma," but would still be classifiable under the all-embracing "tubo-tympanic pressure syndrome."

Your correspondent objects to "otitis." If we accept the definition of inflammation as the response of injured but living tissue to the initiating trauma, then there can be no objection on terminological grounds. Clinically as well the classical features of inflammation are present—viz., *dolor, tumor, rubor, atque functio laesa.* Admittedly the *calor* component is more difficult of proof, but hyperaemia is an early sign and so *calor localis* would be there for any diligent seeker.

There can be little quibbling about "barotrauma," which is a gem of a word in both derivation and description. "Barotraumatic otitis" is therefore just as accurate a term as "traumatic synovitis" and better perhaps than "industrial dermatitis." Custom has led to the use of pure Latin for describing diseases of the ear, and so by analogy the condition should be "otitis barotraumatica." Some indulgence is here requested for the well-known word-coining propensities of the members of the R.A.F., who with their American friends are intolerant of redundancy, and so the anglicized "otitic barotrauma" has been produced with the doubtful disadvantage of interchange of noun and adjective but with an economy in a couple of syllables. Terminological purists can best settle with their consciences by using the abbreviation "O.B.," which, like "C.S.O.M.," has the great merit of brevity so woefully lacking in "tubo-tympanic pressure syndrome."

In conclusion I would like to thank Wing Cmdr. J. E. G. McGibbon for drawing attention to the benefits derived from auto-inflation with the head tilted slightly backwards (*B.M.J.*, Feb. 10) in correction of my statement in an article of earlier date.—I am, etc.,

R. M. S. MATTHEWS.

Another View on the Bassini Operation

SIR,—Like Elihu, the son of Barachel the Buzite, of the kindred of Ram, my wrath has been kindled and I am constrained to speak. For years it has been the fashion to malign the Bassini type of operation for inguinal hernia. I speak from memory, but so far as I recollect, during a discussion on inguinal hernia some years ago, Prof. Grey Turner was the only one who had a kind word to say in favour of this operation. As far back as 1927, when the Association of Surgeons met in Glasgow under the presidency of the late Prof. Archibald Young, I gave figures concerning 80 cases of inguinal hernia treated in Prof. Young's wards. Most of these had undergone an operation of the Bassini type. Prof. Young assessed the results. Of these 80 cases 4 were direct hernias and 76 indirect, 9 of which were of the "sliding" variety. There were 3 recurrences in the series. Eleven others were not reckoned complete "cures" because of neuralgia in the scar. Since then I have never failed to divide the inguinal branch of the ilio-inguinal nerve, and there has never been any complaint because of this.

Lately my junior colleague, Mr. Thomas L. Gordon, has investigated the cases of inguinal hernia treated by the Bassini type of operation in my wards in the Western Infirmary, Glasgow. He has included strangulated hernias in this series, and even then there is only a 3% recurrence rate. Mr. Gordon hopes to publish the details soon. There is no machinery at present that can determine a true recurrence rate. It would require a national register, and we should have to wait until every member of a large series of cases had died before we learned the *absolute* truth. Nevertheless, our investigation has been conducted as accurately as possible under war conditions.

I find it difficult to understand why such apparently uniformly bad results have been obtained by those who write disparagingly of the Bassini type of operation. I believe the worst results will be obtained by the surgeon who limits himself to one method of "curing" hernia; there is no one method suitable for every case. Allowing for this, a large proportion of inguinal hernias can be treated by the Bassini type of operation, and the results compare very favourably with those of any method. The following is a brief description of the operation I favour.

An ample skin incision is made so that no traction is exerted on the wound edges. The aponeurosis of the external oblique is split from a point lateral to the internal ring to the external ring. The upper leaf is then stripped from the underlying internal oblique and rectus sheath for at least three or four inches. This generally allows easy approximation of the conjoint tendon and the related muscles to Poupart's ligament with little or no tension. The lower leaf is similarly cleared to define the deep aspect of Poupart's ligament. The inguinal branch of the ilio-inguinal nerve is now removed. The cord is then lifted from its bed and the sac exposed and freed far up, much higher than the neck. At this high level it is cut away and the opening in the peritoneum closed by a continuous suture. The cremaster muscle and excess veins are removed. The canal is then repaired by approximating the conjoint tendon, etc., to Poupart's ligament, behind the cord, with four or five interrupted sutures of catgut not thicker than No. 1. Great care is taken to place these stitches at different levels so as to avoid splitting of the fibres of the ligament. A continuous suture of 4 or 6 "0" catgut is then applied over this to ensure that no underlying fat or other tissue can possibly be thrust through between the interrupted stitches should the patient be sick during recovery. The cord is then placed on the new floor and the external oblique aponeurosis stitched. The deep fascia is always sutured as a separate entity and the skin wound closed. Careful haemostasis is necessary throughout. An ample dressing is applied and retained in position by a firm spica bandage. The patient is nursed on his back and the knees are not flexed; this ensures that general healing and the adherence of the various layers of the abdominal wall take place in the fully extended position. If the patient's hips are flexed, either by the use of a knee pillow or by raising the head and shoulders, healing occurs in this flexed position and a very pronounced strain is put on the repair when the patient is allowed up and tries to assume the erect posture. The patient is kept three weeks in bed, but is allowed to move freely after the first week so long as he returns to the fully extended position.

In the prevention of recurrence I consider that free exposure is important and, even more so, absence of haste: never look at the clock; do the job carefully and well no matter how long it takes. Most important of all is delicate handling of the tissues. There is a class of elderly patient with very degenerate tissues in whom almost any operation is doomed to failure. I am presuming that those cases are only dealt with should an emergency arise, such as strangulation. Recurrence in such cases is almost unavoidable.

The last paper dealing with inguinal hernia appeared in the *British Medical Journal* of March 3 (p. 296) by Mr. Percival P. Cole. He, like so many, finds that most recurrences occur after the Bassini operation or one of its modifications. As stated above, this is not my experience. He goes back to the silver filigree. I made many filigrees for the late Sir Kennedy Dalziel when I assisted him away back in 1911. As time went on he gave up the method, and personally I have not tried it since. In the rare cases that require extra support fascial strips are used from the external oblique aponeurosis, leaving them attached at the pubic end.

I was amazed to learn in the memorandum issued by the Army Medical Department that "sepsis" is "relatively common." As a junior I was brought up to believe that sepsis, occurring in a clean operation of choice, was entirely the fault of the surgeon, and I was told in no measured terms that if I could not perform a clean operation without incurring sepsis I should give up surgery. I was allowed no excuses. In no case of inguinal hernia treated in my unit has there been sepsis. Why should sepsis occur in an operation of choice? The causes are much the same as lead to recurrence—i.e., small incision, because excessive traction is used to gain exposure, rough handling, and haste. Mr. Cole had no case of sepsis in his series, and that is as it should be. But he attributes this to non-touch technique. Now I think non-touch technique a snare and a delusion. If a surgeon cannot trust his hands as much as his instruments something serious is wrong.

Recurrences were met with all too frequently in the first three or four years of this war. Among such I dealt with two cases repaired elsewhere by fascial suture and one by floss silk (this had become septic in the presence of a carbuncle). In several others it was impossible to determine what method had been used; in some the sac only appears to have been removed. It so happens that none was of the Bassini type. I have a shrewd suspicion that there would not have been such a flood of recurrences if junior surgeons had been taught to do a simple operation such as I have described rather than embark upon more intricate procedures.

I started with a quotation from the Book of Job; let me finish with one from Shakespeare: when there is a recurrence "the fault, dear Brutus [or surgeon] is not in our stars [or choice of operation] but in ourselves."—I am, etc.,

ANDREW J. HUTTON,
Visiting Surgeon, Western Infirmary, Glasgow.

Prophylaxis of Trench Foot

SIR,—I had not intended to reply to Dr. A. W. Forrest's letter (March 10, p. 344), which expresses so complete an ignorance of the subject of trench foot that it seems to answer itself. I am, however, induced to change my mind by some who feel that public policy demands it. I shall not, however, follow his example of wasting much of your valuable space.

There was nothing "novel" in my paper. It was a summary of the methods of prophylaxis which were found highly effective in the last war, and which, by their strict application in this war, have reduced the British casualties from this cause to negligible numbers in circumstances of the greatest hazard.

I think that Dr. Forrest may assume that my "strong words" do, in fact, meet with the approval of the fighting Services. I have had ample assurance of this from the highest quarters. To the best of my knowledge neither the University of London nor the British Postgraduate Medical School has formulated an official policy on the prevention of trench foot. We have not yet reached a stage of Fascism in which such bodies censor the views of lecturers within their walls.—I am, etc.,

Whitchurch, Bucks. RAYMOND GREENE.

Ovariotomy or Caesarean Section?

SIR,—I deprecate any hard-and-fast rule as to whether ovariotomy performed on a patient with a viable pregnancy should or should not be accompanied by Caesarean section. Surely it depends on how far the patient is from term. If the time is considerable natural delivery should be awaited, but if labour is shortly due the question has to be considered whether it is desirable to let the patient undergo a second operation, albeit she carries out that operation on herself. I think the patient and her husband should decide this after the pros and cons have been explained to them.

When the ovariotomy has to be undertaken because the labour is obstructed, whether the child should be delivered by Caesarean section or not largely depends on the state in which the obstructed labour has left the patient. If this is unsatisfactory Caesarean delivery is unquestionably indicated. I can imagine the despair of a woman who, having already suffered for many hours, awakes from the anaesthetic to find she still has to undergo the pangs of labour, made worse by the pain of an abdominal wound. If men, instead of women, bore children I fancy that the teaching of certain professional obstetricians would undergo some modification.

Mr. Stanley Way's letter (March 17, p. 384) interests me, and I entirely agree that, when an ovarian cyst in a relatively young woman is operated on, the cyst should be enucleated and not dealt with by ovariotomy. I have strongly advocated the enucleation of ovarian cysts ever since I accidentally discovered, in 1916, that they could be enucleated; and I have ventured to coin the name of "ovarian cystectomy" to distinguish this operation from ovariotomy, in which the ovary is removed as well as the cyst. If Mr. Way will look up the literature he will find that in 1924 I stated that all innocent ovarian cysts and many innocent solid growths of the ovary could be enucleated, and I have written on the subject many times since. I am, however, glad to read Mr. Way's confirmation. I have now performed the operation just over 300 times without a death, and have several times enucleated cysts weighing over 20 lb.—I am, etc.,

London, W.1. VICTOR BONNEY.

Flour in the Loaf

SIR,—In the *Journal* of March 17 (p. 393), in a report of the House of Lords debate on Feb. 28, you cite some remarks by the Earl of Portsmouth about Bemax, a product of my company. I realize that in the course of a summary of the proceedings in the House of Lords it is entirely natural that you should include Lord Portsmouth's remarks, but it is unfortunate from my company's point of view that Parliamentary privilege prevents my dealing with their inaccuracies as effectively as would have been possible had they been made outside the House. I feel therefore bound to ask for the hospitality of your columns to refute Lord Portsmouth's statements.

I will confine my comments to those points which are likely to be, if uncontradicted, most damaging to my company's reputation. He stated that Bemax "was largely the result of removing the most valuable constituents from the wheat berry before it was made into white bread." This statement bears no relation to fact. Not a single particle of Bemax is derived from wheat or flour intended or actually used for the manufacture of bread. For the benefit of your readers who are not familiar with milling processes and the current law on the matter I ought to explain that the removal of germ from flour intended for bread-making is strictly prohibited by current regulations (S.R.&O., No. 11, 1943), and to my personal knowledge and to the knowledge of everyone who has any connexion, direct or indirect, with the milling industry, these regulations are rigidly enforced. The facts just cited have been publicly mentioned in both the House of Commons and the House of Lords (see, for example, Hansard, June 9, 1942, June 30, 1942, July 16, 1942, July 21, 1942, Aug. 14, 1942, July 23, 1943, etc.). It is clear, therefore, that Lord Portsmouth failed to study in advance the subject on which he was to speak.

The raw material from which Bemax is prepared is extracted solely from flour destined for manufacturing purposes—purposes in which the vitamin B_1 will in any case be unavoidably destroyed in whole or in major part by the subsequent manufacturing processes. Its extraction for use as Bemax represents, therefore, a far-sighted and wise "salvage" policy in relation to nutritional needs and not, as is clearly implied by Lord Portsmouth's remarks, a worsening of general nutrition via bread for the benefit of private interests. Lord Portsmouth further alleged that Bemax supplies the most valuable constituents of the wheat berry at something like a hundred times the price they would cost if they had been left in the loaf. These fantastic allegations as to the relative cost of Bemax and bread are, in any case, irrelevant, because Bemax is not "subtracted" from the loaf; but even if this were not so, the extent to which Lord Portsmouth's statements deviate from a fair comparison may be gauged from the fact that the cost of vitamin B_1 in Bemax is slightly less than its cost in the loaf, notwithstanding the subsidy on bread. A similar comparison in respect of other factors of the B complex, as well as of other nutrients, is equally favourable to Bemax. If indeed the product had ever been sold at an exorbitant price, normal competition would long ago have operated to reduce it.

For many years my company and its scientific staff have contributed to the advance of nutritional knowledge. Our educational publications have always stressed the nutritional advantages of wheatmeal bread. Some of these publications are widely used in the schools and have been incorporated by independent authors in medical and nursing textbooks. If, therefore, we are again to be attacked publicly in this manner I trust that it may be in circumstances of a nature which can be dealt with by ordinary legal processes.—I am, etc.,

H. C. H. GRAVES,

Hammersmith, W.6. Chairman and Managing Director, Vitamins Ltd.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The Council of the Senate and the General Board have issued reports on the establishment of a Professorship and a Department of Experimental Medicine (*Cambridge University Reporter*, March 14, 1945). In 1931 the Council had under consideration the setting up of a professorship of experimental and clinical medicine, recommended by its committee which considered the position of medical studies in the University after the death of the Downing Professor of Medicine. The Council could not then accept its committee's recommendation, because the chair could not be established without a large benefaction. In its statement on post-war needs a year ago the Faculty Board of Medicine recommended the early establishment of a department and professorship, and said it would welcome the appointment of Dr. R. A. McCance as professor if it were found possible to establish the department. In its report dated Feb. 28, 1945, the General Board makes known an offer by the Medical Research Council to provide the stipend of Dr. McCance as professor, and also to increase substantially the financial support which it is already affording to Dr. McCance's researches. The Council of the Senate is of opinion that advantage should be taken at once of the generosity of the M.R.C., for this now makes it possible to bring into being a professorship it has long wished to establish. In order, however, that the University may be free in its plans for the future the Council proposes that the professorship be limited to one tenure. Other recommendations are that the professor shall not engage in private practice, and that the chair be primarily assigned to the Faculty of Medicine and come into being on Oct. 1 next. Dr. McCance's present position is that of Reader in Medicine.

E. Cronin has been approved for the degree of M.D. in absence.

UNIVERSITY OF SHEFFIELD

Dr. H. A. Krebs has been appointed to the newly created Chair of Biochemistry. Prof. Krebs first went to Sheffield from a post at Cambridge nine years ago and, as lecturer, founded there a school of biochemical research which his work has made very well known in scientific and medical quarters of the world, attracting researchers from other places, including the United States, to work under him, and winning substantial support from such bodies as the Medical Research Council and the Rockefeller Foundation of New York. He has taken an active share in organizing and conducting a number of nutritional studies for the Government during the war.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

At an ordinary meeting of the Council held on March 8, with Sir Alfred Webb-Johnson, President, in the chair, it was reported that Sir Hugh Devine was admitted to the Honorary Fellowship of the College in Melbourne on Feb. 24 by H.R.H. the Duke of Gloucester.

It was decided to continue recognition of the Walton Hospital, Liverpool, under the F.R.C.S. regulations in respect of the posts of resident surgical officer, second resident surgical officer, and senior house-surgeon. It was also decided to amend the regulations for the Fellowship examinations so as to extend admissibility to the examinations to holders of any medical qualification registrable on the British *Medical Register*.

Sir Arthur MacNalty was appointed Thomas Vicary Lecturer, and Prof. W. E. Gye, F.R.S., and Dr. L. Foulds Imperial Cancer Research Fund lecturers in the College for 1945.

Diplomas of Membership were granted to J. A. Litchfield and R. E. Moore.

Diplomas in Ophthalmic Medicine and Surgery and in Medical Radiology were granted jointly with the Royal College of Physicians of London to the following successful candidates:

DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY.—P. L. Allen, J. Berkson, E. A. Butterworth, J. S. Crawford, G. P. Crookes, A. Dala, W. M. C. Gilmour, H. L. Gulati, J. R. C. Holmes, G. A. D. Lamb, R. L. Parish, J. M. Posada, S. P. Redmond, Jane P. Smith.

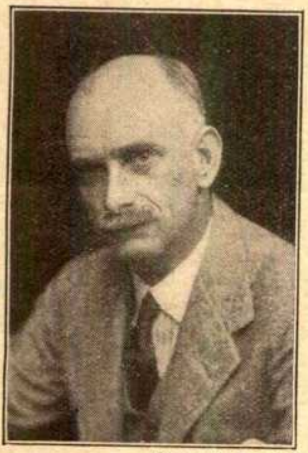
DIPLOMA IN MEDICAL RADIOLOGY.—M. Bennett, V. J. Coffey, J. C. Dore, E. W. Hyde, Katie H. Jones, K. M. N. McMahon, B. Mannheimer, S. L. Mitra, A. D. O'Connor, D. P. O'Sullivan, T. R. Riley, K. Sicher, W. G. Smith, R. E. Steiner.

Obituary

SIR THOMAS LEWIS, C.B.E., M.D., F.R.S., LL.D., D.Sc., F.R.C.P.

Sir Thomas Lewis, physician to University College Hospital, and Director of the Department of Clinical Research and Holme Lecturer in the medical school, died at Rickmansworth on March 17. For many years he had been engaged solely in teaching and research.

Born in 1881 son of Henry Lewis, J.P., of Tynant, Taff's Well, near Cardiff, he was educated at Clifton College, at University College, Cardiff, and at U.C.H. He gained first-class honours in the Final B.Sc. at London University, qualified in 1904, and graduated M.B., B.S.Lond. with the University Medal, and D.Sc. of the University of Wales. He won clinical and pathological medals at U.C.H., was elected assistant physician not long after taking his M.D., and became F.R.C.P. in 1913. He was also for a time physician to the City of London Hospital for Diseases of the Heart and Lungs, Victoria Park. In 1908 he asked A. S. MacNalty to work with him on heart-block. This was the first investigation on a human subject in which the electrocardiograph was used, and a joint paper entitled "A Note on the Simultaneous Occurrence of Sinus and Ventricular Rhythm in Man" appeared in the *Journal of Physiology* that year. For his contributions to cardiovascular physiology, on which he gave the Croonian Lecture to the Royal Society in 1917. Thomas Lewis was elected F.R.S. in 1918, and in 1927 was awarded a Royal Medal. Much of his work which formed the basis of his Croonian Lectures before the Royal College of Physicians in 1926 had been published in detailed form in a series of original memoirs printed chiefly in *Heart* and in the *Journal of Physiology* from 1916 onwards. This wealth of experimental material during eleven years appeared as a monograph, *The Blood Vessels of the Human Skin and their Responses* (1927); by that time all the world of medical science knew of the leading part played by Thomas Lewis in that remarkable advance in clinical knowledge of the defects of the heart's action, made possible by experimental analysis of the mechanism of the mammalian heart beat.



[Photo by Vandyk

During the last war he served as consulting physician on diseases of the heart to the Eastern Command, and for this was awarded the C.B.E. in 1920; he was knighted a year later. After the war he acted as honorary consulting physician to the Ministry of Pensions. He received honorary degrees from the University of Wales (when he was President of the Section of Medicine at the B.M.A. Meeting at Cardiff), and from the Universities of Sheffield, Liverpool, Birmingham, and Michigan. He was a Foreign Member or Honorary Fellow of more than a score of universities and academic institutions abroad, and was awarded the Mitchell Prize by Toronto in 1933. He received the Copley Medal—the highest honour of the Royal Society—in 1941, and in 1944 the Presidents of the Royal Society and of the Royal College of Physicians awarded him the Conway Evans Prize for his great contribution to medical knowledge on the normal and abnormal mechanisms of the heart and circulation of the blood. His Harveian Oration to the R.C.P. twelve years ago was entitled "Clinical Science," and that was the name of the journal which he founded and edited in succession to *Heart*. Of Lewis's important writings published in book form *The Soldier's Heart and the Effort Syndrome* reached a second edition; *Mechanism and Graphic Registration of the Heart Beat*, a third; *Clinical Electrocardiography*, a sixth; and *Clinical Disorders of the Heart Beat*, a seventh. The results of his researches were brought before the general medical public in several masterly articles written by him for this *Journal*.

Sir Henry Dale, O.M., President of the Royal Society, sends the following appreciation:

With the death of Sir Thomas Lewis, at an age when his mental vigour had suffered no decline, we have lost an experimental scientist and physician of the highest rank. As is well known, Lewis very early made it his life's aim to establish in this country a strong and progressive tradition of direct experimental research on disease in the human subject, and to the furtherance of that aim he devoted the whole strength of his indomitable and uncompromising character, as well as his rare abilities.

The son of a distinguished mining engineer, a man of great influence in the South Wales coal industry, Lewis had an unusual education. But for a brief period at Clifton he was tutored at his parents' home, where, apart from formal learning, he acquired his abiding love of the country and trained his remarkable powers as an observer of Nature, which were to become so important a part of his equipment as physician and man of science. He decided to be a doctor before he entered his teens. The precocity of the decision was characteristic, as was, perhaps, the reason for it: two doctors who attended his family both happened to be conjurers, and young Tom supposed that a medical training would be necessary to enable him to rival their dexterity. Certainly a remarkable manual skill was to play its part, together with a persistent curiosity about natural phenomena and a rare alertness and accuracy of observation, in making the brilliant research worker which the boy was to become. Until he was 16 it does not seem to have occurred to the young Lewis that there was any need for him to work at his studies. They would, in any case, have come easily to him, and there were so many things in his country life to attract and hold his interest more readily; but to suppose that in any moment of his waking life his brain was ever idle, relaxed, or inattentive is just impossible to anybody who knew him in after-life. He reached a turning-point when at the age of 16 he sat for the London Matriculation Examination, and failed. That was, of course, enough for Lewis; he forthwith applied himself to his books, and thereafter he never failed in an examination. At Cardiff he worked hard, and by the time he was 20 he was demonstrating for the professors of anatomy and physiology. Swale Vincent, professor of physiology, helped him to his first experience of research. In 1902, at the age of 21, with an entrance exhibition, he entered University College Hospital, London, with which his connexion was to continue to the end of his life. All through his student career he was giving spare time to odds and ends of research, and meanwhile, in the informal friendliness of encounter at teashop luncheons, he was learning from seniors of the calibre of Horsley, Bayliss, and Starling, all quick to recognize the quality of this young man from Wales. He was lodging, too, at this time and making a lifelong friendship with T. R. Elliott, by some years his senior. Lewis, indeed, had a precocious maturity of outlook and scientific judgment which made it natural for him to associate with older men; though he was my own junior by 6½ years, it never occurred to me to think of him as other than a contemporary in scientific development and experience. I remember the impression of assured scientific competence and judgment produced by his first serious piece of research, on sphygmograph records, when he described it to the Physiological Society. Lewis continued this work on pulse records in Starling's laboratory until he met James Mackenzie, whose stimulating influence turned his attention to the analysis, by the experimental methods then becoming available, of the ventricular irregularity which Mackenzie had called "nodal rhythm." Another influence at that time must have been the arrival at University College of Cushny, who had already produced auricular fibrillation experimentally. These contacts, together with Einthoven's introduction of the string galvanometer, set the stage for the research which was to establish Lewis's reputation as a medical investigator of achieved distinction and of tremendous promise.

Meanwhile he had been dividing his time between research, the tenure of appointments at minor hospitals, and occasional private consultations. His foot was, in fact, already well on a ladder leading to success as a consulting physician; but this was not the career on which he had set his heart. He had tasted the joys of research and had begun to be conscious of his life's mission, and to mistrust the possibility of dividing his time and attention between a concentrated investigation of one chosen problem and the finding of rapid solutions for a mixed succession presented from outside. In 1910 the first appointment of Beit Memorial Research Fellows gave Lewis a further chance; he was an applicant, and his name stands first on the now long and distinguished list of those who have been Beit Fellows. His tenure was brief, however, for in 1911 his old hospital gave him a lectureship, made him an assistant physician in 1912, and a consulting physician in 1913. He was now immersed in his great series of experimental researches on the mechanism of the heart beat, and this work was earning him recognition in the U.S.A. at least as soon as in his own country; for in 1914, still at the remarkably early age of 33, we find him delivering the Herter Lectures at Baltimore, a Harvey Lecture in New York, and remaining for a spell as a visiting physician attached to the Peter Bent Brigham Hospital at Boston. His experimental work of this period, published in a masterly series of papers in the *Philosophical Transactions of the Royal Society*, and summarized in 1917 in his Croonian Lecture, must certainly rank as one of the outstanding achievements of physiology in our own or, indeed, in any time. For Lewis, however, it was merely the necessary background for a planned lifetime's study of the disturbances of the normal mechanism by disease.

In 1916 Lewis's career and opportunity were finally settled by his appointment as the first whole-time research physician on the staff of the Medical Research Council, with a ward and laboratories placed at his disposal by University College Hospital. Years later, in 1937, the support of his appointment there, as chief of a department of clinical research, was transferred to a special Trust endowed by the Rockefeller Foundation; but Lewis's research colleagues remained on the staff of the Medical Research Council. In its first few years the new department's activities were much scattered and interrupted by Lewis's service as consulting physician to military hospitals. But out of these war years came his well-known studies of the "effort syndrome" ("soldier's heart"), and the first stage, published with Cotton and Slade, of his second major series of researches, dealing with the reactions of the peripheral blood vessels, and eventually embodied in his remarkable monograph (1927), packed with original observations, on *The Blood Vessels of the Human Skin and their Responses*—a very model of what can be done by direct experiment on the human subject, with a minimum of apparatus, but with a naturalist's faculty of observation sharpened to the finest edge of precision. Here again Lewis's aim had been to get for himself an exact picture of normal reactions as a starting-point for his study of their modification by disease or by inborn abnormality.

Time and space alike forbid a detailed account here of the achievements in clinical research of Lewis and the school which he founded. As years went on the centre of his thoughts and his interest was more and more occupied by the importance of his mission—of his duty to the future of medicine, especially in his own country, and of proclaiming its needs at every opportunity. The sword must not sleep in his hand till he had built here a temple for the service of medicine by the direct experimental investigation of disease in man, with proper careers and prospects open to its priesthood and its votaries. Some might urge, not without some justice I think, that the aspects of human disease open to investigation of this kind were its results—the symptoms which Lewis and his colleagues analysed into their physiological components with such beautiful precision—and that the whole range of aetiology, whether infective, nutritional, or genetic, must be almost entirely outside its scope. The main thing was that Lewis was creating an atmosphere in which medical research in the clinic was regarded as an absorbing aim and ambition, and not as a spare-time incident in a career leading to consulting practice; that the young men rallied to his banner; that they learned his great language, caught his clear accent, and lived in the gleam of an eye—the eye of an eagle—which was always magnificent, indeed, but mild only on occasions when the mission was momentarily out of his mind. They, and we all, have lost a great leader; but his spirit goes marching on.

Till 1927, when serious illness struck him where he most clearly knew its meaning, Lewis had worked for ten months of every year with a concentrated energy which left his junior colleagues panting with the effort to keep pace with him. In the other two months, taken always as a continuous vacation, he put medicine completely out of his mind but gave himself with a like enthusiasm, and with all that training and perfection of equipment could provide, to watching and photographing the birds which he so loved. After his first illness he put this joy, with its temptations to physical strain, out of his thoughts; he moved into the country, gave himself more regular leisure to enjoy his garden, and chose the quieter distraction of fishing for his holidays. He knew what was before him. "Another arrow from the same quiver, my friend," he said to me when a second, less severe attack came in 1935; "but there are plenty more to come, and one of them will get me in the end." Meanwhile, with a magnificent courage, he succeeded in what, for him, must have been the most difficult of all achievements—schooling himself to work at a reasonable pace. To this he was helped beyond measure by the serene happiness of his marriage and his family life, in which the affection which was at the real, warm heart of him overflowed in joy and pride. To his widow, his son, and his two daughters, and to those of us who knew him as one of the most loyal and generous, if not always the easiest, of friends, there must remain, in the midst of sorrow, the thought that he has gone before age could weaken the spring and eagerness of his wonderful mind and spirit.

In his approach to medical research, as in the quality of his genius, I believe that Thomas Lewis was the nearest successor which our generation will see to his own great pattern and exemplar, William Harvey.

Prof. T. R. ELLIOTT, F.R.S., writes:

We have lost a great leader in medical science, taken away untimely when his powers were still at their highest, but not before he had seen happy proof that an aim for which he had striven with intense ardour was now being widely understood and that more than his discoveries would live on as the outcome of his work.

Sir Thomas Lewis received the highest honour our country can give for original discovery in pure science—the Copley Medal of the Royal Society in 1941. Very rarely has an active clinician gained this distinction, though the medal is given yearly. The last before Lewis was 40 years earlier—Lord Lister. That gives a measure of his achievements in fundamental science. In medicine he changed the approach of every practitioner to the analysis of heart disease with such completeness that now we use his teaching so naturally that few recall its origin in Lewis's work. First came his handbook on *Clinical Disorders of the Heart Beat*, 1912. Earlier than that, though only in his thirtieth year, he had published a classical monograph on the *Mechanism of the Heart Beat*, based on his own studies with Einthoven's galvanometer; but that was for advanced workers in the subject, as was also the journal *Heart* which, with Mackenzie's help, he founded at the same time. So he proceeded to an exact clinical study of the natural progress during life of each type of derangement of the beat, defined simple clinical means for recognizing the types, and then in his handbook set out the results with an admirable clearness that enabled all to make use of the new knowledge. Twenty years of patient study of all forms of heart disease followed, every detail being recorded and analysed with scientific accuracy, and nothing left to an easy generalization from uncertain memory or intuitive opinion. Added to this was the experience that routine teaching to medical students gave him in shaping his views to easy comprehension at the bedside. Then he wrote his second book for direct clinical use, *Diseases of the Heart*, 1932, emphasizing in it the simple principles for estimating what a murmur could never tell—the functional efficiency of the heart at each stage of disease. That now belongs to common knowledge.

Lewis thought it his duty to write these books for use in medical practice. But the discovery of new knowledge was his burning desire, and he grudged bestowing time on any other end. Coming to London at an era when endowments for research were beginning to make it possible for a man to think of such a life in medicine, he found that hope progressively fulfilled and was soon able to free himself from any fettering interests of consulting practice. So, when the field of work in electrocardiography seemed exhausted, he could easily abandon both it and his reputation as a heart specialist and move to new work on skin capillaries. Here he now used the simplest forms of experiment and apparatus, but with them his penetrating genius carried him to fundamental discoveries of vascular reactions to nervous stimuli or to chemical substances produced by injury of tissues. The problem of pain, especially that arising from deep tissues, was also prominent in his later work.

Throughout the second half of his life he was driven by a bigger and wider aim than that of his own individual discoveries. Physiology, through his contact with Swale Vincent at Cardiff and later with the great leaders at University College, had first sway with him, and indeed it dominated all his researches so that much of his work might be described as a physiological analysis of clinical symptoms. But Lewis was intensely conscious that what he desired was more than a co-operation of physiology with medicine. He knew there were innumerable problems in medicine for the solution of which little sustained work was being attempted, and he wished to see clinicians themselves using every science, not only physiology, for an exact study of the problems which they alone were by their experience enabled to define. The words in 1869 of Sir James Paget, himself a physiologist and pathologist as well as surgeon, gave both the phrase and the thoughts that were later advocated with such intensity by Lewis. "I feel sure that clinical science has as good a claim to the name and rights and self-subsistence of a science as any other department of biology. . . . Receiving thankfully all the help that physiology or chemistry or any other sciences more advanced than our own can give us, and pursuing all our studies with the precision and circumspection that we may best learn from them, let us still hold that, within our range of study, that alone is true which is *proved clinically*, and that which is clinically proved needs no other evidence."

Lewis had by his own thought reached the same view, and he pursued it with the devotion of a zealot. A strong sense of realities made him aware that he must inspire a band of workers, and find for them opportunities for research similar to his own, if the subject of clinical science were to attain the permanent strength that he believed to be essential for the advance of medical skill. For this end he founded a Medical Research Society, and changed the title of his journal *Heart* to that of *Clinical Science* so that it might become the journal of the new society. All was prospering hopefully. Then came the scattering outburst of war, and Lewis himself will not see the recovery. But he has left behind him men who will assuredly maintain the movement.

Lewis was very loyal to University College Hospital by reason of its scientific traditions and could never be persuaded to leave his school. For more than twenty years he was the mainstay of scientific work there, picking out and inspiring younger men, conversing with all and upholding the highest accuracy of thought. He devoted endless care even to elementary teaching, and his lectures were models of clearness both in thought and voice. All his energies were focused on such work, and from older men he resented opposition or lukewarmness where he looked for strong support But that was an affair of the moment, soon forgotten when one thought of the nobility of his aims and the excellence of his work. Of personal conceit he had none, and his eagerness to help and teach them made every student at the school speak of him simply and affectionately as Tom Lewis.

E. M. EATON, M.D., D.O.OXON, F.R.F.P.S.GLAS.

We announce with regret the death of Mr. Ernest Milne Eaton at Lanark, Scotland, on Feb. 3 at the age of 61, after an illness lasting about two years. He had been in practice in the Blackpool and Fylde district as an ear, nose, and throat specialist since 1928, and was consulting aural surgeon to the Victoria Hospital, Blackpool, to Fleetwood, St. Annes, and Lytham Hospitals, and to the Corporation of Blackpool. After graduating M.B., Ch.B. at Glasgow in 1906, he was house-surgeon to Sir William Macewen and assistant to Prof. Cleland in the anatomy department of the University. In 1910 he went to Australia, where he practised as an eye specialist in Queensland. On the outbreak of war in 1914 he came with the Australian Red Cross to France (No. 2 General Hospital, Rouen); he later joined the R.A.M.C., and saw service as eye specialist with the rank of captain on the Italian front. After the war he spent two years as assistant surgeon in the Ear, Nose and Throat Hospital, Glasgow, with the late Dr. W. S. Sime, whose book he helped to edit and illustrate. Then followed four years in successful general practice at Maidenhead, Berks, after which he returned to oto-rhino-laryngology, holding appointments in London as surgeon to the Invalid and Crippled Children's Hospital, and surgical registrar at Golden Square Throat Hospital.

The more mature years of his professional life were spent in Blackpool, where he will long be remembered and honoured. Although a confirmed bachelor, it seemed fitting that he should enjoy an almost parental authority amongst the medical profession in Blackpool. He was by common consent the chairman of nearly all medical committees and meetings, and for three years served as chairman of the Medical Board of the Victoria Hospital, Blackpool. As a chairman he excelled in putting the main issues clearly and logically before a meeting, and none could equal him in the exact and accurate framing of a resolution. This facility with words will be perpetuated in the by-laws and regulations of the Victoria Hospital, Blackpool, which were largely his work. His powers of debate, based on wide knowledge and experience, were of a high order. During the period of reorganization before and after the rebuilding of the Victoria Hospital on its present site in 1936, he took a leading part in promoting conditions which have since made possible the development of a full consultant service based on this hospital. His later interest was in the regional development of hospital services, and he worked hard and successfully for the recognition of the North-West Region of the British Hospitals Association. His professional reputation was built upon the consistently high quality of his work, this being fully recognized by his colleagues, who entrusted themselves and their families to his care with complete confidence that the best would be done for them. Motor-boat racing and yachting at Windermere were his principal recreations, and in these also he displayed his accustomed skill and thoroughness. During the year 1935 he had the honour of being elected Commodore of the Windermere Motor-boat Club. He was a member of the British Medical Association for many years, and gave valued service to the local Executive Committee.

I. B. T.

G. L. TAYLOR, M.D., PH.D., F.R.C.P.

We announce with much regret the untimely death of Dr. George Lees Taylor. He was born in 1897, son of Albert Taylor, of Ashton-under-Lyne. After leaving the Manchester Grammar School he went to Manchester University, where he was a medical student of exceptional distinction. After qualifying he was house-surgeon to Sir William Thorburn and house-physician to Dr. G. R. Murray. Following a period as obstetric house-surgeon to St. Mary's Hospital, Manchester, Taylor went for a time into general practice. In 1929, however, he decided to devote himself to medical research and teaching, and for six years worked as John Lucas Walker Student under Prof. H. R. Dean in the Department of Pathology at Cambridge. In 1930 he took his M.D.Manc. and in 1932 the Ph.D. of Cambridge. In 1939 he was made a Member and in 1944 a Fellow of the Royal College of Physicians.

In 1935, through the generosity of the Rockefeller Foundation, a unit devoted particularly to the study of blood groups in relation to human genetics was established in London. Taylor was well qualified to take charge of this work, though few could have foreseen then how brilliantly he would be able in the next few years to develop the subject. It was most fortunate that he was able to see this new enterprise through from 1935 to 1939 in the Galton Laboratory at University College, London, and from the outbreak of war under the Medical Research Council at Cambridge. At Cambridge the unit undertook work of national importance for the Blood Transfusion Service.

Taylor's published work, which includes 41 papers of which he was author or part author, falls into two groups. In the work described in the first group of 10 papers, dealing chiefly with the precipitin reaction, he was collaborating closely with Dean and the two Adairs. These papers well illustrate Taylor's immense thoroughness and pertinacity. In 1935 serological genetics had been rather neglected in this country. Not much had been done even on the spontaneous agglutinins of the OAB series, and few had any real experience of the M and N factors. It was clear that extension of knowledge of this field must be made if there was to be any progress in mapping out the human germ-plasm. Taylor set out to obtain the utmost reliability in the application of known tests; to examine the distribution of blood groups in this country; and to lay a foundation for linkage studies by including blood group and other genetical data in pedigree collections of a number of rare anomalies such as acholuric jaundice and Huntington's chorea. This programme required that he should familiarize himself with the intricate methods of genetics and statistics. At the time R. A. Fisher was Galton Professor, and the department in which Taylor worked was in a good position to aid the development of these new interests.

The rhesus factor, with which Taylor's name will always be associated, was first reported in 1939. The matter was at first thought to be genetically simple, but soon found to be complex: the beginning of Rh work in England may be said to date from a letter in the *Journal* in which Taylor and Mollison appealed for specimens of blood from mothers of children suffering from erythroblastosis foetalis. Within a year Taylor had become known to hundreds of pathologists and practitioners in all parts of the United Kingdom, and took endless trouble to explain to doctors and patients the significance of this fascinating blood-group factor. Within twenty months the Cambridge unit had discovered seven allelomorphs of the rhesus factor, and four distinct antibodies out of a now probable six. Almost simultaneously Wiener discovered six of these allelomorphs and three of the antibodies, so independently confirming the work of Taylor and his colleagues. It is characteristic of Taylor's generosity to the work of others that he did not hesitate to adopt Wiener's notation for the allelomorphs known to both, though their existence had been separately demonstrated. No one who has worked with Taylor could fail to recognize his scrupulous attention to detail, and the extreme care he took not to use a single word that might be misleading. In leading articles and answers to "Any Questions?" in this *Journal* he gave willing and invaluable help in explaining to the medical profession the advances made in his own field of study. His helpfulness was unfailing, and his loss will be felt by a very wide circle of friends. To his widow and daughter our sympathy is extended.

JOHN HOWELL, C.B.E., F.R.C.S.

The death occurred at Cheltenham on March 4 of Mr. John Howell, leading surgeon in Gloucestershire, where he had practised for nearly half a century. He went to Cheltenham as house-surgeon to the old Branch Dispensary, after qualifying at Guy's, where he held the positions of house-surgeon and obstetrical resident, and he was soon appointed to the honorary surgical staff of the Cheltenham General Hospital. This appointment was a happy one for all concerned, as he threw himself, with all his dynamic force and clinical acumen, into its service. Becoming senior surgeon in 1913, he remained on the active staff of the hospital until he attained the age of 60, retiring so that the younger generation might have greater scope for work. He might have remained on, but he felt it was his duty to retire, though at that time he was at about his best as a surgeon and consultant.

J. S. R. writes:

What the Cheltenham General Hospital owes to him cannot be easily evaluated; sufficient to say that, by his dynamic personality and foresight, he devised the plan of getting the various members of the surgical staff to make themselves proficient in special branches of their work and be responsible for cases coming in their specialty. In retrospect, this plan has been of definite value to the patients, doctors, and to the staff of the hospital. A regular feature for which Mr. Howell was largely responsible was clinical lectures and demonstrations by the members of the hospital staff each summer: these were very popular, and were looked on as a refresher course by practitioners in the county, being very well attended.

As a diagnostician John Howell was pre-eminent, and in abdominal surgery his "peritoneal theory," on which he was working up to a short time before his death, made him something out of the ordinary in regard to prognosis. How he loved to examine the various vomits, which had to be carefully kept, with the exact time at which they were expelled, and then say, "This patient will get better; this one is a borderline case; but this one, alas! will succumb." Succeeding house-surgeons used to marvel at his uncanny instinct. He wrote for a number of medical publications, but in his long and busy life he had not the time to work out his theories as he would have wished. As a surgeon he was quick, fearless, and always had a feeling that the body would co-operate loyally with the surgeon. He was always anxious to try anything new, but was nevertheless critical in his appreciation.

In the last war he was consulting surgeon to a group of military hospitals in this area, at which he gave invaluable service; his cheerful personality and buoyancy gave courage and hope in the most desperate cases, and the award of the C.B.E. for these services in 1919 was well merited and acclaimed. As a loyal member of the B.M.A. he acted as secretary of the Gloucestershire Branch for many years in his early days. He was a member of the Council, president of the Gloucestershire Branch in 1925, and vice-president 1930-5. At all times he took the most active interest in its proceedings, while in debate and discussions he was ever to the fore, as was to be expected of an ardent Welshman. As chairman of the Medical Services Subcommittee of the Gloucestershire County Council he did valuable work in the county, and was instrumental with the late Dr. Middleton Martin in introducing the scheme of "out-stations," whereby specialists made periodic visits to all parts of the county. This scheme has worked well, and is still functioning after more than 20 years, and proving of value, especially in the war years.

As a leading figure in the municipal life of Cheltenham for many years his ability and integrity were recognized when he was given the unique honour of being appointed mayor for three years. The Spa Committee of the town council found in him an ardent supporter, and a few days before his death he was interested in the arrangements for a meeting of the British Spa Federation in Cheltenham next month. As a crowning honour he was made a Freeman of Cheltenham a couple of years ago.

Space does not permit more than a brief mention of his many other activities: the Rotary Club, Chamber of Commerce, Child Guidance Clinic (much indebted to him for financial help at a difficult time), athletic clubs of which he was president. All these owed much to him. He seemed to say to himself, "Much has been done; much more remains to do." Music and art found in him an ardent supporter. At the funeral service heartfelt tributes were paid by a congregation which filled the parish church of Cheltenham. Six of his colleagues, representatives of the hospital and practitioners of the town and county, acted as bearers, paying in this way some small token of affection to one who had done so much for them. He leaves three sons (one of whom is Major John Howell, R.A.M.C., at present serving in Italy) and one daughter, to whom our deepest sympathy is extended.

GEOFFREY W. CARTE, M.B., F.R.C.S.

We regret to announce that Mr. Geoffrey Williams Carte, late surgeon to the throat and ear department of the Metropolitan Hospital and consulting laryngologist and aurist to the Royal Navy, died in London on March 6, aged 60.

Mr. W. DOUGLAS HARMER sends the following appreciation: The death of Geoffrey Carte leaves a gap amongst a large circle of patients and friends. He was the son of Geoffrey Williams Carte, who was a musician and who was connected with the firm of Rudall Carte and Co., the makers of musical instruments. He was a distant relative of the D'Oyley Carte family. Geoffrey was educated at Rugby and at Oxford. Afterwards he entered St. Bartholomew's Hospital, where he was house-surgeon and later assistant in the throat department. He was an M.B.Oxon and a Fellow of the Royal College of Surgeons. After leaving St. Bartholomew's he had numerous appointments, including surgeon to the throat and ear department of the Metropolitan Hospital, the London Hospital, and St. Andrew's, Dollis Hill. In the last war he served with the Royal Navy and later as consultant to the Admiralty. At the outbreak of the present war he became a member of the Home Guard and also devoted himself enthusiastically to A.R.P. duties, in which service he was mentioned. In addition to his hospital work he carried out a very busy practice—for many years as assistant to Sir Milsom Rees, and after the latter's retirement continuing to treat a number of opera singers and actors. From his father he inherited his love of music and was a regular attendant at Covent Garden. He was a keen sportsman and spent his holidays shooting and fishing, and had many hobbies, including gardening. He had many friends, by whom he will be greatly missed. He was a well-known and popular member of the Garrick Club, and also of the Set of Odd Volumes Club. He was twice married, and leaves a daughter who is at present serving in the W.A.A.F.

Dr. HUGH MIDDLETON EYRES, formerly of Richmond, Yorkshire, died at Swale, near Keswick, on March 12. He was born in London in 1871, and educated at the City of London School, and later at Gateshead High School. He then went on to Edinburgh, graduating M.B., C.M. of the university in 1895, and completed his medical studies at Heidelberg. Dr. Eyres was in general practice at Richmond from 1898 until 1934, when he retired owing to ill-health. He had held house appointments at the Royal Infirmary and the Royal Maternity and Simpson Memorial Hospital, Edinburgh, and at Richmond was honorary medical officer to the Victoria Hospital. He was appointed a borough magistrate, and during the last war served as M.O. to the local Red Cross Hospital.

With the death of Dr. PAUL NATHAN on Feb. 19 at the age of 51 passes one of the most outstanding of the doctors who came to us as a result of the terror in Germany. In that country he devoted himself to paediatrics, where for many years he had a happy association with the famous Czerny. In private practice in the West End of Berlin he achieved a great popularity, and this with his hospital work made his life a very busy and full one. At the height of a successful career it was hard and poignant to give up, but his was not a nature to tolerate pin-pricking and humiliation, and without hesitation he left it all and became a medical student again in this country and qualified in 1938. For six years he worked in London as a children's specialist, and soon he was overwhelmed with work because with children he had amazing powers and secured the confidence of his little patients and consequently their parents' in quite a remarkable way. With British residence came also a complete British outlook, and he really loved our country. There was no looking over the shoulder with Paul Nathan save in one thing, and that was music, and at his delightful parties, where he and his wife made most perfect hosts, Brahms could be heard as nowhere else. His attitude towards his illness—hypertension and angina pectoris—was also the kind that we admire: there was no fear, no pessimism; just a heroic and cheerful defiance of it all and a desire first of all to be at his work again among his little friends and secondly to give happiness to those around him.—A. D. W.

SERVICE IN MEMORY OF LORD DAWSON

A service in memory of Viscount Dawson of Penn was held in Westminster Abbey on March 20. The assembly which filled the choir and transepts was itself a significant tribute to his personality and work. It included many holding high positions in the nation, a very large and distinguished company of members of his own profession, and representatives of innumerable organizations with which he had been in some way connected. The King was represented by Lord Wigram, Queen Mary by Lord Claud Hamilton, and Princesses Helena Victoria and Marie Louise by Mrs. Adams. The family mourners were headed by Viscountess Dawson of Penn and her three daughters, the Hon. Mrs. David Dawson-Eccles, the Hon. Mrs. Ian Bowater, and the Hon. Mrs. John Wrightson. The Prime Minister and the Chancellor of the Exchequer were represented, and the members of the Government present were Lord Simon (Lord Chancellor), Mr. H. U. Willink (Minister of Health), Sir William Jowitt (Minister of National Insurance), Mr. Ernest Brown (Chancellor of the Duchy of Lancaster), Col. Oliver Stanley (Colonial Secretary), and Major Lloyd George (Minister of Fuel and Power). The Norwegian, the Argentine, and the Netherlands Ambassadors attended. The congregation included many of Lord Dawson's fellow members of the House of Lords—Viscounts Greenwood, Lee of Fareham, and Elibank, Lords Milne, Camrose, Kemsley, Leverhulme, Courtauld-Thompson, Denham, and Hardinge of Penshurst.

The members of the medical profession, wearing their academic gowns, were headed by the President (Lord Moran), and members of Council of the Royal College of Physicians, the Chairman (Dr. H. Guy Dain) and members of Council of the British Medical Association, the President (Sir Alfred Webb-Johnson) and members of Council of the Royal College of Surgeons, and, the President (Mr. Eardley Holland) and members of Council of the Royal College ot Obstetricians and Gynaecologists. Sir Henry Dale and Dr. Gordon Holmes represented the Royal Society; Surgeon Rear-Admiral Gordon-Taylor was present with other representatives of the Royal Society of Medicine; and the Vice-Chancellor (Prof. Frank Horton) with other members of the Court were present as representing the University of London. Others who attended were Lord Horder, Sir Kaye Le Fleming, Dr. C. O. Hawthorne, Sir Herbert Eason, President of the General Medical Council, the Directors-General of the Medical Services of the Navy, Army, and Air Force, Dame Janet Campbell and other representatives of the Medical Women's Federation, Sir Farquhar Buzzard representing the Nuffield Trust, Sir Wilson Jameson and Sir Francis Fraser of the Ministry of Health, the High Commissioner of Canada, the Mayor of Westminster, representatives of the London County Council, and the Deans of King's College and Westminster Hospital Medical Schools.

In addition to many others who attended in their personal capacity, about seventy organizations apart from those already named were represented. These included the Medical Research Council, the Society of Apothecaries, the Royal Society of Tropical Medicine and Hygiene, the Society of Medical Officers of Health, the Faculty of Radiologists, the British Dental Association, the Mount Vernon Hospital and Radium Institute, the National Association for the Prevention of Tuberculosis the Ophthalmological Society, the Royal Medical Benevolent Fund, the British Red Cross Society and Order of St. John, the Professional Classes Aid Council, King Edward's Hospital Fund for London, the Hospital Saving Association, the London School of Economics, the Salters Company, the Pilgrims, the British Social Hygiene Council, and the Trades Union Congress. About thirty representatives of the nursing staff of the London Hospital attended in a body.

The service was conducted by the Dean (Rt. Rev. Paul de Labilliere) and the other clergy of the Abbey, and Archbishop Lord Lang read the lesson, which was the passage beginning "Honour a physician" from the book of Ecclesiasticus, and pronounced the benediction. There was no address. The opening sentences of the Burial Service were sung to the setting by John Merbecke. The fifteenth and a paraphrase of the twenty-third Psalm and the hymn, "Jerusalem the golden," were sung, and the choir gave the anthem, 'I will lift up mine eyes unto the hills." After prayers, one of which was for the brotherhood of the Most Honourable Order of the Bath, of which Lord Dawson was a Knight Commander, the whole congregation joined in the General Thanksgiving, after which the Nunc Dimittis was sung, and as the procession passed down the church to the west door the Requiem Aeternam, by Basil Harwood, was played on the organ. The flag of St. George flew at half-mast from one of the Abbey towers.

A service in memory of Sir Thomas Barlow was held on March 7 in the chapel of the Hospital for Sick Children, Great Ormond Street, London. Sir Robert Hutchison, in an address in thankful remembrance of the life and work of Thomas Barlow, said that this simple service in the hospital to which he was so much devoted and where much of his work had been done was a form of family worship and recollection. "It is difficult to realize that it is 70 years since he whom we have in our thoughts to-day first joined this family, when he became assistant physician to the hospital, and that he served it faithfully thereafter for a period of 25 years; and perhaps my only claim to address you this afternoon is that I had the privilege of acting as his house-physician here almost half a century ago." Copies of the address may be had from the secretary of the hospital.

Medical Notes in Parliament

Diphtheria Immunization

Mr. WILLINK furnished on March 8 totals of children under 5 and between 5 and 15 immunized against diphtheria in England and Wales. Separate figures for the year 1941 were not available, and for the year 1944 complete figures were not yet available beyond June 30.

Year	Under 5	5 to 15
1940 and 1941	547,360	1,818,030
1942	610,950	789,800
1943	525,820	513,670
1944 (first half)	173,220	93,090

Mr. Willink added that the returns on which these figures were based did not include immunizations by doctors in private practice.

Penicillin for Private Practice

Sir E. GRAHAM-LITTLE on March 8 asked the Minister of Health to release some supply of penicillin for use in civilian medical practice as distinguished from hospital practice. Mr. WILLINK said arrangements were being made for a wider distribution of penicillin from upwards of 200 large hospitals throughout the country, which would be authorized to issue penicillin on request to smaller hospitals. It would in most cases be necessary for a patient requiring systematic treatment to be removed to hospital, but each distributing hospital would be authorized to issue penicillin to private practitioners for the treatment at home or in a nursing home of suitable cases when removal to hospital was not practicable.

Women Medical Students

In replying on March 8 to Sir William Beveridge, Mr. BEVIN said that in consultation with Mr. Willink he was making arrangements whereby medical schools could provisionally consider applications from women of any age who wished to be admitted next October. Whether selected candidates would be permitted to begin their courses on that date must depend upon the national situation. Sir William, in his question, said that two of the three London medical schools were about to hold entrance examinations to select students for the first medical course starting next October, but the successful candidates over the age of 19 could not be allotted vacancies without Mr. Bevin's approval.

Penicillin Supplies in Jamaica

Sir E. GRAHAM-LITTLE reported that there was much dissatisfaction in the medical profession in Jamaica at the limitation of supplies of penicillin, and that an expert advisory committee appointed by the local branch of the B.M.A. was fully competent to ensure that all supplies reaching the Colony shall be used to the best medical advantage. Col. STANLEY said it was the case that there was dissatisfaction in Jamaica at the limitation of supplies of penicillin, but this was at least partly due to a misunderstanding as to the possibility of supply through normal commercial channels and as to the necessity for limitation of the supplies available for Colonial civil use.

It had now been possible to arrange for penicillin to be used in the Colonies subject only to the same restrictions as applied in this country. Government control of distribution was still necessary and was being exercised in Jamaica by a local committee consisting of three Government medical officers and two private practitioners nominated by the local branch of the B.M.A. He hoped that with the fuller supplies available and greater understanding of the restrictions still necessary, the causes for local dissatisfaction had been removed.

Wartime Nurseries

On March 9 Mr. McNeil opened a discussion on the future of wartime nurseries. He said 1,500 of these had been opened in England. Mr. Willink had suggested that when women with young children were no longer needed for war work, the nurseries should be discontinued or handed over to local authorities for nursery schools. He advocated their continuance. The medical officer of Smethwick had pointed to the remarkable development of the average child in these nurseries. Miss Horsbrugh replied that there was no question of closing wartime nurseries where these were attended. Where the nurseries were not attended and not required the order was that they should be closed.

Health of Allied Soldiers on the Rhine

In the House of Commons on March 13 Sir James Grigg introduced the Army Estimates. He quoted the opinion of Field Marshal Montgomery on the condition of the British Empire troops when the present offensive began in the Reichswald Forest area on Feb. 8. The Field Marshal said that they were in a very highly efficient state. The ranks were full, equipment was full scale, the sick rate was only 1 per 1,000 a day evacuated to hospital, and the troops were in tremendous form and in great spirits. Speaking of the American troops in Great Britain before the invasion of the Continent, Sir James Grigg said that we provided them with hutted camps for 800,000 and hospitals containing nearly 100,000 beds. In the coming months demands for foodstuffs for the liberated countries might become almost overpowering. The news from the areas of Holland still in German hands showed that the population were in desperate straits. In Germany there would be displaced persons by the million who would look to the armies for food. The combined resources of the Allies might be strained to the utmost to prevent hunger and, indeed, starvation, especially if our victory came before the new harvest was gathered.

Dr. Haden Guest paid a tribute to the magnificent spirit and high morale of the whole of the 21st Army Group, and to the medical services, which he inspected in the early days of February. Tremendous progress had, he said, been made in the medical service. The astonishingly small number of casualties and the high rate of recovery were a tribute to the efficiency of that service. The co-operation between the medical service and the other services was so much closer and more intimate than in the past that it had completely changed the picture of the health conditions and the vitality and vigour of the Army. The work of the hygiene services in giving all the troops a knowledge of how to keep completely fit had made an astonishing change in health and fitness. In the 21st Army Group the louse and scabies were practically unknown. Trench foot, which was the bane of operations in Belgium and the Low Countries in the last war, for practical purposes simply did not occur in the British Armies.

Medical and Pharmaceutical Equipment in R.A.M.C.

Mr. Linstead on March 15 opened the debate on the report stage of the Army Estimates by drawing attention to the supply of medical and pharmaceutical equipment in the R.A.M.C. He said that, broadly, commissions in the R.A.M.C. were reserved for medical men. The result was that the greater part of the administration of the Corps was in the hands of medical officers under whom medical equipment and stores were dealt with by Army dispensers who practically never reached commissioned rank. In this war the Army had some 800 pharmacists. Practically all were used as sergeant-dispensers and not as pharmacists. They had no real responsibility for organizing the medical stores as a whole. A number of medical men in the R.A.M.C. were being used for medical supply administration, although there was a shortage of doctors both in civil life and in the Army. Pharmacists called up from civil life were waiting six or nine months in the Queen Alexandra Hospital at Millbank or in Edinburgh or Leeds for posting as sergeant-dispensers. Weakness was also shown in equipment. There was nothing to indicate that the Army had improved its packing of drugs or surgical supplies since the last war. Drugs were supplied in paper bags to the Forces abroad. Crystal violet for burns was supplied to the Forces overseas in 1-lb. and 2-lb. lots, which had to be made into 5-g. quantities for the field ambulances. Ointments were supplied in 10-lb. and 7-lb. quantities. He heard complaints that a type of hypodermic syringe used in the Army was fitted with loose pistons, that the graduations could not be read, and that the cement with which the barrel was fixed to the nozzle crumbled. He believed the War Office feared that if the pharmacist was promoted to commissioned rank, the same would have to be done for the radiographer and the physiotherapist. The R.A.M.C. had to face the issue. Men who graduated at universities as pharmacists now went into the infantry or artillery rather than the R.A.M.C. In India a pharmacist who was a lieutenant-colonel had taken charge of the pharmaceutical supplies. The United States had its Pharmacist Corps. The Navy had a pharmaceutical service manned by pharmacists who, if they went abroad, were commissioned. The Air Ministry had recently commisisoned pharmacists as medical store officers.

Sir James Grigg, replying to the debate, said he did not think it true that there were no officer pharmacists in the Army. The organization for the supply of medical and surgical stores was officered by quartermasters of the R.A.M.C. Most of these had the Army dispensers' qualification. Many were pharmacists. The number of pharmacists who were being commissioned as quartermasters had increased. Little complaint had been made of the Army medical services in this war. They had stood up to 5½ years of war in a manner beyond praise. He did not agree that the Army required a separate pharmaceutical service, but he would examine that question in the light of memoranda which Mr. Linstead had furnished to the War Office.

Treatment in South Africa of Tuberculous Service Patients

On March 13 Sir E. Graham-Little asked the Minister of Health whether, in view of the shortage of sanatorium accommodation and staff in this country, difficulties of diet and unsuitability of the British climate, and the fact that there was a British military sanatorium in Johannesburg with more than 1,500 beds, excluding outside convalescent institutions, he would reconsider present arrangements by which tuberculous patients who had failed to respond to treatment were automatically discharged from the Services, and encourage tuberculous Service patients in every stage to seek treatment in South Africa. Sir James Grigg, who replied, said that the majority of tuberculosis cases among military patients in India and the Middle East were evacuated to South Africa to the South African Military Hospital and convalescent depot until cured or until they ceased to be infective. This procedure, however, was restricted to those patients whose condition permitted of the lengthy sea voyage involved, and who were likely to respond to treatment within a reasonable time. Other tuberculous patients in the Army received treatment in Army hospitals, and, if found unlikely to be fit for further service, were discharged and became the responsibility of the Ministry of Health.

Increase in Dysentery in Scotland

On March 13 Mr. Westwood informed Mrs. Hardie that he was aware that there had been a sharp increase during the war in the number of persons notified as suffering from dysentery in Scotland, although the number of certified deaths was stationary since 1941. Most cases were mild and involved only a few days' incapacity. The increase began long before the war, and might be partly due to improved methods of diagnosis. During 1944 there was no recorded instance of spread of the disease among the civilian population by food, milk, or water, although the possibility could not be ruled out.

Mrs. Hardie asked if Mr. Westwood was aware that this disease was caused mainly by food-poisoning, and if there was sufficient inspection of food supplies in Scotland. Mr. Westwood said that the medical officers of the Department of Health for Scotland were in close touch with the public health authorities, and the Department was watching the position very closely.

Discharge of Tuberculous Service Men

On March 20 Mr. Driberg asked the Secretary of State for War why the new rule governing the discharge from the Forces of men disabled owing to war service did not apply to those suffering from tuberculosis. Sir James Grigg: Most of the sanatoria in this country are run by the civilian authorities, and Service patients are transferred there as soon as arrangements can be made, so that they can receive the prolonged special treatment they need. These sanatoria do not admit patients who are in the Services, and they are, therefore, discharged before admission.

The Services

Temp. Surg. Lieut. G. A. Rawlins, R.N.V.R., has been awarded the D.S.C. for gallantry and devotion to duty in the care and rescue of survivors on the Assault Beach at Walcheren.

Repatriated.—Major B. B. Hosford, R.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Missing, wounded, believed to be prisoner of war.—Major R. A Murphy, R.A.M.C.

Wounded.—War Subs. Capts. W. J. Cameron and A. L. Stalker, R.A.M.C.

AUXILIARY R.A.M.C. FUNDS

The annual general meeting of the members of the Auxiliary R.A.M.C. Funds will be held at 11, Chandos Street, W., on Monday, April 9, at 6 p.m., when the annual report and financial statement for the year 1944 will be presented and the officers and auditors for the current year elected. Alteration of the rules to permit the amalgamation of the Benevolent and Relief Branches of the 1916 Funds will be considered.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the measles epidemic continues to increase in intensity, there being 2,569 more cases reported than last week. Dysentery also continues prevalent, the total going up by 13. Whooping-cough notifications were 40 higher than last week, but those for scarlet fever were 37 fewer. Measles reached a new high level; for three weeks the notifications of this disease have been larger than for any other period since the outbreak of war. The largest rises over last week's notification figures were: Yorks West Riding 381, Durham 248, Middlesex 204, Essex 177, Gloucestershire 184, Glamorganshire 129, Staffordshire 147, Somersetshire 136, Oxfordshire 133, Warwickshire 108, Leicestershire 103.

The notifications of dysentery rose for the fourth consecutive week, and for the third time in the past six years the total exceeds 400. Fresh outbreaks during the week occurred in Derbyshire 31 (Shardlow R.D. 27), and Northamptonshire 14 (Towcester R.D. 12). The high level of incidence in London was maintained (67); the boroughs with the largest outbreaks were Wandsworth 21, Kensington 13, Paddington 11. Other large centres of infection were Yorks West Riding 34, Lancashire 32, Buckinghamshire 28, Suffolk 23, Surrey 22, Middlesex 20, Berkshire 15, Oxfordshire 13, Essex 10.

The outbreak of gastro-enteritis reported from Scotland last week appears to be spreading. Leeds has experienced a minor epidemic of sickness and diarrhoea. The causative agent is unknown, and the symptoms differ from the well-known forms of intestinal infection.

In *Scotland* for the fifth consecutive week the incidence of diphtheria rose slightly. There were 28 more cases of scarlet fever than last week but 15 fewer for measles and 26 fewer for whooping-cough. Notifications of dysentery fell by 10 but remain high; the largest returns were Edinburgh 39, Glasgow 31, Falkirk 17, Renfrew County 15. The prevalence of this disease has given rise to concern, and, replying to a question, the Under-Secretary for Scotland said that there was no record of the increase being due to infected food, milk, or water, although the possibility could not be ruled out.

In *Eire* diphtheria notifications fell by 25, but those for measles rose by 18. Cases of whooping-cough were 43 fewer than last week, and the total was the lowest since the beginning of December.

In *Northern Ireland* last week's low level of diphtheria notifications was not maintained, there being a rise of 21 cases. Measles notifications fell by 20.

Week ending March 17

The notifications of infectious diseases during the week in England and Wales included: scarlet fever 1,621, whooping-cough 1,527, diphtheria 558, measles 25,266, acute pneumonia 876, cerebrospinal fever 81, dysentery 428, paratyphoid 10, typhoid 6.

No. 10

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended March 10.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	77	6	35	7	3	90	7	31	5	3
Deaths		1	4				—	2		
Diphtheria	472	15	147	87	28	624	29	143	97	38
Deaths	6	—	—	1	—	12	—	3	2	—
Dysentery	412	67	155	1	—	208	23	75	2	3
Deaths				—	—				—	—
Encephalitis lethargica, acute	5	—	—	3	—	—	—	—	1	—
Deaths		—					2			
Erysipelas			51	11	5			53	8	8
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				19					6	
Deaths	52	6	8	13	1	35	5	15	13	1
Measles*	25,[illegible]49	1072	418	43	67	2,098	244	306	414	3
Deaths	24	—	—	—	—	2	—	2	6	—
Ophthalmia neonatorum	47	3	12	1	—	84	4	22	1	1
Deaths										
Paratyphoid fever ..	5	—	2 (B)	—	—	3	—	—	1 (B)	1 (B)
Deaths	1	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	813	38	7	8	2	1,178	62	9	16	7
Deaths (from influenza)	39	5	3	—	1	42	5	3	1	—
Pneumonia, primary ..			234	24				355	32	
Deaths		25		7	14		71		26	9
Polio-encephalitis, acute	—	—				2	—			
Deaths		—					—			
Poliomyelitis, acute ..	7	—	—	1	—	3	—	1	—	—
Deaths		—					—			
Puerperal fever		4	24		—		1	10		—
Deaths										
Puerperal pyrexia‡ ..	144	14	16	2	—	173	4	11	1	3
Deaths		—					—			
Relapsing fever ..	—	—			—	—	—			—
Deaths										
Scarlet fever	1,424	55	227	25	33	2,215	141	256	31	127
Deaths	—	—	—	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	2	1	—	—	—
Deaths				—	—				—	—
Typhoid fever	5	1	2	6	2	—	—	1	9	2
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough* ..	1,502	77	137	36	14	1,906	178	142	37	22
Deaths	3	1	3	2	1	8	1	—	3	—
Deaths (0–1 year) ..	410	44	58	35	22	410	45	84	52	14
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	5,118	792	603	232	133	5,738	931	796	288	154
Annual death rate (per 1,000 persons living)			13·7	15·0	§			18·3	18·8	§
Live births	6,618	753	828	405	299	7,320	938	989	326	290
Annual rate per 1,000 persons living ..			16·6	26·1	§			20·1	21·3	§
Stillbirths	171	20	30			256	30	40		
Rate per 1,000 total births (including stillborn)			35					39		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

There have been two nominations for the Scottish Universities Parliamentary by-election caused by the resignation of Mr. G. A. Morrison. They are Sir John Boyd Orr, M.D., F.R.S., standing as an Independent, and Mr. R. M. Munro (Lib.-Nat.), a secondary school headmaster. Polling will take place from April 9 to 13, and the result should be declared on April 14.

A meeting of the Society of Public Analysts and Other Analytical Chemists will be held at 5 p.m. on Wednesday, April 4, at the Chemical Society's Rooms, Burlington House, Piccadilly, W., when papers will be presented and discussed on the freezing-point of sour milk, the electrometric determination of ascorbic acid, and on magnetic stirring in the electro-deposition of metals.

At a meeting of the Faculty of Homoeopathy on Thursday, April 5, at the London Homoeopathic Hospital, Great Ormond Street, Dr. E. K. Ledermann will lecture on "Homoeopathy and Natural Therapeutics."

The Chadwick Trust announces a lecture by Mr. A. Trystan Edwards, F.R.I.B.A., on "Sunlight and Sanitation in Relation to the Planning of Buildings," to be given on Tuesday, April 10, at 2.30 p.m., at the Royal Sanitary Institute, 90, Buckingham Palace Road, S.W.

The Royal Sanitary Institute (90, Buckingham Palace Road, S.W.) announces the following meetings: at the Institute, Wednesday, April 11, at 2.30 p.m., Prof. S. P. Bedson, F.R.S., "Virus Diseases, the Mode of their Spread and Control"; at Loughborough, Saturday, April 14, at 10.30 a.m., Mr. W. Granger, "Rural Water Supplies—Ideals and Practical Possibilities," and Mr. H. Bintcliffe, "The Sanitary Inspector's Views on the Past and Future"; at the Institute, Wednesday, April 25, at 3.30 p.m., Mr. H. D. Manning, "Design and Construction of Sewage Disposal Works for Wartime Establishments."

The annual meeting of the Liverpool Psychiatric Clinic will be held at Liverpool Town Hall on Thursday, April 12, at 3 p.m., when Dr. C. H. Rogerson will speak on "The Place of Psychiatry in the Health Services of the Future."

The Marriage Guidance Council, whose aims and work were described in the *Journal* of March 17 (p. 377), will hold a spring meeting on Tuesday, April 24, at 6 p.m. in the Hastings Hall of B.M.A. House, with Lord Horder in the chair. The speakers will be Mrs. R. A. Butler (wife of the Minister of Education), and Dr. Charles Hill, Secretary of the British Medical Association. The title of the meeting is "Our Homes." Accommodation is limited, and admission is by ticket only (2s. each). They should be applied for in good time, from the Secretary, 78, Duke Street, London, W.1 (Mayfair 6787).

The Biochemical Society and the Nutrition Society have arranged a joint whole-day conference on the vitamin B complex, to be held on Saturday, April 28, at the London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C.1. Details of the programme will be published later. The Nutrition Society is also organizing a discussion on the nutritional factors affecting wound-healing, to take place on Saturday, May 26, at the same address.

To mark the 132nd anniversary of David Livingstone's birth, a wreath was placed on the memorial to him in East Princes Street Gardens, Edinburgh, on March 19. Dr. J. W. Arthur said that David Livingstone's name would remain fresh throughout all time as a great Scotsman and as an explorer who benefited the world by his discoveries.

The following members of the medical profession were elected Fellows of the Royal Society of Edinburgh on March 5: Robert Aitken, M.D., F.R.C.P.Ed., Prof. C. H. Browning, M.D., F.R.S., Prof. Archibald Durward, M.D., Abdul Ghaffar, M.B., Ph.D., John Jardine, O.B.E., M.D., F.R.C.S.Ed., D. D. Logan, D.S.O., M.D., and Robert Walmsley, M.D.

The Council of the Royal Society of Medicine a few months ago decided to extend the visitors' privileges which could be enjoyed in the Library. Hitherto it had only been found possible to allow a visitor into the Library for seven visits. Circumstances having now changed the Council has made the library of the Society virtually an "open" one, at least for an experimental period of six months. This period is now running and appears to be very successful. A room is set apart on the second floor for the exclusive use of visitors, with a member of staff in attendance who brings the books and documents of which they are in need. In this way the work of the main library is not disturbed, and those who need the help of the Library occasionally without becoming Fellows of the Society are enabled to have this assistance. The experimental period for which this room is open comes to an end at the beginning of June, when results will be reported to the committee so that the scheme may be altered in whatever way is indicated by experience.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Cancer not Contagious

Q.—*A woman who has children wishes to live with a patient suffering from inoperable ulcerating carcinoma of the cervix and vaginal wall, but is anxious about possible danger to the present or future health of her children. Should they live in the same house?*

A.—Cancer is non-contagious. Even those tumours which are known to be caused by a virus do not spread. For example, a chicken suffering from a virus sarcoma can be kept in a pen with normal chickens, and the normal chickens never contract sarcoma. The non-contagiousness of the disease is even stricter than this: although virus can at times be obtained from the blood of chickens, infection of normal cells does not occur within the body of the animal suffering from sarcoma. There is no reliable evidence that human or mammalian cancer in general is caused by a virus, and certainly no evidence that the disease is contagious. Every sound investigation of the so-called cancer houses or cancer villages has proved that the apparent increased amount of cancer is either not true or if true is explained by an excess of old people in the community. It can be said that cancer is no more contagious than broken legs. Therefore it is safe to advise that the children will come to no harm now or in the future if they are taken to live in the same house as the unfortunate lady.

Calcification in Supraspinatus Tendon

Q.—*What treatment do you advise for a painful shoulder due apparently to a small area of calcification in the supraspinatus muscle, as shown by x rays? If x-ray treatment is advised, what is the dosage? Is massage advocated, and is active movement helpful? Are there any articles of diet to be avoided?*

A.—Pain in the shoulder associated with skiagraphic evidence of calcification in the tendon of the supraspinatus is a well-recognized condition, and was first described by the American surgeon, Codman. There is now no doubt that the essential lesion is damage to the tendon, which may be the result of injury but occurs not infrequently in its absence. Apparently the tendon of the supraspinatus (like that of extensor pollicis longus) may degenerate with advancing years simply as a result of the trauma of normal use. The calcification is secondary. The exact cause of the pain and stiffness is a little obscure, but it seems likely that the calcareous deposit produces a subacromial bursitis; excision of the calcified area generally relieves the pain, though some weakness of abduction may remain as a result of the poor condition of the supraspinatus tendon. It has recently been found that the deposit can be broken up and to some extent washed out by irrigation of the calcareous mass through one medium-bore aspirating needle, and by suction through another slightly larger needle introduced alongside the first. In order to render the procedure more or less painless it has been customary first to inject novocain. Then it was discovered that the novocain injection alone often gave complete and lasting relief, even though subsequent radiographic examination showed little or no change in the appearance of the deposit. Why this should happen has not been satisfactorily explained.

The treatment should therefore be: (1) Widespread novocain injection (0.5% with 1/200,000 adrenaline) of the superior capsule of the shoulder-joint. If the pain is completely relieved the patient must move the joint through the fullest possible range during the two hours following the injection, and at regular intervals—say, three times a day—for one week after. (2) If novocain injection fails, irrigation and aspiration may be tried: the solution as before; after-treatment the same. (3) As a last resort the tendon should be explored through the standard anterior incision.

The writer has no experience of *x*-ray treatment for calcification of the supraspinatus tendon; massage is not indicated; and there is no indication for dietetic restrictions.

Haemorrhagic Disease of the Newborn

Q.—*A patient has had two female children. The first is stated to have had marked icterus after birth but has developed into a healthy girl of 6. The second child appeared normal at birth, but when ten days old developed signs of haemorrhage; haematemesis, and melaena, from which it died. The patient is expecting a third child. Would vitamin K given to the mother at the end of pregnancy and to the child soon after birth be advisable? Is it probable that the Rhesus factor is at work in this case, and if so, what can be done about it? Both parents are healthy and there is no history of any familial disease.*

A.—This history is not highly suggestive of trouble arising from Rh incompatibility and the data are not sufficient to establish the diagnosis. In a first child jaundice terminating in complete recovery is more likely to be physiological icterus than icterus gravis; when first children are affected hydrops foetalis is more probable. The second child had chiefly haemorrhagic manifestations, and although 10 days after birth is late for the onset of haemorrhagic disease of the newborn, this seems the most probable diagnosis and is an indication for administration of vitamin K to the mother at the end of pregnancy. Since vitamin K rapidly passes into the foetus *in utero*, further administration after birth is unlikely to be needed.

Rh tests should be carried out on mother, father, and surviving child, if possible with determination of genotypes. If Rh incompatibility exists, and especially if there is anti-Rh agglutinin or its incomplete form in the mother's serum, arrangements should be made to examine the infant's blood immediately after birth; if haemolytic disease is shown by the presence of erythroblastosis, etc., the baby should at once be transfused with blood of the same Rh type as the mother. Transfusion of blood is the only remedy of value in Rh cases, but the choice of what kind to give depends on the results of tests on the *mother's* blood, not on the baby's, as what is wanted is blood that will not be harmed by whatever antibody the *mother* may have transmitted to the child. The tests can usually be carried out by the Regional Transfusion Officer.

Age and Caesarean Section

Q.—*Is age an indication for Caesarean section? Should it be done, for example, in a healthy woman aged 42 having her first baby?*

A.—It would be unwise to attempt to lay down a rule to cover every case, but in general it can be stated that the age of a patient in itself does not constitute an indication for Caesarean section. Many women aged 40 and over have rapid and easy deliveries. The factor which is more important than age is the number of years of infertility which have preceded the pregnancy. Thus, if a woman of 42 has been trying to conceive for 10 years before she was successful, then the prospects of a difficult labour (mainly due to faulty uterine action) are considerable. Moreover, she will have little chance of conceiving again. If, however, the woman married late and conceived readily then an easy labour is to be expected. In any case there is much to be said for a trial of labour, with a lower-segment section if progress is not satisfactory, rather than a set operation before the onset of labour.

The presence of any abnormality alters the picture, and conditions such as breech presentation, inertia, etc., which in younger women would be treated conservatively, are often best dealt with by Caesarean section when the patient is an elderly primigravida.

Anaesthetic for Quinsy Excision

Q.—*What is the best anaesthetic to use for the incision of a quinsy when working single-handed?*

A.—This depends on whether there is any respiratory obstruction, as from oedema of the glottis, or not. The management of anaesthesia in the former case is dealt with in Macintosh and Bannister's *Essentials of General Anaesthesia* (Blackwell), page 268. If there is no obstruction the practitioner could give the anaesthetic with which he is most familiar. Loss of laryngeal reflexes from cocaine or deep general anaesthesia should be avoided, and the patient's head should be well extended to ensure that blood and pus do not enter the larynx.

Reversing Operation for Vasoligature

Q.—*In reference to the question and answer on bilateral vasoligature in the* JOURNAL *of Feb. 24 (p. 283) is there any risk of testicular atrophy? If there is not, is it possible by subsequent operation to restore the channels of the vas deferens and so fertility?*

A.—There is no risk of testicular atrophy provided the vasoligature is skilfully done, since it does not affect the testicle's blood supply. On one occasion I have been asked to restore the patency of vasa previously ligatured. As spermatozoa reappeared in the semen, but in small quantities, it may be assumed that the operation was successful—at any rate, on one side. Bilateral vasoligature should, however, be regarded as being an irreversible operation, because a successful reunion of the divided ducts cannot be guaranteed.

Transfusion

Q.—*There are two schools of thought in intravenous therapy: those who never give more than 3 litres in 24 hours, and those who give it to replace fluid loss and judge the amount by urine output and chloride content, etc. May I have advice?*

A.—The rate at which fluid is administered by the intravenous route must depend upon the reason for which it is given. Following traumatic injury fluid must often be given very rapidly, perhaps one litre in half an hour, followed at a somewhat slower rate by further large quantities of fluid. Factors controlling the rate of administration are the degrees of injury, the blood pressure, pulse, and general condition of the patient. The object should be to keep and maintain the blood pressure above 100 mm. of Hg. The amount given in any case can be decided only by the medical officer in charge. No rules for dosage can be given. In the case of a patient who is dehydrated and requires fluid, it is usual to administer it at a slower rate; 3 litres in 24 hours for this purpose is probably reasonable.

Yaws and Wassermann Reaction

Q.—*I see numerous Javanese, Goanese, and British Indian seamen who are walking pathological museums. I begin with a worm-killer of chenopodium and tetrachloride. The rate of positive Wassermanns is about 35%. Occasionally there are tissue-paper scars on the legs which may have been yaws or the common tropical ulcers, but several have positive Wassermann reactions in their cerebrospinal fluid. The history of V.D. and yaws is most variable. But, as we found 2% rate of positive Wassermanns in European sailors who have never seen any clinical signs, the problem is one of interpretation. What treatment, if any, should be instituted considering the terms of their contract with the shipping companies?*

A.—A combination of 1 c.cm. ol. chenopodii and 2 c.cm. carbon tetrachloride in an ounce of liquid paraffin, followed in one hour by a sharp saline purge, has proved reasonably safe, effective, and convenient in the routine treatment of intestinal helminthiasis among native populations. Yaws, unless treated efficiently, does not retrogress or vanish, but becomes chronic and intractable. If untreated it would therefore be clinically obvious for the remainder of the patient's life. Healed scars on the legs of native peoples are common and are usually due to trauma and to secondary infections of various kinds; in the absence of a history of yaws, which the native knows well, and of early specific and effective treatment of the condition, such scars cannot be attributed to past yaws. A positive blood Wassermann reaction in a patient without active lesions of yaws must therefore be taken as indicative of a syphilitic infection. Yaws does not attack the central nervous system; and examination of the cerebrospinal fluid from many cases of yaws shows almost all of them to be Wassermann-negative. So a positive Wassermann reaction in the cerebrospinal fluid is presumptively of syphilitic origin. It is established that tertiary syphilis, with cerebrospinal fluid changes, does develop in men who have no recollection of either primary or secondary manifestations of the infection.

Barrier Creams and Detergents

Q.—*Can you recommend (a) a suitable barrier cream, and (b) a suitable detergent for a man liable to attacks of lubricating-oil dermatitis (ordinary heavy greenish oil). Can these preparations be made up easily by a pharmacist? If not, who would supply them?*

A.—(*a*) There are a number of barrier preparations which would be suitable for protection against cutting oils: further information could be obtained from H.M. Senior Medical Inspector of Factories, 12, St. James's Square, London, S.W.1. Barrier creams are not easy to dispense, but some manufacturing chemists have had considerable experience in preparing barrier creams, the detailed formulae for which are not generally revealed. (*b*) A cleansing agent for those working with oils is sulphonated castor oil with 5% industrial methylated spirit and 2% wetting agent. Wholesale chemists should be able to supply this. Special care, depending on circumstances, is indicated for those who have had previous dermatitis, but in general terms washing with soap and water should follow the use of detergents. A skin food may be useful after work.

Death from Varicose Vein Injections

Q.—*I have heard it said that people have died during the injection treatment of varicose veins. Is this true?*

A.—Yes, a number of deaths have been reported after the injection of varicose veins, particularly after the injection of sodium morrhuate. This preparation is a variable chemical composition and does cause anaphylactic shocks from time to time, varying in degree from slight to fatal. I have heard of no deaths occurring after the use of quinine urethane or after ethamolin; but obviously, if excessive doses are used, even these substances would prove toxic.

INCOME TAX

Expenses while Serving in the Forces

T. A. has held various administrative posts in the R.A.M.C. since the outbreak of war. Can he claim an allowance for expenditure on new editions of textbooks and subscriptions to the *R.A.M.C. Journal*?

*** The expenses cannot be deducted from R.A.M.C. pay, as they are not required by the War Office to be incurred. We consider, however, that they may properly be claimed as deductions from any income that may be accruing from his civil practice.

Succession to Whole of Practice

J. W. was a third partner in a practice until his father died in November, 1943, when he became the sole proprietor. He is being charged tax for the year to April 5, 1945, on the full amount of the profits of the practice in 1943. Is this correct?

*** Yes. It is necessary to remember that an assessment is based upon the profits for the previous year of the business or practice, and the assessment so calculated is then divided between those entitled to participate in the profits of the year of assessment. Thus the assessment for 1944–5 in this case is based on the profits of the practice in 1943–4, and as J. W. is the sole proprietor for 1944–5 he has to shoulder liability for the tax on those profits. If any other view were taken presumably his father's estate would have to account for tax on 2/3rds of the assessment—and at standard rate. If the amount of the profits (after payment of an assistant's salary, if any) for 1944 is less than the amount for 1943 J. W. can apply for an adjustment accordingly.

The "Employer's" Car

J. C. was employed up to June, 1942, as an assistant supplying his own car; he then moved to another town, sold his car for £25, and was working for another principal who found a car for his use. He has now become a partner in the practice but continues to use his "employer's" car. Can he claim any allowance for the loss on the old car (£50, written down value less £25 cash received) if he buys a car for, say, £200?

*** In view of the change in the nature of the income and of the interval of time since the former car was disposed of we doubt whether our correspondent has a valid claim in law, and in any case any element of improvement as between the two cars would have to be excluded. Further, if a claim to regard the new car as a renewal of the car is made, then no claim for depreciation can be made for the year following that in which the renewal expense is deducted. If a renewal claim is not made depreciation should be claimed specifically as from the date of purchase of the new car.

LETTERS, NOTES, ETC.

The Albino and the Swallow

Dr. K. SHALLCROSS DICKINSON writes: I don't know anything about the Acharnians (Aristophanes), but I *do* know (as Cmdr. Campbell might say) that when I was a boy at Chester, somewhere about 1906, a missionary thrilled us all, during a talk of his experiences, by showing us how he had had to learn to drink a ceremonial beaker with the headman of certain tribes (African, I think) at a single draught and without "moving his swallow" (see *B.M.J.*, Feb. 3, p. 174). He took a half-pint tumbler of water, put his head well back, and poured it down his throat exactly as though he were pouring it down a drain. Many times since then have I thrown back my head, and imagined that I have opened the way to my gullet and closed my trachea, but not yet have I had the courage to see whether much less than a tumblerful of liquid would "go the right way" without swallowing. Perhaps someone with more courage will try it out?

*** In the Pyrenees it is the customary way of drinking wine from a gourd.—ED., *B.M.J*

Phlebitis Migrans

Dr. J. E. O'LOGHLEN (London, W.1) writes: I have always understood that phlebitis migrans (see *Journal*, Feb. 3, p. 171) was associated with sepsis and occurred in veins that are not varicose. The veins affected are the superficial veins of the arms and legs, and sometimes the condition extends to the skin of the abdomen, where it appears as plaques and cords about 3 or 4 in. long. The inflammation remains for two or three weeks, and then regresses to recur later. The deep veins are not affected. Sepsis is always present —teeth, tonsils, etc. No bacteria have been isolated in the affected veins—suppuration does not occur. Fever is always present, and often there are initial rigors. The temperature usually subsides in 24 hours. The points of infection are very sensitive on pressure and are at first bright red in colour. The disease is not associated with disturbance of circulation. The inflammation spreads from without in, and it is only when the intima is affected that thrombosis occurs. It is thought to be a toxicosis—the toxin developing from some septic focus and accumulating in the skin. Treatment consists in removing the septic focus—often difficult to locate. Excellent results have been obtained with *x* rays to the spleen—applied on six successive days—twice on the back, twice on the front, and twice on the left side.

Recurrent Phlebitis

Mr. J. T. EDWARDS, M.R.C.V.S. (Wilmslow) writes: Referring to Dr. A. J. Colby Tingey's letter (Feb. 17, p. 246), should not chilblains be added as a source of infection leading to phlebitis? I was recently affected with phlebitis during the sloughing stage of severe chilblains on two toes of the foot of the same side. Attempts to find a septic focus in teeth and elsewhere all failed.

Treatment of Chronic Malaria

Major C. M. RIGBY, R.A.M.C., writes: I was very interested in Prof. D. B. Blacklock's letter (Nov. 18, 1944, p. 67) on the treatment of chronic malaria. During the last war I was in India and a patient of mine contracted a double infection of benign and malignant malaria. I tried every form of treatment—quinine by mouth, intramuscularly, and intravenously, and even a "quack" remedy advertised in the local Indian paper—but all without permanent removal of the parasites from the blood. Fortunately at that time I saw in the *Medical Annual*, 1917, an excerpt from an article by G. W. P. Dennys in the *Indian Medical Gazette* (July, 1916, p. 242), advocating the following:

℞	Ferri et ammon. cit.	gr. iij
	Quin. sulph.	gr. j
	Acid. arsen.	gr. 1/60

One dose a day was taken after food, gradually working up to four if possible, and continuing, if necessary, for two to three months. The patient referred to had no recurrence of malaria after a course of this treatment, and I have since recommended it to patients who have suffered from chronic malaria, with considerable success.

The Examiner's Attitude

Mr. H. I. DEITCH, M.S., F.R.C.S., writes from Halifax General Hospital: In his letter (March 3) on ovariotomy or Caesarean section Prof. S. J. Cameron raised a more important point than that of the slight difference of opinion as to two opposing lines of practice—i.e., the attitude taken by examiners for higher degrees, and particularly diplomas—and examinees are badly prejudiced who advocate what is sound practice but which may not be the pet method or theory of the examiner. A friend recently sitting for the M.R.C.O.G. was asked in one *viva* whether he would use Kjelland's forceps. He stated he would not for various reasons, and that he was able to obtain equally good results by using orthodox forceps, which was his own practice. The examiner disagreed and was unnecessarily rude into the bargain. At the next examination the same question was asked by a different examiner, and my friend, hoping that he had profited by what he had heard on the previous occasion, gave the answer accordingly. This time, unfortunately, the examiner did not approve of Kjelland's forceps, and he, too, was unnecessarily astringent in his remarks. Behaviour such as this discredits the examination and leaves a bad taste behind; it also explodes the myth that the examiners are "eminent authorities." When I sat for the English Fellowship in 1927 I was warned not to mention plaster-of-Paris in the treatment of fractures, as this in itself was sufficient to justify failure at the hands of the many elderly gentlemen then examining.

Case of Peritoneal and Pleural Effusion

Dr. E. MONTUSCHI (Sidcup) writes: The case of polyserositis described (*Journal*, Feb. 17, p. 245) cannot be due to constrictive pericarditis, neither to any other steadily progressive disease. By far the most common cause of the condition, and the most likely in the case described, is a tuberculous infection. It is to be hoped that the questioner has not hastened to submit his patient to the ordeal of oesophagoscopy, barium meals, and other irrelevant and unnecessary procedures suggested by your answerer. A consultation with the tuberculosis officer is instead indicated.

Medical Aphorisms

Dr. T. LIONEL CRAWHALL, Watlington, Oxford, is collecting medical, surgical, and gynaecological aphorisms with their sources, and would be grateful to any colleagues for help in this project.

*** The only collections we know of, apart from the classical Aphorisms of Hippocrates, are Dr. Samuel Gee's *Medical Lectures and Aphorisms*, of which the fourth edition appeared in 1915, and Dr. J. A. Lindsay's *Medical Axioms, Aphorisms and Clinical Memoranda*, published in 1923. Dr. Gee's aphorisms were taken down by one of his house-physicians, who is now Lord Horder.

BRITISH MEDICAL JOURNAL

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CONTROL OF INFECTION IN RECENT WOUNDS BY SURGERY AND LOCAL CHEMOTHERAPY

BY

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AND

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Major, R.A.M.C.

(Penicillin Control Team, Central Mediterranean Force)

In the present organization of war surgery wounds are treated by a two-stage operation. At the first operation, at a casualty clearing station, contaminated and grossly damaged tissues are removed, and the wound is laid open so that there is free drainage, with an absence of tension, while the patient is being evacuated to the base. Several days later the wound is examined in hospital and is sutured if possible.

The main object of the first operation is the control of infection, and the subsequent progress of the case is determined by the success with which this object is achieved. No one with experience of war wounds will deny that adequate surgery at the first operation is of paramount importance. After surgery is completed, however, some degree of infection is likely to remain, and it is in connexion with this residual infection that a bacteriostatic may be of value. Although sulphonamides have been in use for many years, evidence of their true worth in the control of infection in wounds has never been obtained. With the advent of penicillin it was of increased importance to decide, by a large-scale clinical trial, the precise value of these two bacteriostatics in the treatment of recent wounds.

Evidence of the comparative effects of penicillin–sulphanilamide and sulphanilamide alone as bacteriostatics was given by Thomson (1944), from observations made during the invasion of Sicily. In 85 wounds operated upon at casualty clearing stations and treated with sulphanilamide powder 57% were infected on arrival at the base several days later; whereas in 61 wounds that had received penicillin–sulphanilamide powder 26% were infected.

This survey was a limited one. It was necessary to carry out a more extensive inquiry in which comparison was also made with wounds not treated with a bacteriostatic. The battle for the Gothic Line provided the opportunity. This battle was fought in wet weather on cultivated ground. Casualties were heavy and casualty clearing stations were working under pressure. The treated wounds were therefore a fair sample of what could be expected from experienced forward surgeons under battle conditions. The difficulty of comparing one type of case with another was simplified, since all external conditions such as terrain, weather, forward surgeons, lines of communication, and base surgeons were the same throughout the period of this inquiry.

The purpose of this investigation was to determine the value of sulphanilamide and penicillin when applied locally in the treatment of recent wounds. In the course of the inquiry information was also obtained of other factors in wound treatment—in particular, the importance of the interval between wounding and the first operation, and of the re-dressing of wounds between C.C.S. and base hospital.

Methods

The casualties from the battle were sent from C.C.S.s to a port, and were conveyed by ship to the hospital area, arriving about the fifth to seventh day after injury. Within the next day or so they were taken to the operating theatre and the wounds were examined and sutured if possible. The following data were considered relevant:

1. *Interval before Operation at C.C.S.*—This could usually be obtained from the field medical card or by inquiry from the patient. Only cases in which it was possible to determine the interval with accuracy were included in the assessment of this time interval.

2. *Chemotherapy at C.C.S.*—It was arranged with forward surgeons at the start of the battle that penicillin–sulphathiazole powder would be applied to wounds alternately with sulphanilamide, and that in a number of cases no bacteriostatic would be employed. There were therefore, initially, three groups of cases, depending on the wound chemotherapy. In addition there was eventually a fourth group comprising those cases in which no entry was made on the field medical card and which were most probably treated with sulphanilamide. It was found convenient for the purposes of tabulation to include with this fourth, or "miscellaneous," group a number of wounds that had been dressed with an antiseptic—e.g., acriflavine or sulphathiazole–proflavine powder. It should be stated at the outset that the casualties in which no bacteriostatic was employed were carefully watched along the lines of communication and at the base hospital. In no case was the wounded part endangered by this omission, and there was no instance of spreading sepsis.

3. *Age of Wounds at Time of Examination and Suture at Base Hospital.*—This information was readily available, and was measured in days.

4. *Severity of Wounds.*—Wounds were divided into three classes:

Class A.—Gutter wounds of skin and fat alone, or with superficial muscle injury.

Class B.—Wounds with penetrating tracks; or through-and-through wounds with deep muscle injury, sometimes associated with a minor fracture.

Class C.—Large lacerated wounds with extensive muscle destruction; amputations; or major fractures.

5. *Condition of Wound.*—The clinical appearance of the wound was noted and a swab was taken for bacteriological examination at the time it was first examined in hospital. It is convenient to describe here the terms employed in collecting material for this report.

"*Clean.*"—A clean wound was one that had the naked-eye appearances of a wound recently operated upon and showed no reactive changes.

"*Dirty.*"—A dirty wound was one in which the surface was covered by tissue exudates.

"*Infected.*"—The term "infected" indicated only the presence of pyogenic cocci in a wound—*Staph. pyogenes aureus* or *Str. pyogenes*.

"*Septic.*"—Those dirty wounds that were infected with pyogenic cocci were called "septic." About half the dirty wounds came into this category.

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6. *Dose of Sulphanilamide by Mouth.*—Tablets of sulphanilamide were given to many of the wounded men at the C.C.S. and during the period of travel to hospital. Administration of the drug and entries on the medical cards were irregular. Further information was obtained by questioning the patients; but, even so, the data often remained incomplete.

7. *Re-dressing of Wounds.*—The majority of wounds had not been touched or disturbed in any way between the operating theatre in the C.C.S. and examination in the base hospital theatre. Such wounds are discussed separately in the report. A number of wounds, however, had been re-dressed; evidence was obtained to show that it was not necessarily the septic wounds that had been subjected to this intervention.

8. *Bacterial Flora.*—The swab was taken from the surface wound and any deep track, without touching the skin edges. A wound-swab was accepted as the best method of obtaining a representative sample of the bacterial flora and of providing a qualitative examination of obvious wound infection. The energies of the laboratory were directed towards isolation and precise identification of pyogenic cocci, but with sufficient attention to other bacteria to establish at least their bacteriological group. All strains of *Staph. pyogenes aureus* and *Str. pyogenes* were examined for the property of resistance to penicillin. In addition to this examination of wounds on arrival at the base hospital, swabs were taken from 100 wounds at a C.C.S. before operation was begun in order to determine the original rate of infection in this battle. The swabs were examined by Major H. E. Hutchinson, of No. 1 Mobile Bacteriological Laboratory, to whom we are indebted.

9. *Result of Suture.*—The majority of wounds were sutured at the time of their first examination in the operating theatre at the base hospital. Penicillin was given as a routine either by insufflation of penicillin–sulphathiazole powder at operation or by subsequent instillation of a solution of penicillin through tubes into the sutured wound. The results were expressed in terms of percentage of wound union. It was obviously not possible to determine the figure with a high degree of accuracy, and in assessing the results of suture only three grades were adopted: Grade I, 85% union or better; Grade II, 70 to 85% union; Grade III, less than 70%.

Value of Chemotherapy in Control of Infection

Staph. pyogenes aureus was found to be by far the most common pyogenic coccus. *Str. pyogenes* (haemolytic streptococcus) was isolated from 6% of all wounds, and from only 1.5% in the absence of the staphylococcus. In the 100 wounds from this battle that were examined in the operating theatre at a C.C.S. before operation was begun pyogenic cocci were found in 51 (figures provided by Major Hutchinson). This was the basic infection rate which surgery and chemotherapy had to combat, and the figure with which to compare the results of treatment. These results were studied in 706 wounds in which the dressing had not been disturbed between the operating theatre at a C.C.S. and examination in the base hospital. In wounds treated at C.C.S.s the rates of infection according to the chemotherapy previously employed were:

Operation only, without bacteriostatic: 49% of a total of 116 wounds were infected.

Operation and sulphanilamide powder: 43% of a total of 213 wounds were infected.

Operation and "miscellaneous" chemotherapy: 40% of a total of 122 wounds were infected.

Operation and penicillin–sulphathiazole powder: 25% of a total of 255 wounds were infected.

Thus operation alone did not appreciably reduce the incidence of infection compared with the infection rate before operation, and the introduction of sulphanilamide into the wound produced little further improvement. The use of penicillin–sulphathiazole powder, however, caused a significant reduction in infection rate to one-half of the pre-operation figure.*

It was necessary to inquire whether this difference was due to selection of special cases for penicillin treatment; in particular, whether the apparent advantage of penicillin might be due to its having been used for selected wounds and for those coming under treatment early. The significance of the time at which a wound was first operated upon is discussed below. At present it can be stated that penicillin–sulphathiazole showed an advantage over sulphanilamide irrespective of the time the wound came under treatment. It was possible also to demonstrate that the severity of the wound did not influence the relative rates of infection. If the wounds were classified according to their severity it was seen that, while more of the large and serious wounds received penicillin–sulphathiazole powder, the reduced incidence of infection following penicillin treatment occurred equally in superficial trivial wounds and in extensive ones. There was no tendency for the result to be influenced by the severity of the wound.

Wound Sepsis

It is emphasized that the above figures refer to rates of infection as determined by a bacteriological examination of the wound. There was no correlation between the clinical appearance of the wound and the presence of pyogenic cocci, many clean wounds containing *Staph. pyogenes aureus* and many dirty wounds yielding no pyogenic bacteria on culture.

Of the undisturbed wounds 20% were dirty, being covered with exudate, and about one-half of these contained pyogenic cocci (septic). The septic wounds were of special importance in this investigation into the control of infection because they were the wounds in which the infecting bacteria had "taken hold." Of the wounds treated by operation alone and without a bacteriostatic, 23% were septic; in those in which sulphanilamide was locally employed this incidence was reduced by one-half (11%); and in those treated with penicillin–sulphathiazole 7% of the wounds were septic (Table I).

Table I.—*Rates of Infection and Sepsis in Relation to Chemotherapy*†

	No.	Infected (%)	Septic
Penicillin-treated wounds	255	25	19 (7%)
Sulphanilamide-treated wounds	213	43	23 (11%)
Wounds untreated with a bacteriostatic ..	116	49	27 (23%)

The precise value of operation and local chemotherapy in this series of wounds can thus be stated in the following terms. Operation alone, without the use of a bacteriostatic, did not appreciably reduce the incidence of infection compared with the original infection rate that followed wounding. This is what would be expected, for unless a mutilating excision was performed not all potentially infected tissues would be removed. The aim of the forward surgeon is to remove only those tissues that are grossly damaged, and by adequate incisions to leave the wound in the best possible condition for dealing with the infection that remains. The value of this treatment is seen in the wounds that were treated by operation only; although one-quarter of them were septic, the sepsis was confined to the surface layers of the wound, and there was no instance of the septic process spreading along the limb or tracking deeply.

Sulphanilamide applied locally had a bacteriostatic effect; for, although the infecting bacteria persisted, their activity was depressed, so that the incidence of sepsis was reduced compared with wounds in which no bacteriostatic was employed. Penicillin–sulphathiazole powder had a greater effect, for its use was followed by the destruction of the pyogenic organisms in one-half of the infected wounds and by an equally low incidence of sepsis.

It is obviously of value to use sulphanilamide or penicillin–sulphathiazole powder at the operation at the C.C.S., and of the two bacteriostatics penicillin–sulphathiazole is shown to be the more potent.

Effect of Re-dressing of Wounds on the Infection Rate

Of 869 consecutive wounds examined 163 had been re-dressed between operation at the C.C.S. and examination in the operating theatre at the base hospital. If these wounds had been re-dressed because they were septic, it would be expected that they would include a large proportion still septic on examination at the base hospital. This was not found to be so, as only 15% were septic, which is an incidence of sepsis no greater than that shown by the general series of undisturbed wounds. (Table I). If the re-dressed wounds were classified according to their severity the following distribution was found:

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* The difference in incidence of infection between wounds treated with penicillin–sulphathiazole powder and any of the other three groups exceeds three times its standard error. There is no significant difference between the other three groups.

† The difference in incidence of sepsis between wounds untreated with a bacteriostatic and those receiving sulphanilamide or penicillin exceeds three times its standard error. The difference between penicillin- and sulphanilamide-treated wounds is not significant.

Class A (superficial wounds): 122 wounds = 25% approximately of all Class A wounds.
Class B (deep penetration): 41 wounds = 12% approximately of all Class B wounds.
Class C (deep and extensive wounds): None.

It appeared, therefore, that the more accessible wounds had been selected for dressing.

The re-dressed wounds were found to have a higher incidence of infection than had wounds which had not been disturbed during evacuation of the patient. In 67 re-dressed wounds treated originally with penicillin–sulphathiazole powder the infection rate was 42%, compared with 25% in undisturbed wounds; and where the original treatment had been with sulphanilamide the incidence was 55% of 60 wounds, compared with 43%. The importance is confirmed of sealing off the wound with an occlusive dressing at the end of operation at the C.C.S., and of refraining from further dressings, in the absence of obvious complications, until the patient is in the operating theatre at the base hospital.

Significance of Time of Operation in Control of Infection

In the history of a wound there are two intervals of importance—the number of hours that elapse between wounding and operation at the C.C.S., and the number of days before the second operation in the base hospital.

It had already been found that the rates of infection were influenced by the use of different bacteriostatics and by re-dressing of the wounds. These two conditions had therefore to be taken into account in considering the importance of a third factor—the time of operation. This was done by showing in the 706 undisturbed wounds the relation between infection and time intervals in each of the chemotherapy groups. The following terms are employed:

"Early C.C.S.": An interval of 12 hours or less between wounding and operation at C.C.S.
"Late C.C.S.": An interval of 12 to 24 hours between wounding and operation at C.C.S.
"Early Hospital": An interval of 5 days or less to time of examination of wound in hospital.
"Late Hospital": An interval of more than 5 days to time of examination of wound in hospital.

The time of arrival at the base hospital was not related to the time of the first operation.

Incidence of Infection According to Time of Arrival at Base Hospital.—There was no significant difference in infection rate between wounds admitted to the base hospital in the first 5 days after wounding compared with those admitted late. This finding is not brought forward to suggest that delay in evacuation is unimportant. It indicates, however, that if the forward treatment is completed and the wound is sealed off, infection does not readily gain access or develop during the following 10 days.

Incidence of Infection According to Time of First Operation.—There was a lower incidence of infection in wounds that had been operated upon in under 12 hours compared with those that had been treated between 12 and 24 hours, in all the chemotherapy groups. The figures of comparison are presented in Table II.

TABLE II.—*Incidence of Infection According to Time of First Operation*

Treatment	No. of Infected Wounds	
	Early C.C.S.	Late C.C.S.
Penicillin-treated	27 out of 150 (18%)	24 out of 63 (38%)
Sulphanilamide-treated ..	38 out of 108 (35%)	35 out of 66 (53%)
No chemotherapy	29 out of 64 (45%)	18 out of 35 (51%)
Total	94 out of 322 (29%)	77 out of 164 (47%)

This table summates the figures of Early and Late Hospital.

There was thus a marked difference in infection rate according to the interval between wounding and operation. One of the features of the organization of surgery in this war has been the efforts to take surgery speedily to the wounded man, and it is of particular interest to confirm the value of early surgery in the control of wound infection.

Advantage of Penicillin over Sulphanilamide in the Different Age Groups.—It is convenient here to consider whether the advantage of penicillin–sulphathiazole powder over sulphanilamide in the control of infection occurred irrespective of the time that the wound came under treatment. To make this comparison the incidences of infection after the use of the two bacteriostatics are shown side by side in the four possible age groups.

(*i*) *Early C.C.S.: Early Hospital*

Penicillin-treated wounds	4 infected out of 44 (9%)
Sulphanilamide-treated wounds ..	10 " " 32 (31%)

(*ii*) *Early C.C.S.: Late Hospital*

Penicillin-treated wounds	23 infected out of 106 (22%)
Sulphanilamide-treated wounds ..	28 " " 76 (37%)

(*iii*) *Late C.C.S.: Early Hospital*

Penicillin-treated wounds ..	5 infected out of 17	(Figures too small for comparison)
Sulphanilamide-treated wounds ..	6 " " 17	

(*iv*) *Late C.C.S.: Late Hospital*

Penicillin-treated wounds	19 infected out of 46 (41%)
Sulphanilamide-treated wounds ..	29 " " 49 (59%)

In each age group penicillin–sulphathiazole-treated wounds had a lower infection rate than had wounds treated with sulphanilamide. The results claimed for penicillin–sulphathiazole powder are thus shown to be valid irrespective of the time the wound came under treatment.

Effect of Sulphanilamide by Mouth

Entries in the field medical card showed that nearly all the wounded men received 2.5 g. of a sulphonamide at the advanced dressing station. Thereafter, administration of the drug and entries in the records were irregular. Although many patients were questioned about taking the tablets, the available information remained incomplete. Few of the men had a full course of the drug, but records were obtained of 127 men who had received 7.5 g. or more and whose wounds were undisturbed. The incidence of infection and that of septic wounds in these patients were the same as in the general series.

Relation Between Infection and Results of Suture

So far in this report the incidence of infection has been used to measure the value of the different factors that were under investigation (bacteriostatic, time of operation, etc.). This infection is of more than laboratory interest. The justification of our use of infection as the criterion by which to assess forward surgery and chemotherapy, and the practical importance of pyogenic bacteria in a wound, are seen when the presence of infection is related to the results of suture.

Seven hundred and fifteen of the wounds were sutured. Wound repair was the work of a group of surgeons (specialists, graded surgeons, and trainees), so that the results were representative of what can be achieved in the large-scale suture of wounds when penicillin is used as a routine. Seventy-five per cent. of wounds achieved the first grade of union (i.e., above 85% union); of the remaining 25% one-half obtained an intermediate grade of healing (70 to 85% union) and one-half were relative failures.

When the results were arranged according to the presence or absence of infection in the wounds at the time of operation it was found that the presence of pyogenic organisms had an adverse influence. This was seen most clearly when the clean and dirty wounds were considered separately.

Of 614 clean wounds 424 were free from pyogenic organisms, and 85% of these obtained Grade I union; 190 wounds were infected, and only 62% of these attained the first grade. Of 101 dirty wounds 52 were free from pyogenic bacteria, and 80% of these obtained Grade I healing—that is, almost the same degree of success was obtained as in the suture of uninfected clean wounds. The 49 infected dirty wounds did not do well, only 37% reaching the first grade. The full results are given in the Appendix (Tables A and B).

Thus the results of suture were related less to the appearance of the wound than to the presence of pyogenic bacteria. This does not mean that a bacteriological examination of the wound should be carried out before suture is performed. On the contrary, the surgeon is encouraged to suture wounds (in the presence of penicillin) whether they appear clean or dirty. The significance of these findings is to confirm the importance of pyogenic bacteria in the wound at the time of arrival at the base hospital, and thereby to emphasize the value of the control of infection by early operation at the C.C.S., by the use of penicillin–sulphathiazole powder as a bacteriostatic at the forward operation, and by avoidance of dressing of the wound between forward and rear surgeons.

Influence of Resistant Strains of Staph. pyogenes aureus on Suture

All strains of *Staph. pyogenes aureus* were examined for the property of resistance to penicillin. Of the strains 20% were resistant to the concentration of penicillin that is produced by parenteral therapy (1/10 unit per c.cm.), but only one-half of these strains grew in 10 units of penicillin per c.cm., and few grew in broth containing 50 units per c.cm. Thus while 20% of strains of *Staph. pyogenes aureus* could fully resist the concentration of penicillin that obtains in parenteral therapy, many of these strains could be influenced by the increased concentrations that local therapy might provide.

It will be recalled that of the 614 clean wounds 190 were infected. Among these 190 strains of *Staph. pyogenes aureus* 33 were "resistant." Suture of the 33 wounds, accompanied by the local use of penicillin, was followed by the same standard of union as was the suture of clean wounds infected with "sensitive" strains.

The high concentration of penicillin that is obtained by local penicillin therapy has been shown to be of advantage in some situations—e.g., in the pleural cavity (d'Abreu *et al.*, 1944) and in compound fractures (Bentley *et al.*, 1944). These present results of suture indicate that it is also of value in dealing with strains of staphylococci possessing some degree of resistance to the drug.

Summary

In an investigation of 1,000 wounds during the battle for the Gothic Line the organism of initial sepsis was found to be *Staph. pyogenes aureus*. *Str. pyogenes* (haemolytic streptococcus) was rarely found.

The incidence of infection in wounds before operation at the C.C.S. was about 51%.

In wounds undisturbed during transit, and treated at the C.C.S. by operation alone, 49% were infected and 23% were septic; by operation and sulphanilamide powder, 43% and 11%; by operation and penicillin–sulphathiazole powder, 25% and 7%, when examined in the base hospital 5 to 10 days later. Thus operation alone did not completely remove infection from a recent wound. Its effect was to leave the wound in the best possible condition for dealing with the infection that remained. Sulphanilamide applied locally had a bacteriostatic effect; for although the infecting bacteria persisted, their activity was depressed, so that the incidence of sepsis was reduced. Penicillin–sulphathiazole powder similarly applied was more effective; for its use was followed by the destruction of the infecting cocci in about one-half of the infected wounds, with an equally low incidence of sepsis.

Wounds operated upon at the C.C.S. in under 12 hours had a lower incidence of infection than those operated upon between 12 and 24 hours, in all the chemotherapy groups. The length of time between wounding and arrival at the base hospital was found to make no significant difference in the infection rate.

Wounds that had been re-dressed between C.C.S. and base hospital had a higher incidence of infection than had those that had not been disturbed.

The importance of control of infection by operation and chemotherapy at the C.C.S. is illustrated by the results of suture. The presence of pyogenic organisms in the wound at the time suture was performed had an adverse influence on the result obtained. Of wounds uninfected with these organisms 80 to 85% obtained Grade I union, whether appearing clean or dirty; whereas wounds that were infected, even if appearing clean, showed a lower rate of success.

The presence in wounds of staphylococci possessing some measure of resistance to penicillin did not influence the results of suture when penicillin was employed locally in the wound.

APPENDIX

Table A.—*Results of Suture of 614 Clean Wounds in Relation to Infection*

Condition	Total No.	Degree of Success of Suture		
		No. Achieving Grade I Union	No. Achieving Grade II Union	No. Achieving Grade III Union
Infected ..	190	118 (62%)	37 (20%)	35 (18%)
Non-infected ..	424	362 (85%)	33 (8%)	29 (7%)

Table B.—*Results of Suture of 101 Dirty Wounds in Relation to Infection*

Condition	Total No.	Degree of Success of Suture		
		No. Achieving Grade I Union	No. Achieving Grade II Union	No. Achieving Grade III Union
Infected ..	52	19 (37%)	9 (17%)	24 (46%)
Non-infected ..	49	39 (80%)	9 (18%)	1 (2%)

Grade I union = 85% union or better. Grade II union = 70 to 85% union. Grade III union = Under 70% union.

The data on which this paper is based are taken from a report to the Director of Pathology, War Office, by Thomson and Bentley (1944). We are grateful to Major-Gen. L. T. Poole, D.S.O., *M.C.*, for permission to publish from the War Office report.

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BLAST INJURY TO THE LUNGS

CLINICAL AND RADIOLOGICAL FINDINGS AND THEIR RELATION TO CERTAIN SYMPTOMS

BY

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(From a War Hospital)

The effects of explosive blast on the lungs have been studied by Zuckerman (1940) in animals, and clinical and post-mortem findings during the present war, recorded by a number of observers, correspond in the main with those found experimentally. The lesion as it affects the lungs is haemorrhage due to capillary rupture, or possibly diapedesis (Hadfield, 1940–1). According to their severity, Zuckerman has classified the lesions as: (1) a few small haemorrhages on surfaces of lungs; (2) patchy haemorrhages throughout the lungs; (3) complete hepatization of the lungs by haemorrhages. His explanation that the lesions are produced by the wave of positive pressure acting directly on the chest wall would appear to be generally accepted and is convincingly supported by his work. The general clinical picture is definite enough in the groups of cases reported, but both individual symptoms, such as haemoptysis, and radiological evidence of blast injury have a varied incidence.

The Cases

Among the large number of chest injuries, penetrating and non-penetrating, admitted to this hospital 21 appeared to have been caused by blast, and were unaccompanied by additional trauma. No case has been included in which fractured ribs might account for damage to the lung or pleura or in which there was a history of burial by debris together with bruising of the chest wall. A certain amount of selection was inevitable, as only patients fit to travel reached this hospital, the interval between injury and arrival being on the whole proportionate to the severity of the condition. Only one of the cases was seen here earlier than three days after wounding; the majority arrived three to five days and several as long as 10 to 14 days after. It was thus possible to observe cases at different intervals after injury and watch their progress for a few days before sending them on to base hospitals.

The explosive sources were hand-grenades, mortar bombs, land mines, aerial bombs, and in two cases flying bombs.

Although unconsciousness occurred at the time of injury in the majority, the accounts of the positions of the patients in relation to the explosions, the type of bomb, and in many cases the distance from the explosion were surprisingly detailed. With few exceptions the blast seemed to have been sustained chiefly by the chest, and, conversely, cases of abdominal blast —not included in this series—were noticeably free from pulmonary symptoms.

Table showing Inverse Relation of Haemoptysis to Incidence of Massive Haemorrhage as revealed by Radiographs

Case	Explosive Source; Position	Time Unconscious	Pain	Cough	Haemoptysis	Signs in Chest	*X*-Ray Findings in Chest
1	Aerial bomb; 50 yards Prone	0	21 days; retrosternal	21 days	1st–12th days; intermittent	Nil 2nd, 5th, 7th–21st days	Nil 2nd, 6th, 12th, 15th days
2	Mortar bomb; 3 feet Facing	8 hours	5 days retrosternal; 10 days upper abdom.	11 days; blood	1st–11th days; intermittent	General rhonchi 1st–3rd days	Nil 1st, 2nd, 3rd, 9th, 10th, 11th days
3	Aerial bomb; 30 yards Facing	0	5 days; retrosternal	8 days mucoid sputum	3rd–10th days; intermittent	Cyanosis, hyperexpansion and general rhonchi 1st day; nil 2nd day or later	Nil 2nd, 6th, 9th days
4	Land mine; 4 yards Left side	5 mins.	3 days; right chest	5 days; mucoid sputum	4th–9th days; daily	Nil 1st, 3rd, 5th, 9th days	Nil 4th, 7th days
5	Land mine; "close" Supine	0	6 days retrosternal and back	5 days; bloody sputum	1st–5th days	Nil 1st, 2nd, 4th, 7th days	Nil 6th, 9th days
6	Mortar bomb; 5 yards Facing	5 hours	10 days; whole chest	5 days; blood	1st–5th days; daily	Generalized rhonchi 1st day; nil 3rd, 5th, 7th days	Nil 1st, 3rd, 8th days
7	Mortar bomb ? ?	3 hours	7 days; whole chest, left arm	3 days; blood	1st–3rd days; daily	Generalized rhonchi 1st day; nil 3rd, 5th, 7th days	Nil 1st, 3rd, 5th days
8	Mortar bomb; 10 yards ?	5 hours	3 days; upper abdom., left back	3 days; dry	3rd day	Nil 1st, 4th, 6th days	Nil 4th day
9	Grenade; 3 yards Right side	Few mins.	5 days; right chest	3 days; frothy sputum	1st day	Nil 4th, 6th days	Nil 4th day
10	Grenade; contact Left side	"Short time"	7 days; left chest and arm	7 days; mucoid sputum	1st–4th days	Generalized rhonchi 1st day	Nil 1st day; right interlobar fluid 3rd day
11	Mortar bomb ? Right side	0	8 days; left chest	1 day; bloody sputum	1st day for 6 hours	Nil 1st, 4th days	Increased density left lower zone 4th day
12	Aerial bomb; 25 yards Prone	0	4 days; left chest	5 days; mucoid sputum	1st day	Cyanosis, rapid breathing, no signs in chest, 1st day; nil 4th, 6th, 8th days	Opacities both midzones 4th day; nil 8th day
13	Aerial bomb ? Back to	Few mins.	2 days; retrosternal	1 day; blood	1st day	Generalized rhonchi 1st day; dullness and diminished B.S. at left base 5th day	Opacity left lower zone 5th day; opacity clearing 8th day
14	Aerial bomb ? ?	? hours	2 days; right chest	1 day	1st day	Dullness and diminished B.S. at right base 1st day; diminished B.S. and creps. at right base 13th day	Heavy opacity right lower zone, small opacity left midzone, 3rd day; clearing on right, left side clear, on 6th day; nil 12th day
15	Flying bomb ? ?	0	10 days; whole chest	Chronic bronchitic	0	Left haemothorax 3rd day; aspirated	Left haemothorax; clear by 24th day
16	Shell; 20 yards Back to	0	15 days; left chest	10 days; dry	1st day	Left haemothorax 2nd day; consolidation left base 12th day; clear 23rd day	Left haemothorax 2nd day; consolidation 13th day; pleural thickening 22nd day
17	Mortar bomb; close In trench	Few mins.	7 days; left chest	3 days; dry	0	Nil 3rd day; dullness left base 14th day	Nil 3rd day; opacity left base 14th day; almost clear 17th day
18	Flying bomb; 20 yards Back to	0	4 days; retrosternal and back	3 days; dry	0	Nil 1st and 2nd days; dullness, diminished B.S., and creps. right base 3rd day; nil 4th day	Nil 2nd and 4th days
19	Mortar bomb; 3 yards Left side	3 hours	14 days; retrosternal, left chest	0	0	Nil 1st day; dullness and diminished B.S. left base 3rd day; nil 8th day	Opacity left base 3rd day; cleared 8th day
20	Aerial bomb ? Prone	6 hours	14 days; left chest, back, upper abdom.	0	0	Generalized rhonchi 1st day; consolidation right base 4th day; resolving consolidation left base 14th day	Bilateral midzone opacities right > left. 4th day; opacity left base 14th day
21	Mortar bomb; 3 yards Crouching	0	10 days; upper back	0	0	Cyanosis, scattered creps. both lungs 1st and 2nd days; dullness and diminished B.S. at left base 9th day	Increased density left lower zone 9th day; nil 11th day

Symptoms

The attitude of mind of these patients was strikingly calm, contrasted with the anxiety and over-reaction shown by many of those with penetrating wounds; perhaps they took heart of grace from their immunity to the repeated and sometimes fruitless needling suffered by their fellows. Over half the patients (12) were unconscious for a few minutes to several hours after injury. No abnormal physical signs in the central nervous system were recorded, and in no case was lumbar puncture performed. None of these patients complained of subsequent headache.

Dyspnoea.—This symptom was experienced by all, lasting from a few hours to several days after injury, but was not persistent. Painful respiration, however, in patients with muscular tenderness led to discomfort in transport and lasted from ten days to three weeks. "Tightness" and a "blown-up feeling" were expressions unhumorously used by many patients to describe their sensations after being exposed to blast, and in these cases rapid wheezing respirations, coughing of frothy blood-stained sputum, and sometimes cyanosis were recorded.

Pain was a constant feature, but its duration varied. Two types occurred, sometimes separately, sometimes together: (1) retrosternal pain, constant or intermittent, the latter often relieved by coughing up mucus or blood; (2) muscular pain, accompanied by tenderness, occurring most commonly in the intercostal muscles and occasionally in the upper abdomen and muscle masses of the back. In some cases the pain was severe, with extreme tenderness a week or more after injury, limiting respiratory movement. Where the blast had been unilateral the upper-arm muscles on the injured side were apt to be affected.

Cough.—All but two cases suffered from cough; both these patients showed radiological evidence of pulmonary haemorrhage but emphatically denied cough as a symptom, nor did it occur while they were in this hospital. Coughing of frothy and sometimes blood-stained sputum for several hours after injury was common. After this the cough might become dry, or mucoid sputum would be expectorated for a few days. This symptom seemed to bear no relation to the intensity of radiological change. *Haemoptysis* occurred in 15 cases, and is discussed below.

Other Symptoms.—Epistaxis occurred during the first 24 hours after injury in Case 7. The tympanic membranes were not inspected as a routine (the ear drums were examined only in Cases 1, 5, 11, 12, 16, and 17), but the only patient to complain of deafness was No. 11, who had a perforation of the right drum.

Physical Signs

Blood-pressure readings and pulse, temperature and respiration rates were recorded infrequently before admission to this hospital, but, with the exception of Case 18, the charts showed nothing remarkable after admission. This patient, whose temperature was 99°, pulse 88, and respiration rate 20 on admission, three hours after being blasted by a flying bomb, had a temperature of 104°, a pulse of 110, and a respiration rate of 36 fifty-six hours after admission. Examination then showed undoubted dullness and diminished breath-sounds at the right base. Radiographs taken 24 hours before and 36 hours after this examination showed no abnormality, and agreed with an absence of abnormal physical signs at these times; it was thought that he had had a temporary partial collapse of the right lower lobe. He continued to have a low pyrexia—99 to 100°—for eight days after this, but the tachycardia and respirations subsided within 48 hours.

Generalized rhonchi were found commonly in those cases examined soon after injury, but lasted only for a few days. Cases radiologically clear on arrival here showed either nothing abnormal on physical examination (apart from muscular tenderness and limited respiratory excursions due to the pain) or the occasional rhonchus found in a large number of healthy chests. Dullness, diminished breath sounds, and decreased fremitus were present in those patients with heavy radiological shadows, clearing *pari passu* with the radiographs. Cases 15 and 16 had signs of effusion, and aspiration produced bloody fluid. Both haemothoraces cleared up with repeated aspiration.

X-Ray Findings

Ten of the cases showed no detectable abnormality in chest films taken within a few days of injury. Five of these were *x*-rayed within 36 hours of the incident, and in all but two patients a further film or films were taken later. Eleven cases showed radiological abnormalities in the chest at some time, and of these Cases 10 and 17, whose first chest films revealed nothing abnormal, developed respectively the appearance of interlobar fluid and a dense opacity in the left lower zone. Case 10, in which by the third day there was a shadow indicative of fluid in the right middle fissure, was not aspirated, but it seems likely that serous fluid or blood may have taken this time to accumulate. Case 17 had a clear film two days after injury, but a film taken on the fourteenth day showed a heavy opacity in the left lower zone, clearing remarkably quickly by the seventeenth day. Unless atypical pneumonia is postulated—and there was no corroboration by pyrexia or cough—this finding is difficult to explain, as even if haemorrhage into the lung is progressive the onset in this patient seems to have been very long-delayed. There was nothing specific about the shadows of the radiologically positive cases; they were unilateral in some instances, bilateral in others, and varied from increased density to the appearance of massive consolidation. All opacities were in the middle and/or lower zones, situated for the most part centrally. The shadows were confluent and not patchy. Phrenico-costal sinus pneumonia (Osborn, 1941) was not seen. Thomas (1941) has described hyperexpansion of the chest, but this was not a noticeable feature in the chest films of my cases. There seemed to be little correlation between the severity of the symptoms and the amount of damage as revealed by *x*-ray films. Tunbridge and Wilson (1943) are convinced that the extent of the haemorrhage is not always commensurate with the severity of the exposure to blast.

Haemoptysis

Haemoptysis has been an inconstant symptom of reported cases. None of those described by Dean, Thomas, and Allison (1940) coughed blood, though Hadfield (1941) found that haemoptysis commonly occurred an hour or so after injury. Livingstone (1940–1) reported occasional blood-stained sputum with loose cough. O'Reilly and Gloyne (1941) did not find haemoptysis to be persistent. It might be expected that haemoptysis would be related to the degree of haemorrhage—i.e., would occur in those cases showing massive *x*-ray shadows. This relation, however, was not found. Fifteen cases in all had haemoptysis at one time or another; of these, nine showed no radiological changes after injury. Of the 12 radiologically positive patients only six had haemoptysis, and, furthermore, only Case 10 coughed blood or bloody sputum for more than one day. Contrasted with these, six of the radiologically negative cases had haemoptysis for 12, 11, 8, 6, 5, and 5 days respectively. The accompanying Table, in which cases are arranged in order of persistence of haemoptysis, shows the inverse relation of this symptom to the incidence of massive haemorrhage as revealed by *x* rays. Those whose haemoptysis was of brief duration coughed bloody froth after injury, whereas those with prolonged haemoptysis brought up pure blood, sometimes with clots, intermittently. The following case is illustrative:

Case 2

On Aug. 8, 1944, a mortar shell fell on this patient's gun. He was facing the explosion and was unconscious for eight hours. He then had difficulty in breathing, and lower retrosternal and upper abdominal pain; he was also coughing blood-stained froth. On examination generalized rhonchi were heard in both lungs. Radiologically the chest was clear.

Aug. 10.—Still having frequent haemoptyses (pure blood). Generalized rhonchi in both lungs. *X*-ray films of chest clear. He continued to cough blood once or twice a day until Aug. 15. Before each haemoptysis he had pain under the right ribs anteriorly.

Aug. 15.—No haemoptysis.

Aug. 16.—Haemoptysis began at 5 a.m.; fairly copious, with small clots. A few sonorous rhonchi in both lungs. Radiographs of chest showed slight frosting of periphery of left mid-zone (indefinite). Evening temperature 99°. Pulse and respirations normal.

Aug. 17.—No cough or haemoptysis. No abnormal signs. Radiographs of chest clear.

Aug. 18.—Haemoptysis; coughing small clots from 11 a.m. to 4 p.m. Temperature, pulse, respirations normal. No abnormal signs in chest. Posterior rhinoscopy showed nothing abnormal. Chest films clear.

Aug. 23.—No further haemoptysis since Aug. 18.

Cases 1 and 3 pursued a similar course. A civilian (not included in this series) injured by an aerial bomb early this year had haemoptysis for three weeks with repeated clear radiographs.

Considering the discrepancy between the degree of haemorrhage revealed by *x* rays and haemoptysis as a symptom, it seems possible that the source of bleeding in those patients with clear films may be bronchial. It was not desirable to submit these patients to bronchoscopy, but further investigation into the source of haemorrhage in such cases would be instructive. Hadfield (1940–1) mentions a patient showing no external signs of injury who recovered from his more urgent respiratory symptoms in the course of a few days, but had four attacks of haemoptysis during the next seven weeks. He believes that the major clinical manifestations are more probably due to capillary dilatation than to actual bleeding into the lung, which may be a consequence of capillary dilatation, and considers that one result of the detonation of high explosives is that the lung is left in such a condition that it is liable to bleed intermittently for a considerable time after the injury. His case is similar to the three cases in this series in which there was prolonged haemoptysis, but if his explanation is correct it should follow that those patients who show signs and radiological evidence of extensive diapedesis or capillary rupture would be the most likely to have prolonged haemoptysis.

Unilateral Lesions

Zuckerman (1940) has shown that rabbits exposed to lateral blast, the opposite chest being protected by cotton-wool, suffer more severe damage to the lung on the exposed uncovered side and less severe damage to the contralateral lung. Clinical reports of cases, so far as I am aware, have not stressed unilateral lesions; these were not likely to occur as most of the reported cases have been due to injury by aerial-bomb blast. Many of my cases were blasted by less powerful sources—e.g., mortar bombs or grenades—and some appeared to have been affected by the close-range detonation on one side only. Eight patients had unilateral abnormalities as shown by radiograph, although in some of these cases minimal lesions on the other side may have cleared by the time the films were taken. Five patients said that they were sideways-on to the explosions, and of these, three gave unilateral shadows, the remaining two being radiologically negative. It seems reasonable to assume that, whatever the effect on the lungs, pain and tenderness of the chest muscles should occur on the side facing the explosion; but in two of the five cases (Nos. 4 and 11) pain with or without tenderness was experienced on the side opposite to that described as facing the explosion. The remaining three cases had pain on the exposed side, the following case presenting the anomaly of muscle tenderness limited to the arm and chest facing the detonation, with fluid appearing in the opposite interlobar fissure.

Case 10

This patient was injured on Aug. 8, 1944, by a hand-grenade which struck his left shoulder and exploded on or close to him. He was unconscious for a short time. On coming round he noticed soreness of the left chest and shoulder, and was coughing bloody sputum. On examination there was obvious dyspnoea, with generalized rhonchi in both lungs. Chest radiologically clear.

Aug. 9.—Still coughing blood-stained sputum.

Aug. 11.—Cough and haemoptysis. Pain in left chest and arm. Radiographs gave an appearance of a small effusion in the right middle fissure.

Aug. 12.—No change radiologically.

Aug. 15.—Some pain in left chest on breathing. Occasional cough; mucoid sputum; no haemoptysis. Examination disclosed tenderness in the left pectoralis major and shoulder-girdle muscles. No abnormal signs in lungs. Radiographs revealed only a small amount of fluid in the right middle fissure.

It would be unwise to draw conclusions from the case histories, for the evidence seems contradictory in two instances: No. 4, whose history was of a land mine exploding on his left side, the subsequent muscular pain and tenderness being on the right; and No. 11, who gave a history of a mortar bomb exploding on the right and presented the anomalous combination of a recent perforation of the right drum, the left being intact, and pain and tenderness of the left chest with radiological evidence of increased density of the left lower zone. Nor were any of the cases with unilateral histories and lesions comparable to Zuckerman's animals, for their chests were not protected on one side, and the blast may well have been received obliquely. Case 10, however, would seem to suggest the possibility of a contrecoup lesion if it were not for the difficulty of accepting such an effect on an organ so elastic as the lung.

Treatment

Treatment should be for the symptoms. Hadfield (1940–1) has emphasized the importance of adequate rest. None of these patients developed pneumonia—a not uncommon complication according to O'Reilly (1941); many of those showing evidence of massive pulmonary haemorrhage had been given up to 20 g. of a sulphonamide by the Army method of dosage of 5 tablets (2½ g.) twice a day during the first few days after injury, and this may well have prevented the complication. Physiotherapy would seem to be indicated for the muscular pain which is so prominent a symptom, followed by breathing exercises, but owing to pressure of more urgent work this could not always be carried out.

Summary

Twenty-one cases of blast injury to the lungs uncomplicated by other types of trauma are presented; the symptomatology, signs, and radiological findings are detailed. Haemoptysis as a persistent symptom is shown to bear no relation to the degree of pulmonary haemorrhage as manifested radiologically. Unilateral exposure to blast and the resulting lesions are found to have no constant relations; but in one case the possibility of contrecoup injury is mooted.

I would like to express my thanks to Dr. Geoffrey Doel for the *x*-raying of these patients and for his helpful co-operation at all times. I am also indebted to R.A.M.C. officers concerned for the early notes of the cases and in many instances for radiological investigations soon after injury.

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AN OUTBREAK OF JAUNDICE WITH SIGNS IN THE NERVOUS SYSTEM

BY

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In the steadily growing literature on infective hepatitis there is scant reference to lesions in the nervous system. In a series of 170 cases studied by Cameron (1943) the only neurological sign noted was a temporary paresis of accommodation in two cases. Newman (1942) refers to severe headache and to the occasional occurrence of paraesthesiae in the limbs. In none of his cases was the cerebrospinal fluid examined. Brain (1943) refers to one case in which unilateral convulsions and a hemiplegia, together with mild polyneuritic signs, preceded the onset of jaundice. Lescher (1944) gives three references to single cases of meningitis associated with infective hepatitis and describes two cases. A housewife aged 28 during an epidemic of infective hepatitis developed signs of a generalized polyneuritis which was followed one week later by jaundice; recovery was complete. In the second case an R.A.S.C. driver suddenly developed a left hemiplegia two months after an attack of epidemic hepatitis, from which he had made a complete recovery; there seems little justification for associating these two illnesses.

History of the Outbreak

The cases which are the subject of this note show the association of lesions of the nervous system with jaundice in several individuals living in close proximity. In Sept., 1943, a casualty clearing station in the Arakan, on the Burma front, was receiving a few cases of infective hepatitis each week, differing in no way from the usual type. Within two days 5 cases of jaundice with unusual neurological symptoms and signs were admitted. Four of these patients were from one British regiment and the fifth was an officer who had been working with this unit.

The history and clinical findings in four of the cases were very similar. The onset of the illness was sudden, occurring while the battalion was marching down to relieve another in the front line. All four men went sick within 48 hours of each other, with severe headache, dizziness, and a rise in temperature to about 104° F. Pain behind the eyes and generalized body pains, worse in the neck and in the back, were constant features. A "pins and needles" or tingling sensation rapidly developed in the arms and legs, with loss of muscular power, particularly in the lower limbs. Some degree of dimness of vision was noticed by each of the patients.

The fever lasted two or three days. A moderate jaundice developed on about the fourth day. When examined at the C.C.S. 10 days after the onset the following signs were noted. All four men were mildly jaundiced and bile was present in the urine. The liver was tender and enlarged and the spleen was palpable in all cases. The total and differential white counts were normal. The men complained of dizziness, dimness of vision, unsteadiness, and weakness of the limbs. On attempting to walk they staggered. During the first few days of the illness Kernig's sign had been reported as positive; a slight degree of neck rigidity still remained. The fundi were normal apart from a fullness of the veins in three cases. The remaining cranial nerves were normal. There was no loss of power, and no incoordination was present in the upper limbs. The arm and abdominal reflexes were normal. The lower limbs showed varying degrees of muscular weakness. The knee-jerks were diminished, though unequally on the two sides; in one case the right knee-jerk was absent. The ankle-jerks were absent. The plantar responses were flexor, except in one case which showed equivocal responses. In two cases there was definite sensory loss in the thigh—in one case on the anterior surface and in the other along the posterior surface. The cerebrospinal fluid was abnormal in three of the cases. In two a clot developed 15 minutes after the fluid had been withdrawn. The protein content was increased in three cases. Cell counts were 23, 14, and 11 lymphocytes per c.mm. The Wassermann reaction was negative in all the fluids. Sera of these cases gave negative results on agglutination with the leptospira of Weil's disease.

The patients were evacuated to base hospitals, where three of them made a complete recovery within two months. The other two cases developed sequelae, as described below.

Case IV

C.S.M. J., aged 32, was seen by Major A. D. Leigh, R.A.M.C., neurologist, in Dec., 1943, three months after the onset. The following notes are extracted from his report. The patient complained of weakness and numbness in the legs. There was no jaundice and the liver was not palpable. The pupils and cranial nerves were normal. There was slight weakness of both hand-grips, with exaggerated reflexes in both limbs. Blunting to cotton-wool and pinprick was present on both hands. Power in both lower limbs was diminished, more particularly in the right leg. Muscle tone was increased in both legs and the gait was mildly spastic. The deep reflexes were much exaggerated, except the right ankle-jerk, which was diminished. The plantar responses were flexor. There was diminished sensation on the outer side of both thighs and over the dorsum of the feet, with absolute loss on the toes. The cerebrospinal fluid was normal. The patient was invalided to the U.K.

Case V

On Sept. 2, 1943, Capt. R., aged 33, complained of sore throat. On the 9th he had a rigor, which recurred despite quinine. On Sept. 14 he was admitted to an M.D.S., where his urine was noted to be dark in colour. The next day he complained of pains in the calves and thighs, and these were followed by loss of power from the hips downwards. On Sept. 17 there was a complete flaccid paraplegia, with anaesthesia below the groins. The patient complained of pain in the right arm, and on examination weakness of abduction was noted. There was no complaint of headache. On Sept. 19 he was admitted to a C.C.S.; he vomited several times that day. The next day he complained of headache, pain in the back, and blurring of vision with the onset of fever. There was difficulty in emptying the bladder. Jaundice was now present and the liver was enlarged and tender. The C.S.F. showed no increase in cells and the protein content was normal. The white cells numbered 9,000 per c.mm. Improvement was noted during the next few days, and on Oct. 2, on arrival at a field hospital, a considerable return of power and sensation had taken place in the left lower limb and, to a less degree, in the right. By the end of October no weakness of the right arm could be detected. The abdominal reflexes were normal. There was weakness of flexion of the right knee and of dorsiflexion of the right foot. Tone was increased in the right leg, particularly in the tendo Achillis. There was no appreciable wasting, and sensation was normal. The deep reflexes were exaggerated in the lower limbs, more particularly on the right side. There was unsustained right-sided ankle clonus, and the right plantar response was equivocal, while the left was flexor. By the middle of November power had further returned in the right leg, and the plantar response was now flexor. The patient was evacuated to the U.K.

Discussion

In four of the five cases described above an abrupt onset of fever, generalized pains, and signs of a mild meningitis were quickly followed by blurring of vision, weakness, and paraesthesiae in the lower limbs. In the fourth case pyramidal signs were subsequently noted, while in the fifth case the signs were predominantly those of a myelitis. Jaundice associated with enlargement of the liver and spleen appeared in all cases between the 4th and 6th days of the illness. Recovery was rapid and complete in three of them. In the remaining two a mild residual spastic paresis of the lower limbs, with in one case sensory loss peripherally, was still present several months later.

In considering the aetiology of the nervous signs in these cases acute poliomyelitis need be considered only in Case V. In Sept., 1943, only a single case of this disease was reported from this part of the Burma front. Furthermore, the myelitic form is distinctly rare, and it is unusual in such cases for recovery to be so rapid and the sequelae so mild. The normal cerebrospinal findings on the fifth day of the disease are also unusual. Since another case with mild myelitic signs occurred in the series, and since there were features in Case V rarely seen in acute poliomyelitis, this has been included.

The jaundice appeared to be of the usual infective type, especially since other cases from the same area were seen at that time. Assuming that these men suffered from infective jaundice, the question of neurotropism of the virus causing this condition must be considered. It is known that, experimentally, hepatotropic and neurotropic elements may coexist in viruses—e.g., yellow fever. On the other hand, taking into consideration the widespread distribution of infective hepatitis during the present world war and the extreme rarity of nervous complications, it is doubtful whether neurotropism of this virus can be accepted as the explanation in these cases. There remains the coincidental association of two diseases—a not uncommon event in the East. Encephalomyelitis, to which one case bears some resemblance, although not uncommon in peacetime, has been rare in the Army in India during the present war. We have not attempted to give a label to the neurological picture which these cases presented, but have indicated that meninges, spinal cord, and peripheral nerves were affected in varying degree.

Summary

A description is given of a small outbreak on the Burma front of a condition characterized by the association of jaundice with meningitis, peripheral neuritis, and, less constantly, myelitis.

The relationship of these conditions is briefly discussed.

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A SOCIAL STUDY OF HOSPITAL TREATMENT

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Anyone with experience of modern hospital work knows that facilities for in-patient treatment are limited. It is therefore important that they should be used to the best advantage. Also, all those who deal with the sick know something of the impact on family life made by a serious illness, but few realize how it is borne. The present study is an attempt to assess the value and efficiency of the in-patient service of a general medical ward, and to discover how such a misfortune as a hospital illness is met by the patient.

The Patients Studied

Contact was made with all the patients who had been admitted to Collier Ward during a period of six months to see how far medical and social care had been adequate to meet their needs. The period between Aug. 1, 1941, and Jan. 31, 1942, was chosen because during that time one of us (M.B.) had been house-physician.

Collier Ward is divided into accommodation for 10 men and 11 women. It is attached to the Nuffield Department of Clinical Medicine, and although when it was opened in 1938 it was mainly intended for scientific investigation and research, by 1941 it was also taking its share in the clinical teaching of students and the general work of the hospital. The ward was staffed with a sister, seven nurses, and a house-physician, and the bed costs for the six months under review were £2,280.

The follow-up was begun in Feb., 1943, and a letter was sent to each of the 156 patients explaining the nature of the investigation and asking for their co-operation. Wherever possible the social worker (F. C. C.) then visited the patients, discussed the social implications of their illness, and arranged for them to come up to hospital for a medical examination. Seventy-two patients were visited in their own homes; 51 attended for medical examination; 31 lived too far away for a visit, but sent a letter and report from their own doctor. Only 6 remained untraced, and of these one was an evacuee, one a tramp, and two were from a near-by construction camp. Notes were made on the medical and social aspects of each case, and when the record was complete the questionary shown in Table I was filled in. All but two of the patients were delighted to hear from the hospital and know the staff were interested in their progress. They gave us unlimited co-operation.

Table I.—*Questionary used in the Follow-up and a Summary of the Answers*

Total number of cases		156
Dead	29	35
Untraced	6	
Number included in the questionary		121*
Medical	Yes	No
1. Is the patient still suffering from the disease which caused admission?	82	39
2. Is any present incapacity due only to a psychogenic overlap?	8	—
3. Did the follow-up visit end in a suggestion as to treatment or supervision?	31	90
4. (*a*) Is hospital treatment still necessary?	47	74
(*b*) If so, is it being given?	36	11
5. (*a*) Is other medical care still necessary?	35	86
(*b*) If so, is it being given?	29	6
6. Was patient seen by family doctor after discharge?	105	16
Social		
7. Is the patient now (*a*) employed in full-time work?	72	
(*b*) employed in part-time work?	30	
(*c*) totally incapacitated?	19	
8. Was the period of incapacity caused by the illness greater than three months?	98	52*
9. Was the stay in hospital longer than three weeks?	66	90†
10. Was the period of incapacity after discharge greater than three months?	73	48
11. Could this period (10) have been shortened by:		
(*a*) fuller co-operation of patient or family?	11	
(*b*) closer hospital supervision?	13	
(*c*) financial help?	5	
(*d*) occupational therapy?	6	
(*e*) other services?	19	
12. What were the sources of income during illness?		
(*a*) Wages paid by employer during illness	23	
(*b*) Insurance	64	
(*c*) Savings	32	
(*d*) Family funds	82	
(*e*) Public funds	16	
13. If the patient is not working full time now, what are the sources of income?		
(*a*) Pay from part-time work only	3	
(*b*) Insurance	6	
(*c*) Savings	6	
(*d*) Family	38	
(*e*) Public funds	2	
14. When the patient was a housewife, were reasonably adequate arrangements made for the care of the rest of the family:		
(*a*) during illness?	44	4
(*b*) during convalescence?	40	8
(*c*) at present time if still incapacitated?	21	3

* All the patients traced—i.e., 150—are included in the answer.

† All of the 156 patients are included in this answer.

All but 5 of the patients were civilians, drawn mainly from Oxford and the large rural area surrounding it. More than a third came from the country, and many of the Oxford townspeople have the outlook and attitude of country folk. Among those from the town 10% were evacuees from London. Eight per cent. of all patients were sent for diagnosis from considerable distances outside the usual area.

The housing conditions of patients, from both the urban and the rural areas, were good on the whole. The majority of our patients came from neat semi-detached houses with pleasant gardens and reasonable rents, or from country cottages with somewhat primitive sanitation but ideal positions and rents of a few shillings a week. There was little evidence of overcrowding or bad conditions.

Results of Treatment

Table I gives a summary of the medical and social status of the patients who were alive at the end of a year. Twenty-nine (19%) patients had died; 82 (55%) were still suffering from the disease which had caused admission, and another 8 (5%) were incapacitated because of psychogenic symptoms which remained after cure of their organic disease. Thirty-two (21%) patients had been admitted to other hospitals, 38 (25%) were still receiving out-patient care, and another 10 (7%) needed it. Almost as large a number required attention from their general practitioner. During six months the ward had cured only 39 (26%) of the patients admitted. For the majority of the patients the stay in hospital was merely an episode, sometimes a relatively brief episode, in a protracted period of disability and treatment.

A better impression is given if we show how many of the patients had returned to their occupations. Whereas only 39 (26%) could be considered cured in the strict medical sense, 72 (48%) had been able to return to full-time work, and 30 (20%) were doing part-time work. The group of patients with blood diseases did better than the others, while those with lung disease were much the worst.

For the purpose of this study the patients were divided into groups in three ways: (*a*) those under 45 years of age were compared with those of 45 and over; (*b*) those whose stay in hospital was 21 days or less were compared with those who were in hospital for longer periods*; and (*c*) those whose total period of incapacity was 3 months or less were compared with those who were incapacitated for more than 3 months. The results showed that patients under 45 years have a better chance of returning to full work than those who are older, and that the patients who stayed in hospital less than three weeks and those whose entire illness lasted less than three months had a better chance of recovery than the others. These facts are not surprising, but their implications are important.

Use of Available Bed Space

If the services of a well-equipped diagnostic ward are to be used to the best advantage the patients must be selected for suitability for admission, and they must be discharged as soon as practicable after the diagnosis has been made and such treatment as can be given in this type of ward has been completed. Little fault can be found with the choice of patients for admission. In the present state of hospital waiting lists it would be more appropriate to comment on the many suitable cases which fail to gain admission than on the few unsuitable ones which do. Of the patients who were traced, 99 had been admitted from the waiting list compiled in the out-patient department, and the remaining 51 were admitted as emergencies on the days when the ward was "on take."

Of those from the waiting list 73% had returned to work at the time of the investigation, whereas only 55% of the emergency admissions were working. This difference is probably due to the type of illness rather than the method of selection. In cases of emergency no request for the admission of a patient was refused, so that the decision was solely in the hands of the general practitioner. Only two of the patients admitted in this way did not require special investigation or treatment. One was a patient with disseminated sclerosis whose home conditions necessitated removal, and the other was a mild case of gastro-enteritis. Only one case was clearly hopeless—that of a woman with carcinomatosis—and here there was some possibility that radiotherapy would alleviate her pain. The record as a whole justifies the choices of the general practitioners. It is clear, then, that faulty selection of patients was not the cause of much waste of bed space.

If, however, we turn to the circumstances which governed the discharge of patients we find that there were many defects. There were 25 (16%) whose discharge had been delayed beyond the time they needed special treatment, and this involved the waste of 680 bed-days. The chief cause of delay was the lack of suitable institutions for the care of patients who needed only general nursing and possibly a special diet. To such a hospital some of our patients with peptic ulcer, for instance, could well have been sent for a month and then readmitted for a review of their condition, and the old people with bronchitis and asthma would have done as well in simpler surroundings. The patients of this type who had to be kept in the ward long after they required the special services it provided are listed in Table II. There was a smaller group

Table II.—*Causes of Undue Delay in Discharge from Hospital*

Absence of an institution providing nursing care and/or diet:	
Peptic ulcer	3 cases
Bronchitis and asthma	2 ,,
Chronic empyema	1 ,,
Chronic nephritis	1 case
Thyrotoxicosis; fibroids	1 ,,
Rheumatic fever	1 ,,
Meningitis	1 ,,
Undiagnosed cases	3 cases
Delay in supply of special services: radiotherapy, surgical specialists, etc.:	
Leukaemia and reticuloses	4 cases
Pulmonary Tb.	1 case
Carcinoma of lung	1 ,,
Renal stone	1 ,,
Essential hypertension	1 ,,
Delayed admission to another hospital:	
Psychoneuroses	2 cases
Tuberculous effusion	1 case
Diabetes; cataract	1 ,,
Estimated waste of bed-days: 680	

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* Patients with diseases of the blood were not considered in the second analysis because they were usually studied for research purposes and were kept in hospital for observation longer than their condition demanded.

whose stay was unduly long because some special service was unavailable. It would be unreasonable to expect every facility to be available immediately it is required, and this has not been the standard. Rather, included in the group were those who had to wait two to five weeks for radiotherapy or who had to wait a fortnight or longer for the surgical specialist. A third group of cases was held up because it was impossible to arrange for their admission to a special hospital within a reasonable time. The war, with the crowding of hospitals which it caused in this area, was of course partly responsible for this, and in any event the group was small. All three of the causes of delayed discharge from hospital were beyond the control of those in change of the ward, but an analysis of this defect in the general organization of hospital services gives an indication of the importance of the problem. The time required to treat the 83 (55%) patients who were in hospital for three weeks or less was 879 days, and 58 (70%) of them returned to full work. If the beds had not been blocked by the 25 patients listed in Table II it might have been possible to treat another 65 acute cases and so to increase by more than 50% the number of patients who returned to full-time work. If this had been possible it might have meant an increase in the staff both in the ward and in the laboratories, etc., but this would have been justified in order to make the special ward facilities available to a greater number of patients.

After-care Facilities

The after-care arrangements which were made for these patients were often inadequate. During the time that these patients were in the ward many of the convalescent homes were closed on account of the war or reserved for special purposes, so that the type of convalescence which was provided is not a fair sample of what might be arranged for a similar group in peacetime. Convalescence lasting from a few days to 12 weeks was arranged for 22 patients. The average stay was 4 weeks. The majority were sent to small cottage hospitals near their homes so that they could be under the care of their own doctors, but sometimes it was impossible to arrange this. Although full particulars were sent with each case, the link between the hospital and the local doctor seems to have been deficient. Many patients were only too aware of the break in the continuity of treatment, and felt on the one hand that the specialists were no longer interested and on the other that the convalescent hospital did not understand their illness. Three of the patients took their own discharge before their convalescence was completed. The absence in the small hospital of many of the concomitants of specialized medicine probably played a part in this feeling. It was impossible to tell how far the criticisms were really justified, but even their presence was disturbing. They point to the necessity for careful explanation of the circumstances before the patient leaves the key hospital and a closer connexion between the doctors concerned than is provided by a case sheet.

There was unrest on other grounds. A great difference existed between the quality of the food in the Radcliffe Infirmary and that in the smaller hospitals. Good diet—and rightly so—takes a high place in the patient's idea of convalescence, but the food in these smaller hospitals was often much inferior to that supplied at the Radcliffe Infirmary, and special diets were sometimes unobtainable. Younger patients sometimes found themselves in a ward full of the very old. For instance, a boy recovering from rheumatic fever spent three months in a room with six beds, of which only one was occupied by a young man during part of his stay; all the other patients were old and infirm. At first he was unable to read because he was flat on his back, but no attempt was made to provide any diversion.

There was often resentment if it was necessary to send a patient to a hospital far from his home, even when the stay in the Radcliffe Infirmary, almost as far away from relatives, had led to no discontent. Several times one met the argument from members of the Hospital Contributory Scheme that as contributors they had a right to a bed in the Radcliffe Infirmary and should not be sent somewhere else. On the other hand one patient who went to a seaside convalescent home was most enthusiastic about the care he received and the value of a real change of surroundings. All of these are points of general application, some of which could be remedied by institutional reorganization, and some of which must be met and solved by a study of each case.

Six patients would probably have returned to work sooner if convalescent treatment had been provided. Two of these were women who refused to allow arrangements to be made because they were worried about their homes. Two men with peptic ulcer went home to unsatisfactory diets, partly the result of their poverty. A woman with a breast-fed baby was a contingency for which no provision could be made at short notice. Another woman, who was referred to the psychiatric clinic and needed a period of rehabilitation, returned home to be nursed by her mother, an over-possessive person partly responsible for her daughter's psychoneurosis. Thus the shortage of beds for convalescents was the cause of incomplete treatment in four of these cases, and lack of provision in the home when the mother was ill was the cause in the other two.

Time and facilities for closer follow-up, and financial help, would have aided the recovery of another sizeable group of patients (Table I, Question 11). For instance, some who did not follow instructions after discharge might have been persuaded to do so. In three cases poverty made proper care impossible. At least 12 patients would have been benefited if occupational therapy had been provided during their incapacity. In 6 of them the return to work might have been accelerated; others might have had their interest aroused in the ward, and the work could have been carried on at home to avert boredom. For some this would have been an activity which would have continued through years of incapacity.

Provision for housewives during illness and convalescence is a special problem. Several would have been helped by such services as residential nurseries for their children, home helps, and other forms of social care. Many expressed the wish that there was an insurance scheme for them. The husband's weekly wages often do not go far when he or a neighbour does the shopping, and the housewife in hospital worries about the family budget. All those who belonged to the District Nursing Association spoke most highly of the service. There seems no reason why a Home Help Service for the convalescent and semi-invalid housewife should not be run on similar lines.

Social Adjustments during Illness

When studying the social effect of illness involving admission to hospital it is necessary to know something of the make-up and background of the group of patients. Their occupations will give some indication of this. Of the 156 patients admitted, 91 were gainfully occupied; 28 of these were women employed in domestic, professional, clerical, and factory work. The remaining 65 patients in the series were housewives or children. The group of 91 workers was divided as follows:

Domestic workers	11
Labourers	14
Clerks and shop assistants	15
Farm workers and gardeners	14
Skilled workers	21
Professional workers	11
H.M. Forces	5

Omitting the 5 Service cases, 66% were urban workers and 34% rural workers. Twenty of these patients died. Nineteen of them were men, of whom 10 were urban workers, 8 rural workers, and 1 in H.M. Forces.

On the whole the patients came from a stable population and, apart from those who had come to Oxford on account of the war, most of them belonged to families who had lived in the neighbourhood for several generations. Family ties appeared to be strong, and many patients relied upon their relatives to help them during their illness. The expense of hospital treatment had largely been provided for by membership of a hospital contributory scheme. Seventy per cent. belonged to the Radcliffe and Associated Hospitals Contributory Scheme or a reciprocal scheme, and while the funds obtained in this way did not completely cover the cost of treatment, contributors must be considered to have borne a major part of the expense. Only 8 patients were unable to pay anything or were on public assistance.

The means of meeting the expenses of medical treatment and the running of the home are listed in Table I, Question 12. Only 5 patients applied for public assistance; another 11 were eligible for special grants from local authorities. Other State funds, such as the N.H.I. benefits, were of course obtained in the usual way, although by themselves they were quite inadequate to meet the needs of a long illness. Only 32 had enough savings to tide them over the crisis, and in a great many instances other members of the family rallied round during the illness. This illustrates the strength of family ties, and it is significant that of the 5 who found it necessary to apply for public assistance, 4 were single persons with no family backing.

For those patients with a high standard of living the inadequacy of benefit is pronounced in spite of sick clubs and savings. But the most striking examples of the inadequacy of the benefit are the cases where the man with a young family is sick. One of our patients suffering from a peptic ulcer, who had a young child and whose wife was pregnant, had his benefit supplemented by the Public Assistance Committee. He felt ashamed of having to apply for relief, and although he felt ill, dared not go to a doctor for fear of being put off work. This abhorrence of obtaining relief through the Poor Law is deeply ingrained, and adequate provision should be made through insurance for the whole family when the bread-winner has the misfortune to be ill. Employers, particularly the farmers, were generous to their workers during their illnesses, and 23 were given their full wages throughout the entire period. Many others had generous allowances.

Examination of the sources of income for the 49 (40%) patients who were not working full time (Table I, Question 13) showed that the incapacitated also relied mainly on family support. There were only 2 (4%) patients on public assistance, but only 10 (20%) had adequate pensions, savings, or sufficient pay from their part-time work to maintain themselves. The great majority (76%) relied on assistance from relatives. One of those on public assistance—a young woman who had been ill since contracting infantile paralysis in childhood—had never been taught a craft, and although she could have done some dressmaking and had a sewing-machine, regulations would not allow her to supplement her allowance by earning, and so she preferred to leave her machine idle and be sure of her weekly grant.

Value of a Long-term Follow-up of this Type

The review of this group of patients led to some addition to treatment in 31 (25%) cases (Table I). There were a few instances where a new development in the patient's condition required direction. In others the treatment prescribed on discharge needed to be started again. Each patient was questioned to find the effectiveness of liaison with the general practitioner (Table I, Question 6). On the whole it was satisfactory, and the majority of our patients had been seen by their family doctor soon after discharge. Despite this a few major aberrations were discovered. For instance, one patient with auricular fibrillation who had been sent out on digitalis therapy was dismissed by her doctor in a few weeks, and was found to be so ill when she visited the hospital that her name was put down for readmission. Another woman, who had left Oxford —a case of pernicious anaemia—had not had an injection of liver extract for more than a year. Altogether, readmission to hospital was recommended in 3 cases, out-patient treatment in 9, a surgical consultation in 2, and 6 were referred to their own doctors.

There were equal opportunities, some of which have already been mentioned, to improve the social management of a number of cases. Because of ignorance of the arrangements some patients had not received benefits to which they were entitled—statutory benefits as well as those from voluntary agencies. Several men had not understood national health insurance, and gave up when they got muddled in the procedure of application. There was some acute need at the end of a year in 15 (12%) cases, and the steps taken to meet it included such things as the provision of dentures, the arrangement of meals for a child, reference to a mental welfare worker, and the direction to training centres of several patients who were fit but not employed.

When this group of patients was in the ward the Almoner's Department consisted of 3 trained almoners, 2 senior clerical assistants, and a shorthand-typist, and it had to deal with a 500-bed hospital as well as out-patient clinics. Understaffed as it was, it gave help to 25 patients covered by this study. Looking back, it was clear that 36 more patients needed help which only the hospital could provide, and another 23 might have been referred to other agencies for assistance. Thus 70% of the patients required supervision if full use was to be made of existing social agencies and if recovery was to be as rapid and comfortable as possible.*

For purposes of clinical research it is probable that follow-up studies are of little value except when specific conditions are the subject of special investigation. This fact has perhaps made the hospital physician less conscious than he should be of the importance of the follow-up as a part of the patient's treatment. Our study has shown that only a small proportion of patients are completely and speedily cured as a result of admission to a medical ward. For the majority of them it constitutes a short episode in a long period of disability, and unless in-patient treatment and after-treatment are closely integrated, much of the benefit of the stay in hospital may be lost. Some of the defects we have noted would be remedied by an improved regional hospital organization in which the key hospital occupied a central position and the auxiliary and special hospitals, sanatoria, and convalescent homes took their places as equally important parts of the whole plan. The greater part of the patient's difficulties, however, would still remain.

It is our conclusion that the social problems which face patients who are admitted to hospital are so numerous and important that they demand attention. They are closely related to treatment, and unless patients are given adequate social care during the period of rehabilitation they may find it difficult once again to take their place in society. This care should be available at each stage of recovery until the optimum adjustment has been reached. It will involve liaison with many social agencies. A study of the type we have presented does not in any way take the place of this continuous care, but it serves several useful purposes. First, it draws attention to defects in hospital organization; secondly, it is an opportunity to discover patients' attitudes to the hospital service; thirdly, it reviews the correlation between the services inside and outside the hospital; fourthly, it enables individual patients to be helped where medical or social care has been inadequate; lastly, it indicates changes which can be made to benefit future patients.

Summary

150 consecutive patients who had been treated in a general medical ward in a teaching hospital were followed up 12 to 18 months later.

Only 26% had been cured, though 48% had returned to full-time work and 20% were doing part-time work.

Age over 45 and an illness of over three months' duration are bad prognostic signs.

Delay in discharge of patients from hospital because of the absence of suitable institutions for the care of long-term sickness is an important cause of wastage of bed space.

Arrangements for convalescent treatment and rehabilitation were defective, and, on the whole, cottage hospitals proved unsuitable for convalescence.

Contributory schemes and assistance by relatives are important factors in taking the financial strain of illness in this area.

In retrospect it is clear that 70% of the patients required supervision after discharge if full use was to be made of existing social agencies and if recovery was to be as rapid and comfortable as possible. This type of supervision could be given by an almoner, with reference of selected cases to medical officers.

Grateful acknowledgment is made to Mr. A. G. Sanctuary, administrator, Radcliffe Infirmary, for permission to make this investigation, and to Miss Helen Rees, chief almoner, and Prof. L. J. Witts for their interest and help.

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* Since this study the Almoner's Department in the hospital has been augmented by 1 part-time and 4 full-time almoners and additional clerical assistance. An almoner is now attached as social worker to the Nuffield Department of Clinical Medicine. A voluntary worker skilled in handicrafts also visits the ward and guides those patients who are able to benefit by simple occupational therapy. It is hoped to carry out another follow-up of this type at a later date to discover what has been the effect of these changes.

PULMONARY ACARIASIS IN MONKEYS

BY

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In view of the attention recently directed to the possible significance of mites in the causation of certain pulmonary disorders such as asthma, bronchitis, and "eosinophil lung" in the Tropics (Soysa and Jayawardena, 1945; Carter, Wedd, and D'Abrera, 1944), it may be of interest to refer to earlier observations on pulmonary acariasis in monkeys, since this condition is probably known to but few medical men.

Some Observations on the Condition

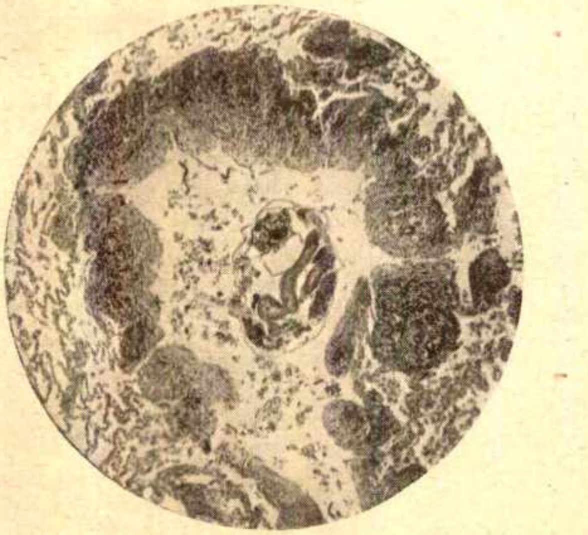
I first became aware of the phenomenon in 1933. When dissecting a *Macacus* monkey in Hong Kong I noticed small nodules scattered through the lungs. To the naked eye they resembled early tuberculous foci, although no other manifestations of tuberculosis were seen. On teasing out some of the nodules minute arthropods were found, which were subsequently identified by Dr. R. Hoeppli, of the Peiping Union Medical College, as mites probably belonging to the genus *Pneumonyssus*. The histological appearances are as follows:

The nodules consist of capsules, the walls of which are composed of cellular granulation tissue. The lumen of each capsule is lined by epithelial cells and usually contains an arthropod lying among cellular detritus. The tissue comprising the walls of the capsules consists of fibroblasts, leucocytes, eosinophils, plasma cells, and endothelial cells. Very little formed fibrous tissue is seen and no giant cells have been noted. A constant feature is the presence of heavy pigmentation due to granules lying within histocytic endothelial cells. This pigment does not give a ferrocyanide reaction, and since it closely resembles similar pigment visible within the gut of the parasites it is probably of faecal origin.

The eosinophils do not appear to be more numerous than is commonly seen in granulation tissue. Unfortunately, no haematological studies were done, so it is not known whether an eosinophilia was present in the peripheral blood.

The nodules are generally in close proximity to bronchioles, but in no instance could direct continuity be detected between a bronchiole and the lumen of a capsule. The surrounding lung tissue on the whole has a healthy appearance, although vascular congestion is excessive and erythrocytes are present within the alveoli in some areas.

The general features of a typical nodule, with a mite lying within it, may be seen in the accompanying photomicrograph.



Photomicrograph of a nodule in a monkey's lung. A mite is seen in section in the lumen of the capsule. (×50.)

Dr. Hoeppli drew my attention to a paper by Weidman (1915) giving a systematic description of similar acarids found in the lungs of a *Macacus rhesus* monkey in Philadelphia. That paper also gives a bibliography of earlier reports of acarids found in the lungs of monkeys.

Comment

The demonstration in monkeys of pulmonary lesions due to mites might be held to lend strong support to the concept of pulmonary acariasis in man. It should be borne in mind, however, that the life histories of the species of mites infesting the lungs of monkeys have not been established (so far as I am aware), and that it is not improbable that these mites may normally exist as ectoparasites on the skin of the host. Should this be the case, the habits peculiar to simians present an obvious explanation of how the parasites may readily be aspirated into the air passages. Nevertheless, if man be exposed to environmental conditions resulting in the aspiration of extraneous mites, it would be reasonable to suppose that, as in monkeys, structural lesions may ensue. That such lesions may give rise to symptoms requires no great stretch of imagination.

It is of interest to note that Soysa and Jayawardena (1945), in connexion with the radiological findings in their cases of asthma associated with mites in the sputum, describe "a remarkable mottled effect produced by small, discrete, ill-defined spots disseminated throughout both lung fields." It would seem likely that these shadows resulted from lesions similar to those described in the monkey.

Pending the opportunity for post-mortem investigation of human cases, the experimental production of pulmonary acariasis in monkeys might be expected to throw further light on the problem.

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FULMINATING GAS GANGRENE

A FATAL CASE WITH UNUSUAL ACCOMPANYING FEATURES

BY

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AND

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During the war the risk of gas gangrene has been minimized by prompt and careful surgery and by the routine employment of serum and bacteriostatics. Nevertheless sporadic cases are still encountered, and occasionally, as in the following instance, the infection progresses so rapidly that treatment is of little avail.

Clinical History

On Sept. 9, 1944, during an aerial bombardment in North Italy, Cpl. B., aged 24, sustained a large penetrating wound of the upper and outer aspect of his right thigh. The injury was complicated by a fracture of the right femur involving the great trochanter and the neck of this bone. Eight hours later, at a field surgical unit, Major Birt carried out a thorough wound toilet, introduced calcium penicillin locally, and applied a Tobruk plaster. Sulphanilamide was administered by mouth to a total dosage of 14 g. The patient was transported by air to a base hospital, arriving at 3 p.m. on Sept. 11.

When we examined him shortly after his arrival he was obviously very ill, and intense toxaemia was evidenced by a pulse rate of 140 a minute and a subnormal temperature. In addition there were transient delirium, mild jaundice, and coldness and pallor of the right foot. The Tobruk plaster had been admirably applied and split before admission, and since further loosening failed to restore circulation, it was clear that the femoral artery had been damaged or obstructed. Transfusion of plasma, followed by two pints of whole blood, did not bring appreciable improvement, and as the systolic blood pressure remained in the neighbourhood of 90 mm. Hg we decided against operative intervention. The appearance of the wound and crepitation in its vicinity indicated that gas gangrene had arisen, and penicillin was therefore administered intramuscularly (200,000 units in 36 hours).

On Sept. 12 the patient's general condition was distinctly worse (temperature 101° F., pulse rate 150). He had become much more deeply jaundiced than is usual in toxaemia, and the picture was further confused by the discovery of malaria parasites (B.T.) in the blood films. During a subsequent lucid period he was able to inform us that he had suffered from malaria on five previous occasions.

Later in the day gas could be felt crepitating in the tissues of the abdominal wall and the right foot became frankly gangrenous. That night the patient sank into coma, and death occurred at 11 a.m. on Sept. 13—44 hours after admission to hospital.

Main Post-mortem Findings

During the necropsy gas was readily expelled from the tissues in the neighbourhood of the wound, and the whole of the anterior abdominal wall crepitated on pressure. Later the subcutaneous tissues were seen to be heavily bile-stained and there were areas of gas formation throughout the abdominal musculature.

Gangrene of the right leg was found to have resulted from a large ante-mortem clot which blocked the most proximal two inches of the femoral artery. There was no evidence of vascular trauma. Via the femoral canal, gas had passed upwards, distending the whole length of the psoas sheath. It was also present in large quantities in the loose tissues around the ascending colon. The cystic duct was so acutely kinked by gaseous inflation of the neighbouring tissues that the tense gall-bladder could not be emptied. Owing to the manipulation entailed, it was not possible to estimate the degree of compression exerted on the common bile duct. The liver was pale, and fatty degeneration had obviously occurred. There was moderate enlargement of the spleen, and its pulp was firm, with prominent trabeculae.

The only pulmonary pathology was a terminal basal pneumonia, but the thorax had been invaded by gas bubbles via the right side of the diaphragm and the right pectoral muscles were heavily infected. The left ventricle of the heart was collapsed and the myocardium was pale and friable.

It was not possible to culture specific organisms from the wound, but sections of liver provided interesting information. Well-marked dilatation of the hepatic ducts and generalized granular degeneration of liver cells were observed. Frequent areas of focal necrosis contained nests of rod-shaped bacilli which were presumably *Cl. welchii*. Sections of the kidney proved surprisingly normal; toxic changes were obvious, but no areas of focal necrosis could be detected.

Summary

In spite of careful and comparatively early treatment of a large wound, followed by the introduction of calcium penicillin, gas gangrene arose and caused death within four days.

Points of particular interest were: (1) The coexistence of toxic and obstructive jaundice. (We have never before observed displacement and kinking of the bile ducts by an accumulation of gas.) (2) The concentration of the infective process in the liver with comparatively slight renal damage. (3) The coexistence of anaerobic gangrene and gangrene resulting from vascular occlusion. (4) The fact that the patient's resistance was almost certainly lessened by frequent attacks of malaria.

We are grateful to our commanding officer, Col. R. A. Stark, for permission to report this case.

Medical Memoranda

Carotinaemia in the Tropics

The first record of carotinaemia in the Tropics was that of Sequeira (1936), who diagnosed the condition in two Europeans resident in East Africa. They had a marked yellow discoloration of the skin of the palms, the palmar aspects of the fingers, and the soles and heels. The clinical diagnosis was corroborated by the pathological findings. A careful investigation of their diets failed to reveal any cause for the condition. In the same paper there was reported the occurrence, in a male adult of the Muganda tribe, of a similar yellowish discoloration of the skin of the palms and soles. The diet of this African was also investigated, and was found to be the normal native diet, consisting mainly of plantains. On clinical grounds it appeared to be a case of carotinaemia, but it was not possible to test the blood serum for carotene.

A further five cases, all in Europeans—two from Kenya, two from Nigeria, and one from India—were described by Manson-Bahr and Ransford (1938). In all five the carotene pigment was demonstrated in the serum. In none of them was there any definite evidence of excessive consumption of foods with a high carotene content. Four of the cases gave a history of intestinal infection, and all were distinctly below the normal standards of health. The authors state that they had never observed carotinaemia among perfectly normal individuals who had returned after prolonged tropical residence. This condition of physical impairment with carotinaemia is directly contrary to the experience, in England, of Almond and Logan (1942), who found no evidence of ill-health among their cases.

Case History

In 1943 a Grenadian planter aged 45, of African descent, medium brown complexion, was sent to me for an opinion as to the cause of his condition; provisionally diagnosed as atypical jaundice. He stated that for approximately 10 years he had suffered from a persistent yellow discoloration of the hands and feet; apart from that his health had been excellent. He was residing in a malaria-free district and had not had an attack of malaria for over 20 years.

The palms of the hands showed a marked orange-yellow tinge; this was less noticeable, though still plainly evident, on the palmar aspects of the fingers. A considerable degree of discoloration was present on the soles of his feet. The sclerotics were clear, the urine normal, and the blood pressure 120/80. On general examination nothing abnormal was noted beyond a faint suggestion of an orange tinge in the skin, particularly that of the face. This very slight alteration in colour, combined with the natural degree of pigmentation, gave him an appearance of good health far above the average. On being questioned with regard to his diet he said that he was particularly fond of papaw, of which he consumed from 3 to 5 lb. daily. Miller and Robbins (1937) estimated that papaw (*Carica papaya*) contained, on the average, 2,500 international units of vitamin A per 100 g. of edible material.

The three-layer test was applied in which equal quantities of serum, alcohol, and petroleum ether were shaken up in a test-tube and then left to settle. Lipochromes were found to be present in abnormal amount, since the top layer had a strong yellow tinge. Greene and Blackford (1926) stated that this positive result was pathognomonic of carotinaemia.

I am indebted to Dr. J. Whiteman, D.M.O., Grenada, for bringing this case to my notice.

E. Cochrane, M.D., D.P.H.,
Senior Medical Officer, Grenada.

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Two Cases of Erysipeloid treated by Penicillin

The administration of sulphonamides is generally very effective in the treatment of erysipeloid. The response to treatment by penicillin would appear to be prompt and rapid.

Case Histories

Two Army cooks, aged 42 and 34 respectively, were cutting up a carcass of fresh veal; one already had a small non-infected abrasion of the left ring-finger, the other cut his left middle finger during the process. Inflammatory swelling of the affected fingers began around the sites of trauma on the following day, being accompanied by sensations of stiffness and aching. On the eighth day of the illness the clinical picture in each patient was almost identical. The whole of the affected fingers including the knuckle and a small area of the palm of the hand, together with the contiguous sides of the proximal phalanges of adjacent fingers, was the site of a slightly tender bluish-red erysipeloid. A firm margin to the swelling could be traced, and flexion of the affected fingers was minimal and painful to perform. The epitrochlear and axillary glands were not clinically enlarged, and there was no constitutional disturbance.

Sodium penicillin was given intramuscularly—15,000 units as the initial dose and 15,000 units 3-hourly until totals of 485,000 units and 560,000 units had been administered. In each case after 24 hours the swelling had markedly decreased, flexion of the finger was easier, and the aching sensation and tenderness had practically gone. On the third day penicillin therapy was stopped; the definite edge of the swelling could no longer be detected, and flexion of the finger was almost complete. By the fifth day there remained only a slight discoloration of the skin over the affected area, and a collar of desquamation of the epidermis around the small traumata which had been the original entry points of the infection.

I wish to thank Col. T. F. Arnott, O.B.E., T.D., R.A.M.C., for permission to publish these notes.

G. A. Hodgson, D.M.,
Major, R.A.M.C.

Sir Farquhar Buzzard visited Leeds on March 16 for a meeting of the Provincial Hospitals Regionalization Council of the Nuffield Trust, held at the General Infirmary at Leeds. The Council had previously had a number of consultations with representatives of the voluntary hospitals, meeting the Lord Mayor of Leeds, members of the City Council, and others concerned with the co-ordination of hospital services. A report was made to the Council in regard to the development of two joint bodies in furtherance of the co-ordination scheme with which the Trust is associated. The first of these is in Gloucestershire, Somerset, and Wiltshire; the second concerns the formation of a joint body for the Essex area; they will receive and consider reports of the surveys of hospital services in their areas. The Council was addressed by Mr. William Gissane, clinic director and surgeon-in-chief of the Birmingham Accident Hospital.

Reviews

SUPERVOLTAGE X-RAY THERAPY

Supervoltage X-ray Therapy. By Ralph Phillips, M.S., F.R.C.S., D.M.R.E. With the technical assistance of G. S. Innes, B.Sc., A.M.I.E.E. A report for the years 1937-1942 on the Mozelle Sassoon Supervoltage X-ray Therapy Department, St. Bartholomew's Hospital. (Pp. 141; illustrated. 16s.) Published for the Sir Halley Stewart Trust by H. K. Lewis and Co.

This report on the experience at St. Bartholomew's Hospital with the million-volt apparatus merits a high place in the world literature on radiotherapy. The vision and scientific enthusiasm displayed by the members of the Radium Committee of the hospital since 1919 culminated in this project, which was inaugurated in 1934 after members of this committee visited the Sheffield Radium Centre to see the new continuously evacuated 200 kV *x*-ray apparatus installed by Metropolitan-Vickers, and the result was what is probably the most efficient supervoltage *x*-ray apparatus in the world for medical work. Finzi, Donaldson, Canti, Levitt, and Hopwood are to be applauded for the decisions which made this possible.

The account of the building, the apparatus, and the protection equipment is lucid, and the account of such technical matters as the devices employed to raise the operating voltage from 700 kV to 1,000 kV shows great ingenuity. The physical measurements for protection, voltage, half-value layer, and depth dose provide unique data of great scientific value, while the technical modifications carried out from experience in the department to improve on the details of design betray a high desire for a safe, accurate, and efficient clinical instrument and ingenuity in achieving it. The great gain over 200 kV apparatus is in the dose which can be given at a depth, especially with small fields (100% gain at 15 cm. with a 24-square-centimetre field).

As is to be expected, the number of patients treated during the five years covered by the report, encroached on as the work was by numerous essential physical measurements, justifies no more than a preliminary account of the clinical side of the work; but in rectal carcinoma the results reported show such an improvement on those of ordinary 200 kV *x*-ray therapy that (whether due to the improved depth dosage of 1,000 kV or to the different wave-lengths of radiation employed) the installment of a 1,000 kV apparatus in every large centre should be considered a necessity. Only a trial can show whether the use of 5 million volts suggested by the author will offer further clinical benefit. Developments in technique with the million-volt apparatus are still possible and necessary in his view.

The work of Mr. Ralph Phillips and of Mr. Innes, his physicist colleague, as set out in this profusely illustrated report cannot be praised too highly. They have built well on the basis afforded by the manufacturer's efficiency and the imagination of the committee.

TROPICAL MEDICINE

Stitt's Diagnosis, Prevention and Treatment of Tropical Diseases. By Richard P. Strong, M.D., Sc.D. Vols. I and II. Seventh edition. (Pp. 1,827; illustrated. $21.00 or £5 5s.) Philadelphia: The Blakiston Company; London: H. K. Lewis & Co.

That the demand for this textbook has increased in recent times is evident from the fact that the new (seventh) edition, at the end of 1944, follows so soon after the previous one, which was published only in 1942; even better evidence of its popularity is that between these editions three reprintings were required. This access of interest in the diseases of tropical countries on the part of medical men in America is no doubt primarily attributable to the urgent need for providing for the medical conduct of campaigns in tropical regions. It is not improbable, however, that the demand for information about tropical diseases will persist and even increase in peacetime; certainly the need will remain.

The effort to keep a book of this kind abreast of the times involves an immense amount of reading and research, and the author has been particularly successful in presenting the advances made up to date: for example, the use of sulphaguanidine and similar drugs in bacillary dysentery, and the experimental work relating to the various applications of penicillin in tropical diseases. Some of the most striking recent work has been done on the aetiology of pinta or carate; pinta is now regarded as a spirochaetal disease due to *Treponema herrejoni*. This adds yet another complication to the syphilis-yaws series of problems in the Tropics.

In some directions progress in medical science during the latter part of the war has been so rapid that a few omissions and additions could be made with advantage; for information about certain advances quite recent journals will have to be consulted. This affects principally the sections on treatment and prevention: cases in point are the fresh conclusions as to the disadvantages and even dangers of intensive alkaline treatment of blackwater fever; the effects of improved discipline in the prevention and cure of malignant tertian malaria; and the new means applicable for the reduction of insect-borne disease in general, in regard to which a good deal of additional knowledge has been accumulated in recent months. These small and unavoidable drawbacks do not in any way affect the fundamental value of this standard textbook. The high level already established for it has been admirably maintained by Prof. Strong, who is again responsible for the new edition.

A SYMPOSIUM ON UROLOGY

Clinics. Volume III. June, 1944; No. 1. Edited by George Morris Piersol, M.D. (Pp. 249; illustrated; six volumes per year; commencing with June number. £4 10s. per six volumes.) London and Philadelphia: J. B. Lippincott.

Six volumes of this publication are to appear yearly, and the volume under notice contains a symposium on urology. It gives an excellent account of the work done on this subject in the various clinics of North America. Dr. L. Herman, for example, summarizes work done in Philadelphia on endocrine therapy in carcinoma of the prostate. He has come to the conclusion that, although there is no reason to believe that either castration or stilboestrol therapy increases the span of the patient's life, it undoubtedly relieves him of much pain and discomfort. Opinions would seem to differ as to the relative advantages of these two methods of dealing with prostatic carcinoma. Another subject considered in this volume is the preventive treatment of calcium urolithiasis. Renal calculi are very frequently formed by patients confined to bed for many months by some bony injury, and, as thousands of wounded soldiers at the present time are suffering this fate, any measures which counteract this disposition to form stones are of great importance. Dr. Herman considers such factors as calcium excretion, change in the pH of the urine, diet, infection, and immobility in bed in the formation of stones. He recommends the following: increased fluids, control of the diet with regard to vitamin A and calcium content, movement of the patient, vigorous treatment of infection, and continuation of these measures for at least three months after the patient has got up. He also advises that a skiagram should be taken as a routine before patients who have been long in bed with fractures are discharged from hospital.

Some of the papers published in this volume deal with rarities only. There is also a very good account of the management of syphilitic patients by Dr. F. Halz and Dr. L. P. Ereaux of Montreal. In spite of the fact that public clinics deal with great numbers of syphilitic patients, the future of the conquest of syphilis rests in the hands of medical practitioners. The object of this paper is to give practitioners and medical students an up-to-date summary of the diagnosis and treatment of this disease.

CARE OF THE FEET

Take Care of Your Feet. Decorations by Francis Barthropp. (Pp. 129. 5s.) London: Published for the Foot Health Educational Bureau by George Gill & Sons, Ltd.

In an effort to make the public more foot-conscious the Foot Health Educational Bureau has published a book for popular reading entitled *Take Care of Your Feet.* It is a peculiar paradox in the use of words that the aim is really to make the public less conscious of their feet—a very worthy motive, not, however, so easy of accomplishment. Perhaps the first book of this kind to appear was in the United States, when Dr. D. Morton, whose anatomical and morphological work on the foot is well known, produced *Oh, Doctor, My Feet,* a popular exposition of his views on the functioning of the feet.

We cannot honestly say that we consider the public will derive much guidance, even if they get entertainment, from

Take Care of Your Feet. As the preface correctly states, "the astonishing thing is how little care is needed, how much can be achieved by simple common sense." The trouble is that even now we know too little about the functioning and variations of the feet to be in a position to give authoritative advice except on the simplest matters, such as cleanliness and the need for freedom from foot distortion by ill-fitting footwear. But these matters are already common knowledge to the great majority of people. If anyone be inclined to doubt the truth of such an indictment of the present state of our knowledge let him read the very divergent views of the more eminent orthopaedic surgeons on the aetiology of almost any foot trouble, and he then must agree that there is little consensus of opinion to justify *ex cathedra* advice upon how to avoid foot troubles. Indeed the author of one widely read book on the foot (Lake) has advanced the view that some foot disabilities have their roots deep-seated in inherent evolutionary weaknesses in the architecture of the foot, and are only partially dependent upon the immediate environment. If there be any truth in this idea such disabilities cannot be entirely avoided by the mere application of any rules of hygiene.

But whatever criticisms may be made of the general aim of the book, the individual items and illustrations should prove both interesting and informative to the public, since they are easy to understand and the language is non-technical. Contributors to the symposium—for such it is—include orthopaedic surgeons and doctors, chiropodist, physiotherapist, shoe manufacturer and fitter, tanner—there is even a chapter on "How to Clean your Shoes"! The book will almost surely have a wide range of readers, and we hope that they will not feel any sense of frustration when they have finished it.

Notes on Books

History has proved that war, so destructive of much else, has a constructive influence on medicine. This is reflected in the new editions of well-known textbooks that are appearing. The fourth edition of Prof. CARL J. WIGGERS's *Physiology in Health and Disease* (Henry Kimpton; 50s.) illustrates that fact. As he expresses it, the present emergency "has challenged physiologists to interpret not merely the experiments which Nature makes on man (disease), but also those which, through warfare, man inflicts on himself." And with that as his text he has largely rewritten his book to useful purpose.

An attractive pamphlet entitled *Life Blood*, the official account of the transfusion services, has been prepared by the Ministry of Information for the Ministry of Health and the Department of Health for Scotland. It is published by H.M. Stationery Office at 6d. and is meant for popular consumption, as may be judged from the section headings: (1) From blood-giver to battlefront. (2) What is blood? (3) Transfusion: a life-saving service. (4) Blood relations: the story of the blood group. (5) How blood is given. (6) The secret of plasma. (7) The gift works miracles. The illustrated cover and the group of photographs in the middle of the pamphlet are good examples of reproduction by gravure process.

Preparations and Appliances

A NEW COVERING FOR SKIN DRESSINGS

Dr. J. E. M. WIGLEY, F.R.C.P., writes:

For many years I have been far from satisfied with the usually accepted methods of covering areas of crusted, exuding, or even pustular inflamed skin when it is desired to keep some external application in contact with them, and I expect that many of my colleagues have had the same feeling. By these usually accepted methods I mean the placing, over the desired application, of a layer of gauze, linen, or possibly lint, and then trying to keep these in place with bandages. It is generally found that when the dressing is to be renewed in 12 or 24 hours, or even longer, the medicament has dried or largely disappeared, and the gauze or other material has stuck to quite a lot of the affected area. When this is removed, either by simple traction or by soaking, it is almost invariably found that a considerable amount of the inflamed area, and perhaps newly growing epithelium, is pulled away with it, and consequently that the healing process is at least temporarily delayed.

When about a year ago I saw a film which showed the various uses that the Bunyan-Stannard envelopes could be put to, in addition to their use for the irrigation treatment of burns, I specially noticed that the material of which these bags were made (i.e., Stannard silk) did not adhere to the surface of the skin, whether that surface were normal or inflamed and crusting and oozing. In answer to a question to the demonstrator of the film it was confidently asserted that this Stannard silk would not stick to such surfaces, and it occurred to me that it might be more than a useful covering for such dressings as are often employed in the treatment of various skin eruptions. The eruptions I had in mind were principally of an eczematous nature affecting large areas of limbs, as in varicose eczema; on very mobile parts of the body, such as eczema of the breasts; and the frequently troublesome condition known as pus-coccal dermatitis, or possibly dermatitis repens. I was able to obtain, through the helpful and enthusiastic co-operation of the manufacturers of the irrigation envelopes, specimens of this silk in different shapes and sizes. Included in these specimens were some loose-fitting gloves.

My first experience with this material was that, though it did not stick to any skin surface to which it was applied, it was very apt to prove too hot owing to its non-porous consistency, and hence either it required frequent changing or it increased the irritation so much that the patient could not tolerate its use. As a result of various conversations with the manufacturers I have found that this defect has been almost entirely overcome by perforating the silk moderately closely. This perforated silk has now been in use in the out-patient department of St. John's Hospital for Diseases of the Skin, 5, Lisle Street, Leicester Square, W., for about five or six months, and I have also used it in my wards at Ashridge Hospital. On the whole I have found it very successful, though of course it needs to be used with a reasonable amount of common sense. We have found it better to try to fix the silk as lightly as possible with a bandage (avoiding any cotton-wool) rather than to use "elastoplast" or other adhesive strapping, as so many patients' skin eruptions are apt to be aggravated by these things. My usual method of using the silk is as follows:

Whatever application is desired, whether it be lotion, cream, paste, or ointment, is applied direct to the area to be treated and then the Stannard silk, cut to a suitable size, is placed over the ointment. In treating eczema of the breast I have found it eminently satisfactory to stitch the appropriately cut piece of Stannard silk to the inner surface of the brassiere. I know that it does not entirely prevent mobility of the breast, but the movement on the non-adherent surface of the Stannard silk does not seem to matter.

Stannard silk consists of a sheet of fine silk impregnated with a certain resin. It is claimed to be reasonably durable, and I have found that one piece of silk can be used, even by out-patients who do their own dressings, for about three weeks. For cleaning the silk it is only necessary to use warm water and soap, and I think on the whole it is undesirable to put it into the usual routine antiseptics. I say this, not so much that the antiseptics may destroy the silk, but that a small quantity of antiseptic may be left in contact with the silk and thus applied to the inflamed skin, which it may irritate and so make the underlying condition worse.

The manufacturers of this silk are Irrigation Envelopes Ltd. of 345, Gray's Inn Road, W.C.1, whom I have found more than willing to co-operate in any way they can. They are proposing to make a silk in rolls of two widths which could be conveniently hung on the wall and cut off in various lengths and sizes as necessity arises. The relative cost of the Stannard silk works out as very little different from that of the gauze, etc., which would require so much more frequent changing.

LONG-ACTING SOLUTIONS FOR INJECTION

Allen and Hanburys Ltd. announce the introduction of the "hyperduric" series of long-acting injectable solutions. In these preparations the usual acid radicals are replaced by mucate. It has been found that combination in this way with mucic acid has the effect of delaying and prolonging the absorption and the action of the base. The series consists at present of the following: Hyperduric M.H.A.—morphine, gr. 1/4, hyoscine, gr. 1/80, adrenaline, gr. 1/160, per c.cm., giving about 8 hours' amnesia and narcosis without fall of blood pressure, for pre-operative medication, "twilight sleep" in labour, and relief of traumatic pain and shock; hyperduric morphine—gr. 1/2 per c.cm., giving 8 to 12 hours' analgesia in inoperable malignant neoplasms, visceral lithiasis, wounds, and acute and chronic inflammatory disorders; and hyperduric adrenaline—1 in 1000, giving 8 to 10 hours' relief in bronchial asthma and other allergic disturbances, including anaphylactic (e.g., serum) shock, besides surgical shock.

NETHERLAND CHILDREN IN ENGLAND

BY

J. TAUBER, M.D.Prague, U.N.R.R.A.

Four hundred and ninety-six Netherland children reached this country on Feb. 11, 1945, and were accommodated in a large hostel in Coventry formerly occupied by immigrant munition workers. Preparations for their reception had been made some time in advance. We had little previous knowledge of the condition of the children except that they had been living for a long time mainly on bread, potatoes, and cabbage, and that in this first contingent there were to be no severe or hospital cases.

There is little practical information in medical literature about the feeding of malnourished, weakened, but not really sick persons. It was known that persons who have had practically no fat in their diet for years become very sensitive to it, and that they are liable to react to fat with severe gastric disturbance. In "feeding up" a large group of children, with only a short time available for treatment, it is nevertheless essential to ensure that the fat content of the diet is not kept too low. It is necessary to find the optimum level of tolerance. "Carbohydrate poisoning" is a term that has been used to describe the effects of the type of diet these children had had. It was decided to limit the initial daily fat intake to 50 grammes per child and the initial daily carbohydrate intake to 400 grammes (to include 250 grammes of bread). The first menus, however, were prepared with an initial daily fat intake of about 28 grammes.

The children were mostly between 7 and 15 years of age: three were 16 years old. On arrival they presented a somewhat different picture from that expected. The main feature of the malnutrition was not so much wasting as the general undersize. Pallor was notable, and many children were rather weak. The apparent age of many children was well below the actual age. Gross symptoms of avitaminosis were not found. Some children had local thickening, cracks, or dryness of the skin. No trophic changes of the nails were observed and no diseases of the hair. Some 5% of the children had somewhat swollen gums. The dental state in general was not unsatisfactory.

The children's clothing was old, worn, and torn. Their shoes were in a worse state. Several of the children had dresses and suits made from Army blankets given them by soldiers of the liberating armies. Many had all-wooden clogs only. Their socks were very ragged. Within 24 hours the Women's Voluntary Service had started the distribution of complete outfits of new clothing (including handkerchiefs, towels, face-towels) supplied by the Red Cross. It was most pathetic to see the children's pleasure with their new belongings.

Despite the severe shortage of soap on the Continent, the children were very clean on arrival: care had been taken of this before they left the Continent, and the few cases of infestation with lice as well as cases of scabies were treated.

The amount of food was increased each week as tolerance was established. At first many children complained of hunger, which is not surprising. The initial diet had a daily calorie value of 1,800. This was increased on the third day to 1,900, on the fourth to 2,000, on the fifth to 2,200, and at the end of the first week was 2,400 calories. It was difficult to control the diet strictly because well-meaning visitors to the hostel gave sweets, biscuits, and cakes to the children unknown at the time to the authorities.

Acute gastric disturbance occurred in 17 cases during the first week, 27 in the second week, 24 in the third, and only 7 in the fourth. Most of the cases were easily controlled, although 4 cases developed jaundice. Sores on the feet and hands and impetigo were the commonest visible lesions. It was noticed that many cuts and wounds had turned septic. There were 5 cases of bronchitis and 6 of nocturnal enuresis.

The approximate average gain in weight of the children is shown in the accompanying Table.

Girls

	7–8 yrs.	9 yrs.	10 yrs.	11 yrs.	12 yrs.	13 yrs.	14 yrs.	15–16 yrs.
	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.
During								
1st week	0 15	3 15	3 1·8	1 13·1	2 0	1 12	1 3	2 10·7
2nd week	2 14·4	0 12·7	1 9·1	1 8·5	1 1·5	2 0	2 8	2 1·1
3rd week	0 6·7	1 10	1 2·6	1 8·4	1 8	0 14	2 3	1 14·2

Boys

	7–8 yrs.	9 yrs.	10 yrs.	11 yrs.	12 yrs.	13 yrs.	14 yrs.	15–16 yrs.
		lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.
During								
1st week	—	0 5·3	1 13	1 1·5	1 3	2 1·6	1 6·4	1 5
2nd week	—	2 0	1 6·4	1 14·5	2 5	1 11	2 3	0 6
3rd week	—	0 14	1 0	2 6·4	0 5	1 1·6	1 6·4	1 4

While living in occupied Holland the children—the older ones at all events—had often been encouraged by the parents to defy German authority and to perform small acts of sabotage—such as, for example, the puncturing of tyres of enemy military vehicles. When transferred to the hostel in England the children suddenly found that law and order had to be observed, and at first they found the change somewhat bewildering. During the first week or so "sabotage" tendencies were noted in a few boys of the 13–15 years age group. All soon conformed happily to the necessary routine and rules of hostel life.

This first contingent of Netherland evacuee children on the whole presented few difficulties. The main problem was to determine and control the diet, and to graduate it according to growing tolerance. An interesting but lesser problem was the disciplining of the older children, who had for long cultivated disobedience to the German authorities in occupied Holland.

I would like to thank the M.O.H. of the City of Coventry (Dr. A. Massey) for his valuable help and advice in connexion with the medical work at the hostel, and Col. Daubenton for his kind permission to publish this report.

BRITISH AID FOR RUSSIAN HOSPITALS

Mrs. Churchill's Red Cross "Aid to Russia" Fund, which was started towards the end of 1941 and has now reached the impressive total of £6,700,000, is to have a permanent memorial in the shape of two hospitals at Rostov-on-Don, the port on the Sea of Azov in the Northern Caucasus. It was originally proposed to have one hospital of 1,000 beds, which, after the war, would be available for members of the Services and civilians alike, but on a suggestion from Moscow it was agreed to equip two hospitals, each of 500 beds. A committee, under the joint chairmanship of the Presidents of the Royal College of Physicians and the Royal College of Surgeons, and including hospital administrators, nurses, and representatives of the Ministry of Supply and the Ministry of Health, was set up for the purpose of advising on equipment. The equipment has been scheduled in 16 sections, ranging from the medical and surgical installations appropriate to hospitals of the size named down to motor transport for both hospitals, and the Ministry of Supply is now engaged in placing the orders. The total cost will be about £400,000, half of which has been contributed by the Scottish Branch of the British Red Cross Society. Mrs. Churchill is going to Russia on the invitation of the Soviet Government and the Soviet Red Cross and Red Crescent, and proposes to visit Moscow, Leningrad, Stalingrad, and Rostov, the rehabilitation hospitals in the Crimea, and the spa hospitals in the Caucasus. Mrs. Churchill's committee has also agreed to provide the machinery and equipment for a Russian "Roehampton" for artificial limbs; this is being built at Moscow, with a subsidiary centre at Kharkov.

At a press conference in London Mrs. Churchill explained the purpose of her visit, and Lord Moran and Sir Alfred Webb-Johnson spoke briefly, the former mentioning his own visit to Russia, in which he had been greatly impressed by the thoroughness of the hospital organization and equipment, and the latter saying what pains had been taken by the committee of experts to ensure that these two hospitals at Rostov, a permanent memorial of the gesture made by the British people towards the Russian people during their common sufferings, were equipped with the best that could be provided. The bulk of the equipment will be British, but the committee has not confined itself to British equipment if something better can be obtained elsewhere. Prof. Sarkisov, the representative in Britain of the Soviet Red Cross and Red Crescent, expressed his appreciation of what had been done. It was mentioned that up to date the Fund has sent, in 42 shipments, nearly 14,000 tons of drugs, hospital equipment, and comforts for the sick and wounded of the Soviet Armies.

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PRIMARY ATYPICAL PNEUMONIA

The literature of the past eight years has contained a growing number of reports of an acute epidemic respiratory disease characterized by an influenzal onset, rapid prostration, and clinical and radiological evidence of lesions in the lung; the disease resolves spontaneously in a few weeks and the mortality is low. It is probable that this condition has existed sporadically for many years,[1] but recently it has become increasingly common, first in America and later in this country. The early reports, such as that of Bowen[2] in 1935, came from America, and, as the evidence accumulated, certain facts about the disease emerged. The incidence is particularly high among young adults, and epidemics often occur in communities of young people; there have been outbreaks among university students and hospital staffs, and in Army camps. Weir and Horsfall[3] succeeded in recovering from patients suffering from primary atypical pneumonia a virus that caused pneumonia in the mongoose, while Adams[4] found cytoplasmic inclusion bodies in post-mortem specimens. The disease has been transmitted to human volunteers by inoculating them with a filtrate of sputum and throat washings collected from 6 cases of atypical pneumonia.[5] Three out of 12 men developed the disease. Other facts suggesting that a virus is the infecting agent are the long incubation period of two to three weeks, failure to find causal bacteria, and the peculiar pathological changes in the lungs, which resemble those seen in known virus pneumonias.

Primary atypical pneumonia was comparatively uncommon in Great Britain before 1940, though sporadic cases were seen, some of which Scadding[6] described in this *Journal* as "disseminated focal pneumonias." Virus pneumonia, primary virus pneumonitis, atypical pneumonia, acute influenzal pneumonitis, and acute interstitial pneumonitis are a few of the terms given to the condition. In spite of the efforts of certain workers, notably Burrell[7] and Scadding,[8] to evolve a rational classification of the pneumonias based upon facts, the indiscriminate and confusing use of names continues. Some of these—particularly the misleading synonym "pneumonitis"—have been employed by various authors to denote different conditions, and almost every new worker in this field has invented some name to suit his fancy. Pneumonia has a long-established claim to be the generic term for inflammations of the lung, and for the sake of clarity "pneumonitis" and its companion "pleuritis" should be discontinued. In 1942 a Commission on Pneumonia of the United States Army[9] tried to bring order out of chaos by decreeing that the new epidemic disease should be called "primary atypical pneumonia, aetiology unknown." The adoption of this rather clumsy title would undoubtedly help to prevent confusion in the future.

Primary atypical pneumonia is now a common disease on both sides of the Atlantic; in 1943 Drew, Samuel, and Ball[10] published a very full account of 50 cases among Service personnel in this country, and since then American authors have recorded even larger numbers. The clinical, radiological, and pathological aspects of the disease can now be described with accuracy. There is often a prodromal cold, followed in about a week by the sudden or gradual onset of prostration with high fever; a paroxysmal cough and substernal soreness are almost always present at this stage. The sputum is muco-purulent and rarely stained; it contains the usual bacterial flora but pneumococci are never numerous.[11] Varying degrees of dyspnoea and cyanosis may be present, and headache is often a feature. There may be no abnormal physical signs in the chest, and the leucocyte count is usually normal. The disease may last from 3 to 5 weeks and recovery is the rule. Some outbreaks have been more serious than others: in a series of 19 cases Brethauer and Thompson[12] recorded 5 deaths; pulmonary oedema, preceded by a fall in blood pressure, was a feature of these. Golden,[13] working in the United States Army Institute of Pathology, examined post-mortem material from no fewer than 90 fatal cases in 4 years. In the uncomplicated cases he found an ulcerative bronchitis and bronchiolitis with peribronchial interstitial pneumonia; a notable feature was the heavy monocytic infiltration of the affected areas. Patients with this condition are very prone to develop a secondary bacterial pneumonia, but exudation into the alveoli is rare in the uncomplicated cases except as a thin deposit which forms hyaline membranes on the alveolar walls. Acute interstitial pneumonia of this type has been reported during influenza epidemics by MacCallum[14] and by Scadding,[15] and it bears an interesting resemblance to the so-called rheumatic pneumonia (Epstein and Greenspan[16]). Bronchial dilatation occurs early in the disease, and although the destructive changes are rarely gross enough to prevent resolution to the normal state, examples of residual scarring, with bronchiectasis, have been recorded by Crysler[17]; there is, however, reason to believe that collapse may have been a complication in these cases.

The radiological appearances of primary atypical pneumonia are often striking and were largely responsible for its recognition. Crysler[17] and Lewis and Lusk[18] have now described them in detail. The infection first attacks the bronchi, and an *x*-ray film in the early stages shows some enlargement of the hilar glands with heavy truncal markings in the affected area, which in most instances extends downwards from the hilum into the lower lobe. As the infection spreads into the interstitial tissues of the lung two types of shadow may be seen—a homogeneous, ground-glass opacity through which the lung markings are still visible; or a group of patchy flocculent opacities. These may vary in size from large blotches to an almost miliary mottling, as in the disseminated focal pneumonia of Scadding. The affected area usually occupies only part of a lobe and tends to follow the bronchial distribution; a lateral view is often useful in determining its situation. Bilateral lesions occur in about 20% of cases. As the pneumonia resolves, the opacities become less dense and take on a moth-eaten appearance. The large, homogeneous type of lesion may resemble that of tuberculosis, collapse, a lung abscess, encapsulated fluid, a neoplasm, or a bacterial pneumonia. The clinical picture, course of disease, and sputum examination will usually confirm the diagnosis, but Stein and Kresky[19] have shown that in pneumococcal pneumonia the radiographic appearance may be identical, so the diagnosis cannot be made from the *x*-ray appearance alone. Small wedge-shaped shadows, and even hazy diffuse mottlings, are often the sole radiographic changes in proved pneumococcal cases, and similar changes may be seen in the benign circumscribed pneumonia described by Ramsay and Scadding[8]: a transient opacity appears, usually in the lower lobe, during the course of a mild infection of the upper respiratory tract. Kennedy[20] lately recorded 100 cases of this disease, which may be distinguished from primary atypical pneumonia by the fact that it causes almost no constitutional disturbance, and the *x*-ray changes usually clear up in about 7 to 10 days. The flocculent shadows seen in primary atypical pneumonia may resemble an area of tuberculous infiltration, miliary tuberculosis, or a bacterial bronchopneumonia.

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[11] Smith, R. H., *Ann. intern. Med.*, 1944, **20**, 890.

[12] Ibid., 1944, **20**, 884.

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[14] *Monograph 10, Rockefeller Inst. Med. Research*, 1919, New York.

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[16] *Arch. intern. Med.*, 1941, **68**, 1074.

[17] *Amer. J. Roentgen.*, 1944, **51**, 280.

Primary atypical pneumonia is becoming more common. Although the disease is usually self-limiting and there is no specific remedy, symptomatic treatment should be carried out with circumspection, for the condition can become serious. The disease affects not only the entire respiratory tract but the whole body: oedema of the myocardium (Brethauer and Thompson[12]), infiltration and necrosis of the branches of the pulmonary artery (Kneeland and Smetana[21]), and encephalitis (Golden[13]) have all been recorded. The patient should therefore be kept in bed and every effort made to conserve his strength. A careful watch should be kept for signs of circulatory or respiratory distress, and oxygen should be given early if necessary. The sulphonamides are useless, except in those occasional cases in which a secondary bacterial pneumonia supervenes. As in influenza, weakness and depression, with a lowered resistance to infection, are features of the recovery period, and convalescence should be adequate.

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[18] *Radiology*, 1944, **42**, 425.
[19] Ibid., p. 435.
[20] *Lancet*, 1943, **1**, 769.
[21] *Johns Hopk. Hosp. Bull.* 1940, **67**, 229.

DIAGNOSIS OF VITAMIN DEFICIENCY FROM LABORATORY TESTS

Of recent years many laboratory procedures for the measurement of vitamin levels in the blood and urine have been devised. What relation exists between the clinical picture of an early vitamin deficiency and such laboratory determinations? Much has been written on so-called subclinical vitamin deficiencies, particularly of vitamin C and the vitamin B complex, the diagnosis usually being made on a poor dietary history associated with indefinite symptoms such as weakness, nervousness, anorexia, irritability, and various gastro-intestinal complaints. It is often difficult to tell whether a patient has a true vitamin deficiency and may benefit from the intelligent use of a liberal diet supplemented with vitamins, or whether the patient suffers from mild ill-health or is neurotic. A correct diagnosis is obviously of importance to prevent expensive vitamin preparations being recklessly dispensed and wasted. It is estimated that the American public spends 20 million dollars a year on vitamins, for the most part unnecessarily. Vitamin deficiency is generally due to malnutrition, which is usually due to poverty. Those who cannot afford to eat enough certainly cannot afford vitamins out of a bottle.

Ruffin, Cayer, and Perlzweig[1] have done clinicians a service by correlating laboratory studies on the estimation of vitamins in blood and urine with the symptoms of mild clinical deficiency. They assessed the "vitamin status," as shown by laboratory tests, of patients with the clinical symptoms of mild vitamin deficiency, and compared the results with those obtained with controls chosen from hospital patients and from students, technicians, and dietitians. The latter group presumably represented the better-fed members of society. The difficulty arises when the results of such estimations are interpreted and normal values are laid down. What is the lower limit of normal? Ruffin and his co-workers arbitrarily took this as the upper limit found in the lowest 10% of the normal control group for each vitamin. This, of course, has no clinical significance and is only a base-line from which to work. The patients from the vitamin-deficient group showed statistically lower levels of vitamin A in the plasma than the normal and hospital controls, though no clinical evidence of frank vitamin-A deficiency was seen. There was a wide discrepancy in the vitamin-C levels of the plasma between the suggested lower limit of normal (0.15 mg. per 100 c.cm.) and the generally accepted figure of 0.6 mg. per 100 c.cm. This confirms the more recent view that plasma-vitamin-C studies are valueless for detecting vitamin-C deficiency. Nearly 50% of the normal controls had a plasma vitamin C below 0.6 mg. per 100 c.cm., which is generally thought to be the lower limit of normal. Actually the difference between the plasma vitamin C of the vitamin-deficient and the normal control groups was not statistically significant. The urinary excretion of nicotinic acid after a test dose of 500 mg. of nicotinamide averaged 48 mg. in the vitamin-deficient group and 88 mg. in the controls; most of the deficient group had values below the suggested lower limit of Ruffin and his colleagues (65 mg.). The urinary excretion values of riboflavin after a test dose of 5 mg. were statistically lower in the deficiency group than in the controls. Similar results were obtained with the excretion of vitamin B_1 four hours after a test dose of 1 mg. The levels for vitamin B_6 showed no significant variation between the normal controls and the vitamin-deficiency group: there is some doubt about the significance of vitamin B_6 in human nutrition. It is of interest to note that most patients in the deficiency group had levels below the suggested lower limit of normal in more than one vitamin. Thus 24 of 26 patients had levels below the suggested lower limit of normal in nicotinic acid, riboflavin, and vitamin B_1. This is in keeping with the clinical opinion that vitamin deficiencies rarely occur singly.

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[1] *Gastroenterol.*, 1944, **3**, 340.

The observations of Ruffin and his colleagues suggest that, with the exception of vitamin C, there is a relation between the clinical picture of a mild or early vitamin deficiency and the results obtained from laboratory determinations of vitamin levels in the blood or urine. Now that the estimation of vitamins in body fluids is a practical procedure, this should become an important aid in confirming the presence of mild or early deficiencies, and save much of the money spent on useless vitamin therapy.

A TEST FOR TRICHINOSIS

The exact diagnosis of trichinosis in man is often a tedious and uncertain business, involving a muscular biopsy with the inevitable chances of a random sample failing to show parasites. There have therefore been, from time to time, attempts to evolve skin or serological tests which would simplify the diagnosis and make this more certain. The human disease usually resulting from the consumption of raw or ill-cooked infected pork, such tests might also be applied to the detection of the infection in pigs, and if satisfactory they would add a useful weapon for the control of infestation in these animals. The importance of having at hand such diagnostic measures varies with the incidence of the infection. This is not a common one in this country, though there have been a number of recent outbreaks, and it is likely that cases are not infrequently overlooked. It is, however, a widespread disease in the United States, though the exact incidence is uncertain, since the symptomatology varies with the degree of infestation, and, as a result, many cases of the disease, especially of milder infections, are undiagnosed; in fact, many of the victims may be almost symptom-free.[1] Wright and his co-workers[2] in 1943, by the post-mortem examination of diaphragmatic muscle, found 855 infected individuals out of 5,313 necropsies; 733 of these showed fewer than 11 larvae per gramme of muscle, while 38 showed more than 50. On the basis of these and similar figures Hall and Collins consider that there are several millions of persons in the United States who are infected.

Of the immunological tests, complement-fixation and precipitation tests have been widely employed since Ströbel[3] introduced the first in 1911. The results, however, though satisfactory in some hands, have been irregular, with false positives and failures of the test in undoubted cases of infestation. The reaction takes some time to become positive, and after reaching a peak its intensity diminishes as time passes. One of the chief technical difficulties in devising a satisfactory immunological test is the preparation of a suitable trichinal antigen. This is usually made from larvae which are obtained by the digestion of muscle from infested animals. Suessenguth and Kline[1] have now introduced a new flocculation test for this disease, similar in many respects to the latter's better-known microscopical slide-precipitation test for syphilis. The antigen is prepared from the trichinous muscles of artificially infested rats, which are submitted to peptic digestion to free the larvae; these are then collected, washed, dried, and subjected to extraction with alkali. The extract is cholesterolized, as is the Wassermann antigen, and under suitable conditions gives a specific flocculation with the inactivated serum of patient or animals suffering from trichinosis. The authors report their results in some 896 cases and think them satisfactory: only 13 of these were examples of trichinosis when clinical, histological, and immunological data were all considered, so that there is need for a more extended series of results before the value of a positive test can be properly assessed. Syphilitic sera gave uniformly negative results. A number of observations made on experimentally infected swine, together with a few on human beings in which it was possible to follow out the course of the infection, indicated that the test becomes positive about 3 weeks after infestation (this is about the stage at which the larvae in the muscles reach their full development) and that the peak of antibody production occurs between the 23rd and 55th days; a positive result was still obtainable 10 months after infestation.

It is evident that this test is essentially one for use in laboratories where a regular supply of material is likely to be available. The technical details are exact, though not complicated, but the results of an occasional test in inexperienced hands are not likely to be of much value.

ANTIMALARIA MEASURES IN INDIA

In a notice in this *Journal* of the annual report of the Ross Institute of Tropical Hygiene, India Branch, for the year 1942–3 mention was made of a summary by Dr. G. C. Ramsay of antimalaria measures that had been found effective in North-Eastern India. In the report for 1943–4[1] this summary has been brought up to date in the hope that it will serve the useful purpose of its predecessor in describing and illustrating the progressive antimalaria measures which the Ross Institute is able from experience to commend for adoption by subscribing interests, by the armed Forces, and by others concerned in the control of malaria in this region. Among such results of special experience stressed in the present report is the danger of surface drainage as an antimalaria measure where the vector species are *A. minimus* and *A. fluviatilis*. These species favour above all for their breeding places small sluggish streams or watercourses. An open drain may thus create an even more dangerous breeding-ground than the original swamp, which may have been relatively harmless because of covering vegetation. Again, drains effective when first made are apt to become dangerous by growth of grassy edges or other changes which occur in the course of time. Hence, as the report emphasizes, in the areas where *A. minimus* and *A. fluviatilis* are the chief carriers surface drainage should be so far as possible minimized, and where drains are necessary they must be constantly controlled by weeding, canalization, oiling, shading, flushing, herbage packing, or lining with cement. The use of shade over drains continues to be one of the most important measures, and attention is drawn to the "bee-hive" or "pent-house" pruning now being adopted in some districts. This gives the maximum amount of foliage, thereby further reducing the possibility of grass or weeds becoming established in the channels. An interesting photograph illustrates this method. Flushing by automatic siphon continues to grow in importance as a method of control, and some estates in South India formerly hyper-endemic are stated to be now practically free from malaria owing to flushing measures. Some remarks are made in regard to misconception as to the practical limits of this method, which are by no means confined to small installations. Photographs are reproduced of a large pipeless automatic siphon in action. The serious danger from irrigation, hydro-electric schemes, construction of railways and roads, and other sources of man-made malaria arising from engineering works is stressed and the suggestion made that engineers should receive training in antimalaria work. Though the report is commendably modest in size it is a most useful and helpful publication, and should be closely studied by all who are engaged in antimalaria work in these regions.

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[1] *Amer. J. clin. Path.*, 1944, **14**, 471.
[2] *Publ. Hlth. Rep. Wash.*, 1943, **58**, 1293.
[3] *Münch. med. Wschr.*, 1911, **58**, 672.

[1] Office of the Committee of Control, Royal Exchange, Clive Street, Calcutta

THE SMOKE ENEMY

At a joint conference in London of the Institute of Fuel and the National Smoke Abatement Society many technical aspects of the smoke nuisance have been discussed. The domestic hearth is well known to be the chief source of this evil, because in the open grate no attempt is made to control combustion, and although an excessive amount of air usually passes up the chimney the gases are too cold for the volatile matter to burn once it escapes from the fuel bed. Factory chimneys make a large contribution to the smoke-laden atmosphere, but in industrial fires there is generally a much better control over combustion, so that the smoke, for the same amount of bituminous coal burned, is less than with the domestic fire. Dr. G. M. G. Dobson, of the Department of Scientific and Industrial Research, told the conference that the annual deposition of soot in country districts is in places less than 10 tons to the square mile, whereas in industrial towns it may be 100 or 200 tons to the square mile, and in known districts there may be as much as 2,000 tons to the square mile in the year. The concentration of smoke and sulphur deposit in British towns is more or less proportional to the square root of the population. The provision of smokeless zones in itself is not an effective safeguard. Hyde Park is more or less a smokeless zone, but on days when the air of London is foggy there is nearly as much smoke in Hyde Park as anywhere else.

Major S. F. Markham, M.P., pointed out that the smokiest areas in cities show an infant death rate double that of sunny small towns, and the general death rate also is highest where the gloom is deepest. Even allowing for other important factors such as bad housing and overcrowding, the amount of respiratory diseases in polluted areas is extremely significant. Among the remedies or palliatives put forward by various speakers were statutory joint boards to approve small industrial fuel plants, a better education of stokers, and, of course, for domestic fires, the replacement of coal by smokeless fuel. A special point was made of railway smoke, which always seems particularly objectionable, but a representative of the L.M.S. claimed that this was an exaggerated complaint. Railway locomotives use only about one-thirteenth of the total coal consumed in this country, and they burn it with an efficiency of 70 or 80%, compared with an average for coal-burning in general of 25 to 30%. Nevertheless, it is good to learn that the railways are not complacent about the amount of smoke that comes from their funnels, and locomotive engineers are striving for still greater efficiency. Proposals for the setting up of smokeless zones are described in some detail in a new booklet published by the National Smoke Abatement Society. Copies of *Smokeless Zones* may be obtained from the Society at Chandos House, Buckingham Gate, London, S.W.1, at 3d. each, post free.

CONGENITAL CHICKEN-POX

Infantile immunity to chicken-pox usually suffices to prevent an attack or it is negligible. Thus the disease is uncommon in the first year of life, but when it does occur may be accompanied by a profuse eruption, with marked constitutional disturbance. Intra-uterine transmission of the virus is rare. Only 9 cases have so far been recorded. They ran a fairly mild clinical course, with one exception, in which death occurred on the eleventh day of life. Oppenheimer[1] now adds a tenth case to this series by describing a congenital and fatal attack of chicken-pox in a coloured infant. The mother developed mild chicken-pox when seven months pregnant. A 4-lb. female infant was prematurely born five days after the appearance of the mother's rash. On the seventh day of life the infant developed a papulo-vesicular eruption which later became profuse, and on the eleventh day died with symptoms of respiratory distress. Any doubt about the true nature of the eruption was removed by the simultaneous development of chicken-pox in two hospital contacts fourteen days later. At necropsy, in addition to lesions on the skin, conjunctiva, and vagina, which had been noted during life, unusually widespread visceral lesions were found. These consisted essentially of zones of necrosis with typical intranuclear inclusion bodies in the oesophagus, stomach, intestines, lungs, liver, pancreas, adrenals, kidneys, thymus, and spleen. Focal necrosis alone was present also in the bone marrow of vertebrae and ribs. Examination of numerous brain sections revealed no abnormality. A detailed histological investigation showed there was a striking affinity of the virus for epithelial structures in the affected organs. Dermatropism in the chicken-pox virus is, of course, quite usual, but it is surprising that such an aggressive strain should have spared the nervous system. In contrast one of the very rare fatalities from chicken-pox in adult life[2] was characterized post mortem by disseminated lesions which included a diffuse encephalitis with areas of perivascular demyelination.

The Board of Trustees of the American Medical Association has cancelled the annual session for 1945, which was to have been held in Philadelphia from June 18 to 22.

In view of the continuing shortage of paper we must again ask authors to concentrate any articles they submit for publication and to cut out all verbiage. Every article longer than a memorandum should end with a brief summary.

Prof. F. Wood Jones, F.R.S., will deliver the Robert Jones Memorial Lecture entitled "Some Reflections on his Teaching of Myology" at the Royal College of Surgeons of England, Lincoln's Inn Fields, on Thursday, April 12, at 4 o'clock. Surg. Rear-Adml. G. Gordon-Taylor will deliver the Thomas Vicary Lecture entitled "The Medical and Surgical Aspects of the '45 (the Jacobite Rising of 1945)" at the College on Monday, April 16, at 4 o'clock.

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[1] *Johns Hopk. Hosp. Bull.*, 1944, **74**, 240.

[2] Waring, J. J., Neubuerger, K., and Geever, E. F., *Arch. intern. Med.*, 1942, **69**, 384.

THE EDUCATION OF MILITARY MEDICINE

ITS REFERENCE TO POST-WAR PLANNING

BY

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I have not felt justified so far in putting any record of my military experiences into print, for it has seemed to me that the gain was largely a personal one, communicable to others by advice at the bedside, but not original enough to warrant the writing of an article. It is true that one has become expert in the diagnosis and treatment of diseases which a few years ago one had never encountered, but that does not imply superior knowledge over those who have already written for many years on the subject of tropical medicine. At the present time, however, I feel that there are two reasons which justify a departure from my reticence; the first is that the experiences have now grown wide enough to be of some historical interest; the second is that in view of present-day discussions on post-war plans I feel the urge to present to those at home an outline of the life and work of a physician in the Army. I shall describe mainly my own experience, not because it has been unique or outstanding, but because it will serve as an example of the kind of work which most of us have been called upon to do.

My first posting was as officer in charge of the medical division of a military hospital in England. Here the work was at times dull and rather trivial, but nevertheless one went through what might be called a period of professional rejuvenation. One lived in a mess among colleagues from all medical schools. This led to an exchange of ideas which was most valuable. We held weekly clinical meetings in which the dermatologist and pathologist took part, and once a fortnight the Command neurologist came to spend a whole day reviewing every neurological case we had collected in the meantime. One worked, for the first time, in close touch with psychiatrists, and though serious disease and death were uncommon, one learnt much of disorders in their early stages. In exchange for the problem of advanced heart failure one had the more difficult problem of whether heart disease was present at all.

Such an experience is valuable for a matter of months but not indefinitely, and naturally our aim was to go abroad. My own hospital sailed for an unknown destination, which we rightly guessed to be North Africa, in Feb., 1943. We landed at Algiers, where unfortunately we were held up for a few weeks, but during that time I visited two hospitals already established, in both of which I found medical friends. I saw typhus for the first time, in the civil hospital, where Prof. Benhamou demonstrated rickettsia in the sternal marrow. We moved to Bône, where we set up a tented hospital for a few weeks; but the battle was moving on, and we followed it closely, opening up again at Medjes-el-Bab and then near Tunis. This brief period towards the end of the Tunisian Campaign was the only one in which my surgical colleagues were busier than I. Usually the medical division claimed two-thirds to three-quarters of the beds.

Mepacrine Intolerance

In April, 1943, the First Army began to take suppressive mepacrine (atebrin) in doses of 0.2 g. twice weekly, with almost disastrous results. Some complained of diarrhoea, vomiting, or abdominal discomfort after the first few doses; but after the fourth dose there was a widespread epidemic of diarrhoea and vomiting, choleraic in its severity, which in the worst cases was accompanied by pyrexia and prostration for 48 hours. It affected all units, to a varying extent, and though I am not in possession of all the official facts I know that it was not restricted to any one brand of mepacrine and that those who had the symptoms once had them again on returning even to a small dose of the drug, although they had taken the initial doses with impunity. Psychological factors were considered but ruled out. Later it was found that the affected individuals could be desensitized by the administration of small gradually increasing doses. The occurrence has never been repeated, so far as I know, in any other theatre of war, and the only conclusion was that the scheme of dosage with its intervals was an unfortunate choice and had led to sensitization.

Dysentery in Tunis

Just at the end of the campaign Flexner dysentery began to occur, at first sporadically, but later—fortunately just after the Cape Bon victory—as a major epidemic. All this time we were working as a forward hospital under improvised conditions, with no *x* rays, no sisters, and often only the most elementary laboratory facilities. Cases of dysentery kept pouring in, and more than half our staff succumbed. Although often acutely ill on admission, the cases on the whole were mild and soon recovered. There were no deaths.

We had continually to evacuate our patients, as soon as they were fit to travel, to hospitals further back, for beds were scarce and patients many. To admit 250 patients in a day, discharge or evacuate an equal number, and be working in primitive conditions in intense heat, pestered by flies, at the height of a Flexner epidemic adds to life's experiences. I tried an equivalent series of cases on sulphaguanidine, on fluids only plus a placebo, and on the traditional saline therapy (magnesium or sodium sulphate). There was no question that the sulphaguanidine cases did best; of the others in my series, "fluids only" achieved slightly better results than salines.

Malaria

In mid-June I was posted to a hospital in Philippeville which had sisters, *x*-ray department, laboratory, and every other facility. It was partly hutted and partly tented. For a fortnight we were relatively slack, but suddenly, on June 29, malaria appeared. Within a week or two I realized that I had probably seen more malaria than I had seen of, say, an ordinary condition such as auricular fibrillation, in my life—such is the suddenness of experience in tropical medicine. Nearly 50% of the cases were M.T., often in its worst form—a disease which can kill within hours. There will never be any agreement on the treatment of malaria, for it varies so much in severity from time to time and from place to place. I am convinced that most doctors in India, though long resident there, have not seen M.T. malaria as I have known it, in epidemic form among troops spending their first summer abroad. Fortunately our death rate was very small, though we lost one or two in our early days when the full significance and the symptomatology were not recognized. There was one man, for instance, who because of his symptoms was admitted to a dysentery ward. I did not see him until the next day, when he was breathless, pulseless, and collapsed. Rapid respirations are not sufficiently stressed as a common symptom of severe M.T.—a tachypnoea rather than a dyspnoea, more like an acidosis than pneumonia.

Our good results I ascribe unhesitatingly to the *extravagant* use of intravenous quinine; and to the usual indications for its administration we added one more—viz., "because it is night-time."

It was no exception to admit over 100 fresh cases every day, the majority arriving in the evening. Those who have worked in a tented hospital, where at night one sister supervises three or four wards, where neither sisters nor nursing orderlies have much knowledge of malaria, where the lighting is by hurricane lamps and all patients are under mosquito nets, will realize how easily a man might pass unnoticed into coma, and will understand why we preferred to give intravenous quinine at night to every patient who was really ill. Our dosage was 10 gr., repeated four-hourly if necessary, our vehicle 20 c.cm. of saline given slowly from a syringe. In over 500 intravenous injections we had only one death which could have been ascribed to treatment. That was in a German nursing orderly (in the P.O.W. compound) who was extremely nervous and apprehensive and died 10 minutes after the injection. One was reminded of the occasional deaths from pleural shock rather than of a drug idiosyncrasy. We never gave the dangerous intravenous doses of adrenaline still recommended in Manson-Bahr's *Tropical Diseases.*

We worked by day and by night in tropical heat, and if any member of my team reads this record I would like him to accept this expression of my gratitude for his devotion; for I have had officers of varying professional ability, but have yet to meet one who has been lazy or neglectful of his patients, despite the complete absence of any motive of gain, fee, or glory.

Other observations I might make on malaria are that whereas many of the M.T. cases relapsed early and were troublesome until Christmas, all the late relapses in the following spring and early summer were B.T. We saw M.T. in all its forms—the cerebral, the algid, and the dysenteric; as a cause of anaemia, of nephritis, even of ascites. Blackwater fever was not encountered.

Smallpox and Diphtheria

All the time we had, of course, our infectious wards and our skin wards, and we learnt, among other things, the differential diagnosis of early smallpox. Later in the year we had diphtheria, both cutaneous from so-called desert sores and faucial. At one time we had 140 diphtheria cases in hospital. Peripheral neuritis was common. Infective hepatitis was our biggest disabling disease in the autumn and winter, but I have no new observations to make upon it. Other infections we had in smaller numbers—chickenpox, mumps, typhoid, and glandular fever. We did Paul-Bunnell tests whenever our pathologist could catch a sheep. Typhus was almost unknown among the troops.

Italy

In Jan., 1944, we had a month's rest while waiting to cross over to Europe, and during that month I found time to read more medicine than I had read for many years. Although we may be divorced from the larger library facilities where exasperating references can be patiently sought out, there is always plenty to read in a general hospital. The Army provides a number of textbooks and a fund for buying more, and almost every officer has brought a few of his own, so that by lending or pooling there is no shortage of monographs and reference books.

We reached Naples in February, towards the end of the typhus epidemic which had broken out in the civil population. The weather was bitterly cold and there was no fuel or transport. Air-raid damage was considerable, and it was no wonder that lice and typhus spread among the half-starved half-frozen population, huddled together as they were in conditions of squalor I have seen in no other European town. Adults and children would steal and eat the food from our swillbins. The epidemic has made history, for it ceased abruptly when the populace was deloused on a grand scale by D.D.T. Dusting centres were set up in all parts of the town, propaganda was used to bring the people to them, and hundreds of thousands of persons were disinfested. Venereal disease was the greatest scourge of Naples, and the town was banned to all troops not actually stationed within its boundaries.

For a time we were employed as the evacuation hospital for Italy, and we saw every interesting long-term case on its way home—heart disease, neurological cases, nephritis, hypertension, lung abscess, occasional neoplasms, and anaemias. Our clinical meetings were as well off for material as those of most teaching hospitals, and were attended by many of the M.O.s in the district, including some from the Navy. We saw kala-azar for the first time, often in troops who had come direct to Italy from the U.K. Amoebic dysentery became a major problem, B.T. malaria was still with us, and a sharp epidemic of sandfly fever broke out.

From Naples I went to Rome, where much the same diseases occurred, with rather more typhoid fever than I had seen before.

India

From Rome to India, where a somewhat new outlook is required, although the main diseases are the same. One meets a case of foot-drop, for instance, and thinks not of lead poisoning but of leprosy. A severe pneumonia or adenitis arouses suspicions of plague. In West African troops we see trypanosomiasis, schistosomiasis, and yaws. The ancylostoma is ubiquitous, and nutritional anaemias and deficiency states are abundant. Sprue adds an enigmatic interest. Relapses of B.T. malaria, mild but repeated, cause our biggest loss of man-power, and amoebic dysentery is widespread.

Non-tropical Diseases

Of the non-tropical diseases we always have a plentiful supply. Chests of all kinds we see frequently, gastrics, psychoneurotics, anaemias, early heart cases. Pulmonary tuberculosis we meet far more often than we do at home, where all such cases are segregated in sanatoria.

Here, in the Southern Army, we have a first-class neurological centre where every variety of disorder can be demonstrated. In conjunction are the neurosurgical centre and peripheral-nerve-injury department, and there is an expert neuropathologist. We have hospitals set aside for tuberculosis, where collapse therapy of all kinds is carried out on suitable cases. We have research teams in dysentery, anaemia, malaria, and other subjects. Tropical eosinophilia and arsenical encephalopathy are interesting us; poliomyelitis is all too common. Opportunities for teaching are of everyday occurrence. Clinical meetings are held regularly in all big hospitals; the M.R.C.P. examination has been held in India and the Middle East. In my present post I have an ideal opportunity of meeting and discussing medicine with physicians representing every medical school in Britain and in India. I never leave their hospitals without having learnt something from them.

General Education

I have written enough now to achieve my object, which is to show that the physician abroad will come home rich in experience. He may be a trifle rusty on globin-insulin and thiouracil, or the management of the enlarged prostate, but these subjects he will relearn as quickly as he has applied himself to the problems of military medicine. Meanwhile his general education has not been neglected. If he has the aptitude he may now read or speak with some competence in four or five languages; he may have studied history in Constantine, Carthage, Baghdad, and Delhi; or architecture in Rome, Pompeii, and Agra. He may have listened to Italian opera and seen the Sistine Chapel. At a time when we are out to encourage better general education in our profession such experiences cannot be dismissed as irrelevant. Hospital planning and administration too have come his way, and, above all, the study of human nature in its many aspects, among different races and conditions, in heat and strain and danger. Personality has developed with the command of men. I speak not only for the physicians whom I know at first hand but also for others who have had like experiences and will return the better for them.

After the War

I admit to a touch of propaganda in my discourse. It is not for the benefit of the older ones like myself, established in their jobs at home, but because at this period of the war I hear frequent questions as to what will happen afterwards: "Will the jobs be filled before I get home?"; "Will partial demobilization mean that the late-comers get no chance, that posts are occupied before Japan is beaten?"

I feel that those at home are losing patience. I know that they have every excuse. They have worked hard and long, waiting for our return. They also are getting older. But we out here are *not allowed* to be impatient. We have to take what comes and go where we are sent, for as long as we are required, without question, without choice.

Many of the physicians in the Army have jobs to return to, but the younger ones have missed the opportunity of the appointment which leads to a career in medicine. They have been away already for five years. Those at home must be patient a little longer. The jobs must not be prematurely filled. Moreover, if we are to attract the best men we must realize that they are already ripe in years. The man who at 28 would gladly have accepted a post at a small salary if it offered chances of advancement, cannot at 34, with a wife and child, afford to do so. Unless teaching schools offer adequate remuneration over the lean years many of these men will take whole-time salaried posts in other branches of medicine or will go into general practice.

Physicians in the Services are not asking favours of the profession. They do not expect equality of sacrifice, but they have a right to equality of opportunity. All posts filled in wartime should be temporary in the strictest sense. However difficult it may be, they should be vacated without question when the war with Germany and Japan is over. Then there will be open competition in which those who stayed at home will get an equal but not an unfair chance.

I have not the slightest doubt that, given the opportunity, many of our younger physicians in the Services will then come to fill with credit some of the best posts we have to offer, and they will bring with them a wisdom which textbooks do not teach.

DISTRIBUTION OF PENICILLIN

A circular from the Ministry of Health says that increasing supplies of penicillin are now becoming available for the treatment of civilian patients and the Minister is anxious that it should be more widely used in suitable cases. It has not yet been possible for it to be placed on the market freely through commercial channels, and some degree of control in its use is still essential. Hitherto supplies for civilian patients have been distributed through the university medical schools and the teaching hospitals, but the Minister wishes to relieve these bodies so far as possible of the detailed responsibility for control. It has been decided therefore to increase the number of distributing hospitals or centres and to revise the "Recommendations of Conditions to be Treated."

Functions of Distributing Centres

The distributing centres have been chosen, in consultation with the university medical schools, from among the hospitals, both voluntary and municipal, which have adequate laboratory facilities and have had experience in the use of penicillin, regard being had to their geographical position in relation to the main centres of population.

For the present the issue of penicillin will be free of charge. While detailed returns of the types of cases treated will not be required, records of consumption and of distribution to other hospitals, etc., with receipts for quantities so supplied, should be kept and made available for inspection by an officer of the Department.

Each distributing centre would receive supplies of penicillin direct and in turn would distribute an immediate supply to the hospitals in its neighbourhood which have laboratory facilities and experience in using penicillin. Other hospitals in the area would be entitled to receive penicillin on application for the treatment of suitable cases. Each distributing centre would further be authorized to issue penicillin to private practitioners for the treatment of suitable cases at home or in a nursing home whom it is not practicable to transfer to hospital. It is suggested that the distributing centre should form a small medical committee to be responsible for the further distribution and to give advice in doubtful cases.

The Minister has in view the desirability of at least doubling the use of penicillin in the course of the next two months with progressive increase, and it is suggested that an immediate issue of 2 m.u. per month for every 100 beds for patients with acute diseases should be made. Further supplies in excess of this amount will be available as required on application to the Ministry. It is understood, however, that the university medical schools have a substantial reserve of penicillin for civilian cases, and if a further supply is urgently required in emergency application should be made to the nearest university medical school. Present arrangements for the supply of penicillin for Service patients will continue.

Syphilis and gonorrhoea have been transferred to the list of conditions which may be treated in suitable cases, and it is anticipated that increasing use will be made of the drug for these purposes. It is intended that the V.D. clinics attached to the several hospitals will have supplies allotted to them from the distributing centre.

Revised instructions on the indications for the use of penicillin, and methods of administration, are enclosed with the circular for distribution to the local hospitals.

Owing to staff difficulties the manufacturers will have to "stagger" the dispatch of penicillin, and different hospitals will receive their supplies on different dates in the month. Any hospital needing penicillin before the initial distribution arrives should apply to the appropriate university medical school. Hospitals which have supplies of penicillin for Service cases may borrow for the treatment of civilians until the arrival of the first quota.

E. L. Cohen (*Brit. J. Derm. Syph.*, 1945, **57**, 10) examined the incidence of acne in a group of 500 women and found that the maximum age incidence was 19 to 21, but that acne was still common in the late twenties and early thirties. In a group of 207 men in whom acne was found the largest age group was 18 to 23, but 25% were over the age of 25. The distribution in a group of women showed that acne was commoner on the trunk than elsewhere.

Reports of Societies

MASKING EFFECT OF SULPHONAMIDES IN OTITIS MEDIA

The masking effect of sulphonamides when used in the treatment of acute otitis media was the subject of discussion in the Section of Otology, Royal Society of Medicine, on March 2. Mr. L. GRAHAM BROWN, president of the Section, was in the chair.

The subject was introduced by Mr. I. MALCOLM FARQUHARSON, who presented a statistical comparison of 1,194 cases of acute otitis media treated in pre-sulphonamide days from 1932 to 1936 with 1,390 cases treated with a sulphonamide from 1937 to 1943. The cases requiring mastoidectomy in the pre-sulphonamide group amounted to 29%, and in the sulphonamide group to 13%, but he said that sulphonamides masked certain signs and symptoms of mastoiditis by permitting a latent course of infection. By delaying drainage the masking effect was increased, and the instances of deafness and chronic ear disease were multiplied. The pathological processes of acute infection of the middle ear and mastoid were altered by sulphonamides, giving rise to a "mottled" distribution of the disease, with special affinity for the dural plate. There was an accumulation of evidence to show that sulphonamides altered the translucency of the mastoid cells to *x* rays.

Mr. G. EWART MARTIN said that nowadays a large number of cases were treated outside the hospital by private doctors, and it was among these cases that eventual deafness appeared. A typical case was that of the person who came to hospital with a history of acute ear; he had seen his own doctor and had been given "a box of pills," possibly sulphathiazole, and had been told to take two thrice a day. Later the doctor had seen him and pronounced him well, but about three weeks later he came to hospital complaining of severe deafness. On the other hand, among private cases, which were usually seen quite early by the otologist, persisting deafness was infrequent. The trouble was the indiscriminate use of sulphonamides by some general practitioners, who had found that when they were given the temperature went down and the pain ceased; but deafness often resulted.

Squad. Ldr. G. H. BATEMAN said that he had been through a number of case histories in the R.A.F., and had figures which suggested, unlike Mr. Farquharson's, that the use of sulphonamides had increased the number of mastoid operations carried out. Of two groups of patients, one treated with sulphonamides and the other not, those in the first group had had more mastoid operations; but the statistician to whom he showed the figures declared that statistically they were not valid. His own feeling was that acute otitis media was not beneficially influenced by sulphonamides, but that with sulphonamide in the background expectant treatment was adopted to a greater extent than in the pre-sulphonamide era, and therefore better results were obtained.

Mr. A. R. DINGLEY agreed that in pre-sulphonamide days it was usual to open the mastoid rather earlier than was now the rule. The emphasis on the possible injury to hearing was important. The trouble was due to the fact that these drugs were often expected to take the place of necessary surgical drainage. After other signs had cleared up the ear drum might be found to be oedematous, and there might be a marked degree of deafness. Such an ear was potentially dangerous.

Squad. Ldr. DICKSON said that in the Services it was the rule to get cases of acute otitis media as early as possible into hospital and to advise medical officers that they should wait until the patient was in hospital before giving sulphonamides. Thus the cases were under the observation of an otologist from the moment the drug was begun.

Mr. TERENCE CAWTHORNE said that such a discussion could be satisfactorily concluded only if a series of cases were treated without sulphonamides and a corresponding series with sulphonamides. One other aspect of the use of sulphonamides which might prove important was the likelihood of some patients, on feeling sick after one or two doses, refusing to continue the treatment.

Mr. Owen pointed out that in civil life early treatment of these cases in hospital was impossible unless otitis media was made a notifiable disease. An authoritative statement ought to be forthcoming advising practitioners as to the use or non-use of sulphonamides in the early stages. Mr. Wilson said that he was now operating on far more mastoids than he had ever done before, and this he attributed partly to the giving of sulphonamides. He also urged that a small committee of investigation should be formed with a view to correlating treatment and issuing a statement. Mr. Thacker Neville said that family doctors in his area were treating ear cases with sulphadiazine, and therefore the otologist did not see them, and the ears were never inflated after the inflammation had subsided. The want of such inflation, he thought, was partly the cause of deafness. Mr. H. V. Forster mentioned the comparative insolubility of sulphadiazine, which on some grounds might be preferred to the other compounds. He urged that if the drug was given potassium citrate should be prescribed and plenty of fluid.

Mr. Ritchie Rodger said that the problem was a physical as well as a chemical one, and chemotherapy was of no use on the physical side of the problem. The first symptom that brought the patient to the doctor was earache, which was nearly always due to tension. With these new drugs the symptoms were suppressed, and the physical side of the problem was not dealt with, so that deafness from an adhesive process in the middle ear might result. It should be explained to general practitioners that the middle ear did not respond to these drugs in the same way as the lungs and the meninges because in the ear there was not the very efficient drainage which Nature had provided for serum in the brain and in the lung. Major Houple, U.S.A.M.C., mentioned a case of mastoiditis which, masked by penicillin, went on to brain abscess.

Mr. Graham Brown said that they had all had examples of these cases in which masking had occurred, and could come to the conclusion that a sulphonamide had been administered, perhaps unwisely. In hospital and even in private practice very few cases of acute otorrhoea came early enough to permit of treatment with a sulphonamide. Certain unhappy results which he had seen had made him rather disinclined to use sulphonamides, though he did recognize their value, particularly in complications.

Mr. Farquharson, in reply, said that even with adequate dosage of the drug certain masking effects might persist. The opinion of the meeting was evidently against the promiscuous use of the drug. Squad. Ldr. Bateman had said that mastoid operations had been more frequent since the drugs came into use; this was not borne out by his own records. He did not think that resulting deafness was due, as Mr. Thacker Neville had suggested, to lack of subsequent inflation. As for masking by penicillin, it was conceivable that this could occur in the same way as with a sulphonamide. The masking in otitis media was very largely due to the drug not reaching the mastoid owing to thrombosis of the vessels, and that might equally occur with penicillin.

INFECTIONS OF THE EYES

At a meeting of the Fever Group of the Society of Medical Officers of Health on March 9, Dr. M. Mitman presiding, a discussion on the epidemiology and treatment of some eye infections was opened by Prof. Arnold Sorsby. He said that a provisional analysis of 9,622 certificates of blindness in the L.C.C. and Middlesex areas showed that 1,427 persons (or 15%) were blinded by infectious diseases. In approximately three-quarters of this 15% ophthalmia neonatorum and syphilis were the responsible factors, ophthalmia neonatorum being the cause in 265 cases, congenital syphilis in 516, and acquired syphilis in 290 cases. The remainder of the 15% was contributed largely by trachoma (134 cases) and the various specific fevers (103 cases). The low incidence of infectious disease among the causes of blindness in England and Wales was in striking contrast to the conditions obtaining in countries like Egypt and in the Middle East generally, where over 80% of all cases of blindness were caused mainly by the acute ophthalmias, and to a lesser extent by trachoma. At one time, however, infection was the major cause of blindness in England. At the beginning of the last century smallpox was the largest single factor, and towards the end of the century ophthalmia neonatorum. Even as late as 1922 ophthalmia neonatorum was the cause of blindness in some 30% of all children at blind schools; by 1942 the incidence had fallen to about 10%. This decline had shifted the emphasis from infection to other factors—genetic anomalies in the young and degenerative lesions in the elderly.

Though the incidence of blindness from ophthalmia neonatorum had fallen so markedly, there was no evidence that the disease itself had declined to any extent. A clearer appreciation of the aetiology of ophthalmia neonatorum was needed, particularly as it had now been established that only some 20 to 25% of cases were gonococcal in origin. At least 10% of cases were due to virus infection, and the aetiology of this and other types needed clearer recognition. While congenital syphilis had also declined to a gratifying extent, other transmitted maternal infections were only now being recognized, toxoplasmic choroido-retinitis being an example. The decline in the incidence of trachoma in childhood had only emphasized that there was still a considerable residue of trachoma in the adult population, and these people constituted a possible source of epidemic outbreaks.

The sulphonamides and penicillin were of great help in the treatment and elimination of infectious eye disease. Ophthalmia neonatorum was now easily controlled by the oral administration of the sulphonamides and the local application of penicillin. The acute ophthalmias of tropical and subtropical countries also responded well to the sulphonamides, while in trachoma local application of the latter had rendered the classical methods obsolete. These new drugs were, however, likely to be effective only in the bacterial infections of the outer eye. Intraocular inflammation was rarely bacterial in origin, and such common conditions as iritis and choroiditis still needed intensive study.

In reply to questions Prof. Sorsby said that it was doubtful whether the routine prophylactic use of silver had made any major contribution to reducing the incidence of ophthalmia neonatorum, nor did he think the sulphonamides would be likely to do so. Routine instillation of penicillin eye drops at birth deserved extended trial when supplies became more plentiful. The placenta was a powerful barrier to the transmission of intra-uterine infections, and it remained uncertain which organisms could pass. Much of what had been called intra-uterine inflammation was really genetic disease. This required much closer study from the medical profession than it had received in the past. There was, nevertheless, a considerable field for the study of transmissible intra-uterine infections.

The Joint Tuberculosis Council, which met in London on Feb. 17, re-elected Dr. James Watt as chairman, Drs. D. P. Sutherland and N. Tattersall as vice-chairmen, Dr. A. P. Ford as honorary treasurer, and Dr. Norman England as honorary secretary. The Council adopted a resolution recording its deep sense of loss at the death of Sir Henry Gauvain, its chairman 1926–9. It was decided to ask the British Medical Association to receive a deputation representative of the Joint Tuberculosis Council and the Tuberculosis Association on the need for a national campaign for a safe milk supply. The National Association for Prevention of Tuberculosis was invited to join in the deputation. Dr. G. Jessel reported that ten memoranda on tuberculosis subjects had been prepared for publication for U.N.R.R.A. The memoranda would form a manual for distribution to medical practitioners and others dealing with tuberculosis problems in occupied countries after liberation, and 1,000 copies of the manual would be distributed to tuberculosis workers in Britain by the Ministry of Health. The subjects covered by the memoranda included administration, dispensary and sanatorium treatment, rehabilitation, bacteriological diagnosis, differential diagnosis, mass radiography, surgical treatment, non-pulmonary tuberculosis, and tuberculosis in childhood. Approval in principle was given to a proposal submitted by the Committee on Education (jointly set up with the N.A.P.T.) for the establishment of a Tuberculosis Educational Institute.

The British Orthopaedic Association has elected the following Honorary Members: Sir Alfred Webb-Johnson, Bt., P.R.C.S., Prof. R. I. Harris, Toronto, Prof. N. N. Priorov, Moscow, and Mr. J. Rhaiadr Jones. It has also elected two Corresponding Members: Prof. Sten Friberg, Stockholm, and Dr. A. P. Kotov, Kharkov.

Correspondence

Women in Labour

Sir,—Nearly one hundred years ago Simpson failed in his attempt to give relief to all women in labour because his contemporaries and his successors did not try to understand Simpson's teaching, and they never mastered the technique of chloroform analgesia in labour. It looks very much as if a very safe and simple method known as gas-and-air analgesia might meet with a similar fate, not because patients are being killed by gas and air, but because of unsatisfactory analgesia resulting from unsatisfactory administration.

I know that at least 80% of all patients should get adequate relief of pain from gas if due and proper attention is paid to the details of administration, yet I am satisfied from my own observations that all over the country, in hospitals and in homes, this attention to detail is not forthcoming. I have seen machines out of order, gas cylinders empty, facepieces that do not and could not fit the patient's face, and, in fact, both apparatus and technique of administration which could not be expected to give analgesia. I have found that there is also complete failure to instruct the patients how the gas should be used and to see that the administration is started sufficiently early in labour. So often I find patients, well advanced in the second stage of labour, rushed into the labour ward, given the facepiece of the machine (which they have no idea how to use), and then just told to "get on with it." This slackness and indifference to the suffering of women are deplorable features of our national life to-day.

In 1939 we were making very real progress in our attempts to relieve all women from the pains and misery of labour, but during the last five years there has been a wave of shallowness and insincerity passing over our land. I can only hope that when this war is over our young people returning from the Services will bring with them into our daily life a new spirit of service and duty towards their fellows. That this spirit of service is needed there can be no possible doubt. Following an article in the *Nursing Mirror*, I received letters from women in all parts of this country. These letters all told the same sad story—a story of indifference and neglect, a story of avoidable suffering and misery, which must make us utterly ashamed of our national maternity services. How are we going to explain away this indifference and neglect of the sufferings of their young wives to our returning soldiers, sailors, and airmen? Truly our maternity services leave much to be desired.

From gas-and-air analgesia, and more recently from trilene-and-air analgesia, we can, without any possible doubt, promise a very high degree of relief from the pain and misery of labour. Yet we are doing so little, so very little. Are we to say to returning warriors who have endured so much: "Oh, yes, we can help your young wife tremendously, but really it is too much trouble, so we are not going to bother." Has then the work of our women in this war been of no account that we must allow this deplorable state of things to continue?

One strange fact I have noticed. Our strongest supporters in our attempts to obtain analgesia in labour for all women have been old and elderly male county councillors; our strongest opponents, young women medical officers of health. Perhaps there is going to be a place in our post-war world for the old men after all that has been said about "youth at the helm."—I am, etc.,

New Barnet. John Elam.

Ovariotomy or Caesarean Section?

Sir,—In a perfect world with perfect antenatal supervision all ovarian cysts will be diagnosed in early pregnancy and removed. On the one occasion when I was forced to remove a cyst during the second stage, the membranes having ruptured 24 hours previously, I had the greatest difficulty in getting the uterus back into the abdomen. Had not the risk of sepsis been present I should certainly have performed Caesarean section.—I am, etc.,

London, W.1. Malcolm Donaldson.

A Faculty of Ophthalmologists

Sir,—The letter of Dr. C. R. Duncan Leeds (March 3, p. 311) is likely to create a false impression. There is no question of increasing the number of ophthalmological organizations, since the Council of British Ophthalmologists will cease to exist as such on the inception of the Faculty. Indeed, if, as is desired, a certain union takes place, the number will be reduced to two—the Faculty and the Ophthalmic Group Committee.

The establishment of two kinds of members appeared to be inevitable, but the Faculty certainly hopes to be in a position to promote the interests of the younger men. The promoters did not view with favour the perpetuation of the "part-time ophthalmologist," who will, however, continue to be adequately represented by the Ophthalmic Group Committee. The closest liaison between the Faculty and other representative bodies such as this is earnestly hoped for and anticipated.

The Council of British Ophthalmologists does not consider that "much help in the proposed National Health Service" will be required from part-time ophthalmologists, and the scheme which the council has envisaged will, it is hoped, ultimately function without them. One readily agrees with Dr. Leeds that, in the interim, "the Ophthalmic Group Committee is best constituted to be their guardian angel."—I am, etc.,

45, Lincoln's Inn Fields, London, W.C.2. Frank W. Law,
Hon. Secretary, C.B.O.

Artificial Respiration

Sir,—The letter from the Royal Life Saving Society (March 17, p. 387) shows that I was unable to convince them at my 1944 demonstration that the rocking method of resuscitation is more effective than Schäfer's. I had hoped to convince them (by subsequent x-ray photographs) that when the toneless diaphragm had been pushed up by Schäfer compression it did not recoil down again elastically but stayed put, thereby making Schäfer's method impotent in advanced asphyxia. But unexpected difficulties have so far prevented Dr. Din and myself from demonstrating this by x rays. However, there is other evidence for this doctrine, such as the following.

1. When one side of the diaphragm is deprived of its tone by cutting the phrenic nerve its dome rises at least two inches.

2. In the rocking method the weight of the abdominal contents pushes and pulls the flaccid diaphragm up and down like a piston. Dr. J. E. Bannen showed this by a portable x-ray in my original case of diphtheritic paralysis of the diaphragm.

3. Dr. H. W. Haggard, the U.S.A. expert in respiration, was at hand when a man died suddenly of cardiac failure. He promptly started Schäfer's method, which ventilated the lungs normally at first but failed completely to do so after 10 to 15 minutes. Presumably the toneless diaphragm had been pushed up and stayed there: the elastic recoil, on which Schäfer's method relies for inspiration, was absent. This view was confirmed when an overdose of chloroform was given to a cat till respiration ceased. Schäfer's compression produced normal ventilation (measured) at first, but this ceased after 10 minutes and the lungs were found to be collapsed. Prof. R. R. Macintosh in 1944 simulated the condition of a drowning man by ether anaesthesia of two volunteers with periods of apnoea induced by hyperpnoea. Results in the two subjects were: for Schäfer 340 and 530 c.cm.; for Silvester 400 and 650 c.cm.; by rocking 580 and 860 c.cm. Results of artificial respiration in conscious subjects are notoriously misleading, but the above tests are conclusively in favour of rocking over Schäfer as regards ventilation of the lungs.

4. The intricate experiments of Prof. Hemingway in 1944 showed the definite superiority of rocking over Schäfer's method in aiding the circulation. This is most important, for it is useless to oxygenate blood by pumping the lungs if it is not propelled to the respiratory nerve cells which maintain respiration (and to the heart muscle).

5. Finally, there are the very many instances of the failure of Schäfer's method, and, in particular, the lack of inspiratory recoil such as was observed by Surg. Lieut.-Cmdr. Gibbens. This led him and Surg. Lieut. de Launay to adapt the rocking method to naval usage and to its later official description in *First Aid in the R.N., 1943,* advocating that it replace Schäfer's method whenever possible. I am permitted to state that the

proportion of successful resuscitation in the Royal Navy since rocking has been used has increased.

I can claim to have no bias against Schäfer's method because in a booklet by me on artificial respiration (soon to be published) it is recommended for use in adults when the rescuer is single-handed. But it fails much oftener than it succeeds, and we must strive for better methods to save the failures. It is not fair or right to expect a society of philanthropic laymen to pronounce judgment on rival methods of resuscitation—a subject which has now become highly complicated. What is needed is a small expert subcommittee of perhaps the Medical Research Council, not only for research but to give official sanction that certain methods deserve to be tried out by the societies which instruct first-aiders, who should also be asked to suggest practical improvements. Advances will come only by the co-operation of doctors, first-aiders, and laboratories.—I am, etc.,

FRANK C. EVE.

Penicillin in Bacterial Endocarditis

SIR,—Since the announcement made in these columns (Feb. 17, p. 232) of the formation of ten centres to investigate the value of penicillin in the treatment of bacterial endocarditis, three further research centres have been formed in Newcastle, Birmingham, and Glasgow. Physicians are invited to refer patients suffering from subacute bacterial endocarditis to: Prof. F. J. Nattrass, Royal Victoria Infirmary, Newcastle-upon-Tyne; Prof. K. D. Wilkinson, Queen Elizabeth Hospital, Edgbaston, Birmingham; Prof. J. W. McNee, or Dr. W. R. Snodgrass, Western Infirmary, Glasgow.—I am, etc.,

RONALD V. CHRISTIE.

Shock Therapy and Conditioned Reflexes

SIR,—Relative to Prof. R. J. A. Berry's letter (March 17, p. 383), I would like to join issue with him on certain points. Like the great "reflexologist" Pavlov himself, your correspondent disregards the fact that determining the formation of any conditioned reflex is the anticipatory fulfilment of a wish—a wish, that is, for pleasurable gratification or the relief of instinctual tension. In his concern with the cortical associational system, which closely parallels Freud's second psychic instance or the reality principle (see Freud's *Interpretation of Dreams*), Pavlov leaves out of account anything equivalent to Freud's basic and therefore most important first psychic instance, better known as the pleasure principle. Though with supplements and modifications later in life, Pavlov earlier denied that behaviour was to be regarded as purposive—i.e., the fulfilment of a need—and, according to Frolov, one of his pupils, at one time even went so far as to impose fines upon any of his assistants who dared demur. Nevertheless, the inescapable truth remains that there can be no anticipatory gratification, no conditioned reflex, and no continuance of such as may already have been formed once newer engrams have had time to develop, recording repeated failure of realization of the looked-for gratification—e.g., food—unless these latter have themselves somehow been modified or destroyed. These newly formed inhibitory engrams also serve indirectly the pleasure principle by the avoidance of pain (disappointment).

Upon a basis of experience the animal has learned to avoid expectancy, and since their formation is based upon actual external experience, these newer engrams also serve the reality principle. What your correspondent euphemistically refers to as the "recall" properties of shock therapy are, in my view, merely the "inhibition of an inhibition," and amount to an actual loss of judgment occasioned by electroconvulsive therapy (E.C.T.). The valuable new engram which represents the enlightenment of further experience has been deleted thereby, and the animal's capacity for adjustment to reality temporarily diminished. When so viewed, this, while perhaps less a matter for enthusiasm, is an observation no less important when cleared of positive misunderstanding. Incidentally I would suggest that the same significance attaches to Gellhorn's interesting observations upon the effects of insulin as a restorative of the conditioned reflex reported in your annotation (Feb. 10, p. 191). In both cases when properly assessed the apparent gain is clearly a loss from the point of view of the efficiency and aptitude of the animal's performance—i.e., it behaves less intelligently. This conclusion suggests that so far as conditioned reflexes are concerned, both E.C.T. and insulin operate by detraction and not by addition—a point of some importance. That many undesirable though later-acquired inhibitive tendencies exist among the psychopathological formations of man and can with advantage be removed is a corollary which seems reasonably to follow.

To return, leaving this digression, it is for the reasons above stated that these purely neuronic conceptions, whether of dreams, the vagaries of memory, or of Pavlov's conditioned reflexes, lose much of their validity, inasmuch as they omit entirely the essentially affective basis of animal activity upon which all that follows in the neuronic associational sphere is but a modifying superstructure. From the evolutionary point of view the higher organic nervous system, or neopallium, is but a refinement of recent development. Living organisms possessing the rudiments of mind long preceded that development, but the gratification of instinctual needs has never been replaced and still holds unquestionable priority as the determinant of animal behaviour, including, of course, man.—I am, etc.,

Warlingham Park Hospital. WM. H. SHEPLEY.

Deaf Aids

SIR,—I have seen the correspondence on the subject of deaf aids which has appeared in your *Journal*. I have been deaf since 1916 with middle-ear deafness, and having led an active business life since, which would have been impossible without the use of hearing aids, my experiences do support the statement that considerable sums must be set aside yearly for the upkeep of these. My expenditure has been over £50 a year, but I have had some twenty sets.

I am a member of some six technical societies—I have in fact been chairman of the Regional Sections of the Royal Institute of Chemistry and the Society of Chemical Industry—further, I have been upon a number of technical committees meeting in London, Leeds, and elsewhere, for which much travel has been necessary. Thus, I usually take two portable sets, of which I have five, in case one should break down. The portable sets do not "travel" well and a knock on a suitcase in the corridor of a train has been sufficient to break a valve. I have two all-mains sets in my offices and one at my home; I sometimes use one of these in London at meetings providing I know beforehand that a convenient connexion is available. I carried a portable set strapped to my belt as a Home Guard dispatch rider, but this proved too costly owing to breakages.

Service has sometimes taken months. I have always had sympathetic treatment from the manufacturers, but they are in turn dependent upon various makers of accessories who are not sympathetic. Apart from the time of servicing, transport is a problem. Twice I have had sets smashed in the post. Many incidentals in the upkeep of these aids are forgotten: e.g., telephones lose their sensitiveness eventually—especially those of the bijou type—and I have four away for servicing with little hope of repair or renewal.

Dr. Littler has done great work in describing simple aids, but it must be realized that deaf people are not necessarily mechanically minded enough to build or repair sets. Although a crystal microphone can doubtless be readily made into an amplifier, my experience in building sets to circuits issued by firms making components has not been happy, even though I have a laboratory at my disposal. If professionals are asked to do this the cost is likely to be high. As it is I will not allow an amateur to service a set because once I had a set so "pied up" that the manufacturer refused to handle it afterwards.

My experience with batteries of the most reputable brands has been good but the supply has been bad, despite the promises made in the House. The cycle-lamp type has given usually an hour's good life. After rest periods their activity lasts for periods which follow a logarithmic decrement. Rarely have I had less than two months' life from the bijou high-tension battery. What is less understood is that a low-tension battery very soon loses enough energy to activate an amplifier, though it still has ample power to work a flash-lamp, and batteries which have a considerable amount of energy have to be scrapped. I attended some meetings in London last week and half used up six low-tension batteries. Two others of unknown make I bought from a shop in Westminster were worthless although they were satisfactory by the usual shop-counter test —one lasted two minutes. Despite the fact that in my home and office I am independent of portable aids, yet I spend some 5s. a week on batteries for portable sets.

One great service which could be done for deaf people is for some influential person to claim income-tax rebate on the expenditure incurred in the maintenance of these aids, get it, and so establish the precedent. Such expenses are "necessarily incurred in the execution of one's business," for without them it would be impossible to earn. Although it is obvious I should be able to pay little or no income tax without the aids, yet the Income Tax authorities do not accept the plain implication of their own definition of expenses. I hope the publicity which has appeared in your *Journal* will help to change this view, since a sum of £25 per annum will hardly cover the expenses of a user of deaf aids who has to carry these about in the course of his duties, and this is a considerable sum for those who naturally find it difficult to compete in the labour market. I speak of those whose deafness is such that the simple one-battery-transformer aid will not suffice. In fact I believe, from intimate knowledge of many deaf people, that when the degree of deafness is such that an aid must be used the simple type is of little value and valve aids must be sought.

I apologize for the length of the letter, but this matter is of especial interest to those deafened in the last war—and this.—I am, etc.,

A. H. Dodd, M.A., F.R.I.C.,
Chief Chemist, Thorncliffe Works, near Sheffield

Injection of Solvochin

Sir,—Dr. Frank Hawking's report (March 24, p. 412) must be of great interest to all who have used solvochin, but there is a danger that others, who have no practical experience with it, may draw the conclusion that the injections are either painful or harmful. In practice intragluteal injections of solvochin, properly given, are very well tolerated, and an experience extending over a period of 3 years and more than 100 cases has shown that complications must be very rare. In the treatment of malaria I have used 8 injections spread over 4 days and there have been practically no complaints of pain. This is in striking contrast to my experience in liver therapy in tropical sprue. Local necrosis is probably unavoidable when quinine is injected, but should not be allowed to influence us against using a preparation which is clinically efficient, economizes quinine, ensures certainty of administration, and is so well tolerated by patients.—I am, etc.,

London, W.1. Alec Wingfield.

Blackwater Fever and Malaria

Sir,—In the *Journal* of March 10 (pp. 325 and 328) are two papers, "Blackwater Fever in West Africa," by Lieut.-Col. E. W. Skipper and Capt. G. L. Haine, and "Diagnosis of Malaria in West Africa," by Squad. Ldr. D. G. Ferriman. Skipper and Haine mention the "characteristic slow pulse of malaria." Characteristically, the pulse of malaria seemed to me rapid in comparison with sandfly and typhoid. Again, they write: "Preceding and during the disease [blackwater] parasites are scanty in the peripheral circulation, often disappearing entirely early in the illness." This observation agrees with general experience. Later they state: "We consider it [alkali] should be used as early as possible—in fact, the urine of all our cases of malaria was kept alkaline as a routine." Sinton has urged this routine since about 1908 in India. The authors' further recommendation that "protein should be restricted until well into convalescence" is open to question in view of recent work.

Squad. Ldr. Ferriman approves of the therapeutic test in doubtful cases of malaria. The therapeutic test is valuable if certain conditions are observed. A distinguished colleague of mine, whose professional skill I greatly admire and respect, once asked me to see a case of "? malaria with early jaundice and slipping into coma." This patient had *falciparum* malaria —proved by blood film—and had received 30 gr. of quinine a day for five days. I went with my friend to see the patient, who was indeed very ill. My colleague thought the patient could not possibly have malaria and that my laboratory technician had been mistaken in his examination of the blood film. I asked for a specimen of the patient's urine. This was provided and we tested it with Tanret's reagent: *there was no quinine in this patient's urine.* The sick man was at once given quinine in solution by mouth and by injection. He made a good recovery. Ferriman writes: "The activation of latent malaria by a non-malarial illness was uncommon in the area." It is very common in other parts of the world; influenza is one of the most troublesome resurrectionists. Most people will agree upon the value of his remark: "Definite tenderness under the left costal margin in the absence of a palpable spleen." Samuel Pepys wrote, on Nov. 5, 1665: "All our physicians cannot tell what an ague is, and all our arithmetique is unable to number the days of man."—I am, etc.,

Frank Marsh,
Pathologist, Anglo-Iranian Oil Company.

Shall we Nationalize Medicine?

Sir,—Prof. Ryle's letter (March 31, p. 456) scarcely calls for more than my assurance that he is right in thinking that a difference of opinion on the merits or demerits of nationalizing medicine cannot disturb the mutual respect and esteem of many years' standing.

And yet I must dissent from the suggestion that the doctor not being "political" implies the assumption that he cannot be both a good doctor and a good citizen. I have stated elsewhere that I believe the doctor to be potentially the most useful citizen the community possesses because the contribution he is able to make, through medicine, is of such vital importance to his fellows.

Confusion results from the use of the word "politics" in two senses—the sense of civil administration, and the sense of party or partisan influence. When medicine infiltrates politics it is at the former, and higher, level that it operates; when politics infiltrate medicine it is, unfortunately, at the latter, and lower, level. Prof. Ryle's acknowledged mental integrity is proof against any suspicion that he, personally, would help to sabotage the tremendous social service which the profession of medicine, of which he is so distinguished a member, is able to confer upon the nation. But some of us are a little anxious lest he be taken off his feet by the ground-swell of what, while claiming to effect an advance in the people's interest, would really be a stifling totalitarian agitation.

Prof. Ryle thinks we can only settle the issue by the method of trial and error, whereas I suggest that we think again before making such a perilous venture.—I am, etc.,

London. Horder.

Examinations in Stages

Sir,—The last paragraph of Capt. H. B. Hewitt's letter (March 17, p. 387) raises an important issue applicable to other examinations—namely, whether it is essential to pass an examination in all parts at one sitting or not.

The Conjoint Board, which is an essentially practical body, permits the passing of its examinations in stages from "pre-medical" to "finals." For example, anatomy or physiology may be passed separately if at least a few marks are obtained in the unsuccessful subject. At the next sitting it is only necessary to take one subject. Until last year in the Second M.B. it was necessary to pass anatomy, physiology, and pharmacology at the same time. The regulation has now been modified so that pharmacology may be taken separately.

For the Primary F.R.C.S. it is insisted that anatomy and physiology be passed at the same time, so there are many candidates who have passed in both subjects on different occasions. This illustrates one of the failings of examinations in their present form, for surely the fact that a subject has been passed should indicate that the candidate has sufficient knowledge with which to satisfy the examiner. As the Primary F.R.C.S. is not a qualifying examination it is impossible under present conditions to take time from clinical medicine to work full time. This being so it might surely be considered whether the parts could be passed separately. This need not entail lowering the standard—an expedient to be strenuously avoided, especially during war when so many standards inevitably deteriorate.—I am, etc.,

London, W.1. P. F. Kennish.

Obituary

Sir THOMAS LEWIS

Dr. Ivor J. Davies (Cardiff) writes:

Thomas Lewis spent his preclinical years at University College, Cardiff, where his exceptional ability was soon recognized. He took the science degree of the University of Wales in his stride with first-class honours in both anatomy and physiology. A natural aptitude for research became evident in his physiological studies and was promptly encouraged by his teachers—the late Prof. J. Berry Haycraft and his demonstrator Swale Vincent, from whom Lewis soon acquired a perfection of method in experimental technique. Swale Vincent afterwards did valuable research work with Schäfer at Edinburgh and later was professor of physiology at Winnipeg and finally at the Middlesex Hospital. The association with Swale Vincent must have had a most inspiring influence on Lewis's early urge to research work. He used the stethoscope and went occasionally to the Infirmary to listen to hearts, normal and otherwise, and it was perhaps here that he first became aware of the frequency of the functional systolic murmur. He was expert with the sphygmograph, and his pulse tracings were the envy of his fellow students. Lewis was reserved by nature, but became friendly with those who could join him in country pursuits around his old home, and his life-long hobby was a keen interest in birds. The British Association held its annual meeting at Cardiff in 1920, and it was eminently fitting that Lewis was president of the Section of Physiology on that occasion. The completion of our school of medicine was impending and Lewis was prepared to stimulate public interest at one of the Association meetings, but the College authorities of that day disapproved. Lewis was naturally indignant always with anything which obstructed progress. The school of medicine was completed in the following year as a separate college of the University. The air raids compelled the evacuation of the medical school of University College Hospital, and Cardiff was proud to accept a large number of its students with some of their full-time teachers. We were further honoured when Sir Thomas Lewis came for twelve months to share in the teaching of the London students, and we all profited immensely. He told me how refreshing it was to teach general medicine again, and reaffirmed his conviction that a sound experience of general medicine was an absolute necessity before specializing in any section of it. He was elected to the honorary staff of our hospitals and was himself stationed at the Llandough Hospital, but would readily come to see any case of particular interest at the Royal Infirmary, where he had obtained his earliest clinical knowledge of the circulation. Wales will always honour him as one of her most illustrious sons who achieved great academic distinction in her University and whose wonderful skill was afterwards applied to beneficent and epoch-making discovery in medicine.

We learn with regret of the death of Dr. **Samuel Burns Carlisle**, of Dromore, Co. Down, which took place in the District Hospital, Banbridge, on Feb. 24. Born in 1899, he was educated at the Royal Belfast Academical Institution and the Medical School of the Royal College of Surgeons in Ireland, where he obtained the L.R.C.P.I. and L.R.C.S.I. in 1923. After acting as house-surgeon and house-physician in the Meath Hospital, Dublin, and as an assistant medical superintendent in Peamount Sanatorium he took up his late father's practice in Dromore. He joined the B.M.A. soon after qualifying, and was chairman of the Portadown Division in 1933–4. R. M. writes: Simple, honest, and unassuming, Dr. Carlisle quickly became the counsellor and friend of many. Though it would never have occurred to him to think so, he personified the noblest tradition of Ulster medicine. His complete selflessness, his innate sense of vocation, his quick sympathy and resource, and his diagnostic skill, which seemed to be at once instinctive and cultivated, all combined to make him the ideal family doctor. Indeed his high standard of service to others and his inability to refuse his aid at any hour probably were the predisposing cause of the duodenal ulceration which cut short his life.

We regret to announce the death on March 4 of Dr. W. H. **Lamplough**, who practised for many years at Alverstoke, Hants, with his elder brother Dr. Charles Lamplough. Wharram Henry Lamplough was born on July 18, 1878, and from Bedford Grammar School entered St. Bartholomew's Hospital and continued his medical education at Newcastle-upon-Tyne. He took the English Conjoint diplomas and the M.B., B.S. degrees of Durham University in 1903, and proceeded M.D. four years later, taking also the D.P.H. After house appointments at the Royal Hants County Hospital and the London Temperance Hospital he settled in general practice at Gosport and Alverstoke, becoming police surgeon for the district, joint medical officer to the post office, and M.O.H. and school medical officer for Gosport. He served in the last war for a year as temporary lieutenant, R.A.M.C., and in 1923 was appointed honorary medical officer to the Gosport War Memorial Hospital and medical superintendent of the Isolation Hospital at Elson. Dr. W. H. Lamplough was a member of the Hants County Panel Committee continuously from 1915, and at the Annual Meeting of the B.M.A. at Portsmouth in 1923 was hon. secretary of the Section of Public Health. A man of fine physique, he was a good lawn tennis and badminton player and won the Hants golf championship in 1912.

Dr. **Alexander Smith Allan**, late of Calcutta, died on Feb. 4 at Montacute Gardens, Tunbridge Wells, in his 76th year. He studied for the medical profession at Glasgow University, graduating M.B., Ch.B. in 1897, and after a course in tropical diseases at Liverpool took the D.T.M. ten years later. He had been an officer of the Indian Auxiliary Forces Medical Corps, retiring with the rank of major, and received the Volunteer Decoration; he was also an Esquire of the Order of St. John of Jerusalem. Dr. Allan joined the British Medical Association in 1901.

Dr. **George Francis Whyte**, for many years a well-known practitioner in Dundee, collapsed and died on March 6 while on duty as chairman of the Dundee Medical Board. He was born in Nairnshire on Jan. 5, 1873, son of the Rev. John Whyte, and was educated at Nairn Academy, at George Watson's College, Edinburgh, and at Edinburgh University. He graduated M.B., C.M.Ed. in 1896, and went to Dundee at the turn of the century. He was assistant surgeon to the Dundee Royal Infirmary 1907–12, served throughout the last war as an officer of the R.A.M.C. Territorial Reserve, reaching the rank of lieut.-colonel, and was awarded the Croix de Guerre with gold star and the Territorial Decoration. Dr. Whyte, who joined the B.M.A. 45 years ago, had held office as president of the Dundee Branch, was a past president of the Forfarshire Medical Association and vice-chairman of the St. Andrew's Ambulance Association; he had also been chairman of the Dundee Panel Committee. He retired from practice in 1938, but came back into harness as chairman of the Medical Recruiting Boards for the Dundee area. He is missed by his colleagues and by many friends.

Dr. **Alexander Reid** of Bolton died on March 14 aged 67. He was born at Radcliffe of Scottish descent and served an apprenticeship to teaching at a school there, and then studied at Owens College, Manchester, taking his B.Sc. in 1900, and afterwards working for a time as a science master. He returned to Manchester to study medicine and graduated M.B., Ch.B. in 1911. He served during the last war with the R.A.M.C. in France and Belgium, and in 1918 started general practice in Deane Road, Bolton. Dr. Reid joined the B.M.A. in 1918, was vice-chairman of the Bolton Division in 1940–4, and represented it on the Lancashire and Cheshire Branch Council for eight or nine years. During the winter of 1940–1 he and Mrs. Reid made nightly visits to all the air-raid shelters in the district, and he had not taken a holiday since the war began.

A memorial service for Sir Thomas Lewis, arranged by University College Hospital, was held on March 27 at St. Pancras Church. There was a large attendance of colleagues and friends, and of students and members of the nursing staff from U.C.H. Sir Henry Dale, P.R.S., gave a commemorative address from the pulpit.

The Services

Lieut.-Col. (Temp.) H. W. Featherstone, R.A.M.C., has been appointed O.B.E. (Military Division), and Capt. O. S. Hetherington, New Zealand Military Forces, has been appointed M.B.E. (Military Division) in recognition of gallant and distinguished services in the field.

Capt. (Temp. Major) T. Affleck, R.A.M.C., has been appointed M.B.E. (Military Division) in recognition of gallant conduct in carrying out hazardous work in a very brave manner.

Capt. S. S. Nazir, I.A.M.C., has been awarded the M.C. in recognition of gallant and distinguished services in Burma.

The following awards and mentions have been announced in recognition of gallant and distinguished services in North-West Europe:

M.C.—Major (Temp.) E. G. Wilbraham, and Capts. J. O. Forfar and A. G. S. Hill, R.A.M.C.

Mentioned in Dispatches.—Major-Gen. Sir Percy S. Tomlinson, K.B.E., C.B., D.S.O., K.H.P., and Brig. (Temp.) E. Phillips, C.B.E., D.S.O., M.C., late R.A.M.C. Cols. (Temp.) D. L. Kerr, T.D., W. H. Marston, T.D., P. E. D. Pank, J. H. C. Walker, and R. F. Walker, C.B.E., M.C.; Lieut.-Cols. (Temp.) C. W. Arnot, O.B.E., M.C., C. Bainbridge, C. E. Gallagher, A. F. Kennedy, N. J. Logie, T. F. Main, J. J. Myles, W. P. Purvis, J. M. Scott, J. L. Warner, F. W. A. Warren, and G. N. Wood; Lieut.-Cols. (Acting) R. D. Jones, G. M. Robertshaw, and J. Smith; Majors C. R. Clayburn, M.B.E., C. H. Davies, and J. O'Kane; Majors (Temp.) W. G. Bateson, D. E. H. Beattie, R. A. Binning, J. Clay, H. A. Constable, D. O. Davies, A. S. Dill-Russell, W. N. Douglas, R. G. Evans, F. S. Fiddes, T. F. R. Griffin, F. M. Hanna, J. Hoile, D. F. Hutchinson, W. B. Hynam, R. N. Lees, M.C., J. B. MacKay, J. Millar, J. A. V. Nicoll, D. N. Parry, G. F. Petty, R. J. Phillips, R. Strang, J. M. Tait, A. F. Wallace, D. J. Watterson, J. W. S. Welborn, and K. S. Wilson; Capts. P. St. G. Anderson, H. W. C. Bailie, J. H. Balmer, E. S. Bompas, W. J. Cameron, A. J. Clarke, H. Conway, P. W. M. Davidson, R. Dobson, R. C. Droop, J. O. Forfar, J. G. Gant, C. N. Gibb, R. D. Glaister, F. I. Herbert, E. K. Hole, C. G. Irwin, L. P. Lassman, H. J. C. J. L'Etang, A. W. B. Macdonald, B. Maddison, M. Makin, T. S. Maw, L. H. H. May, D. G. McConnell, J. L. McNeill, C. W. Mearns, A. D. Milne, A. D. Payne, W. Rankin, R. L. Rees, S. McR. Reid, H. A. Ripman, N. C. Rogers, G. F. Shaw, G. M. C. Smith, A. U. Somerville, G. K. Spruell, R. T. Thin, I. F. Thomson, C. H. Watts, H. L. Waugh, and C. F. Young, M.C.; Lieuts. W. N. Coombes, R. A. Green, J. S. Hayward, J. A. Hogarth, and R. H. A Ledgard, R.A.M.C. Lieut.-Cols. C. U. Letourneau and T. M. Sieniewicz; Majors G. C. McGarry, J. C. McKellar, R. B. Murray, and H. A. Williams; Capts. K. A. C. Clarke, J. H. Fraser, and H. Marantz (killed in action); Lieuts. M. T. Cooper, R. Frechette, and J. Mackie, R.C.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Wounded.—War Subs. Capt. T. B. McMurray, R.A.M.C.

Universities and Colleges

UNIVERSITY OF MANCHESTER

PROPOSED CHAIR OF CHILD HEALTH

At a recent meeting, reported in the *Manchester Guardian*, Lancashire maternity and child welfare authorities gave support to the proposal to establish a Chair of Paediatrics and Child Health at Manchester University. The delegates agreed to ask their local authorities for financial aid for the project and to report back to a further meeting in September. Dr. F. E. Tylecote, chairman of Manchester Public Health Committee, who presided, said that in 1942 the boards of management of St. Mary's Hospitals for Women and Children and of the Manchester Royal Infirmary addressed memoranda to the Manchester, Salford, and Stretford Joint Hospitals Advisory Board recommending such a department in the University. The Council of Manchester University were eager to support a professor of child health, but lacked the necessary funds. The setting up of such a department would obviously affect the whole of the area influenced by the University Medical School, and the Manchester Public Health Committee agreed to call this conference with a view to ascertaining what amount of financial support was likely to be forthcoming from the local authorities in that area. Dr. Tylecote contrasted the infant death rate in the industrial North, which in many towns is 60 or more per 1,000, with more-favoured climates, where the rate drops to about 30. The appointment of a professorship in paediatrics, he believed, would do much to improve that position. The purpose would be to remedy the very great shortage of consultants and specialists in child health and also the lack of refresher courses for medical practitioners. There was an undoubted need for more specialized training of medical students in these matters, and many doctors now in the Forces would come back after long absence wishing to brush up their knowledge of child health. The services and advice of the professor would be available to all hospitals and contributing authorities. Manchester University would be responsible for the capital charge if the local authorities would provide £10,000 a year, the maintenance cost, for a minimum period of ten years.

UNIVERSITY OF LEEDS

The Vice-Chancellor, presiding at a graduation ceremony on March 24, referred to the announcement by the Chancellor of the Exchequer of a grant of £1,000,000 a year for two years for the medical schools of the country. This sum, he said, should enable a good start to be made in the much-needed developments contemplated by all the schools in their post-war programmes. Active preparations were in progress in the University of Leeds for the expenditure on its own developments of whatever sum might be allocated to it. The two great needs were staff and buildings. Money alone could not meet them; but whatever was practicable would be done. The establishment of a whole-time Chair in Psychiatry, through a grant by the Nuffield Trustees, should give a lead to a notable advance in psychological medicine in that region of Yorkshire. It was hoped that with contributions from other sources the University would soon possess a complete psychiatric unit serving a wide area. A desirable change in the medical course had been the resumption of the three-year clinical period.

The following candidates have been approved at the examinations indicated:

M.D.—[1] O. Magidson, J. Overton, Lydia A. Wilson.

FINAL M.B., CH.B.—*Part II:* G. R. Fryers, Rhoda M. Allison, E. G. Brewin, Alice E. Buck, K. J. Burnett, P. S. R. Burrell, O. P. Edmonds, R. T. D. Franklin, W. I. M. Gibson, Gertrude Harris, G. W. J. Hawbrook, Edith V. Heritage, Dorothy D. Jones, O. G. Jones, Catherine M. Lamplugh, J. Lintin, D. H. McMillan, Marjorie S. Oxley, D. S. Smith, H. H. Smith, J. G. Smirk, Stella A. Speight, Monica C. Summerscales, E. J. S. Townsend, W. R. Walker, R. W. Wilkinson.

The following scholarships and prizes have been awarded:

Infirmary Scholarship: E. W. Green, J. H. Shoesmith; West Riding Panel Practitioners' Prize: R. J. Scothorne; Littlewood Prize in Anatomy: E. W. Green; Waddington Prize in Anatomy: Audrey W. Gillott.

[1] With distinction. [2] Second-class honours.

UNIVERSITY OF LIVERPOOL

The following candidates have been approved at the examinations indicated:

FINAL M.B., CH.B.—*Part I:* F. G. Anderson, Olive M. Bell, A. J. Borkin, J. H. Brenner, Mary E. Casper, Beryl G. Castell, J. W. Bowie, [1,2] J. C. Davis, E. Dewsbury, W. M. Edwards, W. Ellenbogen, Jeanne A. Elphick, H. C. Endbinder, D. W. A. Evans, A. J. Farmer, Sheila K. Fraser, [2] T. H. H. Green, G. I. T. Griffiths, M. F. Holt, Elizabeth Howorth, A. B. Jones, E. Jones, S. Kalinsky, H. Keidan, F. D. Kitchin, F. P. Lennon, G. H. Lucas, Cicely D. Lyons, Edith G. Mercer, J. Moloney, [1,2] Janet H. Mountford, J. M. Old, W. L. Owen, Dorothy C. Peterson, [2] J. S. Porterfield, J. E. Riding, L. Robinson, D. L. Sharples, Audrey A. Shone, G. C. Slee, W. B. Smellie, R. J. Smith, Basha Taylor, Dorothy E. M. Thomas, W. A. L. Thompson, B. Towers, M. H. Turner, Pamela J. Tyson, D. G. Walker, Barbara M. Webber, H. H. Whincup, L. C. Wolfman, Jessie I. Young. *Pharmacology and General Therapeutics:* I. L. Francis, G. Frow, Alicia J. Middle. *Part II—Forensic Medicine and Toxicology:* Audrey M. Ashcroft, N. L. Bailey, K. Baker, S. Beacon, D. T. Binns, R. Brearley, P. M. Bretland, Cécile N. Broster, G. B. Brown, J. H. E. Carmichael, Helen A. Cawson, M. H. Clark, N. Coulshed, S. Croft, Pauline M. Dean, R. L. Goldson, H. C. Graham, E. A. Harris, Ailsa M. Heath, G. C. Hunter, F. G. Ince, R. W. Kennon, Barbara M. Killick, T. S. Law, Jean Learoyd, A. C. Levinson, H. S. Levy, T. R. Littler, J. A. O'Garra, A. E. Pritchard, Rachel M. Rawcliffe, G. P. Reed, H. Roberts, W. G. Roberts, P. W. Robertson, Olive R. Rodgers, K. S. Shaw, F. W. Sheffield, H. H. Slack, Helen M. Taylor, L. Temkin, Dorothy E. M. Thomas, R. G. Thomas, Maureen M. Tickle, L. F. Tinckler, W. R. Wallace-Jones, J. Ward, Joyce Watson, N. P. Watson, W. F. Wille, E. H. Wilson, [3] Esmé M. Wren, Aline N. Wynroe. *Public Health:* M. H. Clark, S. Croft, P. Hampson, R. W. Kennon, T. S. Law, Rachel M. Rawcliffe.

[1] Distinction in Pathology and Bacteriology. [2] Distinction in Pharmacology and General Therapeutics. [3] With distinction.

UNIVERSITY OF WALES

WELSH NATIONAL SCHOOL OF MEDICINE

The following candidates have satisfied the examiners at the examination indicated:

M.B., B.CH.—*Medicine:* J. W. Bowen, D. H. Davies, L. G. G. Davies, Joan Guy, J. C. Ham, D. I. Harries, B. E. Heard, R. M. E. Seal, D. R. Thomas, D. V. Thomas, Glenys M. Thomas, P. R. J. Williams. *Pathology and Bacteriology:* Gwenllian M. Griffith, N. E. H. Jones, D. M. Rowlands, Jean T. Smith, K. P. Williams.

UNIVERSITY OF ST. ANDREWS

Lieut.-Col. Stuart McDonald, M.D., R.A.M.C., has been appointed to the Chair of Pathology in the University.

UNIVERSITY OF DUBLIN

SCHOOL OF PHYSIC, TRINITY COLLEGE

The following medical degrees were conferred on March 14:

M.CH.—T. L. Lawson, E. E. O'Malley.

M.B., B.CH., B.A.O.—W. Burns, Isabel M. Crotty, Moira Danaher, R. M. Dooley, M. J. Doyle, L. Grant Duff, R. R. Hamilton, L. A. Kerwood, T. C. T. Killen, E. W. McBirney, J. D. McKeever, D. O'Connell, Katharine B. F. Orr.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

At the statutory Comitia held at the College on Monday, March 26, Lord Moran was re-elected President for the ensuing year.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The following lectures will be delivered at the College (Lincoln's Inn Fields, W.C.) at 4 p.m. on each day: Friday, April 6, Hunterian Lecture by Prof. H. S. Shucksmith, "Abdominal Injuries in Battle Casualties"; Thursday, April 12, Robert Jones Memorial Lecture by Prof. F. Wood Jones, "Some Reflections on his Teaching of Myology"; Monday, April 16, Thomas Vicary Lecture by Surg. Rear-Adml. G. Gordon-Taylor, "Medical and Surgical Aspects of the '45 (the Jacobite Rising of 1745)"; Wednesday, April 18, Hunterian Lectures by Prof. D. M. Stern, "Aetiology and Treatment of Prolapse, with Special Reference to Cystocele and Stress Incontinence"; Monday, April 23, Squad. Ldr. T. Cradock Henry, "Aviation Injuries of the Face"; Wednesday, April 25, Prof. Jean M. Dollar, "Use of Plastics in Ophthalmic Surgery"; Friday, April 27, Squad. Ldr. D. N. Matthews, "Storage of Skin for Autogenous Grafts"; Monday, April 30, Prof. A. K. Monro, "Treatment of Acute Appendicitis—with Special Reference to 1,000 Cases." The lectures are open to medical practitioners and advanced students.

Medical Notes in Parliament

Deafness in Ex-Service Men

In the House of Lords on March 14 the DUKE OF MONTROSE asked what progress had been made by the Medical Research Council toward the supply of standard national acoustic aids for deafened ex-Servicemen. He advocated approved otological clinics in all large cities. He said the late Lord Dawson had promised to support that proposal. The Medical Research Council had formed three committees to go into the question of deafness. One dealt with the medical and surgical side. Another dealt with education. A third committee dealt with aids and all kinds of assistance. Only one doctor was on it. The committee should be broadened. Lord HAMPTON asked whether the Government possessed through the medical services information on what degree of deafness they could expect to result from service in particular arms such as tanks.

Viscount CLIFDEN said the numbers of ex-Service men involved were relatively small. He doubted whether a network of clinics would be justified at present. Few otologists were available. Up to January, 1945, cases of ear diseases attributed to service in the armed Forces since the beginning of this war were: Navy, 500; Army 3,800; Air Force 700. The numbers recommended by aural surgeons for hearing aids had averaged fewer than 60 a year. Any recommendation made by the Medical Research Council for a more comprehensive scheme of rehabilitation applying to both civilians and ex-Service personnel would be sympathetically examined. The Ministry of Pensions had 16 regional offices where all deaf cases were seen by aural specialists.

Food Parcels for British P.O.W.s

On March 20 Lieut.-Cmdr. JOYNSON-HICKS asked the Secretary of State for War whether, in view of the special transport difficulties in supplying foodstuffs to our prisoners of war in Germany, dehydrated foods and vitamin tablets were included in the consignments under delivery, and what proportion of the consignment they represented. Sir JAMES GRIGG said that this suggestion would be borne in mind, but the efforts of the International Red Cross Committee and S.H.A.E.F. were at the moment concentrated on developing means of transport to get the prisoners supplies in the form they already knew and understood—namely, standard food and medical parcels from the National Red Cross Societies concerned. Large stocks of these were already in Switzerland. The first lorry convoy from Switzerland had reached its destination and distributed food parcels to some 18,000 British and United States prisoners in Bohemia. Further convoys were now on their way from Geneva.

The Whiter Loaf

Col. LLEWELLIN, replying on March 21 to Dr. Summerskill, said there was no consultation with the Scientific Advisory Committee, the Special Diets Committee of the Medical Research Council, or the Nutrition Committee of the Ministry of Health before the extraction rate of wheat was reduced below the 1942 standard. The committee consulted was the Standing Committee on Medical and Nutritional Problems. He added that the present whiter loaf was mainly composed of the new national flour of 80% extraction. According to the advice given to the Government before the extraction rate was altered, and according to the tests since taken, there was no appreciable loss in nutritional value compared with the previous loaf. The Government did not intend to reduce the extraction rate further unless and until it was satisfied that the reduction would not be detrimental from the nutritional point of view.

Payment for Services of Doctor's Wife

Dr. SUMMERSKILL inquired on March 22 whether wives of men conducting a business or profession from their homes could receive payment for services rendered in answering telephones, taking messages, etc., which could be treated as the wife's earned income for the purposes of income tax; and what was the maximum payment permitted before tax became payable.

Sir JOHN ANDERSON replied that the general rule of the income-tax law was that no allowance was to be made for expenses which were not wholly and exclusively incurred for the purpose of the trade or profession. The application of this rule depended upon the facts of the particular case. The decision in any particular case rested ultimately with the appropriate appellate tribunal. Speaking for himself, he would not regard a wife as an employee merely because she answered her husband's telephone calls or took his messages.

Dr. SUMMERSKILL asked why the B.M.A. informed doctors in the *British Medical Journal* that they were entitled to remunerate their wives for services rendered in connexion with the practice up to £89 with exemption from income tax.

Sir JOHN said he took no responsibility for the actions of the British Medical Association.

Water Pollution Research

Mr. ATTLEE, in reply on March 22 to Mr. Price, reported that the Water Pollution Research Organization had been carrying out a programme of research into the improvement of water supplies, including methods of water softening, treatment of water to reduce solvent or corrosive properties, the effect of chlorination, and the quality of drinking-water. During the war this programme had been interrupted by the need for investigating urgent problems of importance to the war effort. The study of the treatment of sewage and other effluents was only a part, though an important one, of the organization's work. Detailed plans for the extension of the work of the organization after the war were being drawn up.

Free Choice of Doctor for Old Age Pensioners.—Mr. WILLINK, in reply to Mr. Price on March 8, said most persons in receipt of a supplementary old age pension were entitled to medical benefit under the National Health Insurance Acts with a free choice of doctor. Only a small proportion obtained medical treatment through the arrangements made by public assistance authorities. These arrangements could with his sanction include a choice of doctor. Sanction for arrangements of this kind had already been given to about thirty authorities.

Repatriation for Malaria.—Mr. SORENSEN on March 13 asked the Secretary of State for War after how many attacks of malaria soldiers fighting in Burma and Eastern theatres of war had to suffer before being considered for repatriation on medical grounds. Sir JAMES GRIGG: The general state of a soldier's health and not any fixed number of attacks of malaria determines whether he is repatriated to this country. If modern methods of treatment are properly applied, men need not normally be invalided to this country on account of malaria.

Unqualified Practice in Kenya.—Sir E. GRAHAM-LITTLE asked Col. Stanley on March 14 to investigate complaints that the Government, in the absence of direction by the General Medical Council, encouraged medical practice in Kenya by unlicensed persons in opposition to duly qualified and registered medical practitioners. Col. STANLEY said he had asked the Governor for a report on the subject.

Spinal Injections: Consent of Parents.—Sir JOCELYN LUCAS on March 15 asked Mr. Willink to give instructions that before a spinal injection or lumbar puncture was given to a minor the consent of the parents should first be obtained, except in cases of emergency. He said the practice varied in different hospitals. Mr. WILLINK replied that it was the general practice of hospitals to obtain the parents' consent in these circumstances. It would not be competent for him to give instructions to hospitals on the subject, but Sir Jocelyn's question would draw the attention of any hospital which had not made a practice of obtaining consent to the desirability of doing so.

Allowances for Tuberculous Persons.—On March 20 Mr. McNeil asked the Secretary of State for Scotland if he had considered the recommendation in the Medical Research Council report on mass miniature radiography of civilians that the scheme of allowances for patients suffering from acute pulmonary tuberculosis should be extended to all notified cases of tuberculosis. Mr. JOHNSTON said he was aware of what was stated in the report. The present special arrangements for payment of tuberculosis allowances under emergency powers at the cost of Exchequer funds were designed to encourage persons to give up work and to seek early treatment, and were not designed to meet the needs of the chronic sick or in non-pulmonary cases. The question of financial assistance to persons suffering from incapacity, including tuberculosis, was under consideration in connexion with the proposals on social insurance.

Colonial Medical Service Appointments.—On March 20 Dr. MORGAN asked the Secretary of State for the Colonies if he was aware that during the last six years medical applicants for British Colonial appointments had been interviewed by the appointments private secretary alone, and whether, as this official had no means of judging medical qualifications, this method of selection or recommendation would now be abandoned. Col. STANLEY said that at all formal interviews with applicants for appointments in the Colonial Medical Service it was the practice for one or more members of his medical advisory staff to be present. He did not see any reason for changing this procedure.

Penicillin Supplies in Colonies.—Asked on March 21 to state the extent to which penicillin is now obtainable in the various British Colonies, Col. STANLEY replied that supplies of penicillin were now available from the United Kingdom, the U.S.A., or Canada, as was most convenient, for civilian use on the same basis as in this country. This permitted treatment of all civilian cases for which penicillin was known to be effective.

The Panel List in London.—The numbers of doctors who on Jan. 1, 1945, had more than the specified numbers of London insured persons on their lists were: more than 3,000, 19; more than 2,500 (but not more than 3,000), 32; more than 2,000 (but not more than 2,500), 79—i.e., 130 out of a total of approximately 1,700 doctors. This information was given by Mr. Willink to Sir Robert Tasker on March 22.

Notes in Brief

During the financial years 1935–9 the total expenditure of the Medical Research Council was £970,364, and during the financial years 1940–4 it was £1,328,606.

The Royal Commission on Population, which is continuing to meet once a fortnight, has still a considerable volume of evidence to take and many aspects of the inquiry to investigate further. It is not possible to indicate the date when the Commission will report.

Mr. Herbert Morrison told Sir Wm. Beveridge on March 1 that he had under consideration whether in the next Bill on electoral matters there should be an amendment of the existing provisions relating to the machinery of university elections for the purpose of securing their conduct by secret ballot.

Mr. Bevin said on March 8 that he had no present intention of introducing legislation dealing with the employment of women in hospitals. In a recent speech he had suggested that employment of charwomen in hospitals in the manner they had been employed must be ended and must be put on a proper footing.

Mr. Willink has announced that he is not prepared to ensure that expectant and nursing mothers can secure supplies of "natural unpasteurized milk." He told Mr. W. J. Brown that it is not practicable at present to supply safe milk except by pasteurization and by handling it throughout with strict hygienic precautions.

Mr. Herbert Morrison announced on March 22 that he proposed to arrange a full public inquiry into the circumstances which led to the boarding out of Denis and Terence O'Neill at Bank Farm, Minsterley, and the steps taken to supervise their welfare.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* infectious diseases increased in prevalence, measles by 217 cases, scarlet fever by 197, diphtheria by 86, acute pneumonia by 63, whooping-cough by 25, and dysentery by 16.

Both scarlet fever and diphtheria showed the highest totals for three months. Scarlet fever was especially prevalent in the north-west and north midlands, where the cases rose from 467 to 558. Diphtheria notifications rose by 25 in Yorks North Riding, by 21 in Durham, by 14 in Lancashire, and by 10 in Northumberland. There was an increase of 39 in the notifications of whooping-cough in Yorks West Riding. The total for measles was the largest since registration began, the increase occurring mainly in the south; in the north the incidence actually fell. The largest increases over last week's totals were: London 426, Essex 308, Southampton 303, Sussex 115, Hertfordshire 109, and Glamorganshire 98; the greatest falls were: Yorks West Riding 375, Warwickshire 232, Gloucestershire 172, Staffordshire 112, Yorks North Riding 102, Middlesex 100, Worcestershire 99.

Dysentery notifications exceeded any weekly total, with one exception, for seven years. The chief returns were: London 45, Lancashire 39, Yorks West Riding 39, Dorsetshire 27, Kent 24, Suffolk 22, Surrey 15, Essex 15, Yorks North Riding 14, Devonshire 13, Lincolnshire 13, Derbyshire 13, Gloucestershire 11, Durham 11, Northumberland 10.

In *Scotland* dysentery notifications were 97 higher than last week, those for pneumonia 14 higher, and for whooping-cough 12 higher. Measles notifications fell by 67, those for scarlet fever by 26, and for diphtheria by 16. Dysentery was prevalent everywhere except in the north, the largest returns being Renfrew County 52, Edinburgh 49, Glasgow 23, Lanark County 21, Falkirk 15, Aberdeen County 15, Fife County 14, Stirling County 12, Aberdeen B. 10. One case of smallpox was notified in Glasgow.

In *Eire* diphtheria notifications rose by 10, but most of the other infectious diseases dropped in incidence. Diphtheria is still widespread, 22 cases being notified in Dublin C.B. and the remaining 75 cases covering 41 registration districts.

In *Northern Ireland* the notifications of diphtheria fell from 28 to 8, and measles notifications were 13 lower, but the returns for scarlet fever and whooping-cough were respectively 8 and 7 higher than last week.

Week Ending March 24

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,522, whooping-cough 1,453, diphtheria 499, measles 25,507, acute pneumonia 866, cerebrospinal fever 88, dysentery 420, paratyphoid 3, typhoid 8.

No. 11

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended March 17.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	81	6	31	2	1	87	7	22	6	1
Deaths		3	1				2	2		
Diphtheria	558	22	131	97	8	685	33	187	83	39
Deaths	11	2	—	1	—	10	1	1	—	1
Dysentery	428	45	252	2	—	269	37	117	1	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	1	—	—		—	4	—	—	—	—
Deaths		—					1			
Erysipelas			39	8	2			52	3	2
Deaths		1					—			
Infective enteritis or diarrhoea under 2 years				7					10	
Deaths	60	6	6	9	5	52	14	11	21	2
Measles*	25,266	1498	351	25	54	2,226	286	345	296	2
Deaths	26	2	2	—	—	3	1	—	3	—
Ophthalmia neonatorum	76	2	15	—	—	85	5	16	—	1
Deaths										
Paratyphoid fever ..	10	1	1 (B)	2 (B)	—	5	—	—	—	—
Deaths	1	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	876	47	9	2	4	1,284	86	19	18	5
Deaths (from influenza	27	3	5	—	—	51	7	3	1	1
Pneumonia, primary ..			248	35				330	32	
Deaths		53		12	2		80		18	14
Polio-encephalitis, acute	1	—				—	—			
Deaths		—					—			
Poliomyelitis, acute ..	—	—	—	—	—	6	—	1	—	—
Deaths		—					—			
Puerperal fever		5	10		—		3	13		—
Deaths										
Puerperal pyrexia‡ ..	149	10	9	1	1	166	7	11	—	4
Deaths		—					—			
Relapsing fever ..	—	—			—	—	—			—
Deaths										
Scarlet fever	1,621	62	201	19	41	2,395	152	247	22	85
Deaths	2	—	1	—	1	2	—	—	—	—
Smallpox	—	—	1	—	—	3	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	6	—	—	11	1	6	2	1	1	7
Deaths	1	—	—	—	—	1	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough* ..	1,527	71	149	26	21	2,026	206	130	34	18
Deaths	10	1	2	1	1	7	1	1	2	2
Deaths (0–1 year) ..	411	50	27	30	17	433	65	72	47	31
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	5,053	798	580	181	127	5,793	1009	698	262	161
Annual death rate (per 1,000 persons living)			13·2	11·7	§			16·0	17·1	§
Live births	6,432	672	797	343	250	7,342	906	915	473	341
Annual rate per 1,000 persons living ..			15·9	22·1	§			18·6	30·9	§
Stillbirths	227	23	38			216	31	40		
Rate per 1,000 total births (including stillborn)			33					42		

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* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

A meeting of the Medical Society of the L.C.C. Service will be held at the Fountain Hospital, Tooting Grove, S.W., on Wednesday, April 11, at 2.45 p.m., when Dr. L. T. Hilliard will give a clinical demonstration on mental deficiency in children.

The Food Education Society (29, Gordon Square, W.C.1) has arranged the following lectures to be given at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., all at 2.30 p.m. Monday, April 16, Mr. A. L. Bacharach, "Food—the Science, the Logic, and the Art"; Monday, April 23, Lord Portsmouth, "Food and Agriculture"; Thursday, May 3, Sir Adolphe Abrahams, "Food and Physique."

The *X*-ray Analysis Group of the Institute of Physics will hold its 1945 conference (the fourth in the series) on April 12 and 13 at the Royal Institution, London, under the chairmanship of Sir Lawrence Bragg. The programme includes a lecture by Prof. J. D. Bernal on "The Future of *X*-ray Analysis," and a series of papers on new and improved methods. Discussions are to be included on the equipment of a laboratory for *x*-ray analysis, the interpretation of *x*-ray diffraction by optical principles, and the proposal to convert *x*-ray wave-lengths to absolute values. Further particulars may be had from Dr. H. Lipson (honorary secretary of the Group), Crystallographic Laboratory, Free School Lane, Cambridge.

The annual meeting of the Medical Superintendents' Society will be held at B.M.A. House, Tavistock Square, W.C., on Saturday, April 21, at 2.30 p.m. and will be preceded by a meeting of the Council at 2 p.m.

On March 21 the Queen opened, at Nayland Hall, near Colchester, the British Legion's sanatorium and settlement for the treatment of Service women suffering from tuberculosis. The Queen was received by Sir Frederick Maurice, president of the British Legion, and was shown round the sanatorium by Dr. F. R. G. Heaf, honorary consulting medical director. At present there are about 200 patients there.

A ceremony in honour of William Harvey was held in the Department of Physiology of the Mexico Faculty of Medicine on Oct. 30, 1944, under the presidency of Dr. Alfonso Caso, rector of the university. The ceremony included the presentation of a bronze bust of Harvey, an address by the British Ambassador, and a paper on "Harvey's Place in the History of Scientific Methods in Biology," by Dr. J. J. Izquierdo, head of the department of biology.

Prof. James Mackintosh, Dean of the London School of Hygiene and Tropical Medicine, is visiting Sweden to lecture for the British Council on "Housing and Medicine," "Nutrition and Medicine," and other aspects of social medicine and health education in Britain. He will probably also visit Finland. Prof. Mackintosh hopes to obtain in Sweden information for inclusion in a report on housing which he is preparing for the British Government.

Among the first advance party of U.N.R.R.A. personnel who recently arrived in Yugoslavia is Dr. Kenneth Sinclair-Loutit, who was medical officer for Civil Defence in the Finsbury district, where he was in charge of the casualty clearing station. The U.N.R.R.A. group forms part of the Mission which the Anglo-American Military Liaison Organization has sent to Yugoslavia to assist the local relief authorities. Military relief supplies have already arrived on the Dalmatian coast and distribution has begun both in Dalmatia itself and in the Islands. As further supplies arrive, and rail and road communications with the interior are repaired, this area will be increased and further personnel will be called forward. The workers are at the moment engaged as agents of the military in distributing supplies, but an agreement is now being negotiated with the Yugoslav Government, under which U.N.R.R.A. will take over responsibility from the military authorities at the end of what is known as the "military phase."

The November, 1944, issue of *Surgery* contains a symposium on surgical lesions of the thyroid.

Sir Philip Manson-Bahr has been appointed honorary consultant physician in tropical diseases to the Ministry of Pensions.

The second Pan-American Congress of Ophthalmology, which was going to be held in Montevideo, has been postponed to the autumn of 1945.

Dr. A. G. Curphey, M.B.E., M.C., has been appointed an Unofficial Member of the Legislative Council of the Island of Jamaica, and Dr. L. A. P. Slinger, O.B.E., has been appointed a member of the Executive Council of the Island of St. Lucia.

Recent news of conditions in Holland and France is given by eye-witnesses in the March number of *The World's Children*, published by the Save the Children Fund, 20, Gordon Square, London, W.C.1, price 6d.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London*. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Post-immunization Diphtheria

Q.—*A boy was immunized by A.P.T. when about 2 years old. When 5 he had a severe attack of diphtheria, followed by post-diphtheritic paralysis and "heart trouble." The boy is now 7, and the mother would like to ensure there will be no more diphtheria. He is in good condition but has cardiac irregularity. What further procedure would you suggest? What value would a negative Schick test have in such a case?*

A.—After the boy's past contacts with the diphtheria bacillus and its products in the early immunization, the attack of diphtheria, and the treatment with antitoxin, his cell reactivity is probably somewhat altered. The Schick test may be of the pseudo-variety and may prove difficult to read. However, it is important to test and to read about the fifth or seventh day. If he is certainly Schick-negative you would be justified in telling the mother that his immunity is reasonably high, but since she wishes him to have very high protection you would recommend a further short course of two injections, the first being 0.1 c.cm. of A.P.T. (personally I should give this injection at the same visit as for the Schick test). If the Schick test were positive or doubtful I should be strongly inclined to give a second injection of A.P.T. about four weeks later. If my first dose of 0.1 c.cm. of A.P.T. produced a slightly sore arm—which would not be surprising in view of the boy's past experience—I should make the second dose of 0.1 c.cm.; otherwise use 0.5 c.cm.

Semen and Vasoligature

Q.—*What happens to the seminal fluid of a man upon whom the operation of bilateral vasoligature has been performed? Does it not exert back pressure on the seminiferous tubules with deleterious result?*

A.—The external secretion of the testis ceases after vasoligature, but, strange to say, atrophy of the tubules from back pressure does not usually occur. When the operation of vaso-epididymostomy is successful in short-circuiting a blockage in the epididymal canal spermatozoa reappear in the semen even although the blockage has existed for several years. It is quite true that spermatogenesis may cease in an obstructed testis, but as the seminiferous tubules do not degenerate it may later be restored.

Skin Lesions and Menstruation

Q.—*A student nurse aged 23 has had two attacks (1943 and 1945) in which the ears tingle; the hands suddenly feel hot, and then tingle. A blotchy red rash and profuse perspiration follow. About an hour later the feet are similarly affected. In the first attack she had a severe headache. Both attacks coincided with menstruation. She does not feel ill. Between the attacks the hands are rather cold but not moist. Suggestions as to diagnosis and treatment will be welcomed.*

A.—An association between skin lesions and menstruation is well established. All manner of lesions are described, and although allergy plays a part in some the explanation of most is conjectural. Usually, however, a vascular change is fundamental, and this is similar to the one which takes place in the endometrium. An initial vascular spasm followed by dilatation and increased fragility and permeability of capillaries has been demonstrated in the skin during menstruation (not confirmed by all workers). The autonomic nervous system may also be involved, and it may be that oestrogens can bring about a liberation of acetylcholine not only in the uterus but also in the skin. There are, however, wide variations in the susceptibility of different tissues, and of different individuals, to reactions of this kind; an over-anxious or neurotic disposition appears to be an important factor determining the appearance of skin rashes, flushes, sweating, etc. In this case the infrequency of the attacks may be dependent on some emotional or other nervous upset at the time.

Treatment of such conditions is unsatisfactory and is both empirical and symptomatic. Clinical optimism and therapeutic vagueness are reflected in the varied remedies that have been tried—namely, oestrogens, progesterone, gonadotrophin, testosterone, calcium, vitamins C and K, snake venom, and ephedrine. As attacks are so infrequent it is doubtful whether any medicinal treatment is indicated. If there is a "nervous" element to the case, then clearly this should be treated. Otherwise simple treatment by limiting the intake of salt and fluid, and administering ammonium chloride 10 grains t.d.s. for seven days premenstrually—the usual measures to combat "menstrual tension states"—might be tried.

Gonorrhoea and the G.C.F.T.

Q.—*A female contracted gonorrhoea about 15 months ago; the complement fixation (G.C.F.T.) is positive. She refuses to go to the local V.D. clinic. What is the present treatment? Is it with sulphapyridine or sulphathiazole? Can she be considered cured when her complement fixation is negative? or would a urethral swab have to be taken before one could assume this?*

A.—A positive complement-fixation test for gonorrhoea (G.C.F.T.) present 15 months after the date of the original infection is generally considered highly suggestive, but not a proof, of persistent infection. Before instituting treatment it is essential, therefore, to know whether gonococci are still present, and if so where. For this purpose a careful clinical examination should be carried out and specimens for microscopical and bacteriological (cultural) examination taken from the urethra and cervix uteri; since a positive G.C.F.T. is often due to a closed focus of infection, particular attention should be paid to the glands of the cervix uteri, Bartholin's glands, and the Fallopian tubes. If gonococci are found treatment may be started; if they are not found, further examinations should be carried out immediately after the next menstrual period and repeated until the presence of gonococci can be confirmed or excluded; for the latter at least three monthly negative examinations are necessary.

As regards treatment, sulphathiazole is preferable to sulphapyridine: the optimum dosage is 5 grammes a day for 5 days, given in equally spaced doses (25 g.). If the patient was treated previously with sulphonamides she should be questioned as to signs of intolerance. During sulphonamide therapy the urine should be rendered alkaline with bicarbonate of potassium or sodium, and the fluid intake should be at least six pints per day. If one course of sulphathiazole fails to effect cure a second course of the same drug, or preferably of sulphadiazine, may be tried in the same dosage after an interval of 7 days, but a white cell count should be done first to guard against agranulocytosis. The sulphonamides often fail to effect cure in the presence of a closed focus of infection; in such cases other methods of treatment have to be adopted. A negative G.C.F.T. would be strong presumptive evidence of cure in this case, but should be supplemented by clinical and bacteriological examinations, as mentioned above. It should be borne in mind that the rectum is not uncommonly infected in the case of a female suffering from gonorrhoea.

Operation for Varicocele

Q.—*What are the late results of operation for varicocele as regards (1) recurrence; and (2) late atrophy of the testis?*

A.—Most surgeons do not recommend operation for varicocele save in very special circumstances, for the disability is usually so slight that it does not warrant the discomfort of the operation. Nor are the results such as to encourage one to operate. If the veins are excised recurrence is indeed very rare—under 2% according to Douglas. The chief drawback, however, is the damage done to the testis. J. Spotoft has recorded the late results of 27 operations, and his observations on this point deserve to be quoted: "The most remarkable changes are observed in the testicle, which in one-third of the cases only has kept its normal size and consistence. In one-third of the cases the testicular atrophy is so pronounced that the gland has been reduced to half or less than half its normal size." (*Acta chir. scand.*, 1942, **86**, 1.) This quotation is a sufficient answer to the second part of the question. It is true that larger series of cases have been reported on with a smaller percentage of testicular atrophies, but Spotoft's series were very carefully followed up and are likely to be accurate.

Age of Conception and Malformations

Q.—*What relation, if any, is there between the strength and mental ability of the offspring and the age of the parents at the time of procreation?*

A.—Any effect of paternal age at the time of conception of the child is at best so small that for all practical purposes the answer is "none." There are, however, a number of indications that the prenatal environment of the developing embryo becomes less favourable as maternal age advances. This manifests itself not so much in any small average effect on physical strength or intelligence as in an increased susceptibility to major accidents of development, provided that the underlying genetic basis is present. Much the most striking effect of increasing maternal age is seen in mongolism; the chance of bearing a mongol child rather more than doubles with each five years' advance in maternal age. A similar though much less pronounced effect is seen in connexion with certain other deformities—for example, anencephaly and congenital heart disease. It would seem that the normal human foetus is robustly protected against unfavourable prenatal influences. Certain genes, however, lower the margin of safety, so that some of their bearers react unfavourably at some critical stage of development. It is in all probability in some of these instances of lowered threshold to noxious influences that advanced maternal age reveals itself as an unfavourable factor. It should be emphasized, however, that although certain rather remote risks are considerably increased the absolute risk remains small. In the absence of definite indications to the contrary, no woman should be deterred from parenthood on account of age alone.

"Encephalopathic Attacks"

Q.—*What is the factor present in blood causing "encephalopathic attacks" in hypertension and chronic Bright's disease? Is there any treatment which will prevent them from occurring?*

A.—There is no known factor in the blood which causes "encephalopathic attacks," and there are no known concomitant changes in the blood chemistry. The attacks bear no relation to renal failure, and the only known association is with a raised blood pressure. This association is so common that the condition is usually called "hypertensive encephalopathy." An excellent review of the syndrome is given by A. M. Fishberg (*Hypertension and Nephritis*, 1939, Lea and Febiger). Prodromal symptoms usually give notice of an impending attack, which is in most instances preceded by a further rise in the already increased arterial pressure. The immediate cause of the attack is probably cerebral ischaemia, which is due either to local cerebral vasoconstriction or to oedema of the brain.

As the prodromal symptoms often give warning of an impending attack, preventive treatment is of considerable value. Venesection is frequently effective in stopping the attacks from developing and in ameliorating them if they have already occurred; the amount of blood removed is usually about 500 c.cm. Magnesium sulphate is also useful, 4–6 oz. of 50% solution being given by rectum. Sedation with chloral hydrate or morphine may be of value.

Anaesthetic Deaths

Q.—*What is the total anaesthetic mortality among the civilian population in Great Britain to-day (1) under 10 years, and (2) over 10 years of age? What proportion of these are people who are apparently healthy and in whom no cause for anaesthetic death is discovered? I am referring to death "on the table."*

A.—It is not possible from death certificates to distinguish deaths occurring "on the table" during anaesthesia from those occurring later as a result of, or whilst still under, the anaesthetic. All that these statistics can tell us is the number of deaths in the certification of which (usually by coroners) an anaesthetic was mentioned as a principal or contributory cause, classified according to the anaesthetic(s) used and according to the disease or injury on account of which it was administered. In a few instances it is stated that the anaesthetic was not a factor in the fatal issue, but whether this is stated or not all deaths with mention of anaesthesia are assigned by the Registrar-General to the disease or injury which necessitated the administration. In the rare instances in which no such reason for using an anaesthetic can be ascertained, the assignment is to the special group of "anaesthetic accidents." During the period 1941–3 the total deaths in England and Wales "under or associated with" anaesthesia according to death certificates averaged 144 annually at ages under 10 and 632 annually at ages 10 and over. Deaths assigned to the group "anaesthetic accidents" as defined above averaged 2 annually.

Sulphonamides during Lactation

Q.—*What dangers if any, either to the offspring or to the mother, occur when sulphonamides are given to a woman during lactation? What proportion taken by mouth passes into the maternal milk? Is any particular form of sulphonamide preferable?*

A.—When sulphonamides are given to a woman during lactation there are no special dangers owing to lactation, but only those which would be present with any adult person—e.g., cyanosis, rashes, renal lesions, etc. There is no danger to the offspring. The amount of sulphonamide which passes into the milk is approximately equal to the concentration in the blood—e.g., 3–13 mg. per 100 c.cm., according to the dosage. In extreme cases the child might receive up to 30–40 mg. sulphonamide per day, but usually it would be much less than this. These quantities are too small to be significant. The best sulphonamides to use are sulphathiazole or sulphadiazine, or, failing these sulphanilamide. Sulphapyridine should be avoided in case it causes nausea and interferes with lactation. For further information see Aguirre *et al.*, *Sem. méd.*, Buenos Aires, 1942, **49**, 621 (*J. Amer. med. Ass.*, **119**, 982); Foellmer, *Klin. Wschr.*, 1941, **20**, 913; Hepburn, Paxson, and Rogers, *Arch. Pediat.*, 1942, **59**, 413; Rieben and Druey, *Schweiz. med. Wschr.*, 1942, **72**, 1376.

Morphine and Cerebral Haemorrhage

Q.—*As morphine is often recommended for the treatment of shock and internal haemorrhage, would you advise an injection during the acute stage of a cerebral haemorrhage?*

A.—Morphine is given to patients with shock or internal haemorrhage for the relief of restlessness and pain. In cerebral haemorrhage these symptoms are absent, and it would be contraindicated on account of its depressant effect on the respiratory centre.

INCOME TAX

Sch. D or Sch. E: Cancellation of 1943-4 Tax

X. M.'s wife has for the past 8 years worked as a locumtenent for a local authority. Payment has been on a sessional basis for work done. She has been assessed under Schedule E, but the inspector of taxes contends that for 1943-4 (and presumably the earlier years also) the correct basis of assessment was under Schedule D, and therefore that she is not entitled to cancellation of the 7/12ths tax for 1943-4.

** Seeing that, apart from the £5 5s. casual consultation fees, Mrs. M.'s whole work has been for a single authority, and presumably done under the instructions of that body, there seems to be good ground for contending that this is a case of part-time employment and that the earnings were and are correctly chargeable under Schedule E. We suggest that that line should be taken and the inspector of taxes asked to reconsider his views. If the past year's liability were recalculated on a "Schedule D" basis the difference in tax would probably not be substantial; it would arise mainly from the allowance on books and subscriptions, as travelling expenses incurred between residence and place of work are not normally allowable under either schedule—as suburban workers in the city find to their cost.

LETTERS, NOTES, ETC.

Urea for Migraine

Dr. J. A. Brown (Birmingham) writes: In reply to a question on the use of urea in migraine (*Journal*, March 24, p. 431) a dose of 15 *grammes* t.d.s. is suggested. I have treated a considerable number of cases of migraine with success and have found the following dosage effective: 20 *grains* t.d.s. for one week; 20 grains twice daily for two weeks; 20 grains once a day for several months. Failure to continue the daily dose is frequently followed by a renewal of attacks of migraine. It is interesting to note that the suggestion made by Sir Walter Langdon-Brown that urea might be of some value in the treatment of obesity (probably due to water retention) in young women has been found to be effective. A dose of 60 grains t.d.s. has in some cases resulted in a reduction of 6 to 8 oz. per week for a few weeks.

Menstruation and Epilepsy

Dr. F. Newman (Marden, Kent) writes: As a patient of mine suffering from epilepsy at the menstrual period has had an artificial induction of the menopause by radium and has benefited very greatly as a result, I feel this information might be of help to the questioner whose problem is printed in the *Journal* of March 17 (p. 396). The patient was told by the surgeon that she might derive benefit and she might not. Under these conditions she agreed to risk it and is very thankful she did so.

Dr. J. Rabinowitch (radiologist, E.M.S.) writes: With reference to the problem raised in your issue of March 17 (p. 396) whether an artificial menopause would cure epileptic fits which occur only during menstruation, I would like to quote the following two cases: (1) A woman aged 50 had epileptic fits of considerable severity since her menarche at 15, at the rate of 4 to 5 attacks a week. Her menopause occurred when she was 43, and with her last period all fits ceased abruptly and she has never suffered from them since. (2) A woman of 33 who has oligomenorrhoea and spells of amenorrhoea lasting from 5 to 14 months has a few epileptiform seizures every 28 to 30 days. These are accompanied by loss of consciousness for a short while and a dazedness lasting about 48 hours, and are independent of whether there is any actual menstrual loss or not. My first case opposes the current view that the menopause has no influence on the occurrence and frequency of fits. The second case is similar to that of your correspondent, and shows that the fits are not actually caused by pain or the passage of clots but are probably due to a hormonal mechanism. Harris (*Endocrinology*, 1932, **16**, 29) records hypoglycaemic attacks associated with menstruation which frequently simulate epileptic convulsions. Whether these hypoglycaemic fits are caused by a hormonal imbalance leading to an oversecretion of insulin is not clear, but the coincidence of menstruation and convulsions would seem to incriminate either the ovaries or the pituitary gland. I would therefore suggest that, if possible, a temporary amenorrhoea only be produced by *x* rays, and the effect it has on the fits be observed first. If the fits cease, then I would resort to the more drastic complete artificial menopause. If the fits continue in spite of cessation of the periods it may be worth while irradiating the pituitary.

A Case of Scorpion Bite

Dr. E. G. Cohen writes from abroad: On Feb. 14, 1945, at 10 a.m. a sergeant reported that he had just been bitten by a scorpion while man-handling parts in an ill-lighted store. He complained of pain in the tip of the right index finger (where he had been bitten) with twinges of pain shooting up to the right axilla. The pain was not severe, and he felt perfectly well. On examination he was of good colour, with a pulse rate of 80 per minute, of good volume and tonus. No puncture wound was visible on the horny skin of the index finger, but slight oedema of his subcutaneous tissues was present. Pressure on the finger caused no further pain. The axilla was not tender, nor were any glands palpable. While a syringe and local anaesthetic were being prepared, a scalpel was flamed and the finger incised longitudinally for 3/8 in. on either side of the bite. Free bleeding resulted and the finger was agitated in warm hydrogen peroxide. Then the base of the finger was infiltrated with 3% local analgesic, in which was incorporated adrenaline, 8 c.cm. being used. Some two minutes after infiltration the man felt faint and rapidly turned yellow (owing to prophylactic mepacrine this is the colour of skin on blanching). He was seen to be copiously sweating and began to retch; the pulse was not palpable at the wrist. He was laid flat, covered with a blanket, and given hot tea and a hot-water bottle. When this had been done his heart rate was 100 and B.P. 85/60. After ten minutes he had recovered: B.P. 130/80, pulse 76. On questioning, he said the base of his finger soon went numb and this gradually spread down to the tip, which took about ten minutes before becoming free of pain. He was kept under observation for 24 hours, but there was no further oedema, pain, or circulatory collapse. Manson-Bahr has reported relief from pain immediately on application of liq. ammon. fort. or slowly with a more dilute solution. In his own case he incised the area and bathed with permanganate of potash, prior to infiltration with local analgesic and adrenaline. Circulatory reactions can be very severe in young children, and he advised the use of antiserum made by inoculation of horses with extracted scorpion venom. This can be used both prophylactically as well as therapeutically. The points of interest are (1) the relative inconsequence of a bite if the treatment (even if only symptomatic) is begun early; (2) the collapse a good two minutes after the infiltration. A psychological faint was considered unlikely, and pain though still present was not severe. Perhaps it was due to absorption of venom before adrenaline could slow this down by vasoconstriction.

Unusual Cause of Antenatal Death

Capt. G. Rhys Evans, R.A.M.C., writes: The following unusual cause of antenatal death might be of interest. During the fighting in Italy I was asked to visit a sick Italian woman at a rather remote farmhouse. On arrival I found a pregnant woman aged about 33, multiparous, with a small 2-days-old infected wound about McBurney's point. Her temperature was 102°, pulse rate 124, tongue furred and dry. She had twins; one head was engaged and movement could be felt. She refused to be evacuated, and I put her on sulphanilamide 2 g. 4-hourly for 24 hours and then 1 g. 4-hourly. Next day her condition was unchanged, but on the following day I found she had given birth during the night to one live twin boy and one dead. The latter had been killed by the piece of shrapnel which had penetrated his brain. Her temperature was now 100° and pulse 98, and I continued the sulphanilamide. Two days later when I had to leave the district her temperature and pulse were normal and both mother and child were doing well.

Antibiotic Action of Moulds

Capt. I. G. Anderson, R.A.M.C., writes: In the recent literature on penicillin I have seen no mention of a very early experiment to utilize the antibiotic action of moulds. Shortly before the war I came across a paper in the *Presse Médicale* about the year 1906-8 by A. Vaudremer, who described the clearing of a slope of tubercle bacillus culture by the mould *Aspergillus niger*. Further, the author suggested that this mould should be used clinically in tuberculosis. I believe he went further than that, as I also came across a reference to "Vaudremer's vaccine," but was unable to find any more details. Perhaps someone with better access to a library than I have would care to verify the above reference.

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RECENT WORK ON THE PHARMACOLOGY OF SULPHONAMIDES

BY

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Under the heading of pharmacology it is convenient to consider all the actions of sulphonamide compounds on the body of the host, excluding the detailed discussion of the toxic symptoms encountered in clinical practice. On the whole, sulphonamides are rather inert from a pharmacological standpoint, and the greater part of any article on this aspect is necessarily occupied by a consideration of the factors involved in maintaining an optimal concentration at their site of action. The methods developed by Marshall and his colleagues for the estimation of sulphonamides in blood are too well known for consideration here. Bogen (1943) has described a simple method of testing urine to find if the patient has already received a sulphonamide. (A drop of urine is placed on wood-pulp paper—e.g., newspaper—and a drop of hydrochloric acid is added; with a sulphonamide a yellow colour appears.) Procaine (novocain) gives the same colour as sulphonamides in Marshall's test (which can thus be used for its estimation); consequently this and other local analgesics which contain the *p*-aminobenzoate group must not be used for the collection of specimens for sulphonamide estimations.

Absorption

When sulphonamides are taken by mouth they are rapidly absorbed. Apparently most of this absorption occurs in the upper part of the small intestine, but there is evidence suggesting that much may be absorbed through the stomach wall. Usually absorption is complete before the ileo-caecal valve is reached. Sulphanilamide and sulphathiazole are rapidly absorbed, sulphadiazine more slowly. The absorption of sulphapyridine is slower, less regular, and less complete than that of the other compounds (Kinsman, Moore, and Harrison, 1940). Absorption from the large intestine can occur, but the rate is slower (Turell, Marino, and Nerb, 1940; Marshall, Bratton, White, and Litchfield, 1940). In cases where oral administration is not possible—e.g., after operation on the stomach—sulphanilamide may be given per rectum, but the amount absorbed is always uncertain and the resulting blood levels tend to be low (Wood, 1941). Sulphapyridine and sulphadiazine are both poorly absorbed from the large intestine (Peterson, Strauss, Taylor, and Finland, 1941).

If the sulphonamide is given with an empty stomach it is absorbed slightly more quickly than if given after a meal; but the difference is not great enough to be of clinical importance or to compensate for the greater risk of nausea. Similarly the administration of acid or alkali at the same time as the sulphonamide does not appreciably alter the rate of absorption (Peterson and Finland, 1942; Wilson, 1943). When sulphapyridine, sulphathiazole, or sulphadiazine is given by tube direct into the duodenum, absorption may be greatly diminished, suggesting that a considerable portion of the sulphonamide may reach the blood stream through the stomach wall; this effect was not shown when sulphanilamide or sodium sulphadiazine was given (Peterson and Finland, 1942). Sodium sulphonamides have been suggested for oral administration in order to obtain rapid absorption, but their issue for this purpose has not received the approval of the Council on Pharmacy and Chemistry of the American Medical Association. It is claimed that the absorption of sulphanilamide can be accelerated by giving it as a solution with glucose, glycerin, and sodium lactate, or with sodium lactate and potassium citrate, but the difference is not great enough to be of clinical value (Siebert and Loose, 1940).

Sulphanilamide and the soluble preparations of the other sulphonamides are quickly absorbed when injected intramuscularly or subcutaneously. Absorption is of course most rapid (instantaneous) when the compound is injected intravenously. Absorption is also rapid from serous cavities, such as the peritoneum and pleura (Hawking and Hunt, 1942; Vickers, 1943), from large raw areas—e.g., burns—and from large wounds (depending on their size, shape, and vascularity); on the average, absorption from these sites is about half as rapid as from the alimentary canal.

Distribution

After absorption into the blood stream sulphanilamide diffuses through the whole body. In dogs, about 4 hours after an oral dose, the compound is distributed approximately evenly through all the tissues except bone and fat, and the concentration in the tissues is equal to that in the blood (Marshall, Emerson, and Cutting, 1937b). During the period preceding this phase of equilibrium the concentration in the blood is greater than that in the tissues; following this phase, the blood concentration is lower than the tissue concentration (Alexander, 1943). Although there is no tendency for the compound to be concentrated in any special tissue, some organs contain more than others. Thus during the first six hours (in rabbits), if the concentration in the blood is taken as 1.0, the average concentration in the liver is 1.2, in the kidney 2.0–3.6, in the brain about 0.6, and in muscle 0.8 (Alexander, 1943). According to some figures of Waterhouse and Shannon (1942) for dogs, if the concentration of sulphanilamide in the plasma is taken as 1.0, that in the erythrocytes is 1.4, in the lung 1.1, in the liver 1.3, in the pancreas 1.1, in muscle 1.1, in the cerebrospinal fluid and in the brain 0.6, and in nerves 0.76. In dogs no acetylation occurs and all the sulphanilamide is present in the free form. The distribution in the blood between the erythrocytes and the plasma differs somewhat with the different compounds. Thus if the concentration of the free form in the plasma is 1.0, that in the erythrocytes is:

Sulphanilamide ..	1.0–2.1	(Simesen, 1941a, 1941b; Reinhold, Flippin, Schwartz, and Domm, 1941; Ratish, Shackman, and Bullowa, 1942; Murphy, Clark, and Flippin, 1943)
Sulphapyridine ..	0.6–1.1	
Sulphathiazole ..	0.3–0.4	
Sulphadiazine ..	0.25–0.5	
Sulphamerazine ..	0.3	
Sulphacetamide ..	1.5	
Uleron	1.0	

Similarly as regards the penetration into the cerebrospinal fluid, if the concentration in the plasma is 1.0, that in the cerebrospinal fluid (when equilibrium is reached) is:

Sulphanilamide ...	0.7–1.0	(Marshall and Litchfield, 1939; Sadusk, Blake, and Seymour 1940; Banks, 1941; Long, 1941; Reinhold, Flippin, Schwartz, and Domm, 1941)
Sulphapyridine ..	0.7	
Sulphathiazole ..	0.15–0.4	
Sulphadiazine ..	0.5–0.8	
Sulphadimethylpyrimidine ..	0.4–0.8	(Macartney, Smith, Luxton, Ramsay, and Goldman, 1942)
Sulphamerazine ..	0.3–0.7	(Murphy, Clark, and Flippin, 1943)

(Probably the differences between the various compounds are due to the differing amounts "bound" to the plasma proteins; see below.) Actually the ratio (concentration in C.S.F./concentration in plasma) is lower than these figures during the earlier part of treatment, when the blood concentration is rising, and higher when administration of the drug is stopped and the blood concentration falls. Similarly, the concentration in peritoneal, pleural, and joint effusions tends to be somewhat lower than that in plasma when equilibrium is reached; but there is a lag of 2–3 hours in arriving at this position (Cantarow, Cubberley, and Rakoff, 1942). The concentration of sulphathiazole in the fluid of infected or uninfected knee-joints is approximately the same as that in the blood (Heyl, 1941). As regards the eyes, when sulphanilamide is given to dogs the concentration in the aqueous humour one hour later is about 33% of that in the blood, rising to a maximum of about 61% four hours after administration (Bellows and Chinn, 1939); when 100 mg. sulphapyridine was applied locally to the conjunctiva (of rats) the concentration one hour later was 47 mg. per 100 c.cm. in the conjunctiva, 30 mg. in the cornea, and only 5 mg. in the aqueous humour (P'an, 1941). The content of sulphapyridine in the pancreatic juice (of cats) after its administration by mouth is slightly less than that of the blood (Taylor and Ägren, 1940). [For bile, see under "Excretion."] Sulphanilamide is also found in menstrual blood; but in the normal secretion of the cervix uteri it is present in such small amounts that its bacteriostatic action is problematic.

The Foetus.—Sulphonamides pass through the placenta into the foetal circulation, and therefore there are possibilities of toxic and of therapeutic action. Speert (1943) recommends that in order to prevent bacterial invasion of the foetal blood vessels in cases of prolonged labour with ruptured membranes, and in cases where it is desired to protect the foetus against intrapartum infection by gonococci from the mother, the woman in labour should be given a single intravenous dose of 5 g. sodium sulphadiazine; during the next few hours concentrations of 9–11 mg. per 100 c.cm. will be maintained in the foetal blood and 10–20 mg. in the maternal blood. This procedure involves a possible (but low) risk of renal obstruction in the mother. Although prolonged treatment with sulphanilamide is injurious to the foetus (Adair, Hesseltine, and Hac, 1938; Speert, 1940), in animals or in human beings the danger from a single dose is probably small (Philipp, 1941).

Combination of Sulphonamides with Plasma Proteins.—Part of the sulphonamide in the plasma is bound in some way to the plasma proteins, and is not free to pass through a dialysis membrane. The combination with protein cannot be very strong, as sulphonamides are not precipitated to any large extent when the proteins of blood or serum are thrown down by trichloracetic acid in the first stage of Marshall's quantitative test. The combination apparently involves the plasma albumin principally, while the globulin and lipoids are not concerned (Davis, 1942). The higher the concentration of sulphonamide, the smaller the percentage of bound drug; the figures below refer to blood concentrations of the therapeutic range (2–20 mg. per 100 c.cm.). The amount bound is approximately proportional to the amount of albumin present. The binding is not diminished by denaturation of the protein with ultra-violet light (Davis, 1943). Similarly, red prontosil is combined with the albumin of the serum but not with the globulin, as was shown by Schönholzer (1940), using a cataphoresis technique. The extent to which this binding occurs differs with the different compounds, as shown below (Davis, 1942; Heinemann, 1943):

Sulphanilamide	12–20% bound
Sulphapyridine	40–45% "
Sulphathiazole	75–80% "
Sulphadiazine	55–60% "

Compounds similar to the sulphonamides but lacking the *p*-amino group, and acetyl derivatives of sulphonamides, are bound to the proteins in the same way (Davis and Wood, 1942). Apparently the bound drug is not bacteriostatic, although, as the combination is loose, it forms a store of potential activity. The occurrence of this combination with protein probably explains the different distribution of the various compounds between plasma and erythrocytes, and between blood and cerebrospinal fluid, which have been described above. In fact, the calculated distribution between blood and a dialysate through a membrane permeable to sulphonamides, but not to protein, agrees closely with that observed clinically between blood and cerebrospinal fluid. Such combinations with proteins may conceivably play a part in the production of such sensitization phenomena as drug fever and specific skin sensitivity.

Metabolism of Sulphonamides

As is well known, much of the sulphonamide compound introduced into the body is conjugated, especially with acetate, to form acetyl derivatives which are therapeutically inert, although equal in toxicity to the original sulphonamide. Sulphanilamide and sulphapyridine are more readily acetylated than sulphathiazole and sulphadiazine. On the average, about 20% of sulphanilamide in the blood and about 25–60% of that in the urine is in the conjugated state. With sulphapyridine, about 33% (10–45%) of the total compound in the blood and about half of that in the urine is acetylated in man (Kinsman, Moore, and Harrison, 1940). With sulphadiazine, the acetylated form accounts for about 10% of the compound in the blood and for about 25–33% of that in the urine (Peterson, Strauss, Taylor, and Finland, 1941). With sulphathiazole, about 20% of the compound in the blood is acetylated (Frisk, 1940a, 1940b), or 0–30% (average 12%) (Sadusk, Blake, and Seymour, 1940). The site of acetylation seems to be mostly in the liver (Harris and Klein, 1938), though in some animals other organs also can bring about this conjugation. Besides the sulphonamide inactivated by acetylation, there is evidence that part is combined with other compounds (especially glucuronic acid), or is degraded by other chemical processes. It has been shown by Simesen (1941a) that during the first day (in mice) up to 50% of the sulphanilamide may be destroyed in some way at present unknown, while 40–50% of sulphathiazole and of sulphacetamide is destroyed in this time; 40–50% of sulphapyridine is destroyed in 2–3 days, and 70% of uleron in 3–4 days. Alexander (1943) has confirmed this by giving sulphanilamide to mice and analysing the amount found in the excreta and in the (minced) body after various periods.

Excretion

i. *Urine.*—The main excretion of sulphonamides is through the kidney, the amounts passing out by other routes being comparatively insignificant. Part is excreted unchanged and part as the acetyl derivative, as has been described above. Apparently sulphanilamide passes out from the plasma into the glomerular filtrate and some of it is reabsorbed in the tubules. In dogs the sulphanilamide clearance is 20–30% of the creatinine clearance (only slight reabsorption in the tubules), so presumably 60–70% of the sulphanilamide in the glomerular filtrate is reabsorbed. The clearance is independent of the plasma level, but increases as the flow of urine is increased. In rabbits the clearance of the sulphanilamide is 30–40% that of creatinine and inulin, but the clearance of acetyl sulphanilamide is the same as that of these two compounds; presumably acetyl sulphanilamide is not reabsorbed in the tubules (Loomis, Hubbard, and Koepf, 1943). The average renal clearances in man for the original sulphonamides and their acetyl derivatives respectively are:

Sulphapyridine ..	23 and 58 c.cm. of plasma a minute
Sulphathiazole ..	43 " 55 " " " " "
Sulphadiazine ..	31 " 59 " " " " "

i.e., the amount of compound present in this volume of plasma is excreted by the kidney each minute.

As regards the proportion of the dose excreted in the urine various estimations have been given:

Sulphapyridine (usual clinical dosage): 60–90% (Frisk, 1940a), or about 30% (22–56%) (Kinsman, Moore, and Harrison, 1940). appears in the urine, about half being in the conjugated form.

Sulphathiazole: Daily excretion amounts to 75% of the intake (Simesen, 1941b), to 86–92% of the intake (Frisk, 1940b), or to 100% (Spink and Hansen), 1940).

Sulphadiazine: When 4–5 g. is given orally, 60% is excreted in urine in 24 hours, and 75% in 72 hours; a quarter to a third is in the conjugated form (Peterson, Strauss, *et al.*, 1941). Other data are given by Ratish, Shackman, and Bullowa (1942); Reinhold, Flippin, *et al.* (1941); and Sadusk, Blake, and Seymour (1940) When it is desired to increase the excretion of sulphadiazine (e.g., because of agranulocytosis) sodium bicarbonate should be given; to decrease the concentration in the urine (e.g., because of renal complications) large volumes of 5–10% glucose should be injected intravenously or much water may be given by mouth, intravenous injection of saline is less effective (Peterson, Goodwin, and Finland, 1943).

ii. *Faeces.*—The work of Marshall, Bratton, *et al.* (1940) on sulphaguanidine and the treatment of bacillary dysentery has directed attention to the amount of sulphonamide appearing in the faeces. Practically all such compound represents the portion which has not been absorbed during passage down the alimentary canal; very little represents true excretion by the bile or by the mucous membrane of the large intestine. Thus, when sulphaguanidine is injected subcutaneously into cats, only very small amounts appear in the faeces (Hawking, 1942b). When given as a short therapeutic course to man, sulphapyridine, sulphathiazole, sulphadiazine, and sulphanylbenzamide reach the faeces only in small concentrations—e.g., 0–70 mg. per 100 c.cm. (Hawking, 1942a). Uleron apparently reaches the faeces in about the same amount as sulphaguanidine; when 12–18 g. is given during 6 days, about 7 g. appears in the faeces and about 3–4 g. in the urine (Reimers, 1939; Marquardt, 1938). But no report on the use of uleron for bacillary dysentery has appeared.

iii. *Bile.*—Sulphanilamide and other sulphonamides appear in the bile only in concentrations about the same as those in the blood; no large amount of the acetyl derivative appears, so that, although it is formed in the liver, it is not excreted by this route (Hubbard and Anderson, 1940; Spink, Bergh, and Jermsta, 1941; Hubbard and Butsch, 1941). Accordingly sulphonamides are unlikely to have any special influence in cholecystitis beyond their general influence on inflammation anywhere in the body.

iv. *Other Secretions.*—Sulphonamides appear in most of the other excretions and secretions in concentrations similar to those of the blood. Sulphapyridine injected parenterally appears in the gastric juice (apparently by a process of physical diffusion: Davenport, 1942), and this may be the explanation of the vomiting which may occur in such patients. Sulphathiazole appears in the tears in concentrations of 0.1–1.0 mg. per 100 c.cm., but this is not the direct cause of the conjunctivitis which sometimes develops; such conjunctivitis is probably due to acquired sensitivity (Turkell and Wilhelm, 1941).

v. *Milk.*—Sulphonamides appear in the milk of lactating women in amounts similar to those of the plasma. Thus during a therapeutic course the milk may contain sulphanilamide up to 9 mg. per 100 c.cm. (Hepburn, Paxson, and Rogers, 1942), sulphapyridine 3–13 mg. per 100 c.cm. (Föllmer, 1941), or sulphathiazole 0.5–1.5 mg. per 100 c.cm. (Rieben and Druey, 1942), and the infant may receive sulphapyridine 30–40 mg. a day or sulphathiazole about 4 mg. a day. It is the general opinion that the amount appearing in the milk of the mother is too small to exert any effect, toxic or therapeutic, upon the infant.

Blood Concentration

The following Table shows typical blood concentrations after administration of the different sulphonamides:

Compound	Dose	Blood Concentration (mg. per 100 c.cm.)		Reference
		Free	Total	
Sulphanilamide	4 g.	4·0*		
Sulphapyridine	2–4 g. 2–4 g. followed by 1 g. 4-hourly	2·0 (0·5–5·0)* 4·2–6·5	2·6 5·6–8·6	Kinsman, Moore, and Harrison (1940)
Sulphathiazole	1 g. 4-hourly 2 „ „ 3 „ „	4·6 (1·6–8·7) 6·0 (2·2–13·2) 6·5 (3·0–9·6)		Melton (1941)
Sulphadiazine	2 g. 5 g.	2·0–3·3* 3·6–5·5*		Ratish, Shackman, and Bullowa (1942)
	4–5 g.	8·5 (6·7–10·8) (after 24 hrs. 2–4)	9·9 (7·9–12·6)	Peterson, Strauss, *et al.* (1941)
	3 g. followed by 1 g. 4-hourly	9·5 (4·4–19·0)	11·3	Reinhold, Flippin, *et al.* (1941)
Sulphamezathine	4 g. followed by 2 g. 6-hourly	6·0 (2·0–13)		Macartney *et al.* (1942)
Sulphamerazine	3 g. followed by 1 g. 6–8-hourly	10·3 (3·5–15·0)		Murphy, Clark, and Flippin (1943)
Sulphaguanidine	1–7 g.	1·5–4·0*		Marshall, Bratton, *et al.* (1940)
Succinyl sulphathiazole	17 g. followed by 3 g. 4-hourly	0·5–1·0 (sulphathiazole)	1·0–2·0 (succinyl sulphathiazole)	Poth and Knotts (1942)

* Blood concentration at about 4 hours after single dose is taken.

Solubilities of Sulphonamide Compounds

The solubilities of the various sulphonamide compounds and their acetyl derivatives are often important. A table of the relevant data is given in M.R.C. War Memorandum No. 10, "The Medical Uses of Sulphonamides," to which reference should be made. Briefly summarized, the compounds may be classified as: (*a*) relatively highly soluble (>200 mg. per 100 c.cm. at 37° C. and *p*H 7.4)—sulphanilamide, sulphaguanidine, sulphacetamide, sulphadimethylpyrimidine, and acetyl-sulphanilamide; (*b*) moderately soluble (50–200 mg. as above)—sulphathiazole, sulphamerazine, acetyl-sulphaguanidine, and acetyl-sulphadimethylpyrimidine; and (*c*) poorly soluble (<50 mg. as above)—sulphapyridine, sulphadiazine, acetyl-sulphapyridine, acetyl-sulphathiazole, and acetyl-sulphadiazine. The solubility of almost all sulphonamides is greatly increased by making the solution alkaline. The sodium salts of the sulphonamides are extremely soluble, up to one part in three.

Action on Various Organs

Examined by the methods of classical pharmacology, sulphonamides are comparatively inert, and sulphanilamide has no effect upon intestine, uterus, heart, or blood pressure. Given in toxic doses to laboratory animals, it depresses the cerebral cortex and excites subcortical centres, producing coma followed by a condition resembling decerebrate rigidity (Hawking, 1937; Marshall, Cutting, and Emerson, 1938). Similar symptoms of convulsions and rigidity (followed by recovery) have occurred in a 3-year-old child who took 6 g. sulphanilamide (Reed, 1944). A case has also been recorded (Cutts and Bowman, 1941) of a man who was given by mistake 30 g. sodium sulphapyridine during a 10-hour period. The main nervous symptoms were restlessness, vomiting, and hiccup, but no convulsions, twitching, or loss of mental lucidity. When monkeys are given repeated sublethal doses of sulphapyridine or sulphathiazole a characteristic symptom-complex is produced, consisting of anorexia, increasing nausea with or without vomiting, and diarrhoea. The commoner toxic effects which occur in man are too well known to require detailed description. They may be classified as: irritation of alimentary canal (nausea and vomiting); effects on blood cells and bone marrow (haemolytic anaemia, agranulocytosis, thrombocytopenia); effects on blood pigments (cyanosis, methaemoglobinaemia, sulphaemoglobinaemia); sensitization phenomena (drug fever, skin rashes); degeneration of particular organs (jaundice and liver damage, peripheral neuritis); and effects on the brain (mental depression, headache, and dizziness).

Effect on Acid–Base Balance

Sulphanilamide tends to cause a shift in the reaction of the body fluids towards the acid side, bicarbonate being lost from the blood. It has been shown that this effect is primarily due to the renal excretion of more bicarbonate (i.e., the kidney cells reabsorb less bicarbonate from the glomerular filtrate as it flows down the tubules) (McChesney, Sprague, and Marshall, 1941; Höber, 1942); while the hyperpnoea and loss of carbon dioxide from the lungs is a secondary compensation. Accordingly, this effect can be corrected for clinical purposes by giving sodium bicarbonate in doses equal to those of sulphanilamide. There is some evidence that this action of sulphanilamide may possibly be connected with the ability of the drug to inhibit carbonic anhydrase, the enzyme which catalyses the liberation of carbon dioxide from the carbonate of the plasma; as was shown by Mann and Keilin (1940), this enzyme is strongly and reversibly inhibited by sulphanilamide, but not by sulphonamides in which substitutions have been inserted on the —$SO_2.NH_2$ group; e.g., sulphathiazole. A blood concentration of 3–4 mg. sulphanilamide per 100 c.cm. does not affect the excretion of carbon dioxide from the lungs in men at rest; but in exhausting exercise there is some hindrance, and men taking 2–3 g. sulphanilamide daily are handicapped mentally and physically when required to perform exacting or strenuous work (Roughton, Dill, Darling, Graybiel, Knehr, and Talbott, 1941). On the other hand, men taking 2–4 g. sulphathiazole or sulphadiazine are not handicapped in this way (Roughton, Darling, Forbes, Horvath, Robinson, and Talbott, 1942).

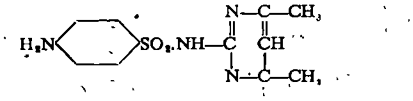
Other Actions

Sulphapyridine has some antipyretic action, which may partly account for the rapid fall of temperature which it causes in patients with pneumonia (Nicolai, 1941). The action of sulphonamides on isolated tissue cells, and their behaviour when applied locally to wounds, have been reviewed by Hawking (1943). Briefly, saturated solutions of the more soluble sulphonamides—e.g., sulphanilamide—have an injurious effect upon cells in tissue culture, but concentrations of less than 50 mg. per 100 c.cm. are usually harmless. When applied to wounds, sulphonamides probably cause slight harm to the tissues, but this is quite trivial compared with that caused by the unchecked growth of bacteria.

When rats are placed on purified diets containing sulphaguanidine or succinyl sulphathiazole (which suppress the growth of the coliform bacilli of the large intestine) growth is diminished and various pathological lesions are caused—e.g., aplasia of the bone marrow, hyaline sclerosis of blood vessels and viscera, dermatitis, and hypertrophy of the thyroid gland. It is considered that these effects are probably due to lack of substances, such as folic acid, which are synthesized by the bacteria of the large bowel (Ashburn, Daft, Endicott, and Sebrell, 1942; Black, Overman, Elvehjem, and Link, 1942; Mackenzie, Mackenzie, and McCollum, 1941).

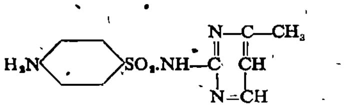
Notes on the Pharmacology of Some Newer Sulphonamides

Sulphadimethylpyrimidine (sulphamezathine): [2(*p*-aminobenzene-sulphonamido)-4: 6-dimethylpyrimidine].



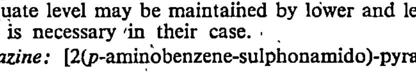
Synthesized by Sprague, Kissinger, and Lincoln (1941), and by others, and introduced (as sulphamethazine) for clinical use by Macartney *et al.* (1942). More soluble than sulphadiazine or sulphamerazine. Rapidly absorbed from the intestine, but slowly excreted, so that a high blood concentration can be produced by moderate dosage. When 4 g. is given by mouth for pneumonia, followed by 2 g. every 6 hours (or 1 g. every 4 hours), the blood concentration of free sulphonamide reaches 8 mg. per 100 c.cm. in 1–3 hours and the subsequent blood level ranges from 2 to 13 (average 6) mg. per 100 c.cm. The total recovery in the urine is usually about 50% of the amount ingested. Judged according to equal blood concentrations, the toxicity and therapeutic potency are similar to those of sulphadiazine. Although both sulphadimethylpyrimidine and its acetyl derivative are comparatively soluble, one case of haematuria and one of urinary suppression occurred in a series of 77 patients (Peters and Easby, 1943). However, renal symptoms are usually rare with this compound.

Sulphamerazine: [2(*p*-aminobenzene-sulphonamido)-4-methylpyrimidine].



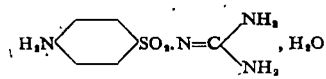
Sulphamerazine has recently been described at length in this *Journal* (Feb. 3, 1945, p. 155), so that repetition here is unnecessary. In brief, sulphamerazine is intermediate in solubility between sulphadiazine and sulphadimethylpyrimidine; its activity and toxicity, measured in terms of blood concentration, are similar to those of these two compounds; it is rapidly absorbed and produces a more persistent high concentration in the blood than either of them, so that an adequate level may be maintained by lower and less frequent dosage than is necessary in their case.

Sulphapyrazine: [2(*p*-aminobenzene-sulphonamido)-pyrazine].



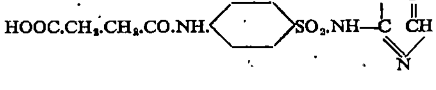
Small doses of this compound lead to a relatively high blood concentration, while large doses cause no corresponding increase. Consequently, at a low dose lovel sulphapyrazine is more active than other sulphonamides, but at a high dose level this advantage disappears. Absorption is somewhat irregular, making its therapeutic effect uncertain; this irregularity would be a handicap for clinical use. As absorption in the intestine is incomplete, large proportions of the ingested dose reach the faeces, and this compound would therefore seem to be suitable for the treatment of bacillary dysentery; but no clinical reports have yet appeared about its use for this condition (Ruegsegger, Hamburger, Turk, Spies, and Blankenhorn, 1941; Schmidt and Sesler, 1943; White, 1942).

Sulphaguanidine: [*p*-aminobenzene-sulphonyl-guanidine].



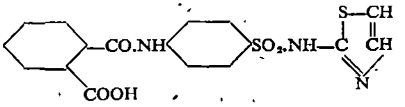
Sulphaguanidine is poorly absorbed when given by mouth, and a considerable portion appears in the faeces, this being the reason which led to its use in the treatment of bacillary dysentery. After doses of 1–7 g. per 70 kg. man, the blood concentration (free) is about 1.5–4 mg. per 100 c.cm., the peak occurring after approximately 4 hours; about 25–30% of the compound in the blood is acetylated. The proportion excreted in the urine after a single dose of 1–7 g. is 10–60%, of which two-thirds are free and one-third is acetylated (Marshall, Bratton, *et al.*, 1940). After a course of 9 g. during 24 hours to a patient, 1.3 g. was recovered from the faeces and 3.1 g. from the urine in 48 hours (Hawking, 1942a). Penetration into the cerebrospinal fluid is low. In dehydrated patients with dysentery in the British Army in Egypt, sulphaguanidine has occasionally caused blockage of the urinary passages. (See also Hawking, 1942b.)

Succinyl sulphathiazole (sulphasuxidine): [2-(*p*-succinyl-amino-benzene-sulphonamido)-thiazole].



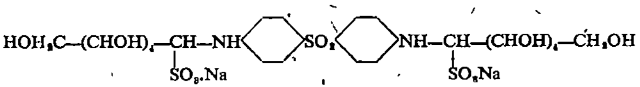
This compound, which was introduced by Poth and Knotts (1941), is broken down in the intestine, liberating small amounts of sulphathiazole; the growth of the coliform bacilli (but not that of the streptococci) in the large intestine is thereby suppressed and the faeces become semi-fluid and odourless; about 2–4 motions are passed daily. The compound is recommended for dysentery and for the preparation of patients before undergoing operations on the large intestine. The standard dosage in man is 0.25 g. per kg. initially and 0.04 g. per kg. 6 times daily for maintenance. The urine contains about 5% of the total dose administered. The blood contains about 0.5–1.0 mg. free sulphathiazole per 100 c.cm. and 1.0–2.0 mg. total (i.e., acetyl-sulphathiazole plus succinyl sulphathiazole) (Poth and Knotts, 1942; Poth, 1942).

Phthalyl sulphathiazole (sulphathalidine): [2-(*p*-phthalyl-amino-benzene-sulphonamido)-thiazole].



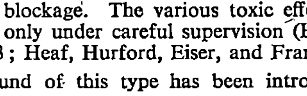
Introduced by Poth and Ross (1943, 1944) and Kirchhof, Racely, Thompson, and David (1943). It closely resembles succinyl sulphathiazole, but is 2–4 times more active in suppressing the growth of coliform bacilli in the intestine, and it renders the faeces less fluid.

Promanide (U.S.A.: promin): [Sodium salt of *p-p'*-diamino-diphenyl-sulphone-N,N'-di(dextrose sulphonate)].



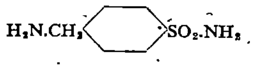
Introduced by Feldman, Hinshaw, and Moses (1940) for the treatment of tuberculosis. It restrains the development of experimental tuberculosis in guinea-pigs, although it does not save all the animals. In human pulmonary tuberculosis it appears to exert a definite slight beneficial effect, but this is balanced by the production of toxic symptoms. It has now been given to several hundred patients. The daily dose is about 1.6 g. (up to 3.2 g.), and this has been continued as long as 6 months. The average blood concentration on this dose is about 2.4 mg. per 100 c.cm. Promanide enters the cerebrospinal fluid only in low concentration. The chief toxic symptoms are diminution of haemoglobin and of erythrocytes in the blood (apparently due to haemolysis), cyanosis, and gastro-intestinal disturbances; rashes, headache, agranulocytosis, and other symptoms have also been reported. It is excreted in the urine (average concentration about 100 mg. per 100 c.cm.), but being soluble it does not cause urinary blockage. The various toxic effects indicate that it should be given only under careful supervision (Hinshaw, Pfuetze, and Feldman, 1943; Heaf, Hurford, Eiser, and Franklin, 1943).

Another compound of this type has been introduced recently—viz., *promizole*.



This is similar in its properties to promanide, but is probably more active and less toxic.

Marfanil (mesudin, homosulphanilamide, sulphamylon): [*p*-amino-methyl-benzene-sulphonamide].



Introduced by I. G. Farbenindustrie, tested biologically by Domagk, and described by Klarer (1941). It had also been prepared independently by Miller, Sprague, Kissinger, and McBurney (1940). It differs from all the other sulphonamides in that the amino group (H_2N) is separated from the benzene ring by a methyl (—CH_2—) group. Accordingly it is not diazotizable and cannot be estimated by Marshall's method. Also, it is not inhibited by *p*-aminobenzoic acid. Marfanil-fast strains of bacteria are not resistant to sulphathiazole, and conversely (Link, 1943). Apparently the receptor of the organism on which it acts is different from that which is susceptible to the usual sulphonamide action. It is more soluble in water than sulphanilamide (1,970 mg. per 100 c.cm. at 37° C.), and very soluble in dilute acids or alkalis. It is less active than sulphanilamide against streptococci. Domagk (1942) claims that it is much more active against anaerobic infections than this compound; but this claim is not confirmed by Schreus, Brauns, and Schümmer (1941). It seems to be used extensively in the German army for local application to wounds as marfanil-prontosil powder (i.e., 1 part marfanil, 9 parts sulphanilamide), and since it is not inhibited by *p*-aminobenzoic acid it may have real advantages for this purpose. Mitchell, Rees, and Robinson (1944) have recently described a clinical trial for use as a local application to infected wounds; they consider it valuable for this purpose. Their trial was made with German material captured at El Alamein (see also *Lancet*, 1944, **1**, 635)

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INVESTIGATION AND RESULTS OF TREATMENT OF 1,000 CASES OF VAGINAL DISCHARGE

BY

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The following account embodies the results of the investigation and treatment of 1,000 women complaining primarily of vaginal discharge. Each was carefully interrogated and all necessary bacteriological and serological investigations were made. Details of clinical examination and findings are purposely omitted, as the routine is now well established. The cases were all directly under my care for a period of at least six months. The services of a trained nurse were at all times available, and this has contributed greatly to the excellence of the end-results. The case incidence of the various types will be found in the Table, and each group will be briefly discussed and conclusions drawn from the results.

Case Incidence

(*a*) Trichomonas vaginitis	447
(*b*) Gonococcal infection	178
(*c*) Combined trichomonas vaginitis and gonococcal infection	32
(*d*) Residual and non-specific erosions	193
(*e*) Monilia vaginitis	57
(*f*) Vulvovaginitis of infancy	14
(*g*) Senile vaginitis	41
(*h*) Non-inflammatory leucorrhoea	27
(*i*) Polypi, neoplasms, and foreign bodies	11
Total	1,000

(a) Trichomonas Vaginitis

The literature dealing with this condition is considerable. At first there seemed to be some doubt as to the pathogenicity of the organism, but now it is widely accepted as capable of producing a vaginitis—acute, subacute, and chronic. The primary source of the infection is still debated: the rectum is a potential origin, but is by no means definitely incriminated. Almost all cases occur during the reproductive period, but this series includes one pre-pubertal and four post-menopausal. It affects undoubted virgins and has a predilection for the vagina in pregnancy. The association of gonorrhoea and trichomonas vaginitis in 32 cases draws attention to the need for careful exclusion of Neisserian infection even if *Trichomonas vaginalis* has been demonstrated. The following method of treatment has yielded the best results, both immediate and remote.

As soon as diagnosis is established, one stovarsol vaginal compound tablet is inserted daily for at least eight weeks, including during the menstrual period. Once a week the vagina is thoroughly irrigated with sodium bicarbonate solution, one drachm to the pint, then dried, and finally swabbed out with half-strength Bonney blue solution. This must be done at least once during two consecutive menstrual periods. At the conclusion of the eight weeks the patient is given enough tablets to insert one daily during the next three menstrual periods. The vaginal painting can with advantage be done once a week. Certain modifications have to be made in individual cases; for example, when the hymen is intact the Bonney blue solution is run in through a small rubber catheter. During pregnancy an arbitrary time period of eight weeks has been adopted.

One case of trichomonas vaginitis deserves special mention, because it was among the first few in the series, and it remains after five years the only one that has resisted all efforts to dislodge the causative organism.

The patient, then aged 30, had had an irritating discharge for several months. The only positive laboratory finding was *Trichomonas vaginalis*. She was treated with 5% negatol vaginal packs—a method then being used by me, and reported in the *Lancet* in 1939. This failed, and in company with many others she was insufflated with silver picrate. Moderate success attended this treatment; a number were cured, but recurrences were not infrequent, and this patient was among them. She was then given a full routine treatment as outlined above, and obtained several weeks' freedom from discharge; but once more it recurred. In addition she complained that her periods were profuse and irregular. Little improvement was obtained by medicinal measures, and curettage on two occasions brought only temporary relief. Accordingly, subtotal hysterectomy was carried out. The *Trichomonas* infection continued to thrive after discharge from hospital, and the patient was readmitted. The cervical canal was cauterized and the vagina lightly packed with gauze soaked in half-strength Bonney blue solution; this was removed after 12 hours, and douches of flavine 1 in 1,000 were given three times a day. In addition stovarsol vaginal compound was inserted daily into the rectum, and the urethra was swabbed with 10% protargol. After six weeks' treatment the patient was sent home, only to return in three weeks with a typical acute *Trichomonas* infection.

She was advised to douche three times a day and to "grin and bear it." This she did for several months; then she once more appealed for help. She was readmitted to hospital and given a full course of 40 g. of prontosil album, without benefit. This was followed by a course of stilboestrol up to 5 mg. a day for six weeks, without tangible improvement. The vagina was packed with gauze soaked in 5% N.A.B. paint for three weeks; after this improvement occurred and hopes ran high. She left the hospital with the vagina looking normal for the first time in three years. Recurrence was noted in less than a month, and a repetition of the N.A.B. led to local soreness and had to be abandoned. She was once more admitted; the vagina was irrigated with a solution of quinosan and she was given a course of quinosan by mouth. Relief was only temporary, and she remained infected in spite of all the above treatments.

(b) Gonorrhoea

This review serves to illustrate that gonorrhoea is far from being the commonest cause of discharge in women. The diagnosis in earlier cases was made by smears only, but, on the recommendation of the American Neisserian Society, cultures of the cervical pus were made. This is said to lead to more positive diagnosis, but in the present series positive cultures were obtained only if positive smears had been reported.

Treatment in the first year was by the routine administration of 40 g. of prontosil album by mouth, daily douches, high vaginal packs of gauze soaked in glycerin, and urethral swabbing with 10% protargol. The prontosil album was replaced by sulphapyridine, and this eventually by sulphathiazole. Local treatment was discontinued, but 5 g. of prontosil album powder was insufflated into the vagina twice within the first week. In 203 cases the gonococcus could not be demonstrated after the conclusion of the treatment, but 7 were still positive, and recourse was had to local treatment as previously described. This was continued until two post-menstrual smears were negative following the use of a provocative vaccine.

Groups c and d

Combined gonococcal and Trichomonas infections were treated with sulphonamides by mouth, and locally by means of stovarsol and Bonney blue. The results were satisfactory in all cases.

Treatment of *residual and non-specific erosions* was by application of pure negatol to the eroded area twice weekly. The results were satisfactory for small erosions, but larger erosions required electric cauterization.

(e) Monilia Vaginitis

This group deserves wider recognition, and will be discovered more often if search is made. In a typical case the vaginal mucosa is covered with the white patches characteristic of *Oidium albicans*. The predominant symptom is a white musty-smelling discharge causing much irritation. The first treatment adopted was douching, followed by painting of the vaginal walls with 2% gentian violet at intervals of a few days. This yielded fair results, but was varied in an attempt to find a completely satisfactory method. Monsol (1/200) douches were equally satisfactory, but the best treatment, and the one used solely during the past year, was the local application of mersogel fungicidal jelly (Glaxo). The patient attended the clinic for treatment, to ensure that the fungicide reached the upper vagina. The results were very satisfactory; the average duration of treatment was three weeks. The infection is apparently more common during pregnancy.

(f) Vulvovaginitis of Infancy

The number of cases of this disease is small, but the results were excellent. Each patient was admitted to hospital and examined under anaesthesia. Material was obtained for smears and culture, after which the vagina was irrigated with a bland lotion; finally a few c.cm. of 10% argyrol were instilled into the vagina, and the child kept recumbent, with the foot of the bed on blocks. Sulphonamides were given to all these patients in doses proportionate to their age, and stilboestrol, 1 mg. t.d.s., was administered for 21 days. The argyrol instillation was repeated after a week. All cases were free from any evidence of infection six weeks from the start of treatment.

Groups g, h, and i

Most cases of *senile vaginitis* presented in a typical fashion —thin purulent discharge causing irritation of the vulva, with punctate haemorrhages appearing on the vaginal walls. Treatment was by lactic acid douches and the administration of stilboestrol by mouth in doses averaging 3 mg. a day. The results were eminently satisfactory in all cases, resolution occurring within two months of the beginning of treatment.

Non-inflammatory leucorrhoea is diagnosed by examination of a high vaginal swab, the findings being epithelial cells and Döderlein's bacillus with no pus cells. Such cases are often made worse by ill-advised douching with various antiseptics. Relief was obtained by the use of sodium bicarbonate solution, but the very nature of the complaint precludes complete cure.

Group i requires no discussion. Treatment was by the usual methods.

Conclusion

This account is incomplete in that no attempt has been made to give detailed figures of each subsection of each group; but such details would produce a maze of figures that would only bore and confuse. The object has been to give as briefly as possible my own methods and conclusions, in the hope that they will help others engaged in dealing with similar problems.

I wish to acknowledge with gratitude the help given by the Bland-Sutton Institute of Pathology and the Pathological Department of Addenbrooke's Hospital, and, in particular, that given by the nurses who carried out the treatment in the clinic.

A Polish Military Hospital in the Middle East is now equipped with a laboratory for making penicillin, and is the only military place in the Middle East for making this drug. Prof. Odrzywolski is in charge of the manufacture. The first two phials of mould were sent to the Polish Hospital by Sir Howard Florey in May, 1944. The Poles have carried out their own experiments, and Prof. Odrzywolski came to England recently to visit one of our chief penicillin research centres, in order to exchange scientific information and learn improved methods. The Polish Hospital in the Middle East supplies not only other Polish hospitals but other Allied military medical institutions in the Middle East.

TREATMENT OF EPILEPSY BY ELECTRICALLY INDUCED CONVULSIONS

A PRELIMINARY REPORT*

BY

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Modern views on epilepsy lay stress on an underlying cerebral dysrhythmia as being the essential feature of the disease. This disturbance of the electrical equilibrium of the brain leads to the occasional accumulation of an excessive quantity of energy, and the epileptic fits can be regarded as a discharge mechanism whose function it is to disperse this energy whenever it exceeds a certain threshold value.

An epileptic's chief disability lies in the fact that his fits are rarely predictable, and may occur at any awkward moment or in situations involving considerable danger. The idea has therefore been developed of replacing these spontaneous fits by electrically induced convulsions which can be produced under controlled conditions of time and place. It is not intended that this therapy should supersede the pharmacological methods of combating the fits, but rather that it should be an accessory treatment in those cases in which fits occur despite full dosage of anticonvulsant drugs. The present paper is a preliminary report on the results of an investigation being undertaken in Cefn Coed Hospital. Publication at this early stage has been decided upon in order to stimulate criticism and to interest other workers in the subject.

Material.—Fifteen male epileptics have been under treatment for periods ranging from three to nine months. One is an out-patient, and has been in regular employment during the last six months. The others have been chosen from among the in-patients of this public mental hospital. The only factors governing the choice were that they should be having at least 2 to 3 fits a month despite full doses of anticonvulsants, and that they should be in good general physical condition. Nine cases are being treated with phenobarbitone, five with epanutin, and one with a combination of both drugs. All the in-patients are suffering from psychosis associated with the epilepsy; five are voluntary patients and the rest are certified.

Technique.—The convulsions are electrically induced before breakfast either once or twice a week. The frequency is varied according to the reactions of the individual patient, and no general rule as to the optimum has as yet been formulated. The apparatus in use is a simplified lightweight machine which has been built to my design by Mr. E. L. Turner, a Swansea radio engineer. It has a range of 35 to 135 volts, and the time switch can be set to limit the current to from 0.1 to 0.5 second. The output has varied between 0.25 amp. and 1.3 amp. This machine has been found to be perfectly safe and reliable, and because of its handy size is very easy to use. Large numbers of patients can be treated rapidly at the same session—the 15 epileptics can be treated comfortably in 20 minutes. In all cases except one the usual pharmacological treatment has continued unchanged.

The Convulsion.—The induced convulsion is ushered in by a sudden mass flexion movement, which coincides with the passage of the electric current, and is probably produced by the local stimulation of the cortical cells. This is followed by the usual tonicclonic seizure, the details of which vary from patient to patient: one man flings his arms outwards in the tonic phase, another throws them forwards; the fingers in one case are extended, in another they are flexed into a claw shape, etc. The picture of the tonicoclonic episode is an unvarying one in each individual patient, and is exactly the same as his behaviour during a spontaneous epileptic fit. The seizure is followed by a short period of coma with stertorous breathing, and this leads on to a stage of confusion lasting from 5 to 30 minutes. The last stage is usually of shorter duration than that occurring after an epileptic fit, and is rarely accompanied or followed by headache.

Illustrative Case Records

Case 1.—B. I., a merchant seaman aged 25, under treatment as an out-patient, has suffered from epilepsy for 4 years. He had received all the usual pharmacological treatment, and had lately been on epanutin 1½ gr. b.d., and pot. brom. 20 gr. t.d.s. Despite this treatment he had never suffered less than an average of 5 grand-mal fits a month. His fits usually came on in the mornings, and were followed by headache and drowsiness, which incapacitated him for the rest of the day. On March 29, 1944, electrical convulsion treatment (E.C.T.) was started, and he was given a convulsion once a fortnight. His fits immediately ceased; and he did not have one until April 22. He had a second fit a month later. The convulsions were then increased to once weekly, and since June 30 he has been coming up to the hospital every Friday morning for treatment, and leaving an hour afterwards to go back to work. He had given up his work as a seaman because of the frequent fits, and shortly after starting electrical treatment he had obtained employment as a builders' labourer, which job he has kept. His bromides were gradually cut down and then discontinued, but the epanutin has been carried on. In the last 6 months he has had 3 further fits, but they have not been followed by the usual post-epileptic confusion and headache. The patient himself is delighted with the treatment. He has regained his self-confidence, and has recovered from the depression and hopelessness into which his disability had precipitated him.

Case 2.—O. P., a tin-worker aged 45, was admitted as a certified patient on July 4, 1942. He has suffered from epilepsy since 1919. On admission he was confused, restless, suspicious, and violently combative. He quieted down within a few weeks, but had remained irritable and quarrelsome, interfering and complaining, and liable to sudden outbursts of violence. He was treated at first with sodium phenobarbitone 1 gr. t.d.s., and since March 9, 1943, with epanutin 1½ gr. t.d.s., but his fits had averaged 6 grand-mal attacks a month. On Aug. 29, 1944, he began electrical treatment, and since that date has had only 2 spontaneous fits. He was started with a convulsion once weekly, and later this was increased to two a week. His behaviour has greatly improved; he is now friendly and no longer aggressive, his irritability has disappeared, he is working well in the ward, and is going out regularly on visits to his relatives, who report that his conduct outside is exemplary.

Case 3.—M. T., a tin-plate worker aged 30, was admitted as a voluntary patient on Sept. 14, 1943. He is a feeble-minded man who has suffered from epilepsy since 1942. On admission he was dull and confused, incontinent of urine, dirty and untidy in dress, and barely volitional. He deteriorated rapidly, and, having lost volition, was certified on Nov. 15, 1943. Since then he had remained more or less unchanged—dirty, untidy, asocial, unoccupiable, and depraved in habits. He had been treated with phenobarbitone 1 gr. t.d.s., but had averaged 9 grand-mal fits a month. He began E.C.T. on Aug. 22, 1944, and since then has had a total of 10 spontaneous fits—i.e., an average of 2 a month. He began his treatment with one convulsion a week, and on Sept. 13 this was increased to two a week. His behaviour has improved out of all recognition. He has become clean and tidy; he has begun to converse, though only in a simple manner; he is working well in the ward and showing some initiative; and his former irritability has disappeared.

Case 4.—C. A., a colliery labourer aged 42, was admitted as a certified patient on April 25, 1933. On admission he was clearly orientated, but showed a considerable amount of retardation. His behaviour was fairly good, but he was subject to sudden attacks of irritability and combativeness. With the passage of time he had become more dull and retarded, and his periods of quarrelsomeness and violence had increased in severity and in frequency. He took little interest in his surroundings, and refused to do any work. He was treated with sodium phenobarbitone, 1 gr. t.d.s., until March 9, 1943, when this was changed to epanutin 1½ gr. t.d.s. He had averaged 4 grand-mal attacks a month during most of his period in hospital. He was put on E.C.T. on Aug. 29, 1944, and since then has not had a single major fit. He started treatment with one convulsion a week, and when this was increased to twice weekly he began to develop some confusion, so he was put back to his previous dose, and the confusion has cleared. His behaviour remains exactly the same as previously.

Results

Table showing Effect of E.C.T. on Frequency of Fits

Patient:		B. I.	O. P.	M. T.	I. H.	E. C.	C. A.	C. W.	W. W.	W. M.	A. N.	E. B.	J. H.	A. W.	J. M.	R. S.
Average number of grand-mal fits in a month	Before E.C.T.	5	6	9	3·5	4	4	2	8	4	4	3	2·5	14	2	9·5
	Since E.C.T.	0·5	0·5	2	1	1·5	0	0·25	3	3	1·5	2·3	0·8	14	0	9

Effect on the Fits.—Eleven patients have shown a marked reduction in the frequency of their grand-mal attacks. In the other four cases there has been no great change. The fits, in addition to being less frequent, seem in many cases to be less severe, though this is of course only a clinical impression based

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on the testimony of the nursing staff. Certainly there has been some improvement in the length and intensity of the post-epileptic confusion, and this has been very pronounced in five cases. Only one patient in the series suffers to any great extent from minor fits, and these have shown a definite reduction since starting treatment.

Effect on Behaviour.—All the in-patients are severe psychotics of poor prognosis, who have been a constant source of worry to the nursing staff. The effect of the new treatment on their behaviour has been very interesting. Seven of them have shown no change, but in the others there has been a remarkable and welcome improvement. They are less irritable and quarrelsome, they are no longer liable to outbursts of violence, they have become less confused and more co-operative, and they are taking more interest in the ward and have become useful workers. One patient used to have frequent furors, but these have now ceased. One patient suffers from psychic equivalents which take the form of periods of aggressiveness and bad temper lasting several hours, and which are not controllable by means of drugs. Since starting E.C.T. five months ago he has had only one of these attacks, and this was immediately terminated by a single convulsion, induced as an emergency measure.

Complications

No severe or alarming complications have so far been experienced.

Increase in Frequency of Fits.—In four cases there was an increase in the frequency of fits on beginning the electrical treatment, but this did not last longer than the first month, and was followed by a reduction in number.

Increase in Confusion.—In a few cases the patients have gradually become more confused, especially when being given treatment twice weekly. This confusion always disappeared when the number of induced convulsions was subsequently decreased.

Discussion

Kalinowsky and Kennedy (1943) have reported on the value of artificial convulsions as a means of breaking up an epileptic cloudy state. During the course of their investigation on the electrical convulsive threshold of epileptics they were successful in keeping two patients free from fits for some months by induced convulsions, but were of the opinion that "no practical value can be attributed to such a procedure." Robinson (1943) has reported a case of psychosis of a schizophrenic type in an epileptic girl which was improved as a result of two short courses of E.C.T. Her fits were not decreased by the treatment.

Apart from these papers the literature contains no direct references to the value of E.C.T. in epilepsy. The idea of replacing epileptic fits by electrically induced convulsions as a therapeutic measure is therefore a new one; but the preliminary results of the present investigation show that it is not without promise, and that the method is one which merits further study.

A problem which immediately arises is that of choosing the right type of case for the treatment. The material on which the present study is based is obviously not very suitable, consisting as it does mainly of demented psychotics. It would be interesting to investigate the effect of the convulsions on more out-patients of the type of Case 1, especially those who show some definite rhythm in the periodicity of their fits. On the other hand, a treatment which helped to diminish the irritability and aggressiveness of epileptic psychotics would be very useful if criteria could be laid down as to the type of patient likely to benefit.

A second problem to be solved is whether the treatment has any lasting effect and so can be given in short courses, or whether its results are so transient that it must be given continuously as a form of "replacement therapy."

Many other problems present themselves for solution, and it is hoped that some of them may be made the subject of future communications.

Summary

The possibility is suggested of replacing epileptic fits, which may occur anywhere at any time, by convulsions electrically induced under controlled conditions of time and place.

The treatment of 15 cases of epilepsy by this method is described and a preliminary report is made on the results.

In 11 cases the fits have been materially diminished.

In 7 cases the symptoms of an associated psychosis have been ameliorated.

The value of an induced convulsion as a means of terminating a dangerous psychic equivalent has been illustrated.

No serious or alarming complications have been experienced.

My best thanks are due to Dr. N. Moulson, medical superintendent, for his help and advice; and to Mr. W. Place, Mr. L. J. Cole, and the male staff of Cefn Coed Hospital for their invaluable assistance.

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FRACTURES OF THE ZYGOMA BONE

BY

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AND

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Fractures of the zygoma or malar bone are always due to direct violence, the direction of violence determining the displacement. The bone is usually driven backwards and medially into the maxillary antrum and impacted there. The fracture is often comminuted and may have extension along the floor of the orbit into the orbital plate of the maxilla.

The zygomatic bone is a strong bone resting on four fragile supports, one or more of which are the sites of fracture, where it unites with: (1) The maxilla directly above the infraorbital foramen, the two bones forming the inferior orbital margin. (2) The zygomatic or lateral angular process of the frontal bone, forming the lateral margin of the orbit. (This margin is, in rare cases, cut by a second suture where the malar bone consists of two pieces—"mala bipartita" or "os japonicum" (Whitnall).) (3) The zygomatic process of the temporal bone forming the zygomatic arch. (4) The anterior wall of the maxillary antrum.

Diagnosis

Diagnosis can often be made at sight. Many or all of the following signs and symptoms are present: (1) "Black eye," subconjunctival haemorrhage; (2) unilateral epistaxis; (3) flattening of contour and lack of expression on the affected side (depression may be masked by oedema and ecchymosis); (4) irregularity and depression of the inferior orbital margin, or zygomatic arch just anterior to the ear; (5) pain and tenderness over one or more of supports previously mentioned; (6) pain on and difficulty in mastication; (7) numbness in the region supplied by the infraorbital nerve; (8) mobility and crepitus usually absent.

Confirmation is made by radiographs, the chin–nose position being the most suitable in our experience; this reproduces the orbital margins and any irregularity very clearly, although Stone recommends a mento-vertex view, which shows up the zygomatic arch and any inward displacement of the zygoma. The degree of violence may be almost insignificant and the fracture missed.

Complications

Ocular.—Persistent and vertical diplopia, due to (*a*) lack of support of the floor of the orbit, or (*b*) damage to the ligament of Lockwood (ligamentum suspensorium oculi), the eyeball being displaced downwards, with consequent hypotropia or hypophoria, or (*c*) orbital haemorrhage and organization of the clot interfering with the action of the inferior oblique and inferior rectus muscles, or (*d*) injury to the nerve supply of these muscles.

Nasal.—Infected haematoma of the maxillary antrum necessitating drainage.

Others.—Permanent loss of sensation in the region supplied by the infraorbital nerve. Mechanical obstruction to jaw movements due to pressure of in-driven fragments of the zygoma in the coronoid process of the mandible.

Treatment

Early replacement of fragments is essential to ensure complete absence of complications. The method of choice we consider to be the Caldwell-Luc approach to the antrum through an incision in the gingival sulcus. The line of fracture or the comminuted fragments, are visible in raising the cheek. All loose fragments should be removed and also the residual blood-clot. The impacted bone is freed and raised upwards and outwards and the inferior orbital margin reconstituted. The antrum is packed with gauze, impregnated with bipp, and the end brought through an opening into the inferior meatus. The incision in the mouth is closed. The pack is removed in five days and the patient allowed home in 10 to 14 days.

Other Methods of Replacement.—(1) Gillies recommends an incision in the scalp above and anterior to the ear through skin and temporal fascia. A long, narrow, curved elevator is slid downwards behind the zygomatic arch and the bone elevated upwards and outwards. He admits that comminution requires the radical antrum approach. (2) Spaeth recommends pressure outwards on the lower part of the lateral orbital margin below the outer canthus. (3) Others recommend pressure from within the mouth or the use of hooked forceps through an external incision.

We do not think that enough power could be exercised in badly impacted cases using these methods. The ocular complications in untreated cases with vertical diplopia may be dealt with by suitable operations on one or more of the extrinsic ocular muscles, usually a weakening of the action of the contralateral synergist, with subsequent orthoptic treatment if required. As a last resort, prismatic lenses to restore the muscle balance may be prescribed. Where the antrum has been opened and drained no subsequent complication has followed in our cases.

Case Histories

Case 1.—A. S., aged 18. 10/7/42: Fell off motor-cycle; severely injured. Fractured right zygoma missed. 1/10/42: Vertical diplopia; impaired action of right inf. oblique; 24 prism dioptres hyperphoria; left eye higher than right (L./R. 24Δ. 8/10/42: Operation—recession of left sup. rect. muscle. Three weeks later still some diplopia. 16/11/42: Operation—myectomy of left inf. obl. 16/12/42: Hyperphoria L./R. 2Δ.; no diplopia; visual acuity, 6/6 R. and L.

Case 2.—W. T. (59). Knocked down by motor-car, 2/10/42. 13/12/42: Diplopia looking up; fractured left zygoma; impaired action of left inf. obl. ; hyperphoria R./L. 16Δ. 17/12/42: Operation—recession of right sup. rect. 19/1/43: R./L. 4Δ. No further operation desired. Slight diplopia corrected by prismatic lenses.

Case 3.—Mrs. D. (27). 10/3/42: Struck in right eye with fist. 17/3/42: Fractured right zygoma, confirmed by radiograph; fractures at infraorbital foramen and two of lateral wall of orbit, with downward displacement of inferior orbital margin. Treatment refused because of domestic complications. 10/6/43: Diplopia looking down (right inf. rect.), corrected by vertical prismatic lenses. 7/9/43: With glasses, no diplopia; orthophoric with Maddox rod.

Case 4.—T. S. (71). 4/4/43: Fell off bus. Examined 25/4/43: Diplopia down and slightly to left; numb feeling in cheek; epistaxis and subconjunctival haemorrhage at time of accident. Radiograph confirmed fractured zygoma. Reduction refused by patient. Diplopia corrected with 6 prisms vertically, divided between the two eyes. 17/7/43: No diplopia with glasses; prisms reduced to 4Δ; orthophoric with Maddox rod and wing tests. V.A., 6/6 R. and L.

Case 5.—Mrs. C. (54). 17/5/43: Fell in street, sustaining black eye, and subconjunctival haemorrhage. Examined 25/5/43: Fractured left zygoma at infraorbital foramen, with depression of inferior orbital margin. Operation same day; bone easily raised into position and antrum packed. Patient discharged in 10 days. 20/6/43: Perfect position; still numbness of cheek. 17/7/43: V.A., 6/6 R. and L. No diplopia. Maddox rod and wing, orthophoric (no muscle imbalance).

Case 6.—D. M. (56). Struck by fist in right eye. 7/7/42: Several signs present; no displacement; fractured zygoma at infraorbital foramen. No treatment. 28/7/43: V.A., 6/9 R. and L. Maddox rod and wing, orthophoric.

Case 7.—W. F. (57). 10/9/43: Struck on side of face by fall of coal; usual signs present and fractured right zygoma. Impacted fragments disengaged and replaced. 22/9/43: Patient discharged from hospital. 20/11/43: V.A., with glasses, no prisms, 6/6 R. and L. Maddox rod and wing, orthophoric.

Case 8.—T. McA. (18). 3/10/43: Struck by hammer on side of face; usual signs and symptoms. Radiograph confirmed fractured zygoma with extension into orbital plate of maxilla. 10/10/43: Operation revealed comminuted fracture of anterior wall of antrum; fragments removed and zygoma replaced in position. Patient discharged 14 days later. 16/1/44: Radiograph shows perfect alignment; no diplopia; orthophoric.

Case 9.—A. F. (62). 2/11/43: Fell off cycle on left side of face. Many of usual signs present; fractured left zygoma at infraorbital foramen; slight displacement. Operation—bone easily raised into position. Patient discharged in 10 days. 16/1/44: No diplopia; orthophoric.

Summary

Diagnosis and treatment of fractures of the zygomatic bone and its complications are dealt with.

Two cases were not seen early enough; complications treated by extraocular muscle operations.

Seven patients were seen soon after accident, two of whom refused operation; diplopia corrected with prismatic lenses.

Four cases had fractured bone replaced; no complications arose subsequently.

One case required no treatment.

Immediate operative treatment to restore the displacement is stressed. Several methods of reduction are mentioned; open operation by Caldwell-Luc approach is suggested as being the most suitable. Subsequent treatment, operative or optical, of the commonest complication—persistent diplopia—should be carried out at a later date if required.

No patients should be informed that "nothing can be done" for them.

SOLITARY DIVERTICULUM OF THE CAECUM

BY

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The recent report by Dr. Hendtlass (1944) of a case of perforated solitary diverticulum of the caecum has drawn attention to this rare condition, which may be met with when operating for appendicitis. Unless one is aware of the condition it is apt to be mistaken for carcinoma or tuberculosis, and needlessly extensive and severe operations, such as hemicolectomy, may be performed (Grace, 1940).

In 1937 Bennett-Jones reviewed the literature, collecting 19 reported cases and adding 3 of his own. In none of these 22 cases were any associated diverticula of the rest of the colon demonstrated.

The cases appear to be of two types. (1) Congenital true diverticulum of the caecum is an elongated pouch usually arising near the ileo-caecal valve and resembling an extra appendix. (2) False solitary diverticulum of the caecum. This has to be distinguished from the simple non-specific ulcer of the caecum well described by J. R. Cameron (1939) as resembling a peptic ulcer in its pathology. The diverticulum is a definite pouch which may show an area of inflammation in its wall, whereas the ulcer is purely an ulcer without any pouch. From the practical point of view the differentiation is unimportant, for the treatment is the same. The diverticulum is "false" because it does not consist of all the coats of the caecum, as does the congenital type, but is a hernial protrusion of the mucosa and submucosa through the muscularis. This may be caused by pulsion or by traction.

The fact that the diverticulum is usually solitary suggests that it has a different aetiology from multiple diverticulosis of the colon and is against the cause being pulsion from within. I can trace only one case—that reported by Mr. Lawrence Able (1939), in which associated diverticulosis of the pelvic colon was found. Traction may be caused by contraction of the scar tissue of a healing non-specific ulcer of the caecum (cf. diverticula of the duodenum associated with scars of old peptic ulcers).

Three of the reported cases, as well as the one here recorded, were associated with calcified tuberculous mesenteric glands. It is possible that the contracture of scar tissue around these glands may cause the diverticulum by traction. One of the reported cases (Thomsen, 1935) actually showed calcified tissue in the caecal wall. Harold Edwards (1939) calls attention to the comparative youthfulness of these patients with solitary diverticula of the caecum. Eleven of Bennett-Jones's 22 cases were below the age of 32, whereas of Edwards's 15 cases of diverticulosis elsewhere in the colon the average age was 55 years, the extremes being 38 and 75 years.

Treatment.—All that is necessary is to perform a local resection of the diverticulum and adjacent portion of the caecum. A catheter inserted into the caecum through the stump of the appendix, which is usually removed at the same time, is a simple precaution to relieve any tension on the suture line and allow the giving of fluids if necessary.

Case Report

A muscular but not at all obese bricklayer aged 48 was admitted to Lewisham Hospital on March 21, 1939. Two days before admission he began to have pains across the abdomen which settled in the R.I.F. He vomited once the day before admission. There was a history of a right inguinal hernia for three years. Two years ago he had vomiting and general abdominal pain for one week. During the last 18 months he had suffered from vague abdominal pain without any regular relation to meals. He was never completely free from this pain for more than a week. His weight had kept constant.

On admission he resembled a case of acute appendicitis, there being rigidity in the R.I.F., with deep tenderness over McBurney's point. Temperature 98.4° F.; pulse 88; respirations 22. Under general anaesthesia a gridiron incision was made. The appendix was long, contained three faecaliths, but was not inflamed or obstructed. A diverticulum of the infero-lateral aspect of the caecum admitted the tip of the index finger. It was inflamed and very thin at one part. Some calcified glands were seen in the ileo-caecal region. A wedge-shaped portion of caecum including the diverticulum was resected and the caecum sutured in two layers. The appendix was removed and a catheter tied into the caecum through the invaginated stump of the appendix. A corrugated rubber drain was inserted down to the site of resection.

The patient made an uninterrupted recovery. There was a very little faeces-stained discharge from the catheter. The corrugated drain was removed on the fourth day and the catheter on the tenth day. The wound was dry a few days later, and he was discharged home three weeks after admission.

A plain radiograph of his abdomen confirmed the presence of calcified glands in the right lower quadrant of the abdomen. A barium meal showed no diverticula elsewhere in the colon. The barium meal was repeated in March, 1940: again the whole colon appeared normal. He had no symptoms.

I am indebted to Prof. W. G. Barnard, then Director of the London County Council Histological Laboratory, for the excellent photomicrographs. He reported on the sections as follows:

"Purulent diverticulitis of caecum. The diverticulum is typical of the more common diverticula of colon. It is a hernial protrusion of mucosa and submucosa through the muscularis, and because of this is called a false diverticulum, to distinguish it from a true diverticulum, which would have the addition of the muscular coats in its wall. In Fig. 1 the abrupt termination of the caecal muscular coats on each side of the diverticulum is clearly shown, as are the mucosa and submucosa composing the wall of the diverticulum. At one side of the diverticulum the mucosa is missing, and here there is a purulent infiltration which has spread to the pericaecal fatty tissue (Fig. 2)."

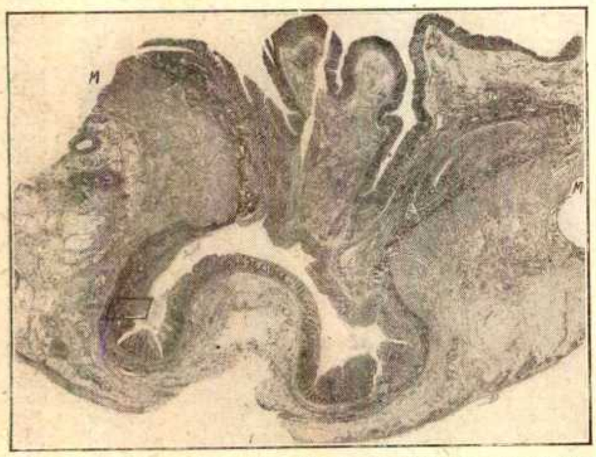

FIG. 1.—Section through solitary diverticulum of caecum. The abrupt termination of the caecal muscular coats (M) on each side of the diverticulum is clearly shown.

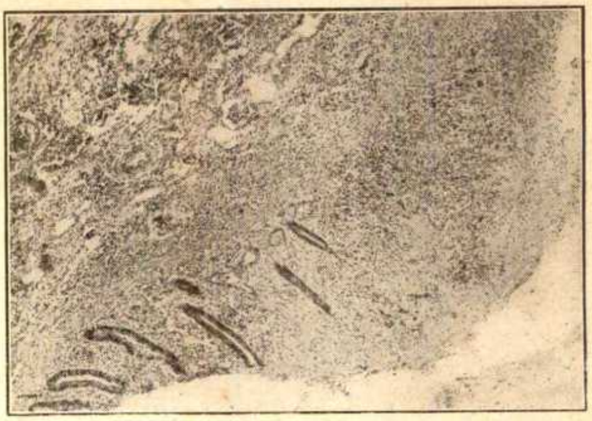

FIG. 2.—High magnification of the area outlined in ink in Fig. 1, showing purulent inflammation.

Summary

A case of purulent inflammation in a solitary diverticulum of the caecum is reported. The aetiology of the condition is discussed and local excision is recommended as the best treatment.

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PENICILLIN AND FIBRINOLYSIS

BY

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Major, R.A.M.C.; Fellow of King's College, Cambridge

Staph. pyogenes can produce an enzyme fibrinolysin or fibrinase which may dissolve the clot produced by its own coagulase activity (Gonzenbach and Uemura, 1916; Gengou, 1933; Reimer, 1936). Some strains are more active in fibrinolysis than others. This fibrinolysis is well seen on inoculating 0.2-ml. quantities of human citrated plasma (diluted 1 : 4) in 2 in. by 3/8 in. test-tubes with a large loopful of a 24-hour broth culture of a strongly fibrinolytic strain of *Staph. pyogenes*. After 3 hours' incubation the contents of the tubes have solidified to a gel, but after further incubation for 3 to 6 hours the clot redissolves completely. These facts are illustrated in Table I, which compares the fibrinolytic activity of two strains—one strongly *fibrinolytic*, the other *afibrinolytic*.

TABLE I.—*Comparative Activity of Fibrinolytic and Afibrinolytic Strains of Staph. pyogenes*

	Clot Present After 3 hrs.	Clot Present After 6 hrs.	Clot Present After 9 hrs.	Colour to Neutral Red Initially	Colour to Neutral Red After 9 hrs.
0·2 ml. plasma 1 : 4 inoculated with 1 loopful of a 24-hr. broth culture of a coagulase-positive *fibrinolytic* strain of Staph. pyogenes	+ + + +	– –	– –	Yellow "	Pink "
0·2 ml. plasma 1 : 4 inoculated with 1 loopful of a 24-hr. broth culture of a coagulase-positive *afibrinolytic* strain of Staph. pyogenes	+ + + +	+ + + +	+ + + +	" "	" "

NOTES ON TABLE I.—(1) Double results refer to duplicate experiments. (2) 0.02 ml. of 0·04% neutral red added to each tube. (3) + + indicates coherent clot occupying major portion of contents of tube. + indicates some clot. – indicates absence of clot.

It will be seen from Table I that the first strain of *Staph. pyogenes* has caused the complete solution of the clot formed by its own coagulase activity within 6 hours of putting up the experiment. The second strain has failed to dissolve the clot even after 9 hours' incubation. Both strains, however, were equally effective in the production of acid. It has recently been suggested by Wilson Smith and Hale (1944), in a valuable study on the mechanism of coagulase activity, that fibrinolysis by *Staph. pyogenes* is associated with dissolution of the clot in the presence of acid formed by the growth of the organism. It is true that acid is formed simultaneously with the solution of fibrin, but fibrinolysis does not merely consist in the solution of fibrin at a low *p*H, since acid is formed just as readily by strains which cannot readily dissolve fibrin. Fibrinolysis and fermentation are independent phenomena.

Fibrinolysis is readily shown by suitable strains of *Staph. pyogenes* which produce both intense coagulation and rapid subsequent clot solution. Many such strains have been isolated from cases of pyodermia kindly sent to me by Major J. H. Twiston Davies, R.A.M.C. The only available subculture of the Oxford staphylococcus, however (possibly owing to loss of activity by repeated subculture), produced an inconstant and attenuated fibrin web under these conditions, and was therefore not suitable for the study of fibrinolysis.

Penicillin inhibits haemolysis by haemolytic streptococci (Wilson, 1943; Rammelkamp, 1942; Fleming, 1943, 1944). It appeared of interest to ascertain whether penicillin also interferes with fibrinolysis by *Staph. pyogenes*. Since this work was started an account of the inhibition of fibrinolysis by haemolytic streptococci has come from America (Neter and Will, 1944). That penicillin also inhibits fibrinolysis by *Staph. pyogenes* will be clear from the results which follow.

Varying quantities of penicillin dissolved in 0.05 ml. of distilled water are added to 0.05-ml. quantities of human citrated plasma in sterile 2 in. by 3/8 in. test-tubes; 0.10 ml. of saline is added to each tube to give a final volume of 0.20 ml. Then each tube is inoculated with one loopful (2 mm. diameter) of a 24-hour broth culture of a penicillin-sensitive coagulase-positive strain of *Staph. pyogenes,* known from previous experiments to be active in dissolving fibrin. After 3 hours' incubation a clot is seen to have formed in each tube, both in the presence and in the absence of penicillin. But after a further 9 hours' incubation (or even earlier) all the clot is dissolved in the control tubes without penicillin. With concentrations of 0.1 unit of penicillin per ml. and above, the clot remains unchanged, fibrinolysis having been completely inhibited. With less than 0.1 unit per ml., although fibrinolysis is sometimes delayed at the start, disintegration of the clot is generally complete after 9 or 12 hours' total incubation. The results of a typical experiment are recorded in Table II.

TABLE II.—*Action of Penicillin on Penicillin-sensitive Strains of Staph. pyogenes*

Final Concentration of Penicillin in Oxford Units per ml.	Presence or Absence of Clot After Varying Periods of Incubation Following Inoculation with Staph. pyogenes (Penicillin-sensitive and Fibrinase-positive)				Growth After 21 hrs.
	3 hrs.	9 hrs.	12 hrs.	21 hrs.	
0·00	++	−	−	−	+
	++	−	−	−	+
0·025	++	−	−	−	+
	++	−	−	−	+
0·05	+	+	−	−	+
	++	−	−	−	+
0·10	++	++	++	++	−
	++	++	++	++	−
0·25	++	++	++	++	−
	++	++	++	++	−

NOTES ON TABLE II.—(1) Double results refer to duplicate experiments. (2) All tubes contained 0·10 ml. saline and 0·05 ml. human citrated plasma. Final volume made up with distilled water containing varying amounts of penicillin to 0·20 ml. (3) ++ indicates presence of large coherent clot occupying a large part of contents of tube. + indicates presence of some clot. − indicates absence of clot.

Penicillin inhibits fibrinolysis by penicillin-sensitive *Staph. pyogenes* readily also in the presence of serum. This action can be used for the detection and estimation of penicillin in serum. The serum sample for estimation is progressively diluted with penicillin-free serum obtained from the same patient before treatment. Human citrated plasma is added, and each tube is inoculated with fibrinolytic *Staph. pyogenes* as in the above experiments. The titre down to which fibrinolysis is inhibited is determined and compared with controls, using the same penicillin-free serum with added known quantities of penicillin. These control experiments determine the end-point of fibrinolysis with the particular serum employed. It is important to use penicillin-free serum obtained from the same patient before treatment, both as diluent for the serum sample to be tested and in the controls with known amounts of penicillin; otherwise errors due to the presence of antifibrinolytic agents (see Tillett and Garner, 1933; Stuart-Harris, 1935) may arise. This procedure also controls any effect due to decomposition of penicillin in presence of serum (see Bigger, 1944). Some sera are, however, so resistant to fibrinolysis that their penicillin content cannot be measured by this method. Fleming's (1944) recently described method is thus preferable.

Results employing this effect of penicillin on fibrinolysis have, however, found the penicillin concentration in the serum to be of the order of 3 units per ml. 15 to 30 minutes after intramuscular injection of 1,000,000 units, and to be 0.4 to 0.8 units per ml. after 1 hour.

In contrast to the action of penicillin on the fibrinolysis by penicillin-sensitive *Staph. pyogenes,* with *insensitive* strains no such action is observed. Table III demonstrates the failure of penicillin to inhibit fibrinolysis by an insensitive strain.

TABLE III.—*Action of Penicillin on Penicillin-insensitive Strains*

Final Concentration of Penicillin in Oxford Units per ml.	Presence or Absence of Clot After Various Periods of Incubation with Penicillin-insensitive Fibrinase-positive Staph. pyogenes		Growth After 21 hrs.
	3 hrs.	9 hrs.	
0·00	++	−	+
0·05	++	−	+
0·10	++	−	+
0·20	++	−	+
0·50	++	−	+
1·00	++	−	+

NOTES ON TABLE III.—(1) All tubes contained 0·10 ml. human plasma previously diluted with an equal volume of saline and 0·10 ml. water, containing varying quantities of penicillin, to give a final volume of 0·20 ml. (2) Symbols have same connotation as in Table I.

The results in Table III show that concentrations of penicillin which inhibit growth and fibrinolysis with *sensitive* strains of *Staph. pyogenes* fail to do so when *insensitive* strains are employed. The action of penicillin in inhibiting fibrinolysis is therefore connected with the inhibition of growth and metabolism, rather than with actual inhibition of the enzymic process of fibrin solution.

Under the conditions studied penicillin did not interfere with coagulase activity, presumably because sufficient preformed coagulase was present in the inoculum to cause rapid deposition of fibrin. The formation of acid, however, which accompanies growth and fibrinolysis is inhibited by penicillin with penicillin-sensitive strains. This is illustrated in Table IV.

TABLE IV

Final Concentration of Penicillin in Oxford Units per ml.	Presence or Absence of Clot After Varying Periods of Incubation with Fibrinolytic Strain of Staph. pyogenes		Colour of Contents of Tubes Before and After Incubation (0·02 ml. of 0·04% Neutral Red was Added to Each Tube)	
	3 hrs.	9 hrs.	Initially	9 hrs.
0·00	++	−	Yellow	Pink
0·025	++	−	,,	,,
0·05	++	−	,,	,,
0·10	++	−	,,	Orange
0·25	++	++	,,	Yellow
0·50	++	++	,,	,,

NOTES ON TABLE IV.—(1) All tubes contained 0·10 ml. human citrated plasma previously diluted with an equal volume of saline and 0·10 ml. water containing varying quantities of penicillin. To each was added 0·02 ml. of 0·04% neutral red. Final volume, 0·22 ml. (2) Symbols have same connotation as in Table I.

It is seen from the results shown in Table IV that the *p*H changes which normally accompany growth are abolished by penicillin at the same time as the interruption of fibrinolysis.

With a penicillin-insensitive strain, on the other hand, the production of acid is not susceptible to inhibition by penicillin. This is shown in Table V.

TABLE V

Final Concentration of Penicillin in Oxford Units per ml.	Presence or Absence of Clot After Varying Periods of Incubation with Penicillin-insensitive *Afibrinolytic* Strain of Staph. pyogenes		Colour of Contents of Tubes Before and After Incubation (0·02 ml. of 0·04% Neutral Red was Added to Each Tube)	
	3 hrs.	9 hrs.	Initially	9 hrs.
0·00	++	++	Yellow	Pink
0·025	++	++	"	"
0·05	++	++	"	"
0·10	++	++	"	"
0·25	++	++	"	"
0·50	++	++	"	"

NOTES ON TABLE V.—(1) Quantities of reagents employed were the same as n Table IV. (2) Symbols have same connotation as in Table IV.

It is seen from the above results (Table V) that even 0.5 unit of penicillin per ml. has not interfered with the production of acid by insensitive *Staph. pyogenes*, which is in marked contrast to the results in Table IV when a sensitive strain was employed. The results in Table V also demonstrate the separate nature of the phenomena of fibrinolysis and acid production. The strain used was *afibrinolytic*, and in spite of good acid production (at all penicillin concentrations used) solution of fibrin did not occur.

Fibrinolysis by *Str. pyogenes* (Group A) is also inhibited by penicillin (as was shown by Neter and Will, 1944). Using the technique described above, this action was found with one strain down to 0.025 unit of penicillin per ml., and with another to 0.0125 unit per ml. As *Str. pyogenes* does not form coagulase, 0.02 ml. of 1% calcium chloride was added to each tube to give the preliminary fibrin clot.

This inhibitory action of penicillin on fibrinolysis by both *Staph. pyogenes* and *Str. pyogenes* may be responsible for some of the therapeutic effects of penicillin, since prevention of the dissolution of fibrin barriers would counteract the spread of infection.

Summary

Penicillin inhibits fibrinolysis by penicillin-sensitive fibrinolytic strains of *Staph. pyogenes*.

The clot produced in human plasma by coagulase activity redissolves on further incubation, but fails to redissolve in the presence of penicillin at concentrations as low as those necessary to inhibit growth.

This effect is shown with penicillin-*sensitive* but not with penicillin-*insensitive* strains of *Staph. pyogenes*, and is presumably connected with the inhibition of growth.

I am very grateful to Major-Gen. L. T. Poole for his kind interest in this work, also to Major J. H. Twiston Davies, Lieut.-Col. C. H. Stuart-Harris, and Major S. T. Cowan for valuable advice. I wish to thank Sgt. J. R. McDonald and Sgt. J. Smith for their able assistance.

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The *Soviet Medical Chronicle* for March, 1945, prepared by the Anglo-Soviet Medical Council in London from material supplied by the U.S.S.R. Society for Cultural Relations, Moscow, reports the reopening of the Pirogov Museum in the village of Sheremetka, not far from the city of Vinnitsa in the Ukraine. This museum is dedicated to Nikolai Pirogov, the famous surgeon (1810–81), known as the father of Russian medicine. During their occupation the Germans turned it into a stable and destroyed many valuable exhibits. When they retreated from the village the Germans planted mines both in the house in which Pirogov had lived and worked, and in his tomb. At the risk of their lives the villagers removed the mines and saved the museum. Later on the staff of the local hospital helped to repair the building, which is now open to visitors again.

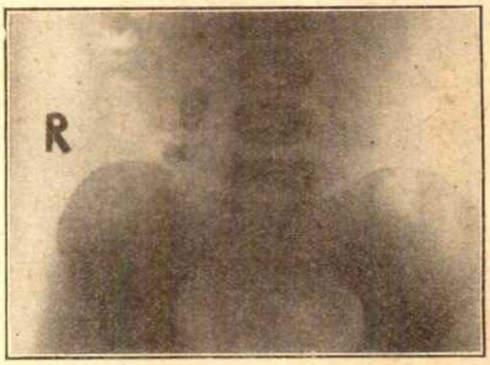
Medical Memoranda

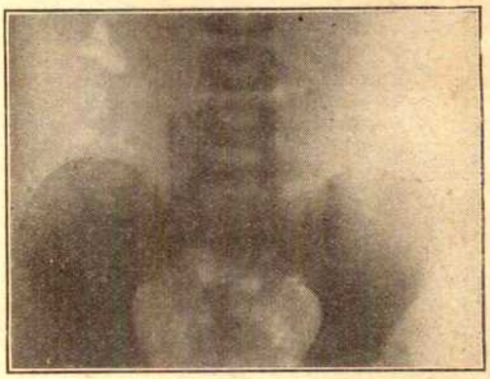
Identical Disease in Identical Twins

Kallmann and Reisner (1943), in an enlightening study recently reviewed in this *Journal* (1944, **2**, 504), confirmed the conclusions arrived at by various other authors that "hereditary factors play a decisive part in both the origin and the clinical course of tuberculous disease." An extensive literature—mostly German—on this subject is to be found in the original paper.

As a contribution to the pathology of twins the following cases may be of some interest.

The twins in question are 7-year-old daughters of a tuberculous mother under my treatment. These little girls, so far as I am able to judge, are identical—monozygotic—twins. In the course of routine contact examination of the children I learnt that they were complaining of cramp-like abdominal pains. The plain abdominal radiographs of the twins show calcified mesenteric glands, so alike in size, site, and configuration that one feels entitled to call them identical. As the two radiographs were taken on different days some allowance should be made for a slight difference in positioning, with slightly different projection of the glands in relation to the spine. There is no doubt that in both cases exactly the same group of glands is affected.





E. G. W. Hoffstaedt, M.D.Berlin,
Consultant Tuberculosis Officer, W.R.C.C.;
Clinical Tuberculosis Officer, Doncaster.

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Diffuse Peritonitis from Gangrene of Hernial Sac

Gangrene of a hernial sac, though rare, is well known. It may or may not be associated with gangrene of the sac contents, the latter usually occurring in an elderly patient with a long-standing hernia. However, the following case, if not unique, appears to be of such rarity as to be worth recording.

A man aged 59 was admitted to the City General Hospital, Sheffield, on Nov. 15, 1944, for retention of urine. The relevant history was that six months previously he developed bilateral inguinal herniae, for which he was given a truss. This did not control either side adequately, and 10 days before admission the left hernia became irreducible, painful, and tender. This local tenderness was followed by colic pain, nausea, and later vomiting, also with absolute constipation for four days and retention of urine 12 hours before admission, for which he had been catheterized.

On examination his general condition was poor, he was dehydrated, and his tongue was red and dry. The abdomen was distended, tender all over, but intestinal sounds were present. In the left inguinal canal there was a tender swelling, which was irreducible, non-expansile on coughing, and covered by red oedematous skin. Seven oz. of urine was withdrawn by catheter. The provisional diagnosis was strangulated omental hernia with abscess formation and early peritonitis. Operation was immediately performed under local analgesia. Pus was found under the skin around and in the hernial sac, which was gangrenous, though the omentum, the only contents of the sac, was viable. The pus within the sac was aspirated; but on displacing the omentum pus welled out from within the abdomen. The sac was excised and the viable peritoneum at the internal ring closed. The skin was loosely sutured, with drainage to the peritoneum. He was given morphine, and an intravenous drip was inserted, but death occurred some 27 hours later.

Necropsy showed diffuse suppuration in the left inguinal canal and acute diffuse peritonitis, starting from the region of the left internal abdominal ring. No cause for the lesions was found, as the gut and omentum were viable and the gangrenous sac had been excised at operation.

I wish to thank Dr. Rennie, M.O.H., and Dr. Clark, medical superintendent, for permission to publish this case.

JUDSON T. CHESTERMAN, M.R.C.P., F.R.C.S., F.A.C.S.
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A Case of D.D.T. Poisoning in Man

Extensive studies on the toxicity to mammals of the new insecticide, 4,4'-dichlor-diphenyl-trichlorethane, commonly known as D.D.T., have shown that this substance is primarily a nerve poison, producing excitability, muscular tremors, clonic convulsions, and finally paralysis and death. It also causes a leucocytosis, anaemia, changes in blood calcium, and fatty degeneration in the liver and kidneys. It is absorbed readily through the skin, particularly when dissolved in kerosene (Cameron, 1943; Domenjoz, 1944; Draize *et al.*, 1944; Lillie and Smith, 1944; Neal *et al.*, 1944; Nelson *et al.*, 1944; Smith and Stohlman, 1944; Woodard *et al.*, 1944). In spite of a careful search among persons who have handled D.D.T. over long periods, no instance of poisoning in man has so far been reported. It seems desirable, therefore, to put on record the following case.

CASE HISTORY

The subject was a laboratory worker, about 30 years of age, in perfect health. Being unaware of the risk of absorption through the skin, leading to a general intoxication, and being anxious to discover whether D.D.T. was liable to cause any local irritation, he deliberately allowed small quantities of an acetone solution (acetone is one of the best solvents for D.D.T.) to evaporate on the back of the hand, the residual deposit being swabbed off with cotton-wool soaked in acetone. No erythema or any kind of skin irritation was observed. At least one further and more complete exposure was carried out, during which the subject's hands were in prolonged contact with the compound in acetone solution. In the course of these experiments an acetone solution containing about 25 g. of D.D.T. was added to an inert dust and the mixture kneaded with the hands for some minutes. During this operation the mixture completely covered the hands almost to the wrists. When the hands were taken from the mixture the solvent rapidly evaporated, leaving a dry deposit on the skin, which was removed as before by swabbing with acetone.

From one to ten days later a feeling of heaviness and aching developed in all the limbs, with weakness in the legs. There were also what the subject described as "spasms of extreme nervous tension." There was some improvement during a holiday taken at this time; but on returning to work the condition deteriorated, and some three weeks later the perpetual aching in the limbs confined the patient to bed. Sleep became almost impossible, the feeling of extreme nervous tension became more frequent, and a state of acute mental anxiety developed.

About six days after being confined to bed involuntary muscular tremors occurred over the whole body, and these were experienced on at least two subsequent occasions. After 10 to 14 days the patient got up, although the aching in the limbs was still severe. His recovery was very slow. He was away from work for 10 weeks in all, but even at the end of a year recovery was not quite complete.

During his illness it occurred neither to the patient nor to the neurologist and others whom he consulted that this might be a case of D.D.T. poisoning. Anxiety occasioned by the mysterious nature of his complaint was probably the cause of some of the symptoms (which are not here recorded); his condition immediately began to improve when he realized that his was almost certainly a case of poisoning by D.D.T.

The general consensus of opinion, based on experiments with animals and observations on man, is that D.D.T. used with discretion does not constitute a hazard to human health. The case here recorded is the exception which tests the rule. Symptoms closely resembling those seen in animals developed only after a deliberate exposure to D.D.T. far in excess of anything that would be likely to occur in practice.

London School of Hygiene and Tropical Medicine. V. B. WIGGLESWORTH, M.D., F.R.S.

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Reviews

THE NATURE OF COURAGE

The Anatomy of Courage. By Lord Moran. (Pp. 216. 8s. 6d.). London: Constable and Co.

Lord Moran served as medical officer with one of our finest infantry battalions in the last war, and kept a diary in which he wrote of the minds and behaviour of men under stress of battle—studies which reveal his remarkable powers of observation and description. Extracts from the diary are interwoven in this book with present reflections enriched by the author's contact during this war with statesmen and officers of high rank in the fighting services—men who are interested as he is in the vital problem of morale. Wars are won, Lord Moran reminds us, by the courage and endurance of the few who are like rafts to which all the rest of humanity clings for support and for life. It is they who set the standard for victory. Fear is the enemy in himself with which a man must ever contend, and must vanquish if he is to play his part in the issue of success. This secret battle the author watched in the officers and men of his battalion, and in himself, through the vicissitudes of three years from the high-spirited days of 1914 to the last weary trench winter of 1917. He writes of the discovery of fear in men of all sorts, appearing in ways which are as many and various as their personalities, of fearlessness, of the ebb and flow of courage, and of the care and management of fear. His pages are alive with vivid intimate sketches of men seen at their critical moments of opportunity for success or failure in the venture which, as he says, is now not as of old the trade of the mercenary or the lot of the unimaginative, but the ordeal which every citizen must expect, whatever the stuff he is made of and whatever may be his attitude towards war. It is an ordeal which has borne hardly upon some of those brought up between the two wars to regard war as a senseless folly which solves nothing.

This book makes good reading, but critically regarded it lacks order and aim, and the reader who looks for deep and original thought may be disappointed. The distinction between war neurosis and concussion is dealt with in a way which might lead the uncritical to suppose that the blast effect of a shell may be responsible for the former—the hypothesis of shell shock abandoned in the last war and unsupported in this—and the assumption is made that a man may become an epileptic as the result of emotional strain. These are minor blemishes in a volume which is full of good stories and crisp thought, but are none the less unfortunate. The final chapter, on leadership, shows the author at his best and reveals his wide knowledge of military history. The book, one hopes, will be read by all medical and commanding officers of combatant units, for it cannot fail to excite thought and advance inquiry into the means of keeping the soldier's mind fit for his job—a task which is now widely recognized as the joint responsibility of commander and doctor.

A PRIMER OF SOCIAL MEDICINE

A Handbook of Social Medicine. By Fred Grundy, M.D., D.P.H. (Pp. 172; illustrated. 8s. 6d.) Luton: The Leagrave Press. 1945.

Dr. Grundy has written this book on social medicine to help midwives in their studies as hospital pupils, and in their practice. The matter it contains is an expansion of his own lectures to pupil midwives. As an aid to study and practice it ought to be useful not only to midwives but also to other nurses in the social health services.

The subjects dealt with cover many wide fields of knowledge and practice, but of course they are handled very briefly for the special needs of the readers. The sections deal in turn with the administrative structure of the socio-medical services, central and local; with the individuals concerned, women and children, in their environment; with the relevant problems of infection; with social biology and vital statistics; and provide a historical sketch of midwifery, an account of the Midwives Acts, and a useful extract from the Rushcliffe Committee report.

There can be no question that if the midwife is to be really competent and interested in her clinical practice she requires a great deal of the information abstracted and compiled by Dr. Grundy. A condensation of the vast miscellaneous knowledge which swells out the ordinary textbooks of public health into a small handbook suitable for the needs of midwives and other nurses is a difficult task. In places the result is somewhat rough, untidy, and scrappy; but the main purpose is achieved in giving the midwife, both as a student and as a practitioner, a manual of reference of essential information about the laws and regulations, the administrative framework, and the wider purposes that underlie the daily clinical routine of her work. The sections on maternal and infant diet are too short; and the linking of the work of the midwife and the health visitor also needs expansion. A good deal is said about the child welfare services, and this inclusion is well justified. Dr. Grundy is persuaded and enthusiastic about the great potential of service the midwife can render. He also stresses the value of the informal education given by the midwife in the intimate personal contacts of her work; and he has done well to emphasize the value and importance of this part of the work of the midwife as teacher as well as practitioner.

SULPHONAMIDES AND THE RETICULO-ENDOTHELIAL SYSTEM

The Reticulo-Endothelial System in Sulfonamide Activity. By Frank Thomas Maher, Ph.D. Illinois Monographs in the Medical Sciences Vol. V, Nos. 1 and 2. (Pp. 232. $2.50 paper bound; $3.00 cloth bound). Urbana: University of Illinois Press. 1944.

This is a monograph describing work carried out for a Ph.D. degree. The author has sought to demonstrate the part played by the reticulo-endothelial system in the defeat of bacterial infections treated by sulphonamides. He has used rabbits as his experimental animals, and he infected them with a strain of *Staphylococcus aureus*, which in sufficient dose was uniformly fatal in the absence of treatment. To determine the part played by the reticulo-endothelial system, thorotrast was injected intravenously, after which the liver, spleen, lungs, and kidneys were found to be impregnated with granules of thorium dioxide. In the dose used (3 c.cm. per kg.) thorotrast had no toxic effect. The injection of thorotrast was believed by the author to have depressed the reticulo-endothelial system for about 48 hours, because during this period the conjugation of sulphanilamide and of sulphathiazole to form the corresponding acetyl derivatives was depressed. Doses of the staphylococcal culture which were not lethal for all normal rabbits were lethal for a greater proportion of rabbits treated with thorotrast.

Sulphathiazole, given in suspension in olive oil by subcutaneous injection, protected rabbits against the staphylococcal infection, though this protection was not complete. Sulphathiazole, however, failed entirely to afford protection against the infection in rabbits treated with thorotrast during the period in which the reticulo-endothelial system was depressed. After recovery—e.g., 4 days after thorotrast administration—sulphathiazole once more assisted in overcoming the infection.

The author recognizes that the staphylococcus was not the best organism to use for this work, but he failed to obtain a culture of *Streptococcus haemolyticus* which was uniformly virulent. Perhaps the most interesting part of the monograph is that which suggests that the reticulo-endothelial system is responsible for the chemical reaction of conjugating sulphonamides with acetic acid.

COLORIMETRIC METHODS OF ANALYSIS

Colorimetric Analysis. By Noel L. Allport, F.R.I.C., Research Chemist, British Drug Houses, Ltd. (Pp. 452. 32s.) London: Chapman and Hall. 1945.

To those who have occasion to perform colorimetric determinations a vast array of methods is available in the technical literature, and it is often difficult to choose the most suitable one. In the book under review the author has successfully presented a detailed account of the more useful colorimetric methods of analysis in a volume of moderate size and cost; only those which have proved satisfactory in his own experience are included.

The book is divided into five sections. Sections I and II deal with the determination of metallic and acidic radicals; Section III with substances of medical or biochemical significance; Section IV with alkaloids, hormones, and vitamins; and Section V with miscellaneous substances. In Sections I and II the sections on the determinations of poisonous metals in food and biological material are of interest to the toxicologist; a bibliography of references to the original papers is given at the end of each monograph. Section III will prove instructive to the medical student, and of value to the clinical pathologist who may wish to perform, at possibly infrequent intervals, determinations of therapeutic substances in biological materials without an extensive search through original literature, or preliminary trials on standard materials to test the suitability of a given method. We think the discussion in each section on the limitations of the various methods should prove useful as an indication of possible sources of error when modifications are introduced to meet the requirements of a particular sample. In Section IV recent improvements on the well-known Stas-Otto method for the isolation of alkaloids from viscera are discussed as well as the colorimetric determination of the alkaloids themselves. Finally, Section V describes a number of disconnected determinations; one, for example, of considerable importance in relation to public health, being the determination of free chlorine in drinking-water.

The author and publishers are to be congratulated on producing a book which is well bound and commendably free from the usual minor typographical errors almost inseparable from a new publication.

Notes on Books

It is nearly forty years since the late Dr. J. D. Comrie prepared for Messrs. Adam and Charles Black the medical dictionary which bears their name. Now for its eighteenth edition Dr. HUGH CLEGG has undertaken the heavy task of revision so that *Black's Medical Dictionary* (Adam and Charles Black; 18s.) can continue to take its high place among books of this type. Looking first for recent advances the reviewer finds these adequately and succinctly covered; indeed, on such matters as the Rh factor the brief type of summary possible is excellently done. Two pages of "special suggestions" at the beginning of the volume give a valuable guide for the use of its contents, especially in an emergency. As a wartime production the whole book is excellently printed and firmly bound, all for a most modest price for just short of a thousand pages. Dr. Clegg was a fortunate choice for a successor to Dr. Comrie, and the wide public—medical and lay—who use this dictionary must be grateful for his competent revision.

The 1944 *Year Book of Pediatrics* (H. K. Lewis and Co.; 18s.) once again brings an excellent choice of abstracts, skilfully edited, with occasional editorial comments, by Prof. I. A. Abt and Prof. A. F. Abt. About 400 names of authors are listed to account for over the same number of pages of text. A special review of the literature on the Rh factor has been contributed by Dr. I. Davidsohn, and in this, as elsewhere in the book, there are numerous references to British literature. The work of the British Paediatric Association in its survey of rickets (in 1943) and in its joint statement with the Cardiac Society on the care of rheumatic children receives welcome recognition by long annotations. The editors sadly record after an abstract of an article on intestinal obstruction in childhood that it is "probably the last published article of the lamented and much-loved Joseph Brennemann." Plenty of space is given to the many uses of the sulphonamides in childhood; penicillin, on the other hand, has barely crept in this year, though undoubtedly it will be prominent in the next volume. Altogether the standard of this valuable reference book is being well maintained despite present-day difficulties.

The appearance of a sixth edition of the *Clinical Atlas of Blood Diseases* (J. and A. Churchill; 16s.) by A. PINEY and S. WYARD testifies to the continued popularity of this little book. It is essentially an illustrated catalogue of blood pictures, and in these days of overcrowded curricula it provides as much special knowledge of haematology as the undergraduate needs. It could probably be still further simplified. There are references to some mythical diseases such as Gamma's disease and David's disease, and the arrangement of the material is capricious, as in the intercalation of myelosclerosis and Albers-Schönberg disease between alimentary anaemia and chlorosis.

The Department of Health for Palestine has issued *A Nutritional Economic Survey of Wartime Palestine 1942–3*, by Dr. W. J. VICKERS, senior medical officer. This document runs to 116 printed foolscap pages, a map, and 26 graphs. Col. Sir George Heron, Director of Medical Services, Government of Palestine, contributes a foreword. The price of the report, which has been printed at Jerusalem by the Government printers, is 250 mils. The copy that has reached here may be consulted in the Library of the British Medical Association.

IMPRESSIONS OF PARIS

BY

Prof. L. P. GARROD, M.D., F.R.C.P.

Such is the claustrophobia induced by over five years' confinement in England that the opportunity of visiting almost any other country would be welcome: of opportunities for escape an invitation to lecture in Paris is among the more delectable. So exhilarating is the atmosphere of this city that the formidable prospect of speaking in French in the Amphithéâtre Richelieu at the Sorbonne can be faced with almost a light heart, and even the discovery that one has been widely advertised as giving three lectures instead of the two carefully prepared before departure causes only momentary misgivings. A quiet room at the Cité Universitaire—where one block has been retained in the Maison Internationale for the reception of the more academically inclined foreign visitors—and some hard work with the blue pencil by good friends in whose language the stuff is written, and the gap is filled. The subject of all three is progress in chemotherapy since 1939, with a good deal of emphasis on penicillin; and if they were well received three qualities in the audience are largely accountable—their thirst for knowledge of what has been happening during their four years of isolation, their admiration for everything British, and their intense curiosity about penicillin. The generous loan from Oxford of the now famous penicillin films added more than a touch of colour to the lectures themselves.

So far as penicillin is concerned France is where we were early in 1943—with a difference. Supplies are on the same very small scale, and are allotted exclusively to three hospitals in Paris and a few in the provinces. The main difference is due to the fact that all France seems almost incurably black-market-minded. There are actually two black markets in penicillin—the true and the false. The stock-in-trade of the former is the genuine article stolen from American Army stores; of the latter, in one instance of which I heard, the purchaser having paid 50,000 francs for a tube labelled penicillin, it was a mixture of sodium carbonate and talc. Nothing can excuse the vendor of the spurious article, but let those who are tempted to blame the buyer, whether of this or of any other black-market commodity—not only food of almost all kinds, but petrol, paper, and indeed almost what you will—reflect that throughout the German occupation our Radio steadily encouraged this subversive activity. Antisocial conduct of this and other kinds was a duty to France during the German administration: is it surprising that these methods persist even though their justification has been removed?

A substantial share of the penicillin in Paris goes to the Hôpital Claude Bernard, where Lemierre kindly showed me cases under treatment with it, and much else besides. This magnificent hospital is uncomfortably close to the Porte de la Chapelle railway yards, which were the target of a heavy British raid on a moonlight night in April last year. The French are enthusiastic about not only the devastating effects but the accuracy of our bombing, and the cost of this attack —a single bomb which destroyed one block, damaged two others, and killed forty patients—seems to have been accepted willingly. This immense hospital is a paradise for those whose concern is microbic infection. It receives almost all cases of adult infectious disease in Paris, and besides the infectious fevers admits many patients suffering from acute infections which are non-communicable in this sense. I saw several cases of staphylococcal septicaemia, two of severe puerperal fever, two of influenzal pneumonia, one of tetanus, and two first-class undiagnosed mysteries. Lemierre's own service comprises 400 beds, and his experience of some of these conditions must be unrivalled: he has a series of photographs of carbuncle of the face, with and without cavernous sinus thrombosis, and can assess the prognosis in this condition with such confidence as to withhold penicillin treatment when he considers that the patient will recover without it—as indeed he had in one patient whom I saw. Where else, too, will you find it recognized that septicaemia due to *Bacillus funduliformis* presents a characteristic clinical picture? Here is obviously a first-class centre not only for using penicillin to save life, but for exploring some of the more remote and less familiar fields in which it may prove useful.

The Pasteur Hospital exercises similar functions on a smaller scale, and here René Martin has been doing the same type of work. He has, I think, added definitely to our knowledge of penicillin therapy in one direction at least. It is now a truism that the scarcity of penicillin in England has forced us to exploit the possibilities of local treatment to great advantage in efficiency as well as economy. Martin has been even more tightly confined in the same position, and when he could afford only a small quantity for treating a carbuncle, infiltrated the whole area by multiple injections—as for local analgesia—with a solution of penicillin containing 2% novocain. This was so successful that it has become the method of choice. The third Paris centre is the Hôpital pour les Enfants Malades, where Debré has taken full advantage of the much lower scale of dosage required in children and employed penicillin freely, in the treatment particularly of meningitis and pneumonia.

The background of these achievements is a state of affairs in which hospital administration must be a very anxious task indeed. There appears to be no shortage of domestic labour, even in the private houses of those who can afford it, but almost every commodity presents difficulties. Diet is doubtless the worst of these preoccupations: bread and vegetables are the only items of which the supply is at all dependable. It is almost impossible to replace any linen, and I did not discover how either linen or the patients themselves are washed. At all events there is a grave dearth of soap, and numerous advertisements of *eau de javelle* for laundry purposes are evidently a clue to the first of these riddles. At the end of a whole morning in hospital, when I expressed a desire to wash my hands (preferring this to the ritual immersion of the finger-tips in a bowl of antiseptic lotion) it was necessary for a sister to go in search of a key, by means of which she eventually produced from a cupboard a cube which seemed to consist mostly of abrasive material, although I am prepared to believe that the base which held it together had more or less the properties of soap. Of these shortages, that of food is of course the most serious, and one would like to be able to say what its effect has been on the health of the city population as a whole. No casual observer can possibly answer this question. Some effect there must have been, particularly on resistance to infection, and it is somewhat alarming to read that an influenza epidemic has begun in Paris complicated by a bronchopneumonia strongly reminiscent of 1918. Comparison between the circumstances of that year and the present has been made in the daily press. There is one feature of Paris life highly conducive to the spread of aerial infection—the appalling crush in the Métro, still the only form of public transport. It is exceptional to get a seat even at the slackest time; at busy hours the trains are crammed to the point of suffocation, and the last to enter have devised a special technique for compressing their neighbours and enabling the doors to close—it consists of advancing backwards, using the buttocks as a battering-ram. Possibly the garlic and perfume disinfect the atmosphere and so save what would otherwise be a dangerous situation.

France faces a far more serious situation when her 2,000,000 prisoners return, for 500,000 of them are believed to have phthisis. How to segregate this enormous number of men who will otherwise be a danger to the whole community is one of the biggest problems with which the country has to deal.

Masks in wards and the "no-touch technique" are evidently unheard of: this was the most obvious indication that the advances of the past five years have still to be learned in France. The foreign journals for that time are all missing, and it is difficult to see how the gap can be filled, either in the libraries or in the minds of those who use them. It may prove, too, that we have things to learn from what has been done in France: microbiology there has certainly not stood still, and of what may have happened in other fields I am no judge. The School of Medicine is crowded with students, following the liberation and owing to delayed call-up for military service, now of course four years in arrears. I had occasion several times to visit Gastinel, the professor of bacteriology, and to reach his sanctum had to pass through a large teaching laboratory which seemed always, even on a Saturday afternoon, to be full of students. It appears that each class in the course they were attending has to be held ten times to accommodate the present numbers. I can imagine no more soul-destroying drudgery for the teachers than classes multiplied to this extent, and our more parochial system in London of many separate medical schools, each a complete unit, has much, if not quite everything, to commend it. The complete pre-eminence of Paris as a medical school has no counterpart in this country. It is arguable that the magnificence of Paris as a city, and the concentration there of so much of the leading intellectual life of the country, are actually detrimental to France as a whole.

At the Institut Pasteur Tréfouel and his staff have made plans not only for the supervision of penicillin production in France but for exploring the still unsolved mysteries connected with its nature and action. Anyone familiar with their contributions to the study of other forms of chemotherapy will understand that much may be expected of this accession to the strength of those engaged in this research. The Institut came unscathed through the occupation, in spite of having been a depot for medical stores parachuted by ourselves into France. The only casualty of whom I have heard has a melancholy and historic interest. Joseph Meister, the Alsatian boy who was the first patient to receive prophylactic treatment for rabies from Pasteur, was still employed as gate-keeper at the Institut at the outbreak of this war: he committed suicide when the Germans entered Paris in 1940.

Whole-time salaries are now quite unrelated to the cost of living, which has reached astronomic figures for those who live in anything approaching normal style, and thus depend largely on the black market to fill their larders. Loans and lotteries are aimed at reducing the note circulation, but more powerful forces seem to be at work to depreciate the franc; and an advance of 40% in Métro fares while I was there seemed a public admission that the tendency is still in the wrong direction. The problems of currency, transport, food distribution, and reconstruction are formidable indeed, and French admiration for ourselves and the stability we have maintained in some of these matters knows no bounds. On our own part there seem to be two attitudes to France—one sympathetic, and the other not. To those of the latter persuasion I would recommend reflection on what is meant by four years of the Gestapo. To hear of executions and atrocities from the friends or neighbours of the victims is a very different thing from reading of them in the newspapers, and one evidently needs to be in an occupied country to know what a Nazi is. The people who would have us believe that these stories are exaggerated or even fabricated, and take in general the view that the sufferings of the French nation, both past and present, are less than they have been described, may be guilty of grave injustice, and are certainly doing disservice to the relations between our two countries.

CONTROL OF VETERINARY PRACTICE

The report to the Minister of Agriculture and the Secretary of State for Scotland of the Committee on Veterinary Practice by Unregistered Persons is published for the Ministry and Department as a White Paper (Cmd. 6611, H.M. Stationery Office; 3d.). The committee was set up in July, 1944, to inquire into the extent and effect of veterinary practice in Great Britain by persons who are not registered veterinary surgeons, and to make recommendations as to any measures for limiting or regulating such practice. After surveying the field the report sets out conclusions and recommendations.

The committee's main recommendation is that the practice of veterinary surgery by unregistered persons should be prohibited under penalty, but that this prohibition should not apply to the treatment of an animal by its owner, the rendering of first aid to an animal in an emergency, the destruction of an animal by painless methods, or the performance of castration and certain minor operations. It further recommends that unregistered persons who for any seven of the last ten years have been engaged as their principal means of livelihood in diagnosing and giving medical or surgical treatment to animals should be entitled to registration by the Royal College of Veterinary Surgeons in a register of "Existing Practitioners." Such persons, who must be of good character and not less than 28 years old, should be subject to disciplinary jurisdiction by the R.C.V.S., should have the same facilities as registered veterinary surgeons for obtaining necessary drugs, and should be allowed to use the title "registered animal practitioner." Another recommendation would empower the Minister and the Secretary of State to control the advertisement and sale of veterinary medicines. Provision should also be made for a ministerial declaration by Order that specified duties performed by unregistered persons under the direction of a veterinary surgeon are not subject to the prohibition of veterinary practice by unregistered persons.

COLONIAL MEDICAL RESEARCH COMMITTEE

The Colonial Office announces that the Secretary of State for the Colonies and the Medical Research Council have jointly set up a Colonial Medical Research Committee to advise them on medical research for the benefit of colonial territories.

The chairman is Sir Edward Mellanby, M.D., F.R.S., secretary of the Medical Research Council, and the other members are: Lieut.-Col. J. S. K. Boyd, R.A.M.C.; Prof. P. A. Buxton, F.R.S., London School of Hygiene and Tropical Medicine; Dr. A. N. Drury, F.R.S., Director of the Lister Institute of Preventive Medicine; Brig. N. Hamilton Fairley, M.D., F.R.S.; Dr. W. H. Kauntze, Chief Medical Adviser to the Secretary of State for the Colonies; Prof. B. G. Maegraith, Liverpool School of Tropical Medicine; Dr. B. S. Platt, Director of the Human Nutrition Research Unit, M.R.C.; and Major-Gen. Sir John Taylor, M.D.

The secretary of the committee is Dr. Frank Hawking, of the National Institute for Medical Research, M.R.C.

Nova et Vetera

E. B. BANCROFT: A VERSATILE PHYSICIAN

Sir Arthur MacNalty has done well to shed light (in a reprint from the *Proceedings of the Royal Society of Medicine,* Nov., 1944) on the life and achievements of Dr. Edward Bartholomew Bancroft, who lived in the eighteenth century while the profession of medicine was still largely empirical. He was a many-sided man—physician, eminent scientist, philosopher, politician, novelist, technical expert in dyes, and philanthropist. Born in Massachusetts in 1744, of good American yeoman stock, Bancroft was apprenticed to a trade, but ran away to sea and made several voyages.

He had evidently acquired some medical training aboard ship, possibly as surgeon's mate, for we next hear of him as medical attendant on a West Indies plantation and later in a like capacity in Dutch Guiana, where he studied the flora and fauna and gained a reputation as a botanist and zoologist, after the publication of his first book *The Natural History of Guyana* (1769), in which he wrote of tropical plants and their dye-producing properties. He also described various diseases: leprosy, yaws, which he treated by salivation with mercury; malaria, which he treated with bark; yellow fever; and the bites of venomous snakes. Bancroft came to England in 1765 and studied medicine, obtaining the degree of M.B., and later proceeded M.D. at Aberdeen University. On account of his scientific attainments he was soon recognized as a leading London physician and found time to make further researches into the production of colours and vegetable dyes, which gained him unanimous election as a Fellow of the Royal Society.

He was a contemporary of another famous physician, Dr. John Coakley Lettsom, whom he helped to found the Medical Society of London (1773). He was able among all his activities to write a number of treatises and novels, but his most important and successful work was *The Philosophy of Permanent Colours,* in which he displayed a profound knowledge for those days of chemistry and botany. This book was a valuable introduction to the chemical industries of to-day, and it became the standard British and American authority on the subject of dyes. During the American War of Independence (1780–3) Bancroft (then a British subject) rendered good service to the British cause. He supplied all the particulars of the French fleets and armies to the Government. He lived in Downing Street, Westminster, which was then a doctors' street. Tobias Smollett set up in practice there in 1744.

Sir Arthur MacNalty regards Bancroft as one of the most complex personalities in medical history. He was a genius endowed with great natural gifts and, coming to this country as an unknown person, early achieved a distinguished position as a scientific physician and chemist. His fatal gift of versatility proved a snare for his posthumous reputation. He died in 1821 aged 77.

S. L. Zimmerman and R. Barnett (*Ann. intern. Med.,* 1944, **21,** 1045) record a case of sickle-cell anaemia in a man aged 30 in whom the haemolytic crisis simulated a coronary occlusion clinically and to a lesser degree cardiographically.

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CIVILIAN MASS RADIOGRAPHY

Mass miniature radiography was introduced into the Royal Navy in 1939, and by 1941 Dudley[1] was able to report the results of 18,000 examinations. This and many similar publications from all over the world showed clearly the value of the new technique and the problems it raised. After such publicity the idea caught the public fancy and was approved by the Ministry of Health, but it was not until 1942 that a few official miniature radiography sets were produced for civilian use. The first of these went to the Medical Research Council, which has now published a report[2] on the first 23,000 examinations made with this instrument. About half of the report deals with the technique and organization of a miniature radiographic survey; this section is excellent and will undoubtedly become a standard work of reference on the subject. The account of the handling of apparatus, processing of films, and positioning of the patient is particularly good. The recommendations on the disposal of abnormal cases will, however, hardly meet with such general approval. It appears that in doubtful cases the medical directors of the unit must often decide from one interview and radiograph not only whether the subject has pulmonary tuberculosis but also whether the disease is active. Anyone who has had experience in a chest clinic will realize the absurdity of this suggestion; yet it is one which has often been made in the past, and even the official publications have implied that it should be the duty of the mass radiography unit to distinguish, in certain cases, between active and inactive pulmonary tuberculosis. In view of the overwhelming evidence that the majority of early tuberculous lesions in the lungs are symptomless, it is clearly most dangerous to decide on such slender evidence whether a newly discovered tuberculous lung lesion requires special action or not. The only safe course is to keep all patients with such lesions under close observation. The present official constitution of a mass radiography unit places a clinician in charge but does not give him control of the observation and investigation of suspects. Such an arrangement encourages the clinician to commit himself to a diagnosis, and even prognosis, on the strength of one interview and an *x*-ray film of the chest. Certain of the suggestions made in this report concerning the treatment of newly detected cases at a chest clinic invite similar criticism. It is stated, for instance, that in some cases a single re-check after 6 months may be all that is necessary to establish that a lesion is healed. But this makes no allowance for the rapidity with which some of these apparently healed lesions deteriorate. Even more revealing is the statement that "the present shortage of institutional beds makes it specially desirable to reduce as far as possible the number of cases referred for assessment." It was obvious 5 years ago that the introduction of mass radiography would bring to light a large number of cases requiring hospital observation for diagnosis, and it is disquieting that the shortage of suitable beds is, if anything, more acute now than it was then—in spite of full State control of the medical and nursing services.

The Medical Research Council's report concludes with statistical data on the incidence of tuberculosis and other pulmonary lesions in the persons examined. These figures are similar to those obtained in other mass miniature radiographic surveys. Although such statistics are interesting they throw no light upon the most important problem of all—the fate of the symptomless tuberculous lesion. An increasing number of such lesions are being discovered by modern diagnostic methods, and until the question is answered we shall be no nearer to the solution of the greater problem of the treatment of early pulmonary tuberculosis. If mass miniature radiography is to answer this question it must be used scientifically, as a diagnostic instrument, by the clinicians who are going to direct the observation, diagnosis, and treatment of the patients, and who will continue to observe them for months and even years until the research is complete. But, at present, mass radiography sets have been distributed to various local authorities, and each has become the centre of an independent unit. There is no general agreement about the procedure for the disposal of suspected cases: some advocate that the patients should be sent to their private doctors; others, that they should go direct to chest clinics, and so forth. In these circumstances an efficient survey of the fate of the patients will be extremely difficult if not impossible, and will inevitably lack the element of personal observation which is so important in research. Science does not lend itself to bureaucratic methods, and a clinical inquiry cannot be reduced to a matter of filling in forms.

In the Services the position seems more hopeful, and they have the undeniable advantage of dealing with a disciplined population. Trail and others,[3] in a recent survey of 250,000 miniature radiographic examinations in the Royal Air Force, state that an attempt was made to keep tuberculous suspects under observation, at least for 2 to 3 months. The results prove the value of this course, for 13% of the male and 15% of the female suspects developed active disease. But a short-term policy of this kind is not enough, and Trail and his colleagues are forced to admit that they have not information of the after-histories of all persons examined. By far the most ambitious attempt has been made by the Senior Service, which was also the first to adopt mass radiography. In 1939 units were installed at the three principal naval depots; all persons passing through the depots were examined, and every man in the Navy passes through one or other of them once in 3 years, when his ship pays off. Arrangements were made for the observation of suspects under the same medical control. All doubtful cases were admitted to hospital, where full clinical investigation enabled a preliminary assessment to be made in about 10 days. Those who had lesions of uncertain stability were given selected shore service, where they could be kept under supervision; they had adequate rations, suitable employment, and abundant rest and leave.' Medically they were seen as out-patients and admitted to hospital for repetition of investigations at intervals of 2 to 3 months. Brooks,[4] in a preliminary survey of this research in 1944, recorded that over half a million men and women in the Navy had been examined by miniature radiography: 2,911 sailors had minimal lesions in the lungs, and about 1 in 6 of these proved to be active; in a further 1,826, or 63%, the stability of the lesions was uncertain, and these were observed as described. The thoroughness of this investigation is shown by the fact that some of these cases had been observed for 2 years at the time of reporting: 191, or about 9.5%, of these suspects developed active tuberculosis while they were being watched; the majority of them relapsed during the first year. Thus it is clear that the future of over half the patients with minimal tuberculous lesions in the lung cannot be predicted after one examination, or even after a period of observation in hospital. At least one in ten will subsequently develop active tuberculosis, and if this is to be treated promptly the patient must be kept under the closest surveillance. The far-sighted research in the Royal Navy is doing a great service by providing vital information on the fate of early tuberculous lesions; it also ensures prompt treatment for naval personnel who develop active disease, and it has enabled many men to be retained in the Service who might otherwise have become tuberculous pensioners on the strength of an x-ray examination alone. With this model before us it is regrettable that we civilians should still have to ask the question: Is mass miniature radiography merely to be regarded as an interesting toy, with a useful propaganda value, or is it to be used as an instrument of scientific research?

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[1] *Proc. roy. Soc. Med.*, 1941, **34**, 401.

[2] M.R.C. Spec. Rep. Ser. No. 251, 1945.

[3] *Brit. J. Tuberc.*, 1944, **38**, 116.

IRIDOCYCLITIS

Iridocyclitis is one of the more common inflammations of the eye and is responsible for much visual impairment and a fair amount of blindness. The causes are many, but there is little clear knowledge of the relative significance of each. A time-honoured classification includes syphilis, gonorrhoea, tuberculosis, and rheumatism, but of late such factors as sarcoidosis, brucellosis, and various clinical syndromes have claimed attention. Of the syndromes, that named after Behçet is perhaps the most clear-cut. Recurrent hypopyon has been known to ophthalmologists for many years, but it was Behçet—a dermatologist—who pointed out the association of this form of iridocyclitis with recurrent aphthous ulcers of the buccal mucosa and herpetiform or aphthous lesions of the genitalia. The least constant in this triad are the eye symptoms, which, indeed, may range from recurrent conjunctivitis, corneal ulceration, and iritis to hypopyon uveitis; occasionally optic atrophy has also been observed. A variant in the skin condition is pointed out by Foss,[5] one of whose cases showed pyodermia and erythema nodosum. That the condition may be allergic is suggested by the fact that in his patient an attack was precipitated by staphylococcal vaccine. Recurrent hypopyon appears to be more common in men.

Iridocyclitis may be of little ultimate significance to the patient, or it may cause blindness. Essen-Möller[6] found that 42% of his 240 cases of chronic iridocyclitis recovered completely, and 32% went on to total or subtotal blindness. His careful analysis of the aetiological factors in his cases showed tuberculosis to be present to a significant extent in chronic iridocyclitis, as also in sclero-keratitis, but not in acute iridocyclitis and choroiditis. Characteristic of these difficulties in assessment is the concept of "pseudo-tuberculosis" applied to such conditions as sarcoidosis and uveo-parotid fever, which account for a certain proportion of cases of iridocyclitis. The readiness with which clinicians will ascribe a nondescript reaction to tuberculosis varies in different countries. On the Continent tuberculosis is favoured as a cause of iridocyclitis; in this country, "rheumatism." But in acute rheumatic fever iridocyclitis is a curiosity, and chronic rheumatism includes many ill-defined conditions. It was tempting to blame focal sepsis when the fashion ran high. In drawing attention to iridocyclitis in six cases of Still's disease observed at the ophthalmic department of the Finsen Institute in Copenhagen, Blegvad[7] stresses the fact that both conditions are rare in children. He therefore regards the concurrence of the two not as a coincidence but as a special form of Still's disease. Still himself never mentioned iridocyclitis in his cases. Blegvad found 20 similar instances out of a series of 896 children with polyarthritis observed in the State and communal hospitals of Denmark during 1929–39. Franceschetti and Brocher[8] state that this type of iridocyclitis is characterized by the formation of a band-shaped opacity in the cornea. They classify rheumatic affections in relation to iridocyclitis under the two main headings of (1) infective rheumatism, and (2) non-infective rheumatism. They divide the acute forms of infective rheumatism into those which are free of ocular complications, and those in which there are rheumatoid reactions—for example, in gonorrhoea, erysipelas, dysentery, smallpox, where indeed iridocyclitis is not rheumatic but part of the systemic infection. In the chronic forms iridocyclitis is common in what they describe as primary chronic polyarthritis, and in spondylarthritis; it is present in some cases of Still's disease, but has not been observed in Felty's syndrome—Still's disease in adults with leucopenia and occasional yellow-brown pigmentation of the unexposed skin. As the chronic, non-infectious forms of rheumatism are so common, it is difficult to decide whether the eye changes seen in the sufferers are no more than a coincidence.

It appears, then, that only three rheumatic affections have to be considered in iridocyclitis: primary chronic polyarthritis, mainly in women; spondylarthritis ankylopoietica, mainly in men; and Still's disease. A link between rheumatism and iridocyclitis is suggested by such conditions as Sjögren's syndrome and Reiter's syndrome, both characterized by polyarthritis and ocular lesions but not by iridocyclitis. In Sjögren's syndrome the eye lesion is a kerato-conjunctivitis sicca, and in Reiter's syndrome there is a purulent conjunctivitis.

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[4] *Lancet*, 1944, 1, 745.

[5] *Acta ophthal.*, 1941, 19, 293.

[6] *Acta ophthal.*, 1942, 20, 97, 121.

[7] Ibid., 1941, 19, 219.

[8] *Schweiz. med. Wschr.*, 1944, 74, 299.

While there is a growing awareness that any one of a large number of general disturbances may be responsible for iridocyclitis, and that there is still much to be done in establishing possible causal factors, the fundamental difficulty in the understanding of iridocyclitis arises from our ignorance of the nature of intra-ocular inflammation. Few instances of such inflammation are bacterial in origin, and the understanding of the mass of inflammatory disease of the inner eye is likely to elude us until there is a clearer appreciation of the character of non-bacterial inflammation.

A NEW THEORY OF DIGITALIS ACTION

The action of digitalis on the heart seems fated to be a subject on which investigators will always disagree, even in this country, where Withering first observed it. Mackenzie demonstrated its value in auricular fibrillation, and Lewis's analysis of the effect of digitalis in that condition led to the view, in this country and in America, that its chief use was in treating disorders of auricular rhythm by preventing them from disturbing the ventricle. Probably most British clinicians retain this view to-day. In America digitalis is held to be valuable for congestive failure where the rhythm is that of the sinus and the failure is due to disease of the heart muscle. This view was advocated on the Continent by Fraenkel,[1] who gained a reputation by giving strophanthin intravenously to relieve cardiac oedema in patients with normal rhythm. He used to say: "They come to me and tell me the treatment is wonderful: they feel so much lighter."

Recently McMichael and Sharpey-Schafer[2] have published some observations on the effect of intravenous injection of digoxin in man in which they have recorded the changes produced in the pressure in the right auricle together with those in the cardiac output. Adopting the method of Cournand and Ranges,[3] they insert a catheter into a vein in the left forearm; the catheter is pushed further and further into the vein until it is observed by *x*-ray illumination to come to lie at the entrance to the right auricle. Through a catheter in this position a sample of mixed venous blood can be withdrawn; by determining its oxygen content per c.cm. and subtracting this from the oxygen content of arterial blood the arteriovenous oxygen difference for the body as a whole is determined, and when this figure is divided into the oxygen intake per minute a figure for the cardiac output is obtained. McMichael and Sharpey-Schafer have now used this catheter to measure right auricular pressure.

When digoxin was injected the one constant effect they observed was a fall in the right auricular pressure. Out of 25 instances in which this fall occurred there was a rise in cardiac output in only 15. The ordinary explanation of a fall in right auricular pressure would be that the primary effect of digoxin was to stimulate the heart muscle, leading to a rise in cardiac output, and that the fall in right auricular pressure was secondary to this. But since in 7 observations the cardiac output fell and in 3 there was no change, McMichael and Sharpey-Schafer conclude that the effect of digoxin on right auricular pressure was primary and not a consequence of raised cardiac output. In support of this view they give evidence of a different kind. In 4 patients suffering from congestive failure they applied pneumatic cuffs to the thighs and so obtained a mechanical lowering of venous pressure. They found not only that this caused a rise in cardiac output but that in every instance it caused the same rise in cardiac output in relation to a given reduction of right auricular pressure as did digoxin. Thus they come to put forward a new view of the action of digitalis—that it is not on the heart at all but on some extracardiac mechanism which reduces venous pressure. They apply this explanation not only to simple congestive failure but also to failure in auricular fibrillation, where the beneficial effect of digitalis was ascribed by Mackenzie and by Lewis to the control of the heart rate; for McMichael and Sharpey-Schafer found that the effect of digoxin in causing a fall of venous pressure was similar in degree whether the failure was present when the rhythm was normal or was due to auricular fibrillation. A new theory of this kind is most stimulating.

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[1] *Lancet*, 1935, **2**, 1101.

[2] *Quart. J. Med.*, 1944, **37**, 123.

[3] *Proc. Soc. exp. Biol.*, N.Y., 1941, **46**, 462.

SICKNESS AMONG WOMEN IN INDUSTRY

In Report No. 86 of the Industrial Health Research Board Dr. S. Wyatt[1] and his five assistants describe the results of an investigation into the sickness absence of munition workers. The 20,000 women concerned were employed at five factories where small-arms ammunition, fuses, shell cases, guns, and other equipment were manufactured, and the period investigated lasted from July to December, 1942. In addition the absences of another group, 33,500 in number, were investigated in less detail for the two years 1942 and 1943. The information brought together was restricted to certified sickness absence of two or more days, so the time actually lost through sickness was likely to be underestimated. The time ascertained amounted to 7.8% of the total working time. More than half of the women were married, and their sickness rate was 65% higher than that of the single women. As has long been recognized, an excess such as this would chiefly be due to the extra-physical and mental effort required for running a house. It was not due to the greater age of the married women, for in both groups the absenteeism tended to become less with age, reaching a minimum, with one exception, in women of 50 to 59. In the six months investigated every hundred workers showed, on an average, 24 cases of respiratory disease, 12 of digestive trouble, 10 of nervous symptoms, and 5 of "fatigue." One-eighth of the nervous disorders were organic and the remainder of the functional type, but there can be no doubt that some of the diseases of the digestive system had a psychological origin and should rightly have been included in the nervous group. The absences due to fatigue had been labelled asthenia, general debility, or general fatigue, and it was interesting to note that they were 136% more numerous in married women than in the unmarried. The nervous cases were 82% more numerous, while in contrast the respiratory cases were only 27% more numerous.

The report includes a large amount of detailed statistical information concerning sickness in relation to length of service, to the type of work performed, to shift systems, to the numbers discharged because of ill-health, and to other factors; and the investigators claim that the results obtained illustrate the importance of accurate and complete records of sickness absence as a necessary foundation for any sound system dealing with industrial diseases. As is pointed out in the preface to the report, the wartime extension of industrial and medical services has done much to prevent illness, but scientific evidence of the effects of environmental and other factors is lacking. It was for this reason that the Board decided that there was need for a detailed inquiry into the nature, distribution, and causes of sickness absence. The present report is a contribution to such an inquiry.

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[1] *A Study of Certified Sickness Absence among Women in Industry* by S. Wyatt and others. H.M. Stationery Office. (9d.)

SILICOSIS IN BOILER SCALERS

Boiler scalers are exposed to two types of dust—the scale deposited from the water circulating in or outside the tubes, and the dust in the fire tubes, flues, or fireboxes. The first case of a pulmonary dust disease occurring in a boiler scaler was reported in this *Journal* by W. E. Cooke[1] in 1930 in a paper entitled "Pneumokoniosis due to Flue Dust." He found that, whereas the boiler scale contained 6.4% of insoluble siliceous matter, the flue dust contained 26.4%. A man aged 35, who had worked for 9½ years as a boiler cleaner, developed shortness of breath and cough. Skiagrams showed appearances of advanced silicosis. He died. Necropsy revealed generalized patchy fibrosis in both lungs, and tuberculous lesions in the right upper lobe. Cooke, however, thought that the fibrosis of the lung preceded the tuberculous infection by many years. In the following year Williams[2] reported six cases. Necropsy of one of these showed there was a diffuse "anthracosis" but relatively slight formation of fibrous tissue. Dunner[3] in 1943 described the clinical and radiological appearances in 12 boiler scalers who had complained of pain, shortness of breath, and, in two cases, of small haemoptyses; with Hermon[4] he gave an account in 1944 of a further five cases, four of which were complicated by pulmonary tuberculosis and one by a carcinoma of the lung. Last year Todd and Rice[5] reported fully the case of a man aged 40 who had worked for 14 years in his early life as a boiler scaler and who later developed shortness of breath. The skiagram showed a snowstorm type of infiltration of both lungs, equal in intensity from hila to periphery of the lungs.

In Cooke's analysis of boiler scale and flue dust the former contained 3.4% and the latter 27.2% of iron oxide, which is oqapue to *x* rays. After Doig and McLaughlin[6] had demonstrated reticulation in the skiagrams of electric-arc welders who had been exposed to fume containing much iron oxide, the cause of these *x*-ray changes was naturally sought for. Many cases of *x*-ray reticulation in welders have since been recorded, but the only necropsy was done following exhumation 2 years after death by Euzer and Sander.[7] It was found that the lung contained excess of iron and that no pulmonary fibrosis had occurred. Harding[8] has produced *x*-ray reticulation in rats by injecting "rouge" into the trachea, but histological examination of their lungs showed no fibrosis. McLaughlin, Grout, Barrie, and Harding[9] have studied the lungs of a silver polisher in whom *x*-ray reticulation had been observed. He died with post-operative bronchopneumonia; and, once more, histological examination disclosed the presence of iron particles but no fibrosis. In this man the medial layer of all the arteries in the lung contained a deposit of silver which could readily be removed with potassium cyanide. During life he polished silver with rouge (iron oxide). From this collection of material there seems little doubt that iron oxide causes changes in the appearance of pulmonary skiagrams but does not produce fibrosis of lung. The lung is essentially an elastic organ, and if its elasticity is impaired the man is likely to suffer from shortness of breath; it does not therefore follow that because there is no fibrosis there is no disability.

In a recent number of the *British Journal of Industrial Medicine* Harding, McRae Tod, and McLaughlin[10] report in great detail the clinical history and necropsy of a boiler scaler who died with a carcinoma of his right upper bronchus. This is the same case as the fifth one subsequently reported by Dunner and Hermon. He was aged 61, and had been employed as a boiler scaler all his working life since the age of 14. Six years before his death he had been in hospital because of dyspnoea and cough, and a skiagram at that time showed nodulation through both lung fields. In December, 1943, he was again admitted to hospital, and the same *x*-ray changes were observed, with an opacity at the right apex. Carcinoma was found post mortem. Sections of the lungs showed typical, solid, collagenous silicotic nodules that were pigmented, as those seen in the lungs of coal-miners. The lungs were incinerated at 500° C. and yielded 5.1% tawny ash. Iron formed 0.6% and silica 0.17% of the dry weight of the lungs. A sample of boiler scale taken from the type of ship's boiler usually scaled by this man contained 10.1% of iron calculated as metal and 8.6% total silica, probably present largely as silicate. A sample of flue dust contained 48.3% of iron and 6.1% total silica. It seems, therefore, that in boiler scalers the *x*-ray changes are brought about by a combination of iron oxide and silica. The post-mortem finding, however, clearly showed the presence of silicotic nodules in a man who had worked all his life as a boiler scaler. Logically, therefore, legislation ought to be introduced under the Workmen's Compensation Act to include boiler scalers in one of the silicosis schemes.

ACCIDENTAL SUFFOCATION OF INFANTS

The number of deaths in children in the United States attributed to accidental mechanical suffocation is increasing. Under 1 year 692 such deaths were recorded in 1933, and 1,333 in 1942. H. Abramson[11] points out that in the city of New York this accident accounts for more deaths in children than measles, scarlet fever, and diphtheria combined. It therefore presents a social problem of first importance. Abramson has analysed the figures in New York for a period of five years in infants under 1 year, who make up four-fifths of the fatalities. He discusses 139 cases—85% in infants under 6 months. The peak of fatalities from accidental smothering occurs in the winter, and the hours of danger are 3 to 9 a.m. In about one-sixth of cases the baby was "overlaid" in the mother's bed, and in the remainder was either in cot or pram, with blankets improperly applied, loose pillows unnecessarily decorative, or loose mattress coverings as the main lethal agents. In two-thirds the baby was found face down. Abramson sets out preventive measures based on his analysis. First it must be brought home to the medical and lay public that accidental smothering is a serious menace to infant life. Detailed care of the baby's clothes and of the baby's coverings in cot or pram must be exercised. "No infant should ever sleep on a pillow, but always on a flat mattress." It is also most important that the young infant be never left in a "face down" or potential "face down" position where there is a risk of a brief movement turning the head so that the face can be enveloped in the bedding. It is also important to pay careful attention to details of feeding, as some deaths follow a feeding time, as when a mother falls asleep while feeding her infant, which is then found smothered.

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[1] *British Medical Journal*, 1930, **2**, 816.
[2] *Ann. Rep. Welsh. Nat. Memor. Ass.*, 1931, p. 153.
[3] *Brit. J. Radiol.*, 1943, **16**, 287.
[4] Ibid., 1944, **17**, 355.
[5] *Lancet*, 1944, **1**, 309.
[6] Ibid., 1936, **1**, 771.
[7] *J. industr. Hyg.*, 1938, **20**, 333.
[8] *Brit. J. industr. Med.* (in the press).
[9] *Lancet*, 1945, **1**, 337.
[10] *Brit J. industr. Med.*, 1944, **1**, 247.
[11] *J. Pediat.*, 1944, **25**, 404.

What is not made clear in Abramson's analysis is whether post-mortem examinations were made in the cases he describes, for, despite circumstantial evidence that suffocation is the cause of death, pathologists often find unsuspected lesions. Helen Deem makes this point in her annual report for 1943–4 to the Royal New Zealand Society for the Health of Women and Children. In that country, out of 951 deaths in the first year of life, there were 16 in which accidental mechanical suffocation was given as the cause. Post-mortem examination had not usually been made, but in 2 infants it revealed an acute respiratory infection in one and a pathological heart condition in another. Deem makes the point that a mother who believes that her child had been smothered by a preventable accident is likely to suffer great mental torture and reproach. This might be relieved if a post-mortem examination were always performed when suffocation has apparently occurred. Is it not also in such infants that a large thymus is sometimes found? Despite the statistical discrediting of status lymphaticus as a factor in child mortality, it is certainly a "condition" sometimes found in the suffocated infant. May it not also be that mental defect plays a part in the story—a part which even necropsy will not reveal? Head and chin raising movements become established and controlled between the fourth and sixth months. In the mentally defective baby such movements may well be delayed and thus increase the risk period for suffocation. Abramson has certainly underlined a problem of some importance, but without pathological details the issues tend to be too simplified. Perhaps it might be made an object for study by one of the new university departments of child health.

ROLLIER AND SUNLIGHT

A few months ago the seventieth birthday of Prof. Auguste Rollier was celebrated in a French-language Swiss medical journal.[1] Rollier's name is known throughout the world for the sun treatment of non-pulmonary tuberculosis. He began his work at Leysin in 1903 at a time when operative treatment had for some years been the rule for cases of so-called "surgical" tuberculosis—of bone and joint, of glands, and of the kidneys. The results of operation, more especially in bone and joint cases, were unsatisfactory; miliary tuberculosis and sinuses were common sequels. At Leysin Rollier showed that properly graduated exposure to the sun built up the resistance of his patients to their disease, healed their sinuses, and arrested their lesions. The results he achieved led to the erroneous view that heliotherapy is a specific cure for non-pulmonary tuberculosis; it is merely an adjuvant treatment, though a most valuable one, and must be combined with suitable orthopaedic apparatus for immobilizing the affected bone or joint. Rollier always recognized this and combined heliotherapy with conservative methods of treatment—methods which had been employed at Berck-sur-Mer for about 20 years before he began work at Leysin.

Rollier's method has been described as the "cure of altitude and exposure to the sun"; and the Swiss mountains have the advantage both of a clear atmosphere and of many hours of sunshine. But there is some divergence of opinion about the type of climate best suited to the tuberculous patient. The late Sir Henry Gauvain, a pioneer of heliotherapy in this country and always an admirer of Rollier and his work, thought the English climate in spring and summer was ideal for sun-treatment owing to the contrasts of light and shade. Gauvain shared Rollier's enthusiasm for the use of the sun's rays for his patients with non-pulmonary tuberculosis, the treatment being given only to those who could respond with pigmentation. Interest soon spread from natural to artificial sunlight, and after a period of uncritical enthusiasm the latter was finally accepted as a substitute which had a place in the treatment of non-pulmonary tuberculosis. Rollier has won a place in the history of therapeutics, and we join with our Swiss colleagues in the tribute paid to him.

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[1] *Rev. méd. Suisse Rom.*, June, 1944.

LONELY OLD AGE

The medical aspects of old age, now widely recognized, are inevitably bound up with the social aspect, which recent events have emphasized. It has been suggested[1] that the Services Convalescent Homes might be converted after the war into rest homes where aged persons could spend three to four weeks each year. But this only touches the fringe of the problem, for in many instances a permanent home is needed. The Friends Relief Service have formulated and put into action what appears to be a more excellent way.[2] Their work for old people arose in the first instance during the period of heavy air raids, when there were scarcely any official arrangements for their removal from the target areas. At that time such hostels were regarded as merely a temporary expedient, and those who ran them did not realize that they had embarked upon a long-term social work of increasing importance. The main social problems of the elderly at the present time are loneliness and neglect. The large institution is no answer to the needs of the aged, and their dread of ending their days there is very natural. The experience of the Friends Relief Service is that the optimum size for their hostels is for 25 to 30 persons with occasional larger hostels to hold up to 35, where special facilities, such as expert nursing, could be provided. Every detail of the problem involved has been carefully considered, and clearly described in their booklet. Another scheme in operation is the Hornsey Housing Trust, which is now being expanded in other parts of the country as the Hill House.[3] The plan is to turn residential houses now unsuited for family life into one- or two-roomed apartments, with an alcove with running water and a gas stove. The rooms are of good size and suitable for the large old-fashioned furniture which many old people possess. The scheme also provides privacy for those who feel like the old lady who said, "I don't neighbour." All these plans are coping with a real problem, which unsolved leaves the medical profession handicapped, if not impotent, in their treatment of the isolated aged.

We much regret to learn of the death of Sir James Barrett, F.R.C.S., who was President of the British Medical Association when it met in Melbourne in 1935, and Chancellor of Melbourne University 1935–9.

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[1] Barber, R. O., *Yorkshire Post*, Feb. 22, 1945.

[2] *Hostels for Old People*, published through Friends Book Centre, Friends House, Euston Road, London, N.W. (1s. 6d.)

[3] *Age in the New World*, E. D. Sansom, Pilot Press.

IS MEDICAL EDUCATION SCIENTIFIC?

AN EXPERIMENTAL APPROACH

BY

D. H. SMYTH, M.D., M.Sc., Ph.D.

"No general principles have been imparted to him."
F. M. R. WALSHE.

This quotation, taken from an article on "Some Principles of Reform in Medical Education,"[1]* seems best to sum up its author's criticisms of the present educational system for the medical student. The same view has frequently been expressed by other writers on the subject, and is one of the emphatic conclusions in the report of the Interdepartmental Committee on Medical Schools. Furthermore, the faults in the teaching are often said to be accentuated by the examination questions, which demand too much knowledge of detail and not enough knowledge of general principles. In defence of the existing teaching it is claimed that general principles can be imparted only by teaching certain parts of the course in considerable detail, and that a knowledge of general principles not based on knowledge of detailed processes is impossible. The solution to the difficulty is not made easier by the fact that few of those who discuss the problem ever state specifically what they mean by "general principles." As a result there is apt to be much discussion with little progress in putting forward a remedy, since in any particular instance it is very difficult to decide whether or not general principles have been learned by the student in addition to the factual information which he has acquired. The present article seeks to make a contribution to this subject by describing an experimental approach to the problem—namely, the collection of some evidence as to how far general principles have been grasped by the medical student at a particular stage in his education.

In carrying out the experiment I have been guided by certain considerations. A study of the criticisms of medical education shows that it is much easier, though probably less helpful, to criticize those parts of the curriculum for which one is not personally responsible or in which one is not deeply interested. On the other hand, such criticism, in sufficient detail to be of much value, is tempered by consideration for the feelings of one's colleagues and by an unwillingness to seem to interfere with the work of another department. The experiment was therefore planned so that it dealt mainly with that part of the course for which I was partly responsible—i.e., the preclinical training in physiology. It is inevitable, however, that earlier parts of the medical studies, and also the teaching in the schools, must share the responsibility for the level of the students' education. A second consideration was that the "principles" chosen for investigation should be as general as possible, and, while it was the purpose to relate these specifically to physiology, it was intended that they should be common to most fields of scientific activity.

Experimental Material

The subjects of the experiment were 54 medical students studying for the second M.B. examination of London University as internal students. These students had all completed the first M.B. examination or its equivalent by July, 1943, with the exception of two who passed first M.B. in Dec., 1943. All therefore had had at least several years' exposure to a "scientific" education. The group had studied physiology more or less intensively since Sept., 1943, along with anatomy and biochemistry. In physiology, the subject of the present test, they had had three different teachers, all with a moderate amount of research as well as teaching experience, so that theoretically the atmosphere for a scientific education was "set fair." So far as can be judged the students were of good average ability, and it would be estimated, by comparing them with students of other years, that the majority will pass the second M.B. at the first attempt, and some will distinguish themselves. The average age was about 19, but a small number, somewhat older, had more experience than the rest: one had a Cambridge honours degree in natural sciences, one had several years' experience of school teaching, and one had held a post connected with urban health administration.

Nature of the Test

In a sessional examination held in July, 1944—i.e., three terms after starting the study of the second-year subjects—a compulsory question of a special nature was included in a three-hour paper along with five other questions of the more usual kind. Four questions out of the other five had also to be answered. The compulsory question was as follows:

> Explain briefly what meanings you attach to the following terms, and illustrate these by examples taken from your knowledge of physiology:
> (*a*) hypothesis
> (*b*) law of nature
> (*c*) controlled experiment
> (*d*) empirical method
> (*e*) percentage error
> (*f*) inductive and deductive reasoning

It should be stated that during the session I had given a course of lectures which had terminated in March, 1944—i.e., a considerable time before the idea of asking such a question had occurred to me, and the matter had not been mentioned to other members of the staff who were engaged in giving courses of lectures, so that there was no question of the students being told either more or less about general principles than would otherwise have been the case. The six sections of the question were chosen without very special thought, but were meant to give the student an opportunity (1) to show what knowledge he possessed about general scientific principles; (2) to show how far he could recognize in the subject of physiology those scientific principles; (3) to show his ability to use words accurately and to define terms which were in current scientific use. It was hoped that the easier parts of the question would be within the capacity of most of the students, while the more difficult sections—e.g., inductive and deductive reasoning—would try out the best. In this way it would be possible for every student to give some demonstration of his ability.

Results

It was not an easy matter to analyse and present the results. Clearly a numerical assessment is not of very great value, as no standard exists as to what a medical student should know of such things at such a stage. Furthermore, I do not feel specially competent to make such an assessment, and indeed would be somewhat unwilling to stand a cross-examination on the meaning of the terms by a severe critic. The results have therefore been analysed by picking out what answers seemed to show a reasonable knowledge, a fair knowledge, or no knowledge at all of the subject. In order to demonstrate what was considered a reasonable knowledge, etc., samples of each category are given. These are not necessarily the best or worst answers, but are meant to be average replies. In most cases it is more instructive to give a larger number of examples of wrong answers than of right, on account of greater variety in the former. The nature of the questions made it convenient to vary the classes into which the answers to the different questions were divided. The original intention had been to place emphasis on the illustration of the terms by examples from physiology. Actually it was found that so few of the answers included examples that the analysis was made on the basis of the definitions, although it was clear that in many cases the candidate had in mind physiological processes. Some brief comments on the illustrations chosen are given in a later section. It is convenient to present separately the analyses of the answers to the different parts of the question.

(a) Hypothesis

It might have been expected that the meaning of the expression would be well known, as it is at the very basis of scientific progress. This, however, was by no means the case. The answers were not easy to classify; and the following division was used. The figures show the number of answers in each class and also the percentage which this forms of the total number of answers.

Class I:	Satisfactory explanation	19 (35%)
„ II:	Probably knows, but does not explain clearly	22 (41%)
„ III:	Probably does not know	7 (13%)
„ IV:	Definitely wrong	5 (9%)
„ V:	Did not attempt	1 (2%)

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* *British Medical Journal*, Feb. 5, 1944, p. 173.

Of the 19 put into the first class only five mentioned the relation between a hypothesis and a theory. Examples of the classes:

Class I.—"When the observed phenomena have been explained in the light of known facts without the explanation being proved by a series of controlled experiments then the explanation is said to be a hypothesis. As soon as a hypothesis has been demonstrated to be correct by well-balanced controlled experiments or by logical deduction from other observed facts then the hypothesis becomes a theory until it is eventually disproved in the light of further experiments."—"A hypothesis is a suggested explanation of known facts. It may or may not be possible to test the truth of a hypothesis by experiment."

Class II.—"A hypothesis is a series of statements which are set out to form a new law, but which have not yet been proved by experimental evidence."—"This term is applied to any theory put forward which cannot be absolutely proved by scientific means available."

Class III.—"A hypothesis is a statement as to the function of a certain thing, the reason for which has been deduced from experimental or theoretical work, but which has not actually been demonstrated by experiment."

Class IV.—"Hypothesis means 'data,' and may be illustrated as follows: Analysis of inspired and expired air shows that the nitrogen content of expired air is greater than that of inspired. Reasoning as to the cause of the increase in nitrogen content may involve respiratory quotient, etc., but the fact remains that by hypothesis the nitrogen content in expired air is greater than in inspired."

(b) Law of Nature

It was evident that very vague ideas were held as to the meaning of the expression "law of nature." No one seemed to have a clear conception of a law of nature being a description of some property of matter which is exemplified by a large diversity of things or processes, and which has been formulated as a result of observation and experiment. The majority had an idea of inevitability as being the criterion of a law of nature rather than the idea of the law of nature being a generalization. It was found possible to classify the answers into five groups, as follows:

Class I:	Those who *probably* had some more or less correct idea	4 (7%)
„ II:	Those who *possibly* had some more or less correct idea	14 (26%)
„ III:	Those who *probably* had not anything approaching a correct idea	11 (20%)
„ IV:	Those who *certainly* had not a correct idea	19 (35%)
„ V:	Not attempted	6 (11%)

Class I.—"A law of nature is a general statement of a large number of phenomena which are controlled by the same factor."—"A law of nature is a statement concerning a sequence of events which so far has not been shown to vary."

Class II.—"A law of nature is a correlation between a large number of facts."—"A law of nature is a statement (by man of course) of what universally occurs in a certain set of fixed natural conditions."—"A law of nature predicts the action which always occurs in a given set of circumstances."

Class III.—"A law of nature is another name for the principle of the conservation of energy."—"A law of nature is a law by which a certain function or action takes place and can be proved to take place without exception in the normal state."

Class IV.—"A law of nature is an escapable occurrence not under the control of the human mind."—"When a person dies after his normal span of life nothing can prevent him doing so. This is a law of nature."—"A law of nature is a general axiom that holds good on *a priori* grounds."—"A law of nature is a phenomenon which cannot be explained."—"A law of nature is one which is fundamentally true and natural and therefore does not have to be proved in order to show that it is correct."

(c) Controlled Experiment

The results of this were more readily analysed, as it was relatively easy to see whether or not the candidate had grasped the principle of studying a system containing a number of variables by means of suitable controls. It was also encouraging to find that most of the candidates understood the meaning of the term and were able to give appropriate examples. The results are classified as follows, together with numbers and percentages:

Class I:	Those who obviously knew	44 (81%)
„ II:	Those who did not realize the principle involved in "control"	9 (17%)
„ III:	Did not attempt	1 (2%)

Class I.—"A controlled experiment is an experiment designed to discover the effect of a particular factor in a series of events, by eliminating this factor in one experiment and performing another experiment in all respects exactly similar except that the factor in question is not eliminated."

Class II.—"This is an experiment done under the best possible conditions; everything as far as possible is perfect and conditions are controlled."—"A controlled experiment is one in which all the factors are controlled—that is, all the factors involved are able to be controlled, so that every result may be anticipated from knowledge of the amount of a certain factor which is being used."—"A controlled experiment refers to an experiment which is performed usually on an animal with certain conditions imposed and under the control of the investigator."—"A controlled experiment is an experiment in which normal reactions are obliterated in order to show some underlying reaction normally suppressed."—"A controlled experiment is one in which the patient's life is not radically shortened by the operation performed, and in which therefore observations may be made over a considerable period of time."

(d) Empirical Method

The definitions of empirical method were also fairly easy to classify, as it was evident that only a very small number had a correct idea of the meaning of the term, while the majority attached a definitely erroneous meaning to it. Of the latter there were two main groups: first, those who thought that an empirical method was one in which relative quantities and not absolute ones were being measured; and, secondly, those who regarded an empirical method as a simplified method or a method intended to give only approximate results. The former group evidently derived their idea from the term "empirical formula" used in chemistry. Some of those in the second group contrasted empirical method with controlled experiment. The answers were divided into the following groups:

Class I:	Those who clearly knew	4 (7%)
„ II:	Those who possibly knew, but did not express their ideas very clearly	10 (19%)
„ III:	Those who definitely held an incorrect view	29 (54%)
„ IV:	Did not attempt	11 (20%)

Class I.—"Empirical method, common in clinical practice, refers to a procedure which is adopted according to certain set rules, without a true knowledge of the scientific basis. It is often the outcome of years of experience, of trial and error, and final success."

Class II.—"An empirical method is a method found out by experiment; it is an experimental method."—"A method which can be used for all similar occasions and circumstances to convey certain information, the reason for which may not be known."—"An empirical method is a method which has observable effects which are as yet unexplained but are always the same."

Class III.—"The empirical method of conducting an experiment is to determine the relative proportions of the substance present or of the effects observed. It does not give the actual results by weight or quantity."—"The empirical method is one employed to give a relative assessment of facts without having an absolute method or standard."—"An empirical method is a rough estimate of the results of an experiment. Here the experiment is not carried out under conditions of great accuracy."—"This is a calculation or experiment performed on the simplest possible basis."—"An empirical method is a method of calculating a result from a few basic facts without any effort to prove by experiment."—"An empirical method is a basic method. It would set out to establish a basic assumption or to prove again a basic proven fact."—"An empirical method is designed to show the interrelationships of facts."—"A method, experimental or theoretical, which can be applied only with minor modifications to a group of subjects."

(e) Percentage Error

This was a very straightforward question, and, as might be expected, the majority of the answers showed an appreciation of its meaning. Those who were not classified in Class I mostly failed because they did not attempt to define what exactly the percentage consisted of. They would probably have known had they been examined orally. The numbers in the classes were as follows:

Class I:	More or less correct answer	32 (59%)
„ II:	Expression not defined clearly, or some misconception or absurdity expressed	19 (35%)
„ III:	Not attempted	3 (6%)

Class I.—"Percentage error is the amount that a particular result differs from the average of a number of results expressed as a percentage of that average."

Class II.—" Percentage error is the limit of inaccuracy of the result of an experiment."—" Percentage error is the error which is got in an experiment. The error of every person is different, and the personal error of an experimenter is always worked out."—" The percentage error is the expression of error as a percentage of the result. The percentage error should not be allowed to rise above the experimental error expressed as a percentage."

(f) Inductive and Deductive Reasoning

Admittedly this was a difficult question, and it was not expected that many good answers would be obtained. It was added rather for the purpose of giving the best students an opportunity to show their knowledge, and of testing the response of the others when dealing with a matter which was rather outside their capacity. The answers corresponded with the expectation. No one used the familiar expressions of reasoning from the particular to the general in the one case, and from the general to the particular in the other. The most one could look for was the small number who appreciated that there were two types of reasoning, even though they did not define these clearly or attach the correct names to them. The answers were classified with some difficulty into the following groups:

Class I:	Those who described two different types of reasoning, even though the labelling of these was incorrect	5 (9%)
„ II:	Those who defined one or other of the terms in anything approaching a correct manner	7 (13%)
„ III:	Those who had no clear idea about the meaning of the words	32 (59%)
„ IV:	Did not attempt	10 (19%).

Class I.—" Inductive reasoning is reasoning from knowledge of the theory of a certain subject and not from practical experience. Knowing the theory of a subject, reasoning may be employed to determine the result of a certain experiment before it is actually carried out. Deductive reasoning occurs as a result of an experiment—that is, from the results of an experiment a new theory may be deduced."—" The cycle in the scientific process is: experiment—deduction—theory—induction—experiment."

While it is evident that in both cases the terms " induction " and " deduction " have been interchanged, these answers show an appreciation of the processes involved.

Class II.—" Deductive reasoning is logical reasoning predicting the result from knowledge already obtained."

Class III.—" Inductive reasoning is reasoning that from a certain action another action ought to secure result. Deductive reasoning is reasoning that, because a certain phenomenon has been observed, a certain action has caused it or controlled it."—" Deductive reasoning is employed when correlating a number of facts in order to produce a satisfactory conclusive statement concerning these facts and their relation to each other. Inductive reasoning is employed when proving a dogmatic statement."—" In inductive reasoning you see in a fact another fact. In deductive reasoning you deduce an answer from several facts."—" Deductive reasoning is a means of arriving at a conclusion from a set of known facts. It does not establish anything that could not have been known previously having regard to the facts. Inductive reasoning is a method of establishing a new fact without previous knowledge of it."—" Inductive reasoning is one built up without facts, whereas deductive reasoning is the building up of a theory from certain observed facts."—" Inductive reasoning consists of soaking up other people's ideas regardless. If, however, one reasons deductively, step by step, checking points, references, etc., one will have a much better understanding of the subject, though it will have cost you much more energy."

Physiological Illustrations of the Terms

As already stated, it had been intended that this should be the most important part of the question, but it turned out that this was not in the minds of the candidates. Probably had the question been better worded this might have been avoided. It is clearly of little use for the student to know definitions of principles unless he can recognize these principles in the detailed processes and results of each particular science. A number of examples were, however, given, and sometimes were contained in the definition. It was instructive to see that where correct examples were given these were often obviously taken from work in the practical class rather than from textbooks or lecture notes. Empirical method was illustrated in one case by methods of staining blood films. Percentage error and controlled experiment were mostly illustrated by examples from the practical class in biochemistry. From the scanty data obtained, it would be tempting to draw the conclusion, even if inadequately supported, that the laboratory rather than the lecture theatre is the correct place to learn an appreciation of scientific method. It would be interesting if further data were available on this very important aspect of scientific training.

Conclusions

The examples given above speak clearly enough for themselves. It appears that a large number of students have only the vaguest ideas on expressions and terms which are in everyday use in scientific work, and indeed which would seem to be at the basis of the scientific method. Equally disturbing was the fact that of those who could define the terms more or less correctly, very few were able to produce examples taken from physiology which would illustrate these. Both these findings seem to bear out Dr. Walshe's contention that in the teaching of the student there is too much imparting of facts and too little imparting of general principles.

In this investigation certain general principles have been selected and students tested for their knowledge of these. A further question now arises. Is it really important that the medical student should be able to deal with matters of this kind? This is not altogether easy to answer. On the one hand, it is easy to see, for example, that persons who are going to be responsible for public health work should understand clearly what is a controlled experiment, so that they may not be too easily influenced by figures claiming to represent the effect of various factors on the health of the community. On the other hand, one knows that there are many indispensable people in all departments of the medical services who could not define what they mean by inductive reasoning. There are also probably many skilled laboratory workers and first-rate research workers who would have difficulty in defining scientific conceptions of a general nature; and, indeed, many of those who make the greatest contributions to scientific research make very little use, in their writing and talking, of abstract conceptions of the kind which we are discussing at present. Obviously there is much need for careful thought as to what are the educational needs of the scientifically trained section of the population.

But, assuming that some knowledge of abstract scientific method is desirable in medical students, how is it to be achieved? There seem to be two possibilities. The first is that the scope of the teaching might be reduced so that less time would have to be spent in acquiring facts, that teachers might be encouraged to interest the student in the more general principles of scientific method, and that examination questions might be framed so that time spent by the student in thinking on these things would pay dividends even in the short period of 18 months. This is the method one would like to see tried. There is, however, also a second possibility. To an already overloaded curriculum might be added a new subject called " Scientific Method," for which doubtless a suitable " Aids " and " Synopsis " would quickly be forthcoming. The student would add to his tasks the learning of a new series of terms and a new jargon, with still less time to think over their relation to what happened in the laboratory or at the bedside. In this case the teacher might be excused for having some misgiving " that the last state of that man would be worse than the first."

The Scottish Council for Health Education (which was set up in July, 1943, by the Secretary of State for Scotland to cover the whole field of health education) held its second annual meeting in the City Chambers, Edinburgh. Bailie Violet M. C. Roberton, LL.D., chairman of the Council, presided, and warmly welcomed Dr. Arthur Massey, chairman of the Central Council for Health Education. The report of the Executive Committee and the audited accounts for 1944 were adopted, and it was noted with satisfaction that 51 of the 55 major local authorities in Scotland were contributors to the Council's funds. Despite many difficulties the Council's work steadily advanced in 1944. Nearly 40 leaflets and booklets on a variety of health subjects had been published and printed in Scotland, and it was reported that within the last few months nearly three-quarters of a million of these leaflets, etc., had been ordered by the local authorities for free distribution to the public. There was ample evidence of a widespread interest in health education, and strenuous efforts were being made to satisfy, foster, and sustain that interest.

Correspondence

Activities of Officer Prisoners of War

SIR,—It gave me peculiar pleasure to read the very interesting paper by my friend Capt. A. R. Dearlove on his investigations into the activities of officer prisoners of war (March 24, p. 406). As an expression of his own activity the paper speaks for itself. When about a year ago Dr. John Harkness wrote (April 22, 1944, p. 568) " the very large majority of our returned prisoners of war will be problems for their lifetime " his letter called forth vigorous protests from two medical officers who had been prisoners of war and one who is still in enemy hands. To these protests I should like most emphatically to add my own. But however well founded these protests may be, they are, after all, only opinions. It may be that we, without realizing it, are ourselves " problems "! Capt. Dearlove, therefore, has done a good service, quite apart from the value of his investigation on the problems of the use of leisure, in approaching this question more objectively.

It would have been interesting had his last two questions (concerning physical and psychological impairment) been so couched as to elicit whether the men thought the impairment was permanent, but even without this it is interesting that not much more than a third of them consider themselves to be impaired, physically or psychologically. Some psychologists would maintain, I fancy, that this approximates to the number in the general population of those liable to neurotic reactions in unfavourable circumstances. The grouping by length of captivity yields intriguing results, in that the 2-year group had much the highest " psychological impairment "—55% as compared with 38% in the 4-year group and 41% in the 3-year group. This might be taken to indicate that the impairment tends not to be permanent and that many men achieve adjustment even under the continuance of the adverse circumstances. It is unlikely, I think, though possible, that there is a higher incidence of neurosis among the North Americans (who form the bulk of the 2-year group) than among the presumably predominantly Anglo-Saxon British and Australasians. Complex factors are, of course, operative, and no single or simple explanation is likely to be sound.

There can, I think, be little doubt that Capt. Dearlove's general conclusion is sound, that the " 'P.O.W. neurosis' is similar to the commoner 'war neurosis,' which, according to Gillespie, arises at a superficial level and will presumably disappear when the conditions causing it are removed." This last point needs a little extension by those of us who have seen a good deal of the already repatriated P.O.W.s. Major P. H. Newman put the matter succinctly in his letter (Feb. 3, p. 163), which concluded thus: " The repatriate wishes to rejoin the queue where he left it years ago, not at the back." " I thoroughly agree with the final paragraph," writes Capt. C. Donald (Feb. 17, p. 235), referring to Major Newman's letter. " The 'square deal,' or lack of it, is, of course, the excuse given for all discontent throughout the country, and unfortunately many ex-P.O.W.s harbour a legitimate grouse." A legitimate grouse is not a neurosis! *Verbum sapienti.*—I am, etc.,

E. R. C. WALKER.

Aberdeen.

Relief of Oesophageal Obstruction

SIR,—In the interesting leader on the relief of oesophageal obstruction (March 17, p. 373) I rather gathered that the writer is a little half-hearted about the method of self-dilatation by bougies which he mentions in reference to one of my own cases (*Brit. J. Surg.*, 1943, **30**, 344).

Your readers may be interested to know that the patient to whom the leader particularly refers is now completely well and tells me that he has not the slightest difficulty in swallowing. Recently he had luncheon with a party of visiting surgeons at the Postgraduate School and ate, without the least difficulty, the same lunch and at the same rate as the other guests. He informed me that he had not used a bougie since November, 1943, and that was only done at my especial request. It is now five years and two months since treatment by bougies was first started at a time when he had not swallowed by the normal channel for nineteen years.

There are many other examples, and in my second Haliburton Hume Memorial Lecture published recently (*Newcastle med. J.*, 1945, **22**, January) I have referred to some of the late results.

The first case in which I ever employed this method was a patient whom I saw suffering from what looked like acute mediastinitis following on dilatation through the oesophagoscope. Thereafter treatment was rather long and trying, but he came to see me in August, 1944, ten years after beginning the bougie treatment, and was able to state that he could swallow any kind of food without difficulty. Occasionally, about every three months, he still passes a bougie with ease.

Another case of particular interest was that of a female patient who was admitted under my care in August of 1935 with what proved to be an obliteration of the oesophagus following the swallowing of a quantity of hair lotion. For six months she had been nourished through a gastrostomy, and during that time had not even been able to swallow her own saliva. A way through the obstruction was established by the retrograde method, and thereafter treatment by bougies, which the patient herself passed, was continued. At the time of writing, seven years and four months after leaving my care, the patient reported herself as perfectly well and without difficulty in swallowing of any sort. She was then married and doing full-time war work.

A man who came to us in desperation, and who despaired of relief by any means other than some dramatic operative intervention, was treated by bougies, and in October of 1942, six years after the commencement of that treatment, he was very well and actively employed as a works manager, though he did require to use a bougie from time to time.

I have employed the direct attack through an open thoracotomy and should not hesitate to do so if all else failed, but my experience with the use of bougies and the necessary correlated measures has taught me that only in very few cases is the direct method likely to be required.—I am, etc.,

G. GREY TURNER.

British Postgraduate Medical School, London, W.12.

Infant Deaths

SIR,—The reference to infant mortality in Dr. W. J. Martin's article (March 17, p. 363) and also the reference to infant mortality in New York City in your leading article (March 10, p. 337) move me to make certain comments and suggestions.

It is stated that practically the whole of the increase in the infant deaths in New York " occurred during the first month of life and mainly between the ages of 10 days and one month, the causes responsible being diarrhoea and congenital malformations.". Dr. Martin comments in his analysis: " A matter for concern is the steady rise in deaths due to injury at birth. . . . A similar trend has been shown by the U.S.A., where the mortality from injury at birth rose from 3.9 in 1920 to a peak of 5.3 in 1930 and then declined slightly to 4.8 in 1939. It seems rather ironical that, despite the efforts to reduce mortality, the death rate from violence should increase." Dr. Martin groups together deaths due to congenital malformations; congenital debility; premature birth; injury at birth.

I suggest that a post-mortem examination be carried out as a routine measure in every institutional death under 4 weeks and wherever possible in private practice also. Much surprising information might be gleaned in this way which would be of real value. To illustrate this point a few recent cases in my own practice might be quoted.

(1) A baby delivered with forceps after a long second stage died on the 10th day. There was ample breast milk and the child seemed to be doing satisfactorily for nearly a week. Death was thought to be due to cerebral haemorrhage. P.M. showed atelectasis. (2) A premature twin flourished for a few days, then vomited all feeds and gradually lost weight. Examination by a paediatrician on the 11th day detected no sign of respiratory or intestinal infection. Special food and methods of feeding were prescribed, but the child died on the 15th day. P.M. revealed an incomplete rupture of the tentorium with some venous oozing and congested areas of the lungs from which staphylococci were demonstrated. (3) Two babies delivered the same day by Caesarean section faded out without any cough or obvious signs of respiratory infection within a few hours of each other when 10 days old. Both were found on P.M. to have advanced pneumonia with pneumococci demonstrated in every smear. (4) One woman had two babies each with a very easy and rapid " second stage." The first died on the 3rd or 4th day. The second died on the 10th day. A P.M. on this child showed an extensive

cerebral haemorrhage, though the birth was easy and the perineum appeared to offer no resistance or pressure to the head.

I think it possible that many others will make equally inaccurate diagnoses, and a P.M. would be valuable for accurate statistical purposes, if for no other reason. Healthy mothers under regular ante-natal supervision receiving priority eggs, milk, and vitamins ought to be able to produce healthy viable babies and a plentiful supply of good milk. Are statistics available showing the proportion of breast-fed and artificially fed infants in this tragic death roll? I have the impression—though I have not attempted to check the numbers—that a large proportion of mothers regularly attend the clinics to have their babies weighed and to collect "dried milk" and vitamins. One wonders if any real attempt is made to encourage natural feeding. I have been asked by a very intelligent young lady early in the third month of her first pregnancy what artificial food was best for her baby!

There appears to be a widespread habit of firmly pinioning young babies with the intention, I am told, of preventing them sucking their thumbs, scratching their faces, or damaging their eyes. In my opinion this custom has probably killed many thousands of babies during the past few years. A muscular young nurse rolls the child in a firm shawl or woollen blanket with the arms extended over the abdomen. A final twitch tightens the blanket and compresses the chest. The corner of the blanket is then securely tucked in and the helpless infant, as immobile as a mummy, is placed in its cot usually on the right side. If the binder is applied as firmly as the constricting shawl, abdominal breathing is almost impossible and thoracic breathing must be very shallow and extremely exhausting. If doctors in charge of maternity units will make an unexpected examination of all "binders" and test the lack of freedom of the infants' arms and the amount of pressure on the chests, some useful information may be gathered, and if this cruel and pernicious custom can be stopped I am sure many lives can be saved annually. If a necropsy is performed on all babies thought to have died as a result of congenital debility, premature birth, or injury at birth I think it probable that many will be found to have right-sided hypostatic pneumonia, or atelectasis. Possibly tight abdominal binders may contribute to excessive posseting, vomiting, and other difficulties in feeding.

Twenty to twenty-five years ago (my personal experience does not go further back) one would receive a handywoman's call to a dirty house devoid of all sanitary conveniences or conveniences of any kind, to deliver a woman of a large baby. After a struggle a bruised and shocked baby would be delivered, and with very little attention it usually survived and thrived. Nowadays after conscientious ante-natal care an easy forceps delivery takes place under ideal surroundings, the baby showing no signs of trauma yet for no obvious reason it wilts and dies. Killed by kindness?

Since writing the above I have discovered the following in Ashby's *Health in the Nursury,* published in 1899:

> "The binder should be of soft flannel and must not be applied tightly; its object is to keep the dressing on the navel in place, and not to bind the baby up; it will certainly do harm if it is tight enough to compress the chest or stomach." And again: "Customs, however foolish, die hard, and there still seems to be a legion of nurses who implicitly believe in the necessity of bandaging up the body of an infant like a mummy, and securing the roll of flannel after being pulled tight, with a row of stitches. It is surely not necessary to say that such bandaging is harmful, for any compression of the abdomen and chest prevents the proper expansion of the lungs, interferes with the circulation, and increases the risk of 'rupture.' We must bear in mind that the size of the abdomen alters in circumference from time to time during the process of digestion."

To summarize. I do not claim to have "proved" anything, but I have recorded certain observations in the hope that it may lead to widespread investigation in the nursing of infants and help to check the wastage of child life. I suggest that a necropsy should be a routine measure to verify the cause of every neonatal death. That an investigation be immediately carried out in every maternity unit and on the "district" into the matter of tight "binders" and "pinioning." The arms cannot be secured within a shawl without some constriction of the thorax and embarrassment of respiration. It might also be noted whether or not it is customary for the babies to be left more frequently and for longer periods on their right sides than on the left. It is my belief that thousands of babies are being killed by these methods of nursing and their deaths credited to congenital debility, premature birth, and injury at birth. If this can be demonstrated and prevented I anticipate a very great improvement in the following years' record of neonatal deaths.—I am, etc.,

Huddersfield. S. H. Waddy.

Newer Concepts of Breast-feeding

Sir,—Dr. M. Witkin's "newer concepts" (March 31, p. 441) appear to me to be wrong, first, because they are based on a misconception, and, secondly, because they make breast-feeding unduly complicated and difficult. I find it hard to believe that if a duct is blocked in the nipple a little massage, as described, will unblock it if the suction of the baby will not. The *vis a tergo,* surely, is infinitely less than the *vis a fronte!* If attempts are made to pull a happily sucking infant off the nipple, one realizes the suction pressure is very great indeed.

Breast-feeding is largely an emotional business, and anything that makes the mother think it is difficult is to be deplored. If a mother wishes to feed her child—and in my experience most of them do—nothing can stop her doing so except folk, and it really is extraordinary how folk try: the sick visitor (the chief offender), the mother, the mother-in-law, neighbours, friends, the nurse, the doctor, and the husband, in that order, are the chief enemies. The sick visitor comes along, weighs the baby, says it has lost weight, and the seed of doubt is sown. At the next visit complementary or supplementary feeding is suggested. At the third visit some corporation food and a bottle are introduced, and, finally, the first artificial feed is administered.

On a housing estate there were eleven mothers feeding their babies artificially, and one (mine) on the breast. The sick visitor tried to introduce the bottle to my mother, but I won. If a mother wishes to feed her child, and she is told that it is easy and is encouraged, and she is warned *carefully* against listening to folk, and if necessary is protected from them, then nothing can stop her feeding it, in my experience.

Finally, Dr. Witkin's success with breast-feeding is probably due to his enthusiastic advocacy and not due to his newer concepts. I find I get excellent results with a completely different technique—namely, leaving it to the mother to feed the baby in the manner she finds easiest and best for both herself and child, and doing my utmost to protect her from folk.—I am, etc.,

Rotherham. Eric Coldrey.

Sir,—Having read another helpful article on breast-feeding (March 31, p. 441), I wonder if I may comment on my own experience of happy and successful breast-feeding?

We have three small boys, and I have reared them without benefit of bottles (I just keep one for a mascot). Even when drinks of water were indicated these were given from a spoon, and the boys were weaned to the spoon by the time they were 7 to 9 months old. I agree whole-heartedly with the statement that the mother "should be alone in her room and not disturbed, in order to give undivided attention to her babe." I associate unsuccessful feeds with: (1) argument or even conversation with grown-ups present at a feed; (2) anxiety about fulfilling appointments or domestic duties between feeds or immediately after them; and (3) keeping an eye on the other children. I have been lucky to have had enough domestic help to reduce these difficulties to a minimum. Of course I know of women who are not interested in feeding their babies themselves, but for others I suggest that success or failure with breast-feeding at home depends on the presence or absence of domestic help.—I am, etc.,

Belfast. Isabel Wilde.

Flour in the Loaf

Sir,—Mr. H. C. H. Graves, chairman and managing director of Vitamins Ltd., disputes (March 31, p. 460) the accuracy of certain statements made by Lord Portsmouth in the debate in the House of Lords on Feb. 28. I submit the following evidence in support of Lord Portsmouth.

The constituents of the wheat grain which are in question are those derived from the wheat germ. Their only source is home-grown wheat. The germ has been removed from imported wheat in the country of its origin.

At the outbreak of war flour prepared from home-grown wheat constituted only 13% of our home consumption (*vide* leaflet issued by Ministry of Food, May, 1941). The supply of wheat germ, therefore, must have been and remains extremely limited. Sir Edward Mellanby (*British Medical Bulletin*, Nos. 10 to 11, 1944) writes: "The bread eaten before the war was made of a low-extraction flour, 70 to 73% of the berry, and consisted entirely of the endosperm, while the bran, aleurone layer, scutellum, and embryo were extracted by the millers" and sold for purposes other than human food. Mr. Thomas Fairbrother, an accredited champion of the millers, in the *Medical Press and Circular*, May 13, 1942, declared that "It was the general pre-war custom of the trade to separate the germ from the middlings, which were to be fed to cattle. The germ was separated by rolling it into flat flakes and sieving out. This was then sold *to such firms as Vitamins Limited and Glaxo Limited*." (The italics are mine.) In a previous letter (*Medical Press and Circular*, April 29, 1942) Mr. Fairbrother had written: "The extracted germ has been used chiefly as a constituent of infant foods and as part of the diet of invalids. Surely this valuable foodstuff is put to better advantage by building up bonny babies, the man-power of the future, and restoring convalescents to health and strength again than by feeding it indiscriminately to healthy adult people who have no such need for it." A Parliamentary answer to me on Sept. 8, 1942, stated that 99% of the germ thus derived from wheat is allocated to certain favoured makers of patent medicines and foods, some half-dozen in number.

The present Minister of Food (*Hansard*, Nov. 11, 1944) has declared his intention of "gradually" introducing whiter bread, and has explained that he has already in pursuit of this purpose authorized a reduction of home-grown wheat supplied for national bread to 40% instead of 60% previously required. The Statutory Order (March 11, 1942) had exacted this specification: "'National wheatmeal' means, in relation to flour produced after the 22nd day of March, 1942, flour of 85% extraction, *produced in the United Kingdom* [my italics], so as to contain the maximum quantity of wheat germ which, having regard to the type of milling plant, can be included in such flour but so as not to include any coarse bran." This specification was supposed to be operative until reduction of extraction to 82½% was made on Oct. 31, 1944. A further reduction to 80% was made on Jan. 1, 1945.

I submit that the Ministry of Food, which has earned deserved praise for many of its achievements, has unaccountably fallen down in the matter of the national bread. The present subsidy assigned to bread (*Hansard*, March 29, 1945) is £35 million p.a. That subsidy has remained fairly constant in amount throughout the war. It is astonishing and lamentable that our people, paying this enormous exaction, should have been fobbed off until March, 1942, with a national bread which consisted almost wholly of starch. Reversal of that policy in March, 1942, was, I suggest, brought about by action taken in the House of Commons. In December, 1941, I tabled a motion in the following terms:

> "*Wheatmeal Bread*.—That a Select Committee be appointed to inquire what are the considerations which obstruct the exclusive provision as a war measure of a national wheatmeal loaf of the highest practicable extraction, and whether the objections to its adoption are such as to outweigh the practically unanimous recommendations of medical and scientific experts and the value of the tonnage which could be saved by the use of all imported wheat for human consumption, and to report with the least possible delay."

This was supported by over 80 members, including two Fellows of the Royal Society and 9 of the 12 medical M.P.s. In the debate on food (March 3, 1942) I closed my speech with the following statement based upon the motion then upon the Order Paper: "Some time or other an impartial inquiry will have to be conducted into why they [the millers] obstruct what every expert who has approached the matter advises—namely, *the prohibition of the white loaf* and the *provision of a proper wheatmeal loaf*." (The italics are mine.) A week later the Minister of Food in the House of Lords announced the Government's decision to prohibit the milling of white flour (except under very restricted conditions), and to provide a national war loaf made from wheatmeal flour of 85% extraction. It is that loaf which, in the opinion of all the speakers in the House of Lords, has been responsible for the marked improvement in the public health since its enforcement. Reversion to the pre-war white loaf, from which, to secure its whiteness, the germ must be removed, is a thoroughly retrograde step, the reasons for which require explanation.—I am, etc.,

Epsom. E. Graham-Little.

Sir,—As you gave Mr. Graves the extraordinary privilege of printing his letter (March 31, p. 460) it would be well to point out that it is the custom in scientific papers, and in our *Journal* in particular, to publish not only the truth but the *whole* truth. He says: "The raw material from which Bemax is prepared is extracted solely from flour destined for manufacturing purposes." What is the denatured flour made into, and who consumes it?—I am, etc.,

Norwich. Frewen Moor.

The Loaf and Politics

Sir,—It is alleged that 85% extraction flour is a better article of diet than the white loaf for which many of us still yearn. That the use of such flour has saved shipping space during the war and that the bread made from it has supplied deficiencies in our rations are indisputable. But are we to believe that the small amount of vitamin B and other substances present in such flour would really be important to our nutrition in days when a full mixed diet was available? Or is the contention that white flour is, in fact, a deleterious comestible? If these are the views of the advocates of national flour, we, to whom white loaves were a pleasure, should like an explanation of our sound nutritional state in the days when we ate what we liked, and, of course, of that of the French, who possessed so many more varieties of white loaves than our bakers troubled to make.

It is difficult to avoid the conclusion that advocacy of national flour is a political stunt, which, as Prof. J. A. Ryle tells us (March 31, p. 456), "requires State controls and opposes certain interests, and puts the people's health above individual free choice." Now, Sir, advocacy does not require State controls, although advocates may desire them. The function of an advocate in a democratic community is to do all that lies in his power to convince a sufficient number of persons of the correctness and value of his views, which can then be given the force of law, supported by popular opinion. But a self-styled advocate who would force his views on his fellow-men is no better than a Gauleiter, if not, indeed, a Führer.

It is interesting to conjecture why white flour should be singled out for attack when alcoholic drinks and tobacco (which, as everyone knows and admits, can do harm) are immune from professorial censure. Is it supposed that lovers of white bread are less pugnacious than beer barons and tobacco magnates? If I may reply for all those who enjoy these three pleasures, I would say that we have not yet been so cowed by the experts that we will pusillanimously do as we are told. Unless we are convinced that the game of eating white bread isn't worth the candle, the tyranny of forbidding it will lead to the opening of a black market in white bread.—I am, etc.,

London, W.1. A. Piney.

*** Before the war it is doubtful whether more than half the population of this country were getting the "full mixed diet" to which Dr. Piney refers. Bread is the staple food of the poorer classes, and on nutritional grounds it would seem hard to defend a policy which impoverishes such a food. It will be easier to defend when everyone in this country is in fact able to buy a "full mixed diet."—Ed., *B.M.J.*

Ovariotomy or Caesarean Section?

Sir,—In his letter (March 17, p. 383) Mr. Eardley Holland advocates the removal of the ovarian cyst followed by vaginal delivery in the case of a patient already in labour. He states that "if the cervix is not fully dilated labour must be allowed to continue until it is and then the child delivered. The presence of a recent abdominal wound does not interfere with natural labour; pain is relieved by morphia." On page 311 of the 8th edition of Eden and Holland it is stated that "the foetal respiratory centre is extremely sensitive to the action of morphia and it should on no account be given if delivery is expected to occur within the space of 3 hours because of the risk of foetal apnoea ; many foetuses have failed to survive birth because this important rule has not been observed." Hence it appears that the unfortunate woman is left with a 14-inch abdominal wound plus the pains of labour for the last 3 hours of the first stage. The fact that continuous caudal anaesthesia has been so extensively used as an analgesic shows that morphine in ordinary doses is unsatisfactory to overcome the pains of the first-stage contractions even without the added pain of a large abdominal incision.

The 7th edition of *Midwifery by Ten Teachers* states that in a case seen early in the first stage it may not be advisable to wait, "in which case the operation must be proceeded with at once and the delivery of the child effected by Caesarean section. An alternative is to suture the abdominal wound and allow labour to proceed naturally. Of the two procedures the first is the more merciful and has the further advantage of not submitting the abdominal wound to strain."

It may be noted that Mr. Holland calls on the support of the dictum of the late Dr. Herbert Spencer, who never did a lower-segment Caesarean section in his life and whose views are not necessarily applicable in 1945. The question arises whether Prof. S. J. Cameron, Mr. Holland, or Mr. Stanley Way remain with their patients after ovariotomy and wait to deal with their pain personally, or whether they leave a house-surgeon to cope with the vaginal delivery of a patient who has a large laparotomy wound to strain on as well as the pains of labour. Perhaps one is also permitted to wonder if any one of them has ever had a large incision in his own abdomen, although it is too much to hope that they also had the added pains of labour which they urge should be suffered by women. Prof. Stander, on page 986 of his 8th edition of *Williams' Obstetrics*, concludes: "We are of the opinion that the double operation is preferable, believing that a woman should not be subjected to the strain of labour immediately following an abdominal operation."

If an operation is performed before the cervix is fully dilated an incision from the pubes to the umbilicus, a lower-segment Caesarean section, and then the removal of the cyst is the treatment which most women would choose who know the facts. This treatment would make them inclined to cater for further pregnancies.—I am, etc.,

London, W.1. CLIFFORD WHITE.

SIR,—The letters on this subject, as well as those on placenta praevia, show that opinions still differ as to the most suitable methods of surgical treatment. From past experience I cannot regard the presence of Caesarean scars as lightly as Mr. C. McI. Marshall (March 24, p. 421) or my friend Victor Bonney (March 31, p. 459), for it has been my lot to operate on several cases of rupture through the scar. The possibility of this complication has been in my mind ever since I saw a young mother lying dead on the slab of the admission room through rupture of the uterine wound. From my experience of this complication I consider that the prognosis is influenced greatly by two circumstances. It is less serious if the contents of the uterus are extruded completely into the peritoneal cavity, as the uterus can then retract effectively. On the other hand, if there be only partial escape of the child through the rent while there is incomplete separation of the placenta, death may ensue rapidly from haemorrhage and shock. The bleeding is not so copious if the uterine wound is avascular with the placenta situated at some distance from it. Danger may follow from quite a small rent, for, in one case I operated on, the child was stillborn while the patient nearly lost her life from the formation of a tear which was not much longer than one inch ; the placenta lay immediately beneath the scar.

Mr. Marshall wisely emphasizes the great importance of a suitable anaesthetic in cases of placenta praevia, where the patient's condition is critical. With advantage the choice may be limited to three: intravenous pentothal, local analgesia, and cyclopropane. The only objection which might be lodged against local analgesia in desperate cases where bleeding is continuing is that it adds slightly to the length of time of the operation.

Mr. Marshall and I are in complete agreement as to the management of placenta praevia, with the exception that he invariably prefers the lower-segment operation. Although his experience of this method of treatment in these cases is gratifying, I believe that, for those who only occasionally perform Caesarean section, the classical operation is the one which should be chosen. On the occasions when I performed it for placenta praevia, I always felt that I was entering a dangerous territory owing to the increased vascularity in this area of the uterus. So I abandoned it when my former colleague, Dr. J. Hewitt, whose surgical skill and judgment I admire, informed me that he no longer performed the lower-segment operation in cases of placenta, as he was convinced that with exsanguinated patients the chance of recovery was lessened in those instances where profuse bleeding occurred during difficult removal of the placenta. Mr. Carnac Rivett has also written to me stating that he invariably chooses the upper-segment operation in dealing with this abnormality of pregnancy ; at the same time he always uses pentothal, administered by the drip method, as an anaesthetic.—I am, etc.,

County Maternity Hospital, Bellshill. S. J. CAMERON.

Repair of the Oblique Hernia

SIR,—Mr. James F. Riley's letter on this topic (March 17, p. 386) and his reference to "the use of strips of hernial sac as fascial sutures" prompt me to record that this procedure is also applicable in other kinds of external hernia. In many large ventral hernias—umbilical and incisional—strips of adequate length and strength can be cut from the sac and used to complete the necessary repair. In femoral and direct inguinal varieties the sac does not provide sufficient material, but the same method of repair can be used if one takes strips cut from the sac of an inguinal hernia previously removed from another patient. As Riley writes: "The length and strength of the material which can be obtained from such a source are quite remarkable." Recently I operated on a man with a very large scrotal hernia. After his hernia had been repaired by the method described there was enough excellent material left over for the repair of at least half a dozen other cases. In this particular case 1/2-inch-wide strips of the sac had a breaking strain of fifteen pounds. In thick sacs 1/4-inch-wide strips are generally used ; where the sac is thin wider strips are cut. Any with a breaking strain of less than five pounds are discarded. By arranging an operating session devoted to hernias requiring the "hammer" method of repair, and by heading the list with two large oblique hernias, it is possible to obtain enough suitable strips for the repair of, say, five or six cases.

No claim is made that this method of utilizing the sac gives better results than other repair procedures. Satisfactory results depend not so much on the particular method adopted, but rather on the manner in which it is applied. At the same time my method has certain advantages over fascia lata strips: it is economical in time and material, and avoids the infliction of a thigh wound which may provide patients with grounds for complaints—real or imaginary. Mair (*Brit. J. Surg.*, 1945, **32**, 381) states that in his experience pain, which may be quite intractable, occurs in 25% of subjects.

In an enumeration of the "disadvantages of fascia" Mair writes: "The needle used for the Gallie method is large, and apt to traumatize the inguinal ligament. There is also a risk of penetrating the femoral vein. This complication has been frequently mentioned in the literature . . . and in one example which came to my notice death resulted on the operating table." Can such a disaster be fairly described as a "complication" of the Gallie method? Most competent surgeons would be inclined to use a stronger and more appropriate term.—I am, etc.,

Dundee. F. R. BROWN.

Recurrent Dislocation of the Ankle

SIR,—I was interested in Mr. E. Hambly's note on recurrent dislocation of the ankle (March 24, p. 413). The condition described is one more accurately referred to by Elmslie (*Ann. Surg.*, 1934, **100**, 364) as a recurrent subluxation of the ankle-joint. Undoubtedly the initial injury is of some severity, but the history of the original severe sprain is not so frequently elicited. While in a number of cases, particularly those with superimposed recent sprains, the clinical impression of increased inversion is not apparent, few would agree with the generalization that "further examination of the ankle does not elicit any more inversion than is found in a normally sprained ankle without a ruptured external ligament." If the case falls within the second category described—namely, that in which the presenting symptom is a "feeling of weakness" or a recurrent "giving way."—attempted inversion will rarely be accompanied by any peroneal spasm, and will not require local analgesia, More often, however, as Mr. Hambly points out, the patient presents himself as the result of a recent sprain, and peroneal spasm is usually related to the degree of pain experienced. The intravenous injection of 0.5 g. of pentothal sodium, given with the patient on the x-ray table, secures rapid and adequate relaxation, and allows the ankles to be compared both clinically and radiologically under similar conditions.

That the only treatment for an ankle with a rupture of the external lateral ligament is operation is indeed a bold statement, but I feel that Mr. Hambly refers to the old case with recurrent symptoms; even so, the treatment should always be guided by a proper assessment of the symptoms, and the simple measure of raising the outer border of the heel will often obviate any operative procedure.

Any operation devised to prevent a recurrent subluxation of the talus must provide for a reconstruction of the anterior talo-fibular ligament, and such a reconstructed ligament must not vary in length. The operation described is both simple and ingenious, but fails to fulfil either of the criteria mentioned. The calcaneo-fibular ligament is admirably reconstructed, but the anterior portion of the split peroneus longus tendon has but one fixed attachment—namely, that at its fibular extremity—and bears no functional resemblance to the anterior talo-fibular ligament.—I am, etc.,

Kirkham, Lancs. J. ROWLAND HUGHES, M.B., CH.B.

SIR,—I feel that Mr. E. Hambly's memorandum under the above heading (March 24, p. 413) should not pass unchallenged, advocating as it does a needless operation. By "dislocation of the ankle" he appears to mean rupture of the external lateral ligament—hardly the same thing! Apart from a wide experience of injuries in others, I have personally sustained a sprain of the ankle with an audible rupture of the external ligament, and also a genuine dislocation. The foot was so inverted that I could see the sole as I lay on the ground, and the deformity was reduced by replacing the astragalus in its socket. There was, fortunately, no fracture. There was, of course, much pain and swelling, but after a week's rest and some massage I started gentle walking in about a week, and was playing tennis a month later. Such exercise naturally was followed by swelling, but as it subsided during the night no harm was done and my ankles are as good as ever they were.

I feel that if modern young orthopaedic surgeons realized the value of early and persistent active movement, operations would be avoided, and patients discharged much earlier and with better results than are often seen to-day.—I am, etc.,

Bearsden. C. M. FINNY.

Problems of Cortical Hyperadrenalism

SIR,—Dr. F. Parkes Weber's letter (March 17, p. 384) on problems of cortical hyperadrenalism is of great interest also from the point of view of the study of the aetiology and pathogenesis of malignant tumours. The group of hormone-producing tumours (ovary, testis, chorion epithelioma, pituitary, parathyroid, etc.) have aroused much interest in recent years, not only because of their peculiarities but also because they allow a closer scrutiny of the interwoven endocrine function and neoplastic proliferation.

The variations of the primary or secondary sex characters resulting from the impact of the endocrine environmental factors on the genetic sex-determining factors can perhaps be considered as the half-way house on the road leading to neoplastic degeneration. An example is the so-called masculinizing tumours of the ovary, which may be either the arrhenoblastoma or the granulosa-cell carcinoma. The latter is more frequently a feminizing tumour.

The explanations given by Dr. Parkes Weber are, to say the least, very thought-stimulating. Although several different hormones have been isolated from the adrenal gland, the conception of a distinct androgenic zone in the adrenal cortex, liable to undergo hyperplasia or to function at a lesser rate than normal, is not easily acceptable. Halban's views (1925)[1] that the cortical hormone is not a specific male activator but may exercise an influence on either gonad are worth recalling. According to Halban, when a female shows masculinizing effects she does so because at birth she was a potential hermaphrodite, and the effect is caused by the stimulation of male gonadal rests in the ovary. That holds to-day, notwithstanding the facts brought to light as regards the sex-determining factors in the chromosomal pattern. It must also be borne in mind that in the arrhenoblastoma the tumour may be the effect rather than the cause of the increase of the androgenic hormone in circulation. Moreover both masculinizing effects and increase of androgens are not the rule with these tumours.

The question whether "the mild forms of feminism producing cortical hyperadrenalism in females, probably without any actual cortical endocrine tumour, could account for some cases of excessive development of the uterus with early and excessive menstruation and myomata and possibly exaggeration of breast development and secondary sex characters" can be answered in the positive in a hypothetical way. The importance, however, lies in the problem whether these symptoms and signs are not analogues of pre-malignant conditions in other spheres of oncology.

As regards the active thymic tumour or delayed involution of a large thymus, giving rise to either macrogenitosomia or gynaecomastia with hypogenitalism (referred to by Dr. Parkes Weber) due to a virilism-producing thymic hormone in the former case and a feminizing thymic hormone in the latter, it must be emphasized that although a degree of antagonistic relationship between thymus and gonads exists, it seems not to be of simple reciprocal nature. The influence of the thymus on the development of young animals and osteogenesis and normal joint formation was known long ago. That in spayed rats the thymus does not undergo involution, or that testosterone propionate injections affect profoundly the thymus, does not mean that this gland affects the gonads in the reverse directly. Heavy doses of x rays delivered to the thymus of newborn rats resulting in the destruction of this organ (Jolles, 1941)[2] do not produce any effect on the testis.—I am, etc.,

Northampton. B. JOLLES.

REFERENCES

[1] Halban, J. (1925.) *Wien. klin. Wschr.*, **33** 475.
[2] Jolles, B. (1941.) *Amer. J. Roentgen.*, **45**, 259.

Shall We Nationalize Medicine?

SIR,—The issue of a 100% service surely revolves on how much we value freedom. I am impelled to raise my voice not only by Lord Horder's challenge in his Cardiff address (March 17, p. 357), but also by Prof. J. A. Ryle's academic reply (March 31, p. 456). My claim to speak rests, not like theirs on eminence, but on a fairly wide experience. I have climbed over the fence and tried the grass in the next field several times. Those I have sampled include six existing services, a number of general practices, several voluntary hospitals, and also teaching and research in universities. I have learned to value certain freedoms, and here are some which I hold to be at stake.

I value the right to stand for political election like any other citizen. A Government officer is normally debarred from candidature while holding office, but is free to resign and earn a private living and then put up for election. Prof. Ryle argues for an increase in correct political activity by the profession and at the same time wants to make us all 100% officers of the State. Would this not quite properly debar us all from candidature except at the price of retiring from earning a living? How does he reconcile his apparently conflicting advice?

Prof. Ryle says: "First of all it is an assumption that State medicine must necessarily impose controls on the professional thought and actions of a doctor and spoil his age-long human relationships with his patients." I will agree that any estimate of the future is an assumption, but since experience is the only basis for prognosis, and all the evidence of my experience shows that these very things are happening in the Services now, I ask, What evidence does he offer to suggest that a new service might make any effort to avoid the grave faults of the present?

To me the most striking common factor in services is the whittling away of many professional freedoms, which all add up to a big debit. Consider the tuberculous patient. Possibly a poor case for freedom, but he still has a trace; up to the point of public danger he may refuse treatment, but the price has gone up recently. In the official "Model Leaflet: Allowances and Grants" we read: "These allowances will be paid . . . *provided* that he follows a course of treatment advised by the tuberculosis officer of the local authority" (my italics). Is this a "model" of things to come? Together with the patient's waning right of free choice goes the doctor's right to retire from a case. Another freedom that I value is the right to prescribe as I think best. This has never been strong in services, and under wartime drug restrictions it is in danger of vanishing.

Another freedom that is ebbing is the freedom to give one's personal best to each patient. I regard this as crucial. I have met service administrators who exert direct pressure, although insidiously because they will not put it in writing, to scamp the work and speed the flow of human cattle through their clinics. When I challenge I am told that "the mass method is the only way," or that "there is a shortage of doctors," but in any case "it is an order." I have tasted this in every service pudding I have eaten. Like the flavour of weevils it cannot be disguised by any amount of jam. The point is that we have not yet seen a service that sets out to put the interests of the individual patient first. I have always thought and taught that this is the first thing in therapeutics—the foundation stone that is still solid after 2,500 years. The mass method of approach is satisfactory for animal work, and most laboratory workers recognize that it cannot be directly or completely applied to man because man is something more than animal. That its attempted imposition on man is unsatisfying to patient and doctor alike I have no shadow of doubt.

The freedom to set up experiments to test a theory is one that I value too, including man within voluntary and human limits, and experiment by definition includes control for measurement. Prof. Ryle states his belief in his theory but admits "until we have tried it neither Lord Horder's assumption nor mine can be proved the more correct." Therefore I assume that he considers the 100% service plan to be in the nature of an experiment. But where is his control? What is left from 100% for any kind of comparison under equivalent conditions? Does he accept Lord Kelvin's definition that "science is measurement"? If so, he has thrown away his yardstick. I can picture plenty of political control in a 100% service, but because it rules out scientific control from the start I submit that it is not an experiment and therefore could never prove anything. The only comparisons left would be the results on the health of the next generation to set against that of the present and of the past, which would contain so many enormously variable factors as to be scientifically fantastic and totally invalid.

Finally, to be constructive, let me welcome discussion and plan. Let us collaborate and organize to improve by all means. Let us indeed try a unified national service. But I press that this is too big either to be measured by the yardstick of science or "bossed" by the big stick of politics. By what, then, could it be controlled? I suggest that it could be balanced by a principle, and the only one that is big enough is freedom. If I am right, this means that we must not agree to a 100% service under any circumstances. The only prescription that is likely to prevent the monster medical machine from becoming a myxoedematous monstrosity is adequate dosage with freedom; to be available at all times, and at every stage: freedom for the patient to seek private aid without penalty, provided only that in certain cases he does, in fact, take some specialist advice; freedom for the doctor to work in the service or get out and earn a reasonable living at his profession on his own, responsible, as of old, only to his patients, subject only to his conscience and his King.

Would this not put the service on its mettle and the private profession too? Let them vie with each other to serve the nation in friendly rivalry, and I think both will live and flourish healthily. But if it so happens that England lets this freedom go, either by default under hasty wartime legislation or by direct vote after due time for consideration, then I for one will reckon it to be the greatest disaster in the history of medicine. I will then pack my traps and sadly restart my travels in pursuit of freedom, even, as Sir Walter Langdon-Brown has suggested (*Daily Telegraph*, July 28, 1944), as far as the wilderness.—I am, etc.,

Lee-on-the-Solent. J. W. DE W. G. THORNTON.

SIR,—Lord Horder (March 17, p. 357) postulates a number of axiomatic truths that no one will question. At the same time this eminent authority gives expression to some strong protestations of a controversial nature. For example, the sponsors of the White Paper are arraigned as accessories in a course that must ultimately lead, so it is contended, to "regimentation and control by the State." The evidence adduced in support of this indictment hardly rises above the level of the hypothetical. It is noteworthy that no recognition is made of those doctors who have indicated their reactions to the White Paper as favourable (Q. 30 of Questionary) or have plainly signified their approval of a "salaried remuneration or some similar alternative which will not involve mutual competition" (Q. 17 and Q. 18 of Questionary). Is it considered that they are lacking in "good brains and healthy ambition" simply because they are not attracted by the adventures—and the hazards—of competitive private practice?

The health centre, according to Lord Horder's conception, takes the shape of a hospital out-patient department where the Ministry pays for the services of the specialists. That is very different from the health centre of the White Paper, which is designed for a "group" of general practitioners working together. And now that some public health authorities have laid claim to the same label for their clinics, the appellation "health centre" does not make for clarity. It seems high time to discard the term in reference to "grouped" general practice, for which "consulting centre" might be better.

I would beg leave to deprecate the emphasis on the sentiment that "we"—the medical profession—"stand for sane knowledge, selflessness, and mercy in a world gone mad." That is a high standard, but is it not a little unsympathetic to the rest of the population? Why "a world gone mad"?—I am, etc.,

St. Annes-on-Sea. JOSEPH PARNESS.

SIR,—The last paragraph of Prof. Ryle's letter states by far the most important point in the controversy. He says: "*Until we have tried it* neither Lord Horder's assumption nor mine can be proved the more correct" (my italics). Let there be no misunderstanding: once medicine is nationalized there would be no return from the disaster, both to the community in general and to the medical profession, which many of us believe it would bring about. It would be impossible to say: "We find this experiment a failure; let us go back to the *status quo*."

The Church of England is a very good example of political control. The bishops are, I believe, appointed on the recommendation of the particular political party which is in office at the time of a vacancy. In my view, the chaotic condition of the Church to-day is due largely to the unfortunate practice of many of the bishops, who seem to mistake theology for politics. So it would surely be if our profession were nationalized. May it never happen.—I am, etc.,

Birmingham. ERIC W. ASSINDER.

SIR,—Prof. J. A. Ryle (March 31, p. 456) aims high if his media Utopia is to contain administrators who will not interfere with clinicians. He leaves out of account human frailties, not the least of which in the "administrator type" is the "itch" to interfere beyond their zone of usefulness.

I was once called upon during my Army service to give an explanation of my treatment of a case of fractured femur by a splint other than a Thomas splint. My first explanation—an oral one—that I had been offered a Thomas splint and refused to use it was not accepted, and I was asked to put the matter in writing. My written explanation was accepted, but I received a cautionary note to the effect that the Thomas splint had been manufactured in large quantities for the Army for treatment of this type of injury, that I knew the usual channels of procedure when a departure from Army technique was involved, and in future I was to use those channels. The time-lag would, of course, have been unpleasant for my patients and irksome to me, so from that date the usual Army technique was adhered to.

I bring forward this point to illustrate a possible (to be more honest, a certain) snag in State-administered medicine. In case any of your readers should think I spent my Service life kicking against the goad, I would like to add that that was not so. I enjoyed every minute of my Army life, had quick promotion with no previous experience, and was on excellent terms with all my senior officers. On the other hand, I always regarded my conditions of service as a voluntary surrender of individual liberties for the good of a cause, the ultimate aim being the restoration of those liberties to all serving officers for (we foolishly thought) all time.—I am, etc.,

Birmingham. L. H. G. MOORE, Major, R.A.M.C. (ret.).

SIR,—May I, as a very junior member of the profession, say how much I agree with Prof. Ryle's arguments in favour of a national medical service? In the post-war era, when each of us will have to do his utmost to help to restore the country to normal, it is difficult to see how we doctors can remain aloof from schemes of reconstruction. Unfortunately, up to the present, the proposed State medical service seems to have concerned itself almost entirely with the benefits which are to accrue to the public, with the result that most of us have formed the impression that we are to have more work, more "control," and a limited remuneration. Until this impression is finally cleared from our minds I fear that little progress will be made.

It will, I think, be conceded that if all members of the community were brought into the N.H.I. scheme and the doctors' terms of service were left unchanged—viz., a 24-hour day and a 365-day year—an impossible situation would arise. Few doctors would survive such a life for ten years, and new recruits for the profession would be rare indeed. The obvious solution to the problem, and one which in my opinion has been long overdue, is to arrange for regular working hours—say, from 9 a.m. until 6 p.m.—with a rota of doctors to stand by for emergencies during the remaining part of the day. It is true that such an arrangement would mean that a patient might be attended by several doctors during the course of an illness, but I believe that the public would show little opposition to such an occurrence. The beloved and indispensable family doctor is rapidly dying a natural death in more senses than one, and it is doubtful if he will ever be replaced. I, for one, do not believe that it is necessary to become a personal friend of my patient in order that I may do him the maximum amount of good.

We talk a great deal about our "freedom" at present, but surely we are free in theory only. The British doctor of to-day is tied to his practice and his patients just as firmly as was the negro slave to his plantation and master before the Emancipation Proclamation of 1863. In no other profession would such conditions be tolerated, and yet many of us are actually fighting to prolong our slavery. There are men who profess to be ready and willing to give their services at any hour of the day and night to any type of case. In seven years of practice I have not met such a man, and I am not ashamed to say that I consider nine hours' routine work each day to be quite sufficient, both in my own interests and in those of my patients.

A last (but not least) word on behalf of our wives. Is it not high time that the surgery premises, with their dreadful tyranny of telephone and door-bell, were dissociated from the doctor's private residence? Let us not forget also the hardships caused by the initial purchase of a practice and the anxieties of personal illness and provision for retirement. Over and above all the disadvantages of a State medical service, it is plain that there exists a golden opportunity for the betterment of our lives. This is our great chance, and if we seize it with both hands I venture to suggest that future generations will look back with surprise and incredulity upon the conditions which their fathers tolerated and even fought to retain.—I am, etc.,

Blackpool. H. DAKIN, M.B., CH.B.

Nursing and Tuberculosis

SIR,—For several months the views of authoritative writers have appeared in your columns concerning the degree of risk to young nurses when exposed to infection from tuberculous patients. The weight of expert but apparently divergent opinion leaves the mind of the simple observer still a little confused, but the letter of Miss Evelyn Pearce (March 24, p. 424) helps by reminding us that we are dealing with a problem that calls for urgent and radical treatment based, not on clinical laboratory findings, but rather on humanitarian principles.

So long as Dr. W. E. Snell writes primarily as a physician and Drs. P. W. Edwards and A. C. Penman as hospital administrators, the battle of the giants will continue, but, as a general practitioner, I would like to support the argument of Miss Pearce, who, with a wealth of experience behind her, believes that the conditions under which the student nurse toils "as a hewer of wood and drawer of water" are a menace to her health and a grave reflection on our hospital system. This letter is inspired by a disastrous case of hospital "slavery" which recently came to my notice.

In late 1943 a healthy girl, whom I knew as a panel patient, started her training as a student nurse at a general hospital and had in her care several tuberculous patients. On Oct. 13, 1944, she came to see me saying that she felt "very ill indeed." After examining her I gave her a note for her medical superintendent, stating that she was feverish, had lost weight, and, in my opinion, was urgently ill. She was *x*-rayed three days later and the medical superintendent kindly sent me the report, which read: "Marked opacity in right lower lobe area suggests that there has been recent consolidation there, probably now resolving." Although at this time she was running an evening temperature of 100–101°, she was kept on duty *for a further four days* before being warded. The sputum being positive, her subsequent progress to a sanatorium brought her under the care of Drs. Edwards and Penman, who have treated her case with an energy which suggests that their reputation has not been built solely on administrative ability.

This student nurse trained in a general hospital which justly had a high reputation for careful work and progressive treatment and the nurses are usually well looked after. Nevertheless it appears to be a serious fault in our great hospitals that the young nurses are regarded as cogs in the machine rather than as human beings. Until this very serious fault is remedied there will inevitably be reluctance on the part of thinking parents to encourage their own daughters to enter a profession which might otherwise attract.—I am, etc.,

Urmston. REGINALD H. TOOTILL.

Identification of Gas Cylinders

SIR,—In your issue of March 17 (p. 381) I note the sad fatality due to faulty identification of cylinders. In common with most anaesthetists I deplore the lack of standardization; there should be universal cylinder markings of an indelible kind and obvious colour and foolproof fittings in all gas-type machines.

Apart altogether from the need for a full personal inspection and testing of the apparatus and a routine "once-over" inspection before each administration, may I suggest the following additional safeguards: (1) All cylinders should have fitted some audible warning giving ample notice of "running out." (2) Foolproof connector to all tubes from cylinders to flowmeters. The Coxeter-Mushin apparatus has fitted an excellent type of clip known as the "Romac clip," as used on compressed-air machines. These are calibrated in three separate sizes, making a special size for each cylinder and its junction to its individual flowmeter. For example, it would be impossible, say, to connect the NO_2 or the CO_2 cylinder to the oxygen flowmeter as it would not fit and simply "blow off."—I am, etc.,

London, N.8. A. OWEN-FLOOD.

Organization of Research

SIR,—Prof. A. V. Hill is stated in the *Journal* of March 17 (p. 374) to want a central organization for scientific research under a Minister. Does he really think that such a thing will help all independent thinkers to put forward new ideas for research? By centralizing all research work Prof. Hill would have every worker submit his proposed work to an official without any guarantee that it will not be filched. Filching does exist in all kinds of intellectual work whenever the chance occurs, and unless Prof. Hill can guarantee security, the less he pushes his idea the better.—I am, etc.,

Swansea. G. ARBOUR STEPHENS.

Obituary

A. W. SHEEN, C.B.E., M.S., F.R.C.S.

We regret to announce that Col. A. W. Sheen, Provost of the Welsh National School of Medicine and for fourteen years professor of surgery there, died at the Cardiff Royal Infirmary on March 28. He had represented the University of Wales on the General Medical Council since 1928.

A colleague writes:

Alfred William Sheen was the son of a well-known Cardiff practitioner who was also a surgeon to the Royal Infirmary in the pre-consultant days when the hospital was staffed by general practitioners. He was born in 1869 and educated at University College, Cardiff, and Guy's Hospital, where he was a distinguished student, and qualified in 1892, taking honours in the M.B., B.S. of London University, and then proceeded after the usual resident appointments to the M.D. and M.S. degrees and the F.R.C.S. He returned to Cardiff and was appointed assistant surgeon to the Infirmary and confined himself to consulting practice. Lynn Thomas (later Sir John Lynn-Thomas) and Sheen were the first to restrict themselves to consulting practice in South Wales. In the South African War Sheen served as surgeon to the Imperial Yeomanry Field Hospital throughout the campaign and was mentioned in dispatches. A younger brother was in the Royal Navy and landed with the Naval Brigade for the defence of Ladysmith, and was an engineer captain in the Battle Cruiser Force 1914–18; he later attained the rank of rear-admiral. Sheen would undoubtedly have achieved equivalent high rank had he decided to remain in the Army, for which perhaps he was best fitted. He resumed practice in Cardiff and now became full surgeon to the Infirmary at an early age.

In the first world war Sheen formed and commanded the Welsh Hospital at Netley, which was afterwards established in India as the 34th (Welsh) General Hospital, where he remained until 1919, and during the later period was consultant surgeon to the war hospitals in India. For his services he was made C.B.E. in 1918. He had now been away from home for five years, and on his return found it difficult to regain his former position as his term of appointment to the Infirmary had now expired. Sheen was elected under an old rule of retirement at the age of 60 or after 20 years on the full staff, and the latter ruling applied in his case when he was just over 50 and the Infirmary was deprived of his services at the best time of his life. Fortunately the Welsh National School of Medicine was completed in 1921 and Sheen became its first professor of surgery and director of the surgical unit, where his administrative ability in the inauguration of the School was invaluable. He was an excellent teacher and proved to be a successful full-time professor. He became Provost of the School after relinquishing his professorial duties to his chief assistant, Lambert Rogers, but on the outbreak of the present war when Prof. Rogers was mobilized in the R.N.V.R. Sheen was again recalled to direct the unit and voluntarily carried out these onerous and double duties to the time of his death.

He was County Director of Voluntary Aid in Glamorgan, and here his military and surgical experience were indispensable in a vast industrial area like South Wales. In this work he was greatly assisted by his wife, and they took a leading part in the social life of the county generally. At Senghenydd, the scene of our worst mining disaster, Sheen was one of the first to reach the pit-head and immediately took charge of the rescue operations. He was a born leader of men in such an emergency and all instinctively turned to him for instructions. The writer was immediately ordered to select the rescue parties, and a long queue of young miners, stripped to the waist, passed in turn for examination. I shall always remember his warm appreciation of the natural courage of the miner and the characteristic squaring of his broad shoulders on reporting, "All correct, Sir. There was scarcely a fast pulse amongst them." He replied, "They are brave fellows," and then addressed them personally. The next task was to convert a hall into a temporary hospital, which was quickly done under his capable supervision.

Sheen was past-president of the Hunterian Society and president of the Section of Surgery at the Annual Meeting of the B.M.A. in Cardiff in 1928, and contributed regularly to the medical journals in his younger days. The end was characteristic of his indomitable spirit. He had trudged three miles through the heaviest snowfall on record locally to keep an appointment at the medical school office. This effort at his advanced age was too much even for the tough fibre of his robust and well-preserved constitution. Acute heart strain resulted and was fatal in a little over a month. He died at the Royal Infirmary which he had so loyally served for almost half a century.

Prof. R. M. F. PICKEN writes:

Others can speak better of the distinguished part played by Col. A. W. Sheen in the development of the Welsh National School of Medicine during its difficult childhood, but it may be appropriate that one whose contacts with him became close only in his maturity should pay a tribute to his memory. When I was concerned primarily with local government the project of the Guardians to build a new hospital became a public issue which affected the Corporation and the Medical School, and Sheen became an active member of a medical committee set up by the Guardians to advise them on planning and other technical matters. His views were broad and idealistic and had much influence on the moulding of what is now one of the finest municipal hospitals in the country. He was a firm advocate of close association between the medical school and this and other municipal institutions, and constantly directed his influence toward furthering this object. He was instrumental in securing joint appointments as between the school, the voluntary hospital, and the municipality as a means of attracting young specialists into the area, much to the advantage of all parties.

Sheen's ideas for remedying the defects of medical organization were radical. He expressed himself in speech and writing with vigour and clarity and without compromise, but he met opposition with equanimity and without rancour. Age did not stale the adventurous character of his mind. In administration he rode with a light rein and kept effective contact with his colleagues. He constantly stressed the importance of research among the functions of the medical school, but he took an expansive view of its teaching duties not only for medical students and graduates but also for ancillary workers in health. His personal relations with his colleagues were friendly and intimate, and they will cherish the memory of his many acts of personal kindness.

Surg. Capt. LAMBERT ROGERS, R.N.V.R., professor of surgery, University of Wales, cables from over-seas:

I am deeply grieved to hear of the death of my friend and colleague Prof. A. W. Sheen, whose kindness I can never forget. So much in the development of medical education in Wales was due to his far-reaching views and energetic drive that the University and Medical School and the Cardiff Royal Infirmary have sustained a grievous loss. "The Colonel," as he was fondly called by his friends, was always young in outlook and his ambitions were always for all that is best is surgery and in medical education generally. The son of a distinguished Cardiff practitioner, he had been Arthur Durham's house-surgeon at Guy's, and early in his surgical career was one of a small group of surgeons to ligature successfully the innominate artery. Having had a distinguished Army career in the last war he would have loved a Service appointment in this, but being over age for such he worked harder than ever for the medical school in which he was both the first professor of surgery and the first provost. He retired from the chair of surgery in 1935, but remained on as administrative head of the school, and after the death of Mrs. Sheen early in the war returned to the chair to enable his younger colleague to go on active service. He published numerous and valuable papers on surgical subjects, was a sound surgeon of wide experience, an excellent teacher and speaker, and an able administrator. He had a great gift for encouraging younger men, was very much beloved by his friends and students, and will be sadly missed.

HAAKON SAETHRE, M.D.

On Feb. 9, 1945, several Norwegian patriots were arrested as hostages and sentenced to death by a German summary court-martial. They were immediately afterwards shot as a reprisal for the killing the day before of the Quisling police chief by the Norwegian Home Forces. Among the Norwegians executed was Dr. Haakon Saethre, chief medical officer of the psychiatric department of Oslo City Hospital, and one of the most prominent Norwegian neurologists and psychiatrists. His death as a hostage reflects dismally the terrorism practised by the Germans in occupied Norway.

Haakon Saethre was born in Bergen in 1891, and had his post-graduate neurological and psychiatric training at the State Hospital in Oslo and at the State Psychiatric Clinic. He became head of the psychiatric department of Oslo City Hospital in 1933, and through his excellent clinical work and outstanding abilities as an administrator made his clinic one of the most inspiring psychiatric institutions in Norway. Dr. Saethre's scientific work covered a large field of neurology and psychiatry. His works on oxycephaly, disseminated sclerosis, general paresis, and other topics are already classical neurological literature. A number of articles on various subjects are to be found in the Scandinavian medical journals. During the last 10 years he made extensive studies of chronic alcoholism, and of the neurological and psychiatric sequels of head injuries. He was official Norwegian delegate to several international congresses, and was president of the Inter-Scandinavian Congress of Psychiatry in Oslo, 1938. As medical consultant for Oslo City Child Welfare

Committee since 1933, he soon realized the need for specially equipped psychiatric departments for children, and the war only had postponed the realization of his plans regarding this important preventive field of medicine. As honorary president of the Norwegian Society of Mental Hygiene for several years, Dr. Saethre also devoted much of his unusual energy to popularizing the general principles of mental hygiene. He was a very active member of the Norwegian Neurological and Psychiatric Societies.

Besides his many official duties, Dr. Saethre also had a large private practice in Oslo, acting chiefly as a consultant, and he obtained the confidence and admiration of a vast number of patients from all parts of Norway. His interest in clinical work was intimately combined with profound personal and social care for the sick individual. Dr. Saethre's assistants will always remember his extraordinary knowledge and his ability to convey this knowledge to his staff.

DENIS JOSEPH COFFEY, LL.D., M.B.

We regret to announce the death, on April 3 in a Dublin nursing home, of Dr. Denis Coffey, late President of University College, Dublin, and Vice-Chancellor of the National University of Ireland, who for 25 years represented that University on the General Medical Council.

Denis Joseph Coffey graduated B.A. with first-class honours in 1886 and M.B., B.Ch. in 1888 at the old Royal University of Ireland, of which he was later elected a Fellow, and went for postgraduate study to Louvain, Madrid, and Leipzig. He became professor of physiology, and later dean of the Faculty of Medicine, in his own University and lecturer in biology at St. Patrick's College, Maynooth. He served on the Royal Commission on Trinity College and the University of Dublin in 1906, and was one of the Dublin Commissioners under the Irish Universities Act, 1908, in which year he was elected President of the newly created University College, Dublin. Trinity College conferred on him the honorary degree of LL.D., and the Royal College of Physicians of Ireland its honorary Fellowship. He was appointed to represent the National University of Ireland on the G.M.C. in 1920, and seven years later became President of the Free State Medical Council.

At the time of his retirement from the presidency of the N.U.I. in 1940 a tribute in the *Journal of the Irish Free State Medical Union* recorded that to the young University Dr. Coffey gave all his energies unselfishly and without reserve, assuming the whole burden of its early administration. As the University grew he did not spare himself, and long after he might have safely delegated power he did not do so because he was impelled by a whole-hearted conception of duty. The successful growth and assured standing of the Medical Faculty were due in part to his wisdom and to the character he gave to its formation.

The death on March 26 at Brentwood, Essex, of Dr. **ARTHUR QUENNELL**, aged 78, removes not merely the doyen but the respected and acknowledged standard-bearer of the medical profession in that neighbourhood. The son, grandson, and great-grandson of medical men in Brentwood, he was the head of a large firm which includes also his nephew, Dr. William Quennell, representing the fifth generation in continuity. He had witnessed the development of a small country market town into an affluent residential suburb of London, where his services were equally acceptable to the Essex farmers and the more sophisticated immigrants of the last forty years. He was of the very best type of general practitioner, and took immense pains to keep fully abreast of progress in all branches of medicine. It was common knowledge, too, that he maintained an unvarying high standard of professional ethics and rectitude. Not only was he a supporter over many years of both the leading medical charities, but his private liberality was inexhaustible: it was no uncommon thing for him to summon a consultant from London for some urgent case and himself to pay the fee if he knew it would overstrain the patient's resources. His medical education was obtained at St. Bartholomew's Hospital, whence he qualified as M.R.C.S., L.R.C.P. in 1892. Thereafter he was house-surgeon and house-physician at the Royal Free Hospital, and resident medical officer at the Evelina Hospital for Children. Until laid low by serious illness about a year ago, he had remained in harness, no doubt partly or wholly through determination to do his share in the country's war effort. Dr. Quennell, who was unmarried, joined the B.M.A. in 1912.

We regret to record the death on March 18 of Mr. **ASLETT BALDWIN**, consulting surgeon to the West London Hospital, to St. Mark's Hospital for Diseases of the Rectum, and to a number of other hospitals in and around London. Aslett Baldwin was a student of the Middlesex Hospital, qualified in 1893, and obtained the F.R.C.S. in 1896. He began and continued as a general surgeon, but combined this with more and more work in his chosen specialty. He made a number of practical contributions to the Subsection of Proctology of the Royal Society of Medicine, and after that had been raised to the rank of an autonomous Section he served as its president, and was also a Fellow of the American Proctological Society. Aslett Baldwin had been a member of the B.M.A. since 1908 and was a past-president of the West London Medico-Chirurgical Society.

Dr. **THOMAS JOSEPH COSTELLO**, an alderman and former mayor of Darwen, Lancs, died on March 3, aged 55. He studied medicine at University College, Dublin, and graduated B.Sc., M.B., B.Ch. of the National University of Ireland in 1913. After serving as house-surgeon at the Mater Misericordiae Hospital he was in the R.A.M.C. with the rank of captain during the last war, and won the Military Cross. As chairman of the Darwen Public Health Committee, to which he was elected in 1937, Dr. Costello did much good work in the borough in promoting the establishment of new public baths and a civic health centre. As an undergraduate he was one of the fastest three-quarter backs in Irish rugby football, and in his last year played in all three international matches against England, Scotland, and Wales.

Dr. **CHRISTOPHER HUGH MACKLIN**, of Ampthill, near Bedford, who died in London on March 27, was elected chairman of the North Beds Division of the B.M.A. in June of last year. He was born at Pidley, Hunts, on Nov. 19, 1894, son of the Rev. H. W. Macklin, and from Felsted School entered the Middlesex Hospital. After qualifying M.R.C.S., L.R.C.P. in 1921 he was appointed house-physician at the Middlesex, his hospital studies having been interrupted by three years' service as surg. sub-lieut., R.N.V.R., in H.M.S. *Orotava*. Dr. Macklin held a number of appointments at Ampthill from 1922 onwards, and at the time of his death was the senior member of a partnership of three.

Dr. **JOHN NAIRN MARSHALL** died at his home, Stewarthall, Isle of Bute, on March 15. He was in his 85th year and was born at Pollokshields, Glasgow. He graduated in medicine at Glasgow University, thereafter holding resident posts in the Western Infirmary, Glasgow, and Belvidere Fever Hospital, Glasgow. He then took his M.D. and went to Vienna for postgraduate work. After a short period of practice in Galston, Ayrshire, he settled in the Island of Bute in 1892 and continued in active practice there until he retired in 1934. He took a great interest in medical matters, holding at different times the offices of president of the Glasgow and West of Scotland Branch of the B.M.A., chairman of the Bute Insurance Committee, and chairman of the Victoria Cottage Hospital, Rothesay. He was a Fellow of the Royal Faculty of Physicians and Surgeons, Glasgow, and a member of the Marine Biological Association, Millport. He was largely responsible for the formation of the Bute Natural History Society in 1905 and for equipping the Bute Natural History Museum; he also undertook archaeological investigations in Bute. He was a Fellow of the Society of Antiquaries of Scotland. He is survived by his wife and three daughters—Miss Margaret Marshall, R.R.C., who is matron of the Royal Infirmary, Edinburgh, Miss Sheina Marshall, D.Sc., who is a biologist on the staff of the Millport Marine Biological Association, and Miss Dorothy Marshall, who is at home. The high regard in which Dr. Marshall was held by the Bute community was evidenced by a public presentation at the time of his retirement, this function being presided over by Lord Bute. Dr. John V. Thomson sends the following tribute: The moving finger that "writes and having writ moves on" must have recorded a noble story of Dr. Marshall, a story of trials that come from following the right rather than the expedient, of perseverance in well-doing, of human sympathy and kindness. His quietness of manner was a noteworthy characteristic which called forth the remark by one of his patients that "he could not have many idle words to answer for." His skill and knowledge as a physician and surgeon were of a high order, and on this account he was often called in consultation by his colleagues and neighbouring general practitioners. His work had the broad outlook of one well versed in natural history, and he recognized medicine as a jealous mistress who allowed to her devotees no counter-attractions. He had great kindliness and charm of manner, which, combined with wide reading and a retentive memory, made him a delightful host in a home where guests were the rule. In his earlier years in practice travelling was by bicycle, by riding, and by gig, and was in consequence especially strenuous. His experiences were rich, and it was entertaining and informative to hear him reminiscing. He was a staunch supporter of cottage hospitals and was a believer in general practitioners doing some of their own surgery. His services were freely given to the poor, and he was most lenient in the matter of fees. In all his activities he was ably and loyally supported by his wife and family. He had a wide circle of friends in the West of Scotland, who mourn his loss and whose sympathy goes out to his bereaved family.

Dr. **EDWARD WILLIAM REES-JONES**, late medical officer of health for Blackpool, died at Lytham St. Annes after a short illness on March 27. He had his medical education at University College, London, and the University of Glasgow, graduating M.B., Ch.B.Glas. in 1898 and M.D. in 1904; he also took the Cambridge D.P.H. Entering the public health service his first appointment was that of assistant M.O.H. for Nottingham; he was then deputy M.O.H. and school medical officer for Lincoln before taking up the post of M.O.H. and school medical officer, Blackpool. During the last war Dr. Rees-Jones held a commission as temporary captain, R.A.M.C. He joined the B.M.A. in 1906, was honorary secretary of the Blackpool Division for twelve years, and chairman in 1932–3. He was a Fellow of the Society of Medical Officers of Health, a Serving Brother in the Order of St. John of Jerusalem, and honorary surgeon to the St. John Ambulance Association. When he retired from his post at Blackpool in 1940, at the age of 65, he could look back on immense developments in the medical services of the town.

Dr. **JOSEPH KENNISH** of The Chase, Clapham Common, S.W., died on March 2. at the Bolingbroke Hospital, after a week's illness, aged 78. A Cumberland man by birth, he studied medicine at the University and Royal College of Surgeons, Edinburgh, and qualified L.R.C.P.&S.Ed. and L.R.F.P.S.Glas. in 1897. Thereafter he practised at Clapham, where he had been district medical officer to the Wandsworth Guardians and served to the end as one of that borough's public vaccinators. A keen B.M.A. man, elected in 1907, he was hon. secretary of the Wandsworth Division for many years and represented it at two Annual Meetings; he also served on the Ministry of Health Committee at headquarters in 1919–20. He did yeoman service during the last war as honorary secretary of the Local Medical War Committee, his work in that capacity being recognized both by the Central Medical War Committee and by his fellow practitioners in Wandsworth, who presented him with a gold watch. He had also been treasurer of the South-West London Postgraduate Association up to the time of his death. A. D. M. writes: Joseph Kennish was kindly, self-sacrificing, and lovable, a great favourite with all who knew him. In his student days "Jos.," as he was affectionately called by his Edinburgh contemporaries, was well known as a university harrier, sprinter, billiard player, and yachtsman.

Dr. **JOHN PATRICK O'KANE** was born at Swateragh, Co. Derry, in 1896, and came over to Preston with his family at an early age. After being educated at Ushaw College, Co. Durham, he joined the Life Guards in 1916. On his discharge in 1918 he entered the medical faculty at the National University of Ireland, where he graduated M.B., B.Ch., B.A.O. in 1925. After a period as house-surgeon at Bagot Street Hospital, Dublin, he returned to Preston and settled in general practice. In 1927 he was appointed honorary surgeon to St. Joseph's Hospital, Preston, and in 1934 lecturer to St. John Ambulance classes, a work in which he always took the greatest interest. He was a sick man for many months before he was compelled to take to his bed, but the interests of his patients were always foremost in his mind, and he worked among them until he could work no longer. After eight weeks of very patient suffering he died on March 20, at the age of 49. To his widow and three young daughters we extend our deepest sympathy.—L. F. U.

News has been received from South Africa of the death of Dr. **JOSEPH CECIL GILLESPIE**, for many years a member of the Natal Coastal Branch, of which he had been president. He was educated at Trinity College, Dublin, graduating B.A. in 1921, M.B., B.Ch., B.A.O., and L.M. of the Rotunda Hospital in 1922; a year later he obtained the F.R.C.S.I. diploma, and in 1927 the D.O.M.S. of the English Royal Colleges. Dr. Gillespie practised as an ophthalmic surgeon at Durban, and his position in that specialty was recognized by election as president of the Ophthalmological Society of South Africa. He published papers on subjective tests in errors of refraction and on the relation between dental and ocular affections. During the present war he served as ophthalmic specialist to the Durban Command.

The Services

Surg. Cmdr. J. M. Flattery, R.A.N., has been mentioned in dispatches for skill, determination, and courage while serving in certain of H.M. Australian ships in the Leyte Gulf operations.

Capt. A. J. Clarke, R.A.M.C., has been awarded the M.C. in recognition of gallant and distinguished services in North-West Europe.

The following appointments and awards have been announced in recognition of gallant and distinguished services in North-West Europe:

C.B.E. (Military Division).—Col. (Temp.) J. Melvin, O.B.E., M.C., T.D., R.A.M.C.

O.B.E. (Military Division).—Col. (Temp.) W. H. Marston, T.D.; Lieut.-Col. W. J. McIntosh, T.D.; Major (Acting Lieut.-Col.) D. H. Young; Majors (Temp. Lieut.-Cols.) A. McC. Campbell, D.S.O., M. Fallon, J. A. Finegan, C. E. Gallagher, R. L. Holt, F. Heywood-Jones, T.D., H. W. E. Jones, A. F. Kennedy, F. L. Ker, B. M. Nicol, G. E. Ord, and S. R. Trick, R.A.M.C.

M.B.E. (Military Division).—Capt. (Acting Major) K. D. Stewart; Capts. (Temp. Majors) D. E. H. Beattie, R. G. Evans, M. Hunter, J. B. Mackay, A. MacLeod, J. D. McLennan, and D. J. Watterson, R.A.M.C.

D.S.O.—Major (Temp. Lieut.-Col.) M. E. M. Herford, M.B.E., M.C., R.A.M.C.

M.C.—Capt. G. Karstaedt, R.A.M.C.

The following have been mentioned in dispatches in recognition of gallant and distinguished services in Burma and on the Eastern Frontier of India:

Brigs. (Temp.) G. J. V. Crosby, T.D., and H. G. Winter, M.C.; Col. A. C. Jebb, late R.A.M.C.; Col. (Temp.) J. H. Baird, R.A.M.C., Reserve of Officers; Cols. (Temp.) J. W. Eames, A. J. Gardham, and D. F. Panton; Cols. (Acting) J. R. Dawson and R. V. Franklin; Lieut.-Cols. (Temp.) F. P. M. Anderson, S. W. K. Arundell, N. Bickford, S. O. Bramwell, H. R. Hartnell, M.B.E., A. J. Martin, J. H. Moffett, J. J. O'Dwyer, M. E. D. Roberts, and E. J. M. Wenyon; Majors H. G. N. Cooper and R. H. Wheeler; Majors (Temp.) J. Brown, J. V. Crawford, E. A. Donegan, J. Duguid, K. J. Dunlop, J. C. Gregory, C. L. Hayshunker, A. Hunter, J. W. Montgomery, W. O'Callaghan, J. Smibert, B. E. C. Stanley, and R. K. A. Van Someren; Capts. N. H. Bloom, J. A. Chamberlin, H. D. Cockburn, K. C. S. Edwards, H. E. D. Flack, C. H. Foggitt, F. D. Forbes, A. T. Freeland, N. H. H. Golledge, A. D. Gould, J. Griffith, J. N. Hamill, E. A. Heaslett, T. K. Howatt, J. S. Mather, P. G. Miller, D. MacD. Milne, J. C. S. Paterson, E. Rea, R. S. Saxton, J. P. Scrivener, J. B. Stafford, L. L. Theron, and W. J. Watt; Lieut. E. J. Rubra, R.A.M.C. Brig. (Temp.) W. E. R. Dimond, C.I.E., O.B.E.; Cols. (Temp.) W. A. Burki, M.B.E., and F. R. Cawthorn, I.M.S.

Lieut.-Cols. (Temp.) P. H. Addison, B. C. Roy, D. F. Eastcott, W. A. Hopkins, G. A. Ransome, M. Shwe Zan, and M. L. Smith, M.C.; Lieut.-Cols. (Acting) A. K. Gupta and E. J. Currant; Majors (Temp.) K. L. Aich, P. Dass, D. G. Horan, P. A. Hubbard, A. N. Roy, G. Sambasivan, and A. D. Wilson; Major (Acting) L. E. Chaves; Capts. A. Ahmed, L. K. Anantharayanan, A. N. Ansari, T. D. Brown, P. N. Chatterji, W. A. Clark, Y. D. Deshpande, (Mrs.) B. F. Dickenson, D. B. Doctor, S. C. Dutta, A. E. Frazer Smith, R. Gardiner, G. Mandal, Y. D. Ghyasuddin Ahmed, M. L. Gupta, G. D. Shenoi, A. F. Hussain, M. M. A. Jabbar, R. Krishnamurti, T. L. W. McCullagh, A. Merriweather, V. Rangaswami, S. R. Turkhud, J. Shrinivasan, S. D. N. Sinha, S. Shapurji, and R. B. Tulpule; Capts. (Temp.) N. Choudri, D. G. N. Narayan, G. S. Sidhu, N. K. Mitra, N. Adisehiah, and S. G. Shah; Lieut. M. Saifullah, I.A.M.C., Capt. M. B. Lall, Burma A.M.C.

Freed by U.S. Forces.—Capt. Percy Bailes Barker, R.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Previously reported missing in Italy, now presumed killed in action.—Surg. Lieut. Alastair Simpson Bell McNeil, R.N.V.R.

Killed as the result of air action while a prisoner of war.—Capt. Robert James Finlay Howe, R.A.M.C.

Died of wounds.—Capt. Gordon Spencer Sheill, M.C., R.A.M.C.

Died.—Lieut.-Col. Gavin Alexander Elmslie Argo, O.B.E., M.C., R.A.M.C.; Capts. John Henry Richardson Barker and Diarmuid Declan O'Callaghan, R.A.M.C.; Lieut.-Col. James Scott Riddle, I.M.S.

Wounded.—War Subs. Capt. J. Breckenridge and Temp. Major J. L. Nicol, R.A.M.C.

DEATHS IN THE SERVICES

Lieut.-Col. **WILLIAM SIMPSON**, R.A.M.C., A.D.M.S., North Caribbean Area, is reported to have been drowned on March 18 outside Kingston Harbour, Jamaica, after falling overboard from a yacht.

He graduated in medicine at Glasgow in 1923 and proceeded M.D. four years later. In civil life he was obstetric surgeon to the Preston Royal Infirmary and consulting obstetrician to the Lancashire County Council and a number of voluntary and municipal hospitals. He had been resident physician at the Glasgow Royal Infirmary and Royal Maternity and Women's Hospital, and senior M.O. at St. Alfege's Hospital, Greenwich. Before his appointment to the North Caribbean Area Col. Simpson acted as hospital liaison officer between the War Office and the Ministry of Health.

Surg. Capt. Herbert Wells Bayly Shewell, R.N. (ret.), who died at the Royal Naval Hospital, Minterne, Dorset, on March 27 in his 73rd year, had studied medicine at Cambridge and St. Bartholomew's Hospital, graduating M.A., M.B., B.Ch. in 1898. For his services in the last war Capt. Shewell was created O.B.E., and at the Annual Meeting of the British Medical Association held at Cambridge in 1920 he was vice-president of the Naval and Military Section.

Lieut.-Col. Andrew Thomas Gage, C.I.E., LL.D., I.M.S. (ret.), died last month at Strathpeffer, Ross-shire, at the age of 73. He was educated in Aberdeen and became an M.A. of the University in 1891 and qualified with the M.B., C.M. in 1896. In 1894-6 he was assistant to the professor of botany of Aberdeen University and entered the Indian Medical Service in 1897. After a short period in military employment he was appointed assistant to the Superintendent of the Botanical Gardens, Calcutta, the late Sir David Prain, whom he succeeded on Sir David's retirement in 1906. This appointment included the directorship of the Botanical Survey of India and charge of the cinchona factory near Darjeeling, and involved much administrative work. His scientific publications included *A Botanical Tour in South Lushai Hills*, 1904, and *Vegetation of District Minbu* (Burma), 1903. When the Government of India decided to increase its cinchona plantations Col. Gage spent much time in touring over India in search of a suitable climate and soil for the purpose, and on his advice an area in Burma was chosen, but this was unfortunately lost to the Japanese early in the present war. He was awarded the C.I.E. for his services and retired in 1926. Shortly afterwards he underwent a very serious operation, made a good recovery, but had the misfortune to suffer later from a distressing cardiac condition which proved fatal. He was somewhat reserved in his manner, but was a thoroughly competent and reliable officer.

Universities and Colleges

UNIVERSITY OF OXFORD

In a Congregation held on March 20 the University accepted with gratitude an offer by Mr. Stanley Brookes of an annuity of £1,500 for seven years to further the study of the biochemical factors influencing organic mental disorders. Decrees were carried establishing a Betty Brookes Research Fellowship, in memory of the donor's daughter, for a period of not less than 7 years for the study of problems of brain metabolism in relation to nervous and mental disease, and prescribing conditions of tenure. The Fellow will be appointed by the Board of the Faculty of Medicine on the recommendation of the Whitley Professor of Biochemistry, to work mainly in the Department of Biochemistry, but also keep in regular touch with relevant clinical work, especially in the Nuffield Department of Surgery.

UNIVERSITY OF CAMBRIDGE

At a Congregation held on March 17 the following medical degrees were conferred by proxy except where an asterisk shows that they were received in person:

M.D.—H. B. May, E. Cronin.
M.CHIR.—J. M. Pullan, D. I. Williams.
M.B., B.CHIR.—G. N. Cooke, H. L. English, B. M. Heap, *M. L. Graeme.

UNIVERSITY OF MANCHESTER

Lord Woolton will be installed as Chancellor of the University on Wednesday, May 16. After his installation he will confer honorary doctorates on eleven persons, including Sir Wilson Jameson, M.D., F.R.C.P., Chief Medical Officer to the Ministry of Health, and Lady Limerick, Deputy Chairman of the British Red Cross Society.

UNIVERSITY OF ST. ANDREWS

The honorary degree of LL.D. will be conferred on William Thomson Munro, M.D., D.P.H., formerly medical superintendent of Glenlomond Sanatorium, at a graduation ceremony to be held on June 29.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Queen Mary has made a donation to the Restoration and Development Fund of the Royal College of Surgeons of England. The Fellows and Members of the College much appreciate the honour and are deeply grateful for this mark of Her Majesty's favour and approval.

Medical Notes in Parliament

Europe's Food

Earl Winterton on March 28 opened a debate in the House of Commons on supplies to liberated countries. He said the economic condition of the freed Western countries was resulting in malnutrition and was sowing the seeds of tuberculosis and deficiency diseases among children. Lack of vitamins reduced the physical powers of the inhabitants and almost abolished their powers of moderation and judgment. Unless Holland could be freed, hundreds of thousands of Dutchmen would die of starvation in the next six weeks. He was informed that U.S. Army rations were about twice those of the British Army in quantity, about four times those of the British civilian, and nine or ten times those of the average civilian in France. Mr. Greenwood said food supplies available in the world, apart from wheat, were likely to be lower this year than last. In the so-called liberated areas the problem would be something which the world had never seen, not even in the days of the Black Death. Disease germs knew no frontier, and this country might be as open to grievous diseases as those countries.

Mr. Attlee said that at the request of the War Cabinet he recently visited Paris, Brussels, and part of Holland to report on the situation. He reminded the House that Britain was a deficit area and could not supply other such areas, except at the expense of its own supplies. The duty of the military authorities to supply the people of the liberated areas was limited to provisions of an austerity standard. In any liberated area there were more than bare rations in the richer agricultural areas; greatest difficulties were in the poorer parts of the big towns. Military authorities were responsible for minimum needs not only of food but of clothing, blankets, soap, coal, and petroleum. Monthly demands of supplies were approved by S.H.A.E.F. and sent to Washington, and the supplies were brought to the country. These minimum supplies had sufficed to avoid disease. The standard was far lower than the standard in North America and was supplemented for heavy workers. But it was sufficient to maintain health, and up to now there had been freedom from epidemics. There was a danger of a world shortage in imported fats and milk products. In France the situation in the south was bad in places. In Belgium the food situation, though not easy, had been well held, as also in that part of Holland which had been liberated. In Holland still under the Germans the people received only about a quarter of the standard food in free Holland. This was utterly inadequate. Some food got in through the Red Cross, but not enough. The Allies were making plans to feed the people as soon as Allied troops got there. There would have to be specialized food for people near starvation. Provision must also be made for feeding displaced persons in Europe, and there was a prospect that the Allies would have to feed a great number of Germans. Up to the moment the Minister of Food had sent, or had agreed to release, for the liberated areas—which included some of the Mediterranean areas—900,000 tons of food from Britain's own stock.

Sir Arthur Salter said that rations for the normal person in France were not more than half British civilian rations. In Belgium they were much the same; in liberated Holland a trifle better; in unliberated Holland infinitely worse. Some food was going into Greece. In Yugoslavia there was great suffering on the Dalmatian coast, but relative plenty elsewhere. Commander Prior stated that in the South of France the percentage of premature births was increasing rapidly and the weight of the babies was poor. There was no milk and no baby foods. Dr. Haden Guest said he had been told by people of authority there that food conditions in Paris and in Belgium were much worse than they had been under the Germans. Sir Ralph Glyn pointed out that of 4,500,000 people in the western districts of Holland, 1,000,000 would not be physically able to digest ordinary foodstuffs. Mr. Emmott said his information from Rome was that 864 calories daily were available for Italian children, 890 for expectant mothers, and 1,600 for people in heavy work. No fats had been distributed.

Sir James Grigg, replying to the debate, said the problem looming in Northern Italy transcended any in Southern and Central Italy. Plans had been prepared to bring relief there. The service of someone with experience in the Bengal famine had been used to assist in investigating the need for bringing predigested food to areas of the Continent where ordinary food would be useless to the people for some time. The military would do their part to prevent disease in the wake of the Armies.

Colonial Medical Research

The Secretary of State for the Colonies and the Medical Research Council have jointly set up a Colonial Medical

Research Committee to advise them on medical research for the benefit of the colonies. The members are: Sir Edward Mellanby (chairman); Col. J. S. K. Boyd, R.A.M.C., Prof. P. A. Buxton, Dr. A. N. Drury, Brig. N. Hamilton Fairley, Dr. W. H. Kauntze, Prof. B. G. Maegraith, Dr. B. S. Platt, and Major-Gen. Sir John Taylor. The secretary of the committee is Dr. F. Hawking.

Artificial Insemination

Mr. Driberg asked on March 29 in how many clinics and by how many physicians experiments were now being conducted in the artificial insemination of women; how many children had been or were expected shortly to be born in Britain as a result of such experiments; how many of these children were the offspring of their mothers' husbands; how many of anonymous donors; and in the latter case, how the facts were recorded in the register of births. Mr. Willink answered that he had no information on the first part of the question beyond what had appeared in the medical press, from which he understood that artificial insemination had been carried out at a voluntary clinic at Exeter. On the subsequent parts of the question he had no information. So far as he knew, no births had been registered as resulting from artificial insemination.

Mr. J. Lawson asked whether the Minister was going to allow a practice of this sort, which was of great importance to this country, to be uncontrolled. Surely he could get the necessary legal powers? Mr. Willink said that obviously there was every possibility of this being a most difficult and controversial subject. He had given his reply on the information at present available, but it was clear the matter had many possibilities and many facets. He would consider what had been suggested and would consider what steps could be taken to obtain the desired information.

Mass Radiography Units

Mr. Willink on March 27 told Sir Wavell Wakefield that satisfactory progress was being made by the mass radiography units which had been brought into operation. Existing conditions did not yet permit any extensive application of the system, not only because of limitations on production of the highly specialized apparatus required but also because the present demands on medical man-power hindered provision of the expert staff essential for the proper use of the units.

Medical Students' Quota

In reply, on March 29, to questions by Dr. Summerskill and Mr. Messer, Mr. Willink declared it to be necessary, in order that man-power might be allocated in the best way, to fix quotas for the numbers of men and women to be admitted as medical students. The women's quota was fixed by reference to the number of women students admitted in the three years 1937–40. In addition a medical school which admitted both men and women could make good the deficiency in male students by admitting women. Neither the teaching staff nor the accommodation was at present available for extending teaching facilities. In statements of policy made by the Chancellor of the Exchequer on February 13 and by himself on January 18 the Government had given every encouragement to universities to formulate plans at once for the development of their medical schools as soon as conditions permitted, with special reference to the needs of women students.

Publications by M.O.s of Ministry of Health

Mr. Willink told Sir Robert Tasker on March 27 that the medical staff employed by the Ministry of Health were subject to the rule, applicable to civil servants generally, which required the sanction of the head of the Department to the publication of any book or work the subject-matter of which was connected with their official duties. This did not preclude them from communicating with medical journals on general professional matters. There was, for example, no obstacle to a medical officer of his Department making any communication to the medical press on a technical subject which might be of interest or advantage to medical science.

Accommodation for Tuberculosis in Wales.—Building work, which is expected to be completed within the next six months, is proceeding at the Glan Ely and Cefn Mably Tuberculosis Hospitals to provide 96 additional patient beds. 150 beds have also been secured at the Ministry of Pensions Hospital, Chepstow, and are being brought into commission as staff becomes available. Persons awaiting admission to sanatoria in Wales number 729.

Notes in Brief

Mr. Johnston hopes to announce shortly the composition of a committee to consider the position of children in Scotland who are deprived of a normal home life.

Medical News

The King has approved the appointment of the Hon. Walter Symington Maclay, M.D., to be a Senior Commissioner of the Board of Control (Lunacy and Mental Deficiency) on the retirement of Sir Hubert Bond from the public service on March 31. Dr. Maclay's most recent post has been that of medical superintendent of the Mill Hill Emergency Hospital. He held earlier appointments at the Maudsley and the West London Hospitals.

Radiological meetings, to be held in London, are announced as follows: at British Institute of Radiology, 32, Welbeck Street, W., Thursday, April 19, 8 p.m., Silvanus Thompson Memorial Lecture by Prof. E. A. Owen; at Royal College of Surgeons of England, Lincoln's Inn Fields, W.C., Friday, April 20, 2.30 p.m., Skinner Lecture by Mr. G. F. Stebbing, "Diagnosis of Cancer in a National Medical Service"; at British Institute of Radiology, Friday, April 20, 4.45 p.m., Mackenzie Davidson Memorial Lecture by Dr. J. F. Brailsford, "Reflections on the Teaching of Radiology"; at Royal Society of Medicine, 1, Wimpole Street, W., Friday, April 20, 6.30 p.m. (joint meeting of R.S.M. Section of Radiology, the British Institute of Radiology, and the Faculty of Radiologists), discussion on "Standardization of Radiological Apparatus," to be opened by Drs. Frank Ellis, J. W. McLaren, and J. Read. The annual meeting of the Faculty of Radiologists will be held at Leeds on Friday and Saturday, June 29 and 30 (*not* on June 28 and 29 as previously announced).

A meeting of the London Association of the Medical Women's Federation will be held at B.M.A. House, Tavistock Square, W.C., on Saturday, April 21, at 3 p.m., when there will be a discussion on the Negotiation Report of the B.M.A. Council.

Col. Oliver Stanley, Secretary of State for the Colonies, is announced as the chief speaker at a meeting at the Mansion House, London, on Thursday, April 26, at 3 p.m., to mark the 21st anniversary of the foundation of the British Empire Leprosy Relief Association. The Lord Mayor will preside. The meeting will inaugurate a campaign by the Association to raise a sum of £210,000 (that is, £10,000 for every year of its existence) in an intensified effort to eliminate leprosy from the Empire, which contains some two million sufferers. Plans include greater research, the provision of new clinics and agricultural colonies, and a redoubling of existing activities.

A meeting of the Clinical Society of the Royal Eye Hospital will be held at the hospital on Friday, April 27, at 5 p.m., when a talk on "Nystagmus" will be given by Mr. T. E. Cawthorne.

Prof. M. Greenwood, F.R.S., will give six public lecture on "Medical and Social Comparisons between the Conditions of England in the Wars against Bonaparte and Hitler" at the London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W.C., at 4 p.m. on Monday, April 30, Wednesday, May 2, Monday, May 7, Wednesday, May 9, Monday, May 14, and Wednesday, May 16.

At a meeting of 40 urological surgeons under the chairmanship of Sir Alfred Webb-Johnson, P.R.C.S., held at the Royal College of Surgeons on March 17, it was decided to form the British Association of Urological Surgeons with the object of promoting a high standard in the practice of urology. The following officers were elected: *President,* Mr. R. Ogier Ward. *Vice-President,* Mr. Bernard Ward. *Hon. Secretary,* Mr. E. W. Riches. *Hon. Treasurer,* Mr. John Everidge. *Hon. Editorial Secretary,* Mr. H. P. Winsbury-White. *Members of Council:* Messrs. A. Wilfrid Adams, David Band, Arthur Jacobs, J. B. Macalpine, T. J. Millin, A. Clifford Morson, R. H. O. B. Robinson, and C. A. Wells.

One of the candidates for the Motherwell (Lanarkshire) Parliamentary by-election is Dr. Robert D. McIntyre, standing as a Scottish Nationalist.

A *Supplement* to the *London Gazette* dated April 5 contains a long War Office list of mentions in recognition of gallant and distinguished services in Burma and on the Eastern Frontier of India, included in which are the names of two civilian medical practitioners, Dr. C. G. Terrell and Dr. Wenefride Thompson, O.B.E. Dr. Terrell is a lieut.-col. in the A.F.M.C. and medical officer to the Surma Valley Light Horse. In 1931–2 he was president of the Assam Branch of the B.M.A. Dr. Thompson is the medical officer in charge of St. Luke's Hospital at Chabua, Assam.

At a special general meeting of the British Institute of Radiology called to consider proposed alterations to seven of the Articles of Association, a majority of those present approved the proposed alterations: this majority was, however, insufficient to permit any change in the articles, because the Companies Act requires a three-fourths majority, which was not obtained. There will therefore be no change made in the articles of the Institute. Approximately 70 members attended the meeting: the final voting on the special resolution was 29 in favour and 22 against, with 2 abstentions.

Dr. J. C. R. Buchanan, Deputy Director of Medical Services in Uganda, has left for Fiji to take up the post of Inspector-General of South Pacific Medical Services.

Sir Edmund Spriggs, K.C.V.O., has been appointed Sheriff of the County of Denbigh for 1945.

Dr. Hubert O'Meara, medical practitioner, has been commended for brave conduct in civil defence.

The *Bulletin of the History of Medicine* for October, 1944, contains an obituary notice of Sir Humphry Rolleston.

The medical report for 1943 of the Glasgow Royal Maternity and Women's Hospital records the retirement of Prof. S. J. Cameron in June of that year after 33 years on the hospital staff. Prof. James Hendry, now regius professor of midwifery in the University of Glasgow, was appointed medical director of the hospital from October, 1943.

Sir Jack Drummond, D.Sc., Scientific Adviser to the Ministry of Food, has been elected president of the Milk Publicity Council for 1945–6.

The Mayor and Mayoress of Oldbury, near Birmingham, Councillor and Mrs. C. T. Barlow, and their four children are providing a trust fund of more than £50,000 for a new maternity home in the borough. The corporation will assume responsibility for the upkeep of the home, but Councillor and Mrs. Barlow have given £2,000 as the nucleus of a fund to help deserving cases.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the epidemic of measles continues, 241 more cases being recorded than last week; notifications of scarlet fever, whooping-cough, and diphtheria were respectively 99, 74, and 59 fewer. Lancashire had 43 fewer cases of whooping-cough than last week, and Yorks West Riding 34. The fall in diphtheria was also mainly due to two areas—Lancashire, which had 28 fewer cases than the previous week, and Yorks North Riding, which had 27 fewer. The increase in measles was due to the rise in the south, while in most northern areas the peak of the epidemic appears to have been reached a week or so ago. The largest local increases over last week's totals were Gloucestershire 177, Northumberland 120, Glamorganshire 118, Oxfordshire 114, London 103, Devonshire 92; while the largest falls were Yorks West Riding 330, Yorks East Riding 203, Hertfordshire 125, Warwickshire 90.

For the third consecutive week notifications of dysentery exceeded 400. The largest returns were London 69, Lancashire 59, Yorks West Riding 40, Northumberland 27, Surrey 26, Gloucestershire 17, Essex 16, Somersetshire 14, Suffolk 14, Durham 12, Warwickshire 11.

In *Scotland* there were 205 notifications of dysentery, a decrease of 47; the largest returns were Edinburgh 73, Glasgow 33, Falkirk 16, Lanark County 11. Increases were recorded for measles 79, whooping-cough 23, and diphtheria 9.

In *Eire* there was a rise in the incidence of measles 23, and whooping-cough 23. The increase in measles was contributed by Dublin C.B., where the cases rose from 14 to 36.

In *Northern Ireland* notifications of measles were 13 fewer than last week, scarlet fever 7 fewer, and whooping-cough 9 fewer; diphtheria notifications rose by 2.

Cerebrospinal Fever

The trend of cerebrospinal fever during the first weeks of this year was similar to that of 1944. The rise to a peak which was a feature of the outbreak of 1940 and the succeeding years was not apparent. This disease seems to have settled to its pre-war course—a summer minimum and a winter maximum—but at 2 to 3 times its former level. The number of cases during the first 12 weeks of the year in England and Wales was:

Weeks	Average of 1936–9	1940	1941	1942	1943	1944	1945
1–3 ..	98	304	785	459	271	226	179
4–6 ..	91	889	984	501	338	193	251
7–9 ..	107	1,759	1.212	567	293	195	226
10–12 ..	98	1,620	1,031	705	279	278	246
Total ..	395	4,572	4,012	2,232	1,181	892	902

Week Ending March 31

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,361, whooping-cough 1,123, diphtheria 495, measles 22,183, acute pneumonia 746, cerebrospinal fever 66, dysentery 394, paratyphoid 4, typhoid 8.

No. 12

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended March 24.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	88	5	27	2	5	101	13	16	6	4
Deaths		3	—				1	1		
Diphtheria	499	25	140	96	10	666	32	174	107	41
Deaths	5	—	1	1	—	10	—	5	4	1
Dysentery	420	69	205	2	1	274	32	136	—	1
Deaths				—	—				—	—
Encephalitis lethargica, acute	1	—	1	—	—	—	—	1	—	—
Deaths		—					1			
Erysipelas			44	9	2			43	21	3
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				12					4	
Deaths	49	6	10	6	2	52	5	12	13	3
Measles*	25,507	1601	430	48	41	2,757	363	377	374	5
Deaths	32	4	—	—	2	—	—	1	6	—
Ophthalmia neonatorum	81	5	7	2	—	82	3	21	1	2
Deaths										
Paratyphoid fever ..	3	1	1 (B)	—	—	6	—	—	—	—
Deaths	—	—	—	—	—	1	—	—	—	—
Pneumonia, influenzal†	866	45	7	9	6	1,270	86	11	7	8
Deaths (from influenza)	28	4	3	1	1	44	2	4	2	1
Pneumonia, primary ..			250	41				270	38	
Deaths		41		18	10		70		18	26
Polio-encephalitis, acute	1	—				2	—			
Deaths		—					—			
Poliomyelitis, acute ..	4	—	—	1	—	7	—	—	—	—
Deaths		—					—			
Puerperal fever		5	6		1		3	21		—
Deaths										
Puerperal pyrexia‡ ..	173	11	14	4	—	170	10	22	4	2
Deaths		—					—			
Relapsing fever ..	—	—			—	—	—			—
Deaths										
Scarlet fever	1,522	53	201	21	34	2,389	169	281	29	82
Deaths	1	—	—	—	—	1	—	—	—	—
Smallpox	—	—	—	—	—	1	1	—	—	—
Deaths				—	—				—	—
Typhoid fever	8	—	7	7	—	9	—	—	11	3
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough* ..	1,453	68	172	49	12	2,244	222	104	94	11
Deaths	9	—	2	3	1	10	4	—	6	—
Deaths (0–1 year) ..	387	53	44	42	20	451	63	84	58	2
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4,996	705	600	261	148	5,500	1028	631	325	160
Annual death rate (per 1,000 persons living)			13·6	16·8	§			14·5	21·2	§
Live births	6,366	739	833	351	245	7,467	859	959	446	274
Annual rate per 1,000 persons living ..			16·7	22·6	§			19·5	29·1	§
Stillbirths	220	20	35			257	28	31		
Rate per 1,000 total births (including stillborn)			40					31		

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* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

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ANY QUESTIONS?

Administration of Soluble Barbitone

Q.—*What are the dangers of continued administration of soluble barbitone? A woman of 51 first consulted me two years ago asking for a repetition of a prescription for gr. 10 nightly, which she had taken consistently for a long period following partial thyroidectomy. Less than 10 grains she finds useless. Am I justified in allowing her to take it indefinitely?*

A.—There is no danger in the continued administration of soluble barbitone *per se*, as neither addiction nor tolerance is developed for barbiturates. In this respect they differ fundamentally from morphine and cocaine. The present phenomenon is one of habituation, and the danger is in the personality of the patient rather than the drug. Both sleeplessness and fear of sleeplessness are symptoms of an anxiety neurosis, and the tablets of barbiturate have probably not only a pharmacological but a psychological significance for the patient. They have probably become an essential part of the sleep ritual, just as being "put down" or "tucked in" may be for a small child. Ideally, the anxiety neurosis should be relieved by psychological treatment, when the sleeplessness will disappear. In practice lasting success from psychotherapy is unlikely when the patient is aged 51, and when the psychological disturbance has been so profound that a toxic goitre has developed. Administration of soluble barbitone may therefore be the best form of symptomatic treatment, and in these circumstances the practitioner is perfectly justified in allowing the patient to continue the treatment indefinitely.

E.E.G. and Diagnosis

Q.—*How far has electro-encephalography progressed as a diagnostic measure?*

A.—Electro-encephalography has for the past eight years been in routine use in many neurological centres. In the Services evidence obtained by the E.E.G. is used for purposes of invaliding, and similar evidence has been accepted in capital charges. There is now an extensive literature upon the subject, and an excellent review has just been published by D. B. Lindsley in *Personality and the Behaviour Disorders*, edited by J. McV. Hunt, Ronald Press, New York, 1944, vol. 2, chapter 33. The seventy pages of the review give a very clear picture of the present position of clinical electro-encephalography. The technique is used particularly in the diagnosis of epilepsy and allied disorders, in investigating behaviour disorders, in following the progress of head injuries and revealing intracranial complications of trauma, and in demonstrating the presence of abnormal brain tissue in any cerebral disorder, whether it be neoplastic, inflammatory, or degenerative. The important thing to realize about the E.E.G. is that it can rarely be used without reference to all the other clinical evidences of disease. A full history, a careful examination, and an expert appraisal of all the evidence, including that obtained from the E.E.G., are essential if diagnostic accuracy is to be achieved. An absolute diagnosis of epilepsy can be made on the E.E.G. evidence alone only if the electrical equivalent of an attack happens to be seen on the record. The E.E.G. does not locate a cerebral tumour but the abnormal brain associated with it, and in trauma the E.E.G. findings can be interpreted only if the story of the illness is known. If this approach is employed, the E.E.G. seems to have come to stay.

Asthma and Smoking

Q.—*An active male aged 58 has to deny himself all social engagements, theatres, meetings, etc., because both smoking and tobacco-laden air precipitate in him attacks of bronchial asthma. He gave up smoking for the above reason a few years ago. What can be done?*

A.—Apparent tobacco sensitivity may be due to a non-specific irritation of the smoke dust inhaled or to a specific sensitivity to the tobacco itself. In crowded atmospheres, added to the non-specific irritation of tobacco smoke, there may be a specific sensitivity to house dust, face powder, and animal hairs also present; in cases reacting on smoking, sensitivity to materials used in flavouring (perfumes and oils), to ingredients of the papers used or materials employed in sticking them, or even a mould that grows on the tobacco, should be considered. In many instances the morning smokers' cough or wheeze may be due to a sensitivity to feather or down pillows. The patient should be tested intradermally with most of the above-mentioned common irritants; he should then be desensitized with those which give a positive reaction, and he should avoid so far as possible the specific causes of his trouble. Solutions for testing and treatment can be obtained from Messrs. C. L. Bencard, Gorgate Hall, Dereham, Norfolk. A cream of ephedrine 2% and benzocaine 4% may be applied to the nose before exposure, and half a grain of ephedrine hydrochloride by mouth gives temporary relief.

Penicillin in Chronic Sinusitis

Q.—*Is penicillin effective in chronic nasal sinus infection by displacement, where the organisms are sensitive? What strength should be used, and how often should it be done?*

A.—The organisms most commonly implicated in chronic paranasal sinusitis are the pneumococcus, haemolytic streptococcus, *Staph. aureus*, and *H. influenzae*, all of them, with the exception of the influenza bacillus, sensitive as a rule to penicillin. It would therefore seem reasonable to recommend local penicillin therapy by the "displacement" method (see Russell, *Proc. roy. Soc. Med.*, June, 1944, p. 401) for the cure of these intractable infections. There are, however, two difficulties: (1) treatment by displacement does not allow continuous action by the instilled penicillin, since when the patient resumes his normal position the drug will after 5 to 10 minutes drain away from the sinuses; (2) penicillin treatment of chronic infections generally has been rather disappointing, probably because the focus of infection is not easily reached and the lining membranes are so unhealthy that they do not assist in destroying the invaders. However, if the infection is shown to be due to a penicillin-sensitive pathogen local treatment by displacement may be tried, using a strength of 500–1,000 units of penicillin per c.cm. and repeating the treatment three times daily if possible for 7 to 10 days. Bacteriological control during and after treatment is advisable in order to find if the organism has been eliminated.

Degenerative Changes in Intravertebral Disks

Q.—*A man aged 65 has suffered for the last 18 months from osteo-arthritis of the cervical vertebrae. X-ray film shows marked diminution in the intervals between the bodies of C. 5, 6, and 7, with small amount of destruction of bodies of 6 and 7; appearances are those of a subacute bone infection. There is obvious lipping and proliferation of bone. The orthopaedists do not agree that there is either any destruction of bodies or bone infection. Subjectively there is a wearisome perpetual tingling like electricity, with occasional aching, in left neck, but no limitation of movement. Cracklings are heard and felt on turning head. I have tried manipulation under pentothal, diathermy, deep x rays, infra-red, and U.V. rays. Deep x-ray treatment gave much relief for a time. If this radiculitis is caused by pressure of bone on nerve roots why should not operation give relief, and why do orthopaedists refuse it?*

A.—This symptom complex is not uncommon, though varying widely in type and severity. Degenerative changes in the intervertebral disks in the cervical region are so frequently seen in lateral *x*-ray views in later middle life as to be almost a normal development, though often symptomless. This was demonstrated by Schmorl, whose work has been made accessible to British readers in Beadle's monograph. The condition is the result of the great mobility of this part of the vertebral column. The disks gradually lose their elasticity and shrink, increased play between the vertebrae results, and osteo-arthritic changes follow, with lipping of the bodies and formation of exostoses at the points of attachment of ligaments and muscles. Often there is seen some degree of crushing of the vertebral bodies themselves. Watson-Jones has called attention to changes in the cervical spine in early life as a result of inflammatory conditions in the throat, but in the cases seen after middle age there is usually no history of throat trouble and the condition is not infective but degenerative. As is commonly the case in osteo-arthritis, there is usually more or less fibrositis of the muscles and intervertebral structures, and the crackling which can be heard and felt is due to this and does not originate in the vertebral articulations. Pain down the arms is a common symptom and is due to irritation of the nerve roots through the narrowing of the foramina from the thinning of the disks, or to fibrositis of the roots, which swell and fill the foramina, or to the pressure of exostoses. In the present case it seems that the posterior branches of the cervical nerves are chiefly affected.

Heat and massage, if persevered with, generally give relief. Often moist heat is more effective than radiant heat, but cannot be used so readily with massage unless the massage is given first—the latter often being the most effective procedure. Manipulation may easily do more harm than good. Ionization with histamine is a useful method which can be used in combination with massage. Since most of these methods appear to have been tried already, strong counter-irritation is worth a trial; the most convenient method which does not interfere with the patient's normal avocations is the electric cautery; a light application on either side of the cervical spine two or three times a week will act on the posterior nerve roots.

Operation on the foramina in this region would be a rather hazardous procedure and success could not be guaranteed. Further discussion of the subject, with references, will be found in an annotation in the *B.M.J.* of Nov. 9, 1940 (p. 635), and also in the *Reports on Chronic Rheumatic Diseases* (London: H. K. Lewis), 1, 128. Oppenheimer of Beyrout has made a special study of the condition, which he calls "discogenetic disease" (*Amer. J. Surg.*, 1940, **47**, 642).

Submucous Injection of Haemorrhoids

Q.—*What is the correct chemical and its strength for submucous injection of haemorrhoids?*

A.—The following prescription has been used for 15 years with consistent success and safety. A stock solution is made of equal quantities of phenol crystals and almond oil (if none available, arachis oil), and 20 grains of menthol to the ounce. For use, one part of the stock solution is taken to nine parts of almond oil (or arachis oil). The average dose is 3 to 6 c.cm. per haemorrhoid, and in skilled and experienced hands two haemorrhoids may be treated at a time; otherwise, the safe method is to do one haemorrhoid a week. It must never be put in so that it causes a blanching of the mucous membrane, as this will be followed by sloughing and ulceration. It is injected well above the haemorrhoid, when it is quite painless.

Musculospiral Palsy

Q.—*A man of 60 fell asleep in a deck chair. When he woke up he was able to write only in a distorted manner; his little finger was in the way and would not support his hand; he could write on a blackboard. He was able to shave with a "cut-throat" razor but could not strop it since he could not turn it over. His right little and ring fingers were slightly flexed and could not voluntarily be fully extended. There was gradual improvement and full recovery. He was told he had had a "small stroke." Is this the likely diagnosis?*

A.—This patient would seem to have had a partial lesion of his musculospiral nerve caused by the pressure of his arm upon the chair. He need therefore have no anxiety about a stroke.

Ptyalism in Pregnancy

Q.—*Can you suggest any treatment for the excessive salivation of pregnancy? It is occurring in a healthy woman who is having progesterone because of a previous miscarriage, and multiple vitamin tablets for general nutritive purposes.*

A.—The cause of excessive salivation in pregnancy is unknown and its treatment is therefore empirical. I do not know of any treatment other than that recommended in the standard textbooks: astringent mouth-washes such as 1% alum, belladonna or atropine pushed to the limit of tolerance, sedatives such as bromides, simple diet with plenty of fluids, and attention to the bowels. Daily intramuscular injections of 10 c.cm. of 10% calcium gluconate are recorded as curing some cases. Neurosis often plays a large part in the aetiology, and the results of treatment are mainly disappointing. However, ptyalism tends to disappear as pregnancy advances, usually by the fifth month.

There is a theory that toxaemias of *early* pregnancy are due to an abnormal sensitivity to corpus luteum hormone, and it is just possible that the progesterone therapy is causing excessive salivation in this case. At any rate it would be worth while discontinuing treatment to see if there is any improvement in symptoms, but it would probably be unwise to go so far as to administer oestrogens, as the patient has already had one abortion.

Congenital Syphilis

Q.—*What is the latest age at which the symptoms of congenital syphilis can be manifested? For example, a patient aged 30 has a "saddle-back" nose and suffers from severe occipital headaches. The hair has been coming out, and treatment with thyroid makes no difference to this. Would one at this age expect to find a positive Wassermann in blood or cerebrospinal fluid?*

A.—Signs of congenital syphilis may appear, or at all events be brought to the doctor's notice, at almost any age. For example, Dennie recorded a case of congenital syphilis affecting the tibia in a man of 45, Pinard one of gumma of the clavicle at 73 years, and Lazarescu a case of interstitial keratitis in the decade 60–70; eighth-nerve deafness has been recorded up to 38, and congenital tabes in a patient of 50. Disorganization of the bones of the nose is usually due to destruction by gumma formation, with resulting "saddle-back" deformity, and may occur at any age; occipital headaches may be due to neurosyphilis, but also to other conditions. In this case an examination of the cerebrospinal fluid may settle the matter. Alopecia is rare in late congenital syphilis. Positive serum reactions usually tend to weaken or revert to negative with the lapse of time, but may persist throughout life.

Signs of congenital syphilis are usually divided into early and late or tardy. In general, the acute signs are most commonly seen in *infants*, and correspond with the secondary stage of acquired syphilis; these include generalized rashes, snuffles, the aphonic cry, rhagades, enlarged spleen, osteochondritis, and pseudoparalysis. In *children* the signs tend to become more localized and to affect single organs or systems. At this time the Hutchinsonian triad—interstitial keratitis, characteristic teeth, and eighth-nerve deafness—is most commonly met with, together with the typical facies, neurosyphilis, and signs of mental retardation. In the *adolescent* and *young adult* interstitial keratitis is the commonest sign, and in the *adult* bone and localized skin lesions predominate, corresponding with the tertiary stage of the acquired form. Active signs rarely appear after the age of 30, but many of the classical ones are permanent and persist throughout life. Serum reactions are almost always positive in the presence of active signs, but as the lesions tend to become localized and cease to progress, so the blood reactions tend to weaken. It is clear, therefore, that the older the patient the less the value of a negative reaction in excluding a diagnosis of congenital syphilis.

Yaws and Positive Kahn

Q.—*In the African wing of a general hospital which admits East and West Africans and Basutos, many have a two plus, three plus, or four plus Kahn. A large number admit to being promiscuous, but few have noticed genital sores. Many for no apparent reason have high E.S.R.s. As yaws is prevalent in most of Africa difficulty is experienced in interpreting the result of the Kahn test. Will yaws in childhood still have a strongly positive serological test in adult life? In the absence of clear clinical signs, should even a persistently strongly positive Kahn be ignored in an African? Have the weaker positive Kahn results any significance in an African suffering, for instance, from such a condition as monarticular synovitis of unknown causation?*

A.—Many Africans in localized yaws endemic areas have positive Kahn reactions, attributable to an inadequately treated yaws infection. In other areas, where yaws is not endemic—and there are many of them in West Africa—syphilis is common, and a positive Kahn test would suggest this infection. If a positive Kahn is due to yaws a couple of short courses of N.A.B. would almost certainly reverse it, but this would probably not be the case if it were due to syphilis. The Kahn test may also be rendered positive by such diseases as leprosy, malaria, and trypanosomiasis. Thus the cause of a positive Kahn test in the absence of any history of the exact geographical origin and of the previous medical history and present condition of the patient is speculative.

In an African a one or two plus Kahn can usually be disregarded, and it is unlikely that a three or four plus Kahn test in adult life in the absence of any current evidence of the disease could be attributed to a cured childhood infection with yaws. It is more probably due to syphilis. There are certainly exceptions to this generalization, but the extent to which they occur rests on personal opinion and not on any very solid statistical analysis.

Reactions after Inoculation

Q.—*It is recommended that after inoculations with T.A.B., etc., the patient should take no alcoholic drinks. What is the scientific explanation of this instruction?*

A.—Reactions, both local and general, may occur after prophylactic vaccination, particularly with T.A.B. vaccine. In order to minimize the degree of reaction it is usually advised that the injection be given as late as possible in the day, preferably not more than 6 hours before bedtime, that the patient be excused heavy muscular exercise during the following 24–48 hours, and that he avoid any excesses, such as abuse of alcohol. There is no scientific reason for the avoidance of alcohol apart from the fact that excess of alcohol may itself temporarily lower resistance, and the combined effect of a "night out" and the T.A.B. injection may produce a more severe reaction than would otherwise occur. Such advice would not exclude the use of a "night-cap" if the patient were feeling seedy, although 5–10 grains of aspirin would probably be preferable and more accessible.

Headache after Fractured Skull

Q.—*A patient 30 years ago had a fractured skull, probably basic, and was unconscious for six weeks. She recovered, but two or three times a week ever since has been subject to bad headaches at the back of the head—not acute pain but a heavy ache with a mentally fuddled feeling—and they last for hours. Suggestions for relief would be welcomed.*

A.—A post-traumatic headache of this sort may unfortunately persist indefinitely. There is no method of local treatment which is likely to relieve the patient. The pain probably arises in the blood vessels and the dura mater of the posterior fossa, which is supplied by small sensory branches of vagus nerve. All the dura above the tentorium is supplied by the fifth, but practically all that of the posterior fossa is supplied by recurrent meningeal twigs of the tenth cranial nerve. These are not accessible to surgical intervention. Air replacement of cerebrospinal fluid is said to relieve some of these cases, the argument being that pain-producing adhesions are broken down, but I have been unable to confirm these observations. As all the usual analgesic mixtures and tablets must have been tried in this case, I am unable to make any useful suggestions.

Legal Responsibility of Service Doctors

Q.—*What is the legal position of Service medical officers as regards responsibility for professional care, etc.? Through many years' denial of clinical experience we have been reduced through no fault of our own to a low state of professional ability. Are we or the employing Service held responsible if we are charged by a patient with negligence? If we are legally liable, then we should have the right to refuse to treat any patient whom we do not consider ourselves capable of treating satisfactorily.*

A.—The question does not make quite clear whether the practitioner is still in the Service or not. In either case, however, he owes the same duty to exercise that degree of care and skill which a reasonable man would expect having regard to all the circumstances. If he is still in the Service he may not find himself in a position to refuse to treat a patient on the ground that he is out of practice in the particular procedure required. If he makes every legitimate effort to excuse himself but is nevertheless ordered to perform the procedure and harm results, he probably has a good defence. He may, however, rest assured that the risk of a Service patient suing a Service doctor for negligence is quite negligible. If he has left the Service he performs an unfamiliar procedure at his own peril. It is always open to him to refuse to treat the patient. Doubtless, Service conditions are to blame for his lack of skill, but no court could be persuaded to hold it responsible.

INCOME TAX

Newcomer from Eire

M. has recently come to this country from Eire. His inquiries will be sufficiently clear from the following replies.

*** There is no interval of six months before liability to income tax begins to accrue where the income is derived from work in this country. No allowance is due in respect of the costs of a sister's education. Presumably M. cannot show that "he has the custody of and maintains" his sister, and cannot therefore claim the child allowance for her; the allowance in respect of dependent relatives does not apply, as that allowance is restricted to relatives "incapacitated by old age or infirmity." Tax should be deducted by M.'s employer as and when remuneration is paid to him. The amount of his liability (and of the tax deductions) will depend during the present year on the amount of his earnings in this country, and therefore cannot be estimated without knowledge as to the date from which the remuneration of £10 10s. weekly began.

Resident Quarters

O. D. is employed as a resident M.O. at a Ministry of Pensions hospital. He "lives in"; his quarters consist of one small bedroom. The annual value is assessed at £12, and he has been applied to for the tax thereon at the standard rate of 10s. in the £.

*** The position is that the hospital is entitled to exemption from tax, except as regards such portions as are occupied by officers who are liable to income tax. The charge therefore arises by restriction of an exemption enjoyed by the hospital authority. The tax is legally payable, but whether by the authority or the individual officer is a matter which is governed by the agreement under which the officer is employed. £12 may be somewhat excessive for such accommodation, though an appeal is not likely to be successful. Our correspondent may be able to find out whether similar accommodation (unfurnished) is available in the neighbourhood at appreciably less than 5s. per week.

Tenant under Furnished Letting

"Orion" rented a furnished house for a period of years, paying a rent of £4 per week and being responsible for all repairs, for breakages, and for payment of £150 for dilapidations. Can he claim any allowance for these payments?

*** It is assumed that the premises were not used for professional as distinct from personal purposes. In that case the reply is that no allowance is due. The payments amount to an aggregate rent, and represent payments out of income; the landlord will be liable to account for tax on his total profit less any expenses of reinstatement paid out of the amounts he receives.

LETTERS, NOTES, ETC.

Subacute Combined Degeneration of Cord

Dr. Brendan O'Brien (Dublin) writes: With reference to the note on subacute combined degeneration of the cord (Feb. 3, p. 172), it may be of interest to quote a case which I saw last year. The patient, a man of 50, a works foreman by occupation, came to the Meath Hospital, Dublin, suffering from such severe ataxia that he could not go about by himself nor do his work. Tabes having been excluded, blood tests and a fractional test meal were performed, with subacute combined degeneration in mind. Blood count was: red cells, 5,250,000 per c.mm.; Hb, 90%; white cells, 7,500 per c.mm. When plenty of free acid was found in the test meal this diagnosis was discarded, and various methods of treatment were attempted and were completely ineffectual. Eventually, on the suggestion of Dr. H. Lee Parker, full doses of liver, as mentioned in your note, were administered, and the patient made a most dramatic recovery and has been back at work for the last six months. There is now only the slightest degree of spasticity about his gait. It would appear from this that the presence of free hydrochloric acid in the stomach does not exclude a nervous condition which may respond to liver therapy.

Pain from Crystal Violet

Dr. M. Ghosh (Burton-on-Trent) writes: In those cases of varicose ulcer and eczema when the patients complain of pain due to the application of crystal violet (*Journal*, Feb. 24, p. 282), I have found the addition of 1% butethanol or benzocaine to 2% solution of crystal violet in water uniformly successful.

Attacks of Cyanosis and Giddiness

Dr. Arthur Howard (Monmouthshire) writes: I notice (Feb. 3, p. 173) your answer to a question on attacks of cyanosis and giddiness coming on only through exertion. Surely this history is typical of the symptoms caused by a congenital heart lesion? It would be interesting to know the result of cardiography taken in oblique, lateral, and A.P. positions.

Dupuytren's Contracture and Cavernous Angioma

Dr. E. Millington (Hove) writes: The answer to the query about Dupuytren's contracture in the issue of March 10 (p. 354) gives a very dismal outlook and suggests that no treatment is possible. I have treated a large number of these cases very successfully during the past few years with *x* rays, and had thought that their use was more widely known in this connexion. The technique most commonly used is similar to that employed in the treatment of other condensations of fibrous tissue such as keloids, fibromata, and adherent scars, and consists of applications of about 300 *r* every three or four weeks for from 6 to 10 treatments, varying with the size of the lesion. As a rule the fibrous mass slowly disappears during the course of treatment, leaving no visible scar, though advanced cases of Dupuytren's contracture may require a subcutaneous fasciotomy in addition, which is a very minor procedure. Even without employing *x* rays very early cases often clear up with no other treatment than hyperextension exercises to the affected fingers carried out regularly for some months, with the addition of a night splint in suitable cases.

The answer about treatment of cavernous angioma in the same issue (p. 354) also makes no mention of radiotherapy, but advises surgical excision. The majority of these vascular tumours respond extremely well to either radium or *x*-ray treatment, and it would seem well worth trying rather than proceeding at once to what is quite a tricky operation.

Recurrent Boils

Dr. R. H. Georges (Virgin Islands) writes: With reference to treatment of recurrent and other attacks of boils (Nov. 11, 1944, p. 649), might I be permitted to suggest another method which I have used throughout last year and have found most effective. Small injections of bismuth in 1/2 to 1 c.cm. doses, according to size of patient, administered into the gluteal region once a week for 3 to 4 weeks, appear to effect a cure in all cases in my limited experience. Very often when the patient has reported for the second injection the boil or boils will have been aborted, but it has been found advisable to continue another 2 or 3 injections in order to prevent further attacks coming on within a short space of time. This form of treatment has been used, with success, in all staphylococcal skin infections, including impetigo and secondarily infected skin rashes. Seldom does local treatment of any sort appear necessary.

Medical Aphorisms

Mr. W. R. Le Fanu, M.A., Librarian of the Royal College of Surgeons of England, writes with reference to Dr. Crawhall's inquiry (March 31, p. 470): There is a good survey of "Medical Aphorisms, chiefly in English" by the late Sir Humphry Rolleston in the *Bulletin of the History of Medicine*, Baltimore, Nov., 1941, vol. **10**, pages 544–67.

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TWO SCHOOL OUTBREAKS OF STREPTOCOCCAL THROAT INFECTION

THE EFFECT OF SULPHONAMIDE LOZENGES ON CARRIERS

BY

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AND

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The main purpose of this paper is to report the failure of sulphonamides in the form of lozenges to clear up streptococcal carriers met with during the investigation of outbreaks of streptococcal infection at two residential schools, or to prevent contacts from becoming infected.

School X

This is a residential public school in Wiltshire containing about 200 girls aged 11 to 18, half of whom are housed, during the war, in a large country mansion (B) standing in its own grounds, and half on a country estate (C) about 7 miles away. The girls at C come over each day by motor-bus to B, where the teaching is carried out.

During the last few weeks of the Easter term, 1944, there was a small outbreak of sore throats in B and C; about 12 girls in all were affected. No rashes were observed, but during the holidays one of the girls, Joanna Br., peeled. About ten days after the end of the term one girl—Gillian Bo.—had a typical attack of scarlet fever, and another girl—Gillian Go.—had a sore throat. No bacteriological examinations were made. Joanna Br. returned to school at the beginning of the summer term (April 26), together with her sister, Penelope Br., who was never ill; Gillian Go. returned at the same time, but Gillian Bo. did not come back till May 28.

Six days after the beginning of the term a fresh outbreak of sore throats began, affecting C and later B. Between May 2 and July 14 there were 39 cases. The lesions were more those of a granular pharyngitis than of a follicular tonsillitis. The cases were mild, and none of the girls was seriously ill. On May 25 a girl who had been admitted to the sanatorium on May 8 and returned to school on May 16 was found to be peeling. Up till then no suspicion of scarlet fever had arisen, but on May 25, 26, and 27 three cases of sore throat accompanied by a rash occurred in succession, and it was decided to call in the Emergency Public Health Laboratory at Oxford. A visit was paid to the school on May 29 to take stock of the position and to determine the type of streptococcus responsible for the outbreak. Nose and throat swabs were taken from all girls who had suffered from sore throat in the Easter term, and from all cases and convalescents in the summer term. Two days later—May 31—the entire school, including girls and teaching and domestic staff, was swabbed. The result of these examinations was as follows:

The infecting type of streptococcus was Type 1.

Number of Type 1 carriers among sick and convalescents during summer term	21 out of 33
Carrier rate	64%
Number of Type 1 carriers among normal contacts, including those ill during Easter term	19 out of 164
Carrier rate	11·6%
Number of Type 1 carriers among normal contacts, excluding those who were ill during Easter term	18 out of 156
Carrier rate	11·5%

Origin of Outbreak.—Without going into detail we may say that the summer-term outbreak appeared to be due to infection introduced by one of the girls who had suffered from sore throat or mild scarlet fever at the end of the Easter term or during the holidays. At the first swabbing, on May 29, two of these convalescents (Joanna Br. and Gillian Go.) were still carrying Type 1 streptococci. Joanna Br. had enlarged unhealthy tonsils, the removal of which in June was followed by disappearance of streptococci from her throat. Joanna, however, was housed at B, and was in a junior form, whereas the outbreak started at C among the sixth-form girls. It is improbable, therefore, that she was responsible, though she may possibly have infected her sister, Penelope Br., during the Easter holidays, and Penelope, who was in the sixth form at C, had served as a healthy carrier to introduce the infection. More suspicion attaches to Gillian Go., who was ill during the Easter holidays and who, like Penelope, was in the sixth form and at C. Lack of information, however, on the distribution of streptococci at the beginning of the summer term prevents this conclusion from being more than speculative. Gillian Go. was later seen by an ear-nose-and-throat specialist, who advised removal of her tonsils and draining of her antra—with what effect we were unable to observe.

Treatment at School X

Cases in the sanatorium were given sulphonamide treatment—3 g. of sulphanilamide for three days, followed by 1½ g. a day for one or two further days—and a chlorine gargle. As soon as it was apparent that an outbreak of sore throats was starting, all the girls in the school had their throats treated twice daily with a formol spray, and were given a permanganate gargle—later changed to Milton fluid. The failure of sulphonamide treatment to get rid of streptococci from the throat in these cases was shown by the fact that 9 out of 18 convalescents who were swabbed on May 29 were found to be still carrying Type 1 streptococci; and the failure of the local spray and gargle to protect the healthy contacts was shown by the occurrence of 15 fresh cases of sore throat or scarlet fever among girls who were undergoing this form of preventive treatment.

As soon as the distribution of the infecting organism was known from the swabbings on May 29 and 31, arrangements were made to segregate the heavy carriers in separate dormitories and class-rooms. All girls who developed sore throats were to be treated in the sanatorium for a few days, then kept segregated in special wards at B or C, and not allowed to return to school for 14 days after the beginning of their illness—and then only if they had ceased to be heavy carriers. These measures were put into practice, with apparent success, though it is quite impossible to say how far they were responsible for the results obtained. After June 5, when the heavy carriers were segregated, there was complete freedom for a month, after which three further cases of sore throat occurred—one on July 4 and two on July 14.

An attempt was made to clear up the heavy carriers by local sulphonamide treatment. By the kindness of Messrs. May and Baker Ltd. special lozenges were provided, each containing 1/2 gr. of sulphapyridine and 1/2 gr. of sulphathiazole. Roughly one-third of the carriers were given six of these tablets to suck daily for five days; one-third were kept on a formol throat spray and Milton gargle; and one-third were left untreated. The course of treatment lasted from June 12 to June 17, immediately after which the girls were swabbed. The results were as follows:

Treated with sulphonamide lozenges	8 out of 10 still carrying Type 1 streptococci
Treated with throat spray and gargle	7 „ 12 „ „ „ „
Untreated controls	4 „ 6 „ „ „ „

As the sulphonamide treatment appeared to be without effect, in spite of the fact that the strain was sensitive to sulphonamides, a second course of treatment was given, the number of lozenges being doubled (12 a day) and the treatment maintained for 7 days. Fresh carriers were added to replace those that had become negative. The second course of treatment lasted from June 21 to June 28. Swabs were taken on June 29, with the following results:

Treated with sulphonamide lozenges	10 out of 13 still carrying Type 1 streptococci
Treated with throat spray and gargle	5 „ 12 „ „ „ „
Untreated controls	3 „ 6 „ „ „ „

It seemed evident that neither the sulphonamide lozenges nor the local spray-and-gargle treatment was having any obvious effect on the persistence of streptococci in the throat, and all treatment was therefore stopped. The girls were liberated from segregation as they became negative or ceased to carry profusely.

School Y

This is a small residential preparatory school in Wiltshire containing 54 boys aged 8 to 13. Six cases of scarlet fever occurred between Feb. 18 and 27, 1944. Streptococci of Group A Type 11 were isolated from each of these cases on one or more occasions while they were in Trowbridge Isolation Hospital.

At the request of Dr. C. E. Tangye, County Medical Officer of Health, the Oxford laboratory was asked to investigate the outbreak. A visit was paid to the school on Feb. 26, and again on March 9 and March 28. On each occasion nose and throat swabs were taken from the boys and staff. Excluding the six cases of scarlet fever, 27 of the remaining 48 boys were found on at least one occasion to be carriers of Type 11 streptococci. The results of the individual swabbings were as follows:

Feb. 26: Group A streptococci isolated from 20 out of 47 boys (43%)
March 9: " " " " 13 " 48 " (27%)
(7 of these were previously positive and 6 were fresh carriers)
March 28: Group A streptococci isolated from 8 out of 46 boys (17%)
(7 of these were previously positive and 1 was a fresh carrier)

All strains isolated on Feb. 26 and March 9 were typed, and all, except one on Feb. 26, belonged to Type 11. Tests in the laboratory showed that they were sensitive to sulphonamides. Four out of 17 members of the teaching and domestic staff were also found on Feb. 26 to be carriers of Type 11 streptococci, but were negative on subsequent examinations.

The majority of the carriers yielded heavy or moderately heavy growths of haemolytic streptococci on the first examination, but very light growths at the last swabbing on March 28. Owing to the high proportion of carriers found on Feb. 26, segregation was impracticable. No control measures were taken, apart from those about to be described, which incidentally proved ineffective. No further cases, however, of scarlet fever occurred during the term.

Treatment of Carriers with Sulphonamide Lozenges.—An attempt was made to determine the effect of sulphonamide lozenges on the carrier state. Six lozenges, each containing 1/2 gr. of sulphapyridine and 1/2 gr. of sulphathiazole, were given daily for 6 or 7 days to 12 of the 20 carriers detected on Feb. 26; the remaining 8 carriers served as untreated controls. Treatment lasted from March 1 to March 8. At the subsequent swabbing on March 9 the following results were obtained:

Treated with sulphonamide lozenges .. .. .. 5 out of 12 still carrying Type 11 streptococci
Untreated controls .. .. 4 " 8 " " " "

No obvious effect of the sulphonamide treatment was thus apparent.

Prophylactic Treatment of Healthy Contacts with Sulphonamide Lozenges.—Of the boys who were found on Feb. 26 to be free from streptococcal infection, 24 were given sulphonamide lozenges prophylactically—6 lozenges a day each. Treatment lasted from March 1 to March 8. At the swabbing on March 9 no fewer than 7 of these boys were found to have acquired streptococcal infection during the course of treatment.

Discussion

From the limited observations recorded it seems clear that a prophylactic dose of 6 gr. daily of mixed sulphapyridine and sulphathiazole given in the form of lozenges is unable to protect children from streptococcal infection; and that neither 6 nor 12 gr. daily for 5 to 7 days is able to clear streptococci from the throats of healthy or convalescent carriers. Taken in conjunction with the findings of Kidd (1944), who made similar observations in a boys' school, these conclusions appear to be unavoidable. They receive further support from the recent experience of Hayden and Bigger (1945), who found that the incidence of respiratory disease in an Army unit was apparently unaffected by the prophylactic administration of 5 lozenges a day for 16 days, each lozenge containing 1 gr. of sulphanilamide; and of Wright (1945), whose experience showed that sulphanilamide or sulphathiazole in large doses—46 to 116 gr. daily—was unable to prevent streptococcal cross-infection of children in measles wards. They are, however, at variance with American observations. For example, Watson, Schwentker, Fetherston, and Rothbard (1943) describe how an epidemic of scarlet fever due to Type 19 in a naval station was rapidly brought under control by a dose of 1 g. (15 gr.) of sulphadiazine a day, given either in a single dose or in two divided doses. Though it is not disputed that cases ceased to occur about a month after starting the treatment, examination of the carrier rates provides very little evidence that sulphadiazine had any important effect, either prophylactically or therapeutically, on the frequency of infection. For example, of the two units in the station, in one which was given 1/2 g. of sulphadiazine twice daily for 4 weeks the Type 19 carrier rate fell only from 9.8 to 6%; in the other unit, which was given 1 g. once a day for a fortnight, the Type 19 carrier rate actually increased from 2 to 2.9%.

More recently Holbrook (1944) in the Army and Coburn (1944) in the Navy have described the effect of mass prophylaxis with sulphadiazine, and claim to have achieved a reduction of 50 to 85% in the incidence of streptococcal infections of the respiratory tract by administration of 1/2 to 1 g. (7 to 15 gr.) of this substance daily. No figures on carrier rates are given, but Coburn states that a continuous daily dose of 1/2 g. was sufficient to prevent 85% of the exposed population from becoming infected with haemolytic streptococci.

What is the cause of the discrepancy between the British and the American experience? It may be objected that our observations were on far too small a scale to admit of any reliable deductions being made from the results. Though not denying that our test population was numerically insignificant compared with that of Holbrook or of Coburn, we would point out that our observations were made in residential schools, where the exposure to risk was relatively uniform, and that they were carefully controlled bacteriologically. Under such conditions, we believe that the complete failure of sulphonamides, in a dosage similar to that used by the American workers, to exercise any prophylactic or therapeutic effect cannot be dismissed as unimportant on statistical grounds. The method used by Holbrook and by Coburn—and also by Garson (1943), who reported good results from the prophylactic administration of 4 gr. of sulphanilamide a day in lozenge form—was to treat some units in the Army and the Navy, leaving other units to serve as controls. The wisdom of this procedure seems to us to be questionable. It is impossible at present to foretell how streptococcal infection will develop in any segregated or institutional population, even when the distribution of infection has been carefully mapped out by bacteriological means beforehand. Experience of several outbreaks investigated by the Oxford laboratory has shown that a low carrier rate may be followed by numerous cases, and a high carrier rate by few. Similar observations have been made by Hamburger (1944) in the spread of streptococcal infection in American army hospital wards. It is therefore hazardous to draw conclusions from the behaviour of an infection in different units. Even in similar populations of mice, all infected with *Bact. typhi-murium* in the same way at the same time, Topley and his colleagues (1928) found that the mortality rate and average survival time might vary considerably. Instead of treating all men in alternate units, it would be more satisfactory to treat alternate men in the same units. That is what Hayden and Bigger (1945) did in their trials of prophylactic sulphanilamide treatment in the British Army. The negative results that they obtained are all the more significant.

Our conclusion, therefore, is that a case has not yet been made out for mass prophylactic treatment of populations exposed to streptococcal infection; and that before such a method, attended by disadvantages and dangers that it is unnecessary to discuss here, is adopted as a routine in the fighting Forces or for the civilians of this country, further trials should be made under adequately controlled and statistically satisfactory conditions.

One other point requires discussion. Special virtue has been claimed for local sulphonamide therapy to the throat in the form of either sprays or lozenges (Arnett *et al.*, 1943; Garson, 1943; Freis, 1944). We have had little experience of sprays, but the combined observations of Kidd (1944), of Hayden and Bigger (1945), and of ourselves seem to show that, so far as the prevention or cure of streptococcal infection is concerned, sulphonamides given in the form of lozenges in a total dose of 7 to 15 gr. (1/2 to 1 g.) a day have little or no effect. Puzzling over the reason for this failure, we were prompted by a suggestion of Dr. Calman, in our laboratory, to find out how closely the contents of a lozenge came into contact with the throat and posterior wall of the pharynx. For this purpose 22 of our laboratory staff sucked a pill containing 2 gr. of methylene blue for about 5 minutes, swallowing the saliva at intervals. Their throats were then carefully inspected in good daylight. The results were striking. Though the lips, tongue, mouth, hard palate, uvula, and anterior pillars of the fauces were stained deep blue, either no blue at all or, more frequently (16 out of 22 subjects), a slight coloration only, could be detected on the tonsils—usually confined to a small area at the top in between the angle formed by the anterior and posterior pillars of the fauces. Except in two instances, in which there was a very faint streak on each side of the midline, no blue coloration at all could be detected on the posterior wall of the pharynx. Subsequently it was found that Arnett (1943) had carried out a similar experiment using chewing-gum impregnated with gentian violet or methylene blue, and, like us, had observed little or no staining of the tonsils or posterior pharynx if the subject chewed his gum in the upright posture; some staining, however, usually occurred if the recumbent position was adopted.

Thinking that our results might have been different if our subjects had not had healthy throats, we made observations on 6 patients in the isolation hospital who were suffering from measles or scarlet fever and whose tonsils were greatly enlarged. The pills were sucked in a semi-recumbent position, which, in view of Arnett's findings, may have affected the result. In one patient the whole of the medial surface of the tonsils was stained light green; in the remaining five the coloration was slight and was restricted to a small triangle at the top. In no instance was any coloration of the posterior pharyngeal wall seen.

These findings are in accordance with the observations of Bloomfield (1922), who concluded from an extensive series of experiments that there is a highly efficient mechanism, apparently dependent on suction currents, by which any bacteria introduced into the mouth are drawn directly backwards towards the oesophagus, avoiding the tonsils and posterior wall of the pharynx. It follows, therefore, that drugs given in the form of lozenges or chewing-gum can have little or no local effect on the throats of persons in the upright or sitting position unless they are sucked almost continuously throughout the day and night, as in MacGregor and Long's (1944) observations on penicillin pastilles. They are therefore unlikely to be of much value for prophylactic purposes in the ordinary healthy contact.

Summary and Conclusions

An outbreak of scarlet fever due to *Str. pyogenes* Type 11 in a residential preparatory school for boys, and an outbreak of sore throat accompanied by cases of scarlet fever due to Type 1 in a residential public school for girls, are briefly described.

Treatment of healthy and of convalescent carriers with 6 to 12 lozenges a day for 5 to 7 days, each lozenge containing 1/2 gr. of sulphapyridine and 1/2 gr. of sulphathiazole, had no apparent effect, as compared with control carriers receiving either a formol spray and hypochlorite gargle or no treatment at all, in clearing the infecting type of streptococcus from the throat.

Prophylactic treatment of healthy non-infected contacts with 6 lozenges a day had no apparent effect in preventing streptococcal infection of the throat.

Observations made on persons sucking methylene-blue tablets showed that only a fraction of the dye was deposited on the tonsils and none on the posterior pharyngeal wall; and it is therefore concluded that neither for the prophylaxis nor for the cure of streptococcal infection of the throat are lozenges containing sulphonamide drugs likely to be of value in practice.

It is maintained not that prophylactic sulphonamide treatment of streptococcal infections is useless but that further carefully controlled investigations should be carried out before this method, which is now being extensively used in the American Forces, is applied to the civilian or Service personnel of this country.

Our thanks are due to the medical officer of the girls' school, and to the head master of the boys' school, for their help in enabling us to carry out these investigations; and to Dr. Nora Archer, superintendent of the City Isolation Hospital, Oxford, for allowing us to make observations on patients with enlarged tonsils.

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SURGERY AND ANAESTHESIA OF WAR WOUNDS OF THE ABDOMEN

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This paper includes a report of a series of missile wounds of the abdomen treated in the forward areas during the present campaign in Europe. In 200 consecutive battle casualties the abdomen was explored in 56 cases, so that a little over a quarter of the work of the forward surgeon is likely to be concerned with this type of injury. No selection whatsoever has been exercised in the choice of patient, and with one exception every case seen in the pre-operative ward and diagnosed as an intra-abdominal lesion has been operated upon. This one patient was so severely injured that in spite of suitable resuscitative measures he collapsed after the administration of 0.1 g. of pentothal, and it was considered useless to continue. Every patient is now given his chance, because it has been found that what may well be considered a hopeless case sometimes confounds such an opinion.

The mortality rate in this series is therefore a fair representation of that occurring among all patients with abdominal injuries who arrive at the forward surgical centre working within a few miles of the fighting-line. There is probably a small additional mortality at the base hospitals, due to subsequent complications, but when evacuated down the line after anything up to three weeks the patients have been in good condition.

All save one of our cases have been operated on under pentothal anaesthesia alone, the exception receiving in addition a spinal analgesic. For the success of this somewhat exacting type of work under difficult circumstances the choice of the anaesthetist is equally as important as the choice of the surgeon. The forward anaesthetist should be the most skilled and experienced available, for the type of case with which he has to deal is the most difficult of all to anaesthetize. In view of forthcoming campaigns in other parts of the globe, no apology is necessary in pleading that wherever a forward surgeon is sent he should be accompanied by a high-grade anaesthetist if his work is to be a success and not marred by anaesthetic mortality.

Diagnosis

The diagnosis of the straightforward abdominal case is easy; that of the dubious one extremely difficult—so much so that some cases will always provide such an element of doubt that an occasional negative laparotomy will be undertaken. The reduction of this number to a minimum is, however, of paramount importance, because, as so many of these cases have other and severe lesions, such a laparotomy lessens their chances of recovery. Especially is this so in chest injuries, which may closely simulate an intra-abdominal lesion. Let it be said that there is no one symptom or sign that is always present, no one single observation upon which reliance can always be placed, and a diagnosis must be made by a summation of the points in favour and the points against.

A high proportion of cases in which a hollow viscus is injured give a history of early vomiting, repeated at intervals. This is not like the vomiting of a severely shocked patient, which occurs often after the administration of the traditional cup of hot sweet tea, which few of them can assimilate, or during the period of their recovery from the shock. This vomiting in those injured in the abdomen occurs when shock is absent and when nothing has been taken by the mouth.

The site of the wound should be located, and any injury to the anterior or lateral abdominal wall must be considered to be perforating until proved otherwise. If evidence from other signs and symptoms is not conclusive, all such wounds must be explored and followed to the end of their course before deciding that the peritoneum is not perforated. It is quite useless to probe the wound, as the track is often obscured by the natural elasticity of the tissues, and exploration must be by careful dissection. No attention must be paid to the size of the skin wound. We have seen a through-and-through injury of the stomach in which the entry in the skin was pin-head in size.

Wounds of the buttocks and flanks must always be suspect, and a thorough abdominal examination carried out in all cases. But intra-abdominal lesions may be caused by missiles entering high up in the chest or low down in the thigh. Where a rectal injury is suspected or possible a finger examination must be carried out.

In examining the abdomen it should not be forgotten that many of these patients are admitted heavily morphinized and that the classical sign of an abdominal catastrophe will be obscured or even absent. In one case, for example, no local tenderness, guarding, or rigidity was present whatsoever. On the other hand, certain extra-abdominal lesions will give rise to signs simulating an intraperitoneal viscus injury, particularly in perforating wounds of the lower chest, in which it is essential to establish a correct diagnosis. Unnecessary laparotomy may very well just turn the scales against recovery.

Injuries involving considerable damage to the abdominal musculature will naturally give rise to tenderness and rigidity, as will also lesions in which the kidney is affected. But in such cases, although the abdomen is held in apparent guarding, it is sometimes possible, in between the rapid respiratory excursions, to palpate muscular relaxation. This is never possible when true rigidity, the result of an intra-abdominal lesion, exists. It is maintained throughout the periods of respiration.

In spite of the sometimes dubious findings, full abdominal examination is of the highest importance, not only in determining a diagnosis but also as an indication of the best approach that can be made to deal with the condition. Auscultation of the abdomen must never be omitted, and we regard the information thus obtained as of the greatest importance. In the examination of a large number of patients suffering from wounds other than those involving the abdomen we have found that peristaltic sounds of the character heard in a normal man are usually present. In most of the cases in which there is a lesion of the bowel the sounds have been completely absent or reduced to such an extent that a long wait is necessary before a characteristic tinkle can be heard. Where a solid viscus is injured or where intraperitoneal bleeding alone is taking place, peristalsis in the early stages is present, though markedly reduced, before finally disappearing altogether.

In cases in which a retroperitoneal haematoma exists peristalsis is also reduced, and in the later stages when ileus sets in is absent altogether. Operation in these cases is contraindicated, and a differential diagnosis between such an injury and an intraperitoneal haemorrhage has to be established by consideration of the other diagnostic features. In the case of the latter injury, abdominal tenderness and shock are usually far greater. Location of the foreign body by radiographs is a valuable adjuvant in cases such as this, because an indication is given of what structures are likely to be damaged by the missile between the entrance wound and its final position.

Resuscitation

Not all cases of intraperitoneal injury need resuscitatory methods. The amount of transfusion required to render the patient fit for operation must vary according to the severity of the local as well as of the associated injuries. One patient, with a severe fracture of the femur running into the knee-joint in addition to the abdominal lesion, required 7 pints of blood before he was in any shape for operation. We have, however, aimed at improving the blood pressure to a minimum of 60 mm. diastolic and 100 mm. systolic. The mortality in cases presenting less than these figures has been high, although successes can be recorded among this group. Particularly is this so in patients in whom the injury has produced a large evisceration of the gut. Such patients do not respond well to resuscitation, but improve immediately the bowel is returned into the abdomen.

Pre-operative transfusion with whole blood was used in the majority of cases. A transfusion with either plasma or blood was invariably given during operation.

Anaesthesia

Sodium Pentothal.—Except in one case it was decided to use pentothal as the sole anaesthetic, not because it was believed in the beginning to be the best, but because it was the best drug available under the field conditions. The other drugs supplied were ether and chloroform, and (for spinal analgesia) stovaine 5% and light nupercaine.

Ether.—While ether causes little damage to healthy tissues and is rapidly excreted, it might well do considerable harm to tissues suffering from anoxaemia due to haemorrhage and shock, and its excretion is certainly prolonged where there is a much diminished circulatory volume.

Chloroform.—All that has been said of ether is applicable to chloroform, only to a greater degree, except that it is also harmful to healthy tissues.

Spinal Analgesia.—Enough has already been written by others on its dangers in severely shocked patients; it was used in one case, and will be referred to later, together with the reason for its use.

Splanchnic Analgesia.—This is ideal in cases of shock, but takes too long to administer to be considered under the conditions which pertained. The method to be described was first used by one of us (A. F. A.) in the Western Desert Winter Campaign, 1941-2 (7 cases), and again in Normandy, June, 1944 (5 cases).

Pre-operative Drugs.—As all the patients had had morphine at some time or times between their being wounded and their arriving at the surgical centre, and as it was often impossible to find out even approximately how much they had been given, they received no further drugs, sedative or otherwise, before operation.

Pre-operative Method

A 5% solution of pentothal was used, and, provided no crystallization had occurred, three-day-old solutions were found to be as efficacious as those that had been recently prepared. The solution should be kept in an air-tight container.

An estimate of the patient's condition was made, based chiefly on the diastolic blood pressure: as this decreased so the degree of shock was found to have increased. A diastolic pressure of below 70 mm. Hg meant that at least a moderate degree of shock was present; to patients with diastolic pressure at these levels it was found unnecessary, and indeed dangerous, to give more than from 0.1 to 0.25 g. as an initial dose; this was usually found sufficient to enable the patient to have his clothes removed, his abdomen washed, to be shaved, and to be catheterized. If a greater amount was needed, not more than 0.2 g. was given at a time, and a waiting period of at least two minutes was observed between doses in order to watch its effect. Of course, for slightly shocked patients far greater doses were required, and these could be given safely; to these patients as much as 1 g. often had to be given for the preparations described.

After sufficient relaxation had been obtained for the peritoneum to be opened it was found that this relaxation was maintained for long periods—in some cases up to one hour—without further doses being required, although the conjunctival and cough reflexes were present. Sometimes small doses had to be given during the operation, and most cases had a further small dose immediately before closure of the peritoneum. As there was always a transfusion in progress during the operation, the pentothal was injected into the rubber tubing 1 in. to 3 in. from the transfusion needle.

No artificial airway was used unless there was respiratory obstruction, as this caused coughing in patients lightly anaesthetized. If one were necessary, either a nasopharyngeal tube or a Magill's endotracheal tube was passed.

Difficulties Arising during Operation

Respiratory Depression.—Early in the series there were several cases in which this happened to a severe degree. They were all cases in which more than 0.2 g. had been given as a single dose in a matter of seconds. After these had occurred not more than 0.2 g. was given to patients suffering from more than slight shock without waiting at least two minutes to observe its effect, and no more trouble in this respect was experienced. These cases were dealt with by passing a Magill's endotracheal tube and inflating the lungs with oxygen or air. There were no untoward consequences.

Vomiting.—This occurred occasionally, and, when it did, always in the period of preparation while the patient was lightly anaesthetized. A stomach-tube was then passed: this caused a temporary deterioration in the patient's condition, but recovery took place within a short time of the finish of the procedure. Regurgitation of fluid at any time during the operation without any effort being made by the patient happened in a few cases; this was dealt with by swabbing out the pharynx and passing a large (size 10) Magill's endotracheal tube.

Hiccup.—This came on only in cases that required large doses of pentothal—i.e., in the neighbourhood of 2 g. in the first three-quarters of an hour and after the peritoneum had been opened. While the patient did not suffer the surgeon sometimes did, as it was inconvenient, when attempting to control bleeding in the renal or splenic pedicle, to have the diaphragm making spasmodic descents. This could be stopped in a few minutes by rebreathing oxygen without carbon dioxide absorption.

Post-operative Drugs

None were given unless the patient was restless, in which case morphine 1/6 gr. was administered intravenously—by this method because it was found that with established shock of any severity it was quite evident that, given by any other route, it was absorbed so slowly as to be of little use. To illustrate this, one case was, unknown to us, given morphine 1/2 gr., in two doses of 1/4 gr., within 4 hours, on account of restlessness. It had no effect whatsoever. Now, this patient was practically pulseless when he left the theatre, and although he regained full consciousness he remained in an extreme state of shock until he died 48 hours later. It was quite evident that the morphine had not been taken into the circulation.

Post-operative Complications

Vomiting.—This occurred in one patient only. In this case vomiting took place four times in the 12 hours immediately after operation, and then ceased.

Pulmonary.—There was one case of bilateral basal collapse, which made a complete recovery, and three cases of unilateral pneumonia involving the bases only, one of them ending fatally. This patient had suffered from severe exposure, including immersion in the Rhine, after being wounded.

Deaths.—Out of 21 deaths, in 6 only could the anaesthetic be held to have played any part; of these 6, 5 did not regain consciousness, and 1, already referred to, developed pneumonia. The 5 patients were all severely wounded men, 1 with severe additional injuries and 2 with peritonitis. One patient would undoubtedly have recovered consciousness except for the occurrence of a volvulus after operation.

Discussion on Anaesthesia

With this form of anaesthesia no great improvement in the ultimate recovery rate of perforating wounds of the abdomen can be claimed, but at least the mortality is no greater than with other forms. There are many advantages, such as: an abdominal relaxation equal to that obtained with spinal analgesia; an almost complete absence of post-operative vomiting, which makes the work of a hard-pressed nursing staff during a battle considerably lighter; and a generally quiet recovery period in which the discomforts of the patient are not added to by the toxic effects of the anaesthetic. Chest complications are not prominent, and are certainly not more than is to be expected in a series of severe upper abdominal operations.

In the case requiring large doses of pentothal—that is, in the case suffering little from shock—there is only a small margin between the levels of anaesthesia when the patient is sufficiently anaesthetized and when respiration ceases. Also, it is in these cases that hiccup is prone to occur; for this type spinal analgesia is recommended. It is of advantage to have the patient breathing oxygen in a closed circuit with carbon dioxide absorption; then if an overdose is inadvertently given it is a simple matter to keep respiration going by squeezing the rebreathing bag until physiological respiration is resumed. It is safest, however, to follow the method advised and to give small doses, repeated when required.

There are no cardiac disturbances, and such falls in blood pressure as occur can always be accounted for by the duration and severity of the operation. In one patient the blood pressure actually rose from 120/50 before to 132/78 after operation. Although in this series large doses of a barbiturate were being given there were no mental disturbances. One patient was unconscious for 12 hours; the remainder regained full consciousness within 6 hours.

It was indicative of extreme shock if the patient required 0.25 g. or less during the period of preparation, usually lasting 10 to 15 minutes, and those patients requiring 1 g. or less for the whole operation, including the preparatory period, stood a very poor chance of survival—one patient out of eight surviving.

Operative Procedure

Catheterization before the operation is begun is essential, as not only does this eliminate a possible mechanical obstruction but it will sometimes reveal unexpected renal damage. Preoperative stomach intubation has been limited to those cases in which vomiting has been marked and profuse, and, where necessary, it is now carried out under the initial stages of the anaesthetic.

With few exceptions a median or paramedian incision has been used, the site of choice being that on which it is thought maximum injury to the abdominal structures is present. Where the abdominal wall has been grossly injured, operation has been carried out through the existing wound, after its excision and, if necessary, enlargement.

In a thoraco-abdominal wound a decision has to be made as to whether the approach shall be through the diaphragm or by an abdominal incision. Where it has been decided during the diagnosis—in which radiographs are extremely valuable—that the damage is confined to structures easily approachable through the diaphragm, then this is the preferable route. Otherwise an alternative approach must be employed. It is only in wounds of the lower chest wall that the former approach is likely to be used, and it seems unnecessary to resect a rib, sufficient exposure being obtained by suitable retractors after an intercostal incision which excises the wound of entry. It should be noted in passing that splenectomy, through this approach, is a much simplified and more rapidly performed operation than through an abdominal incision.

In many cases the abdomen is filled with blood, which should be sucked and swabbed away before proceeding to a full inspection of the abdominal contents. This must be carried out in all cases save those in which the approach has been through the diaphragm and the surgeon is certain of the location of the injured structures. In some of our cases unexpected injury of the jejunum has been located when the main lesion has been far away in the right iliac fossa.

Some definite plan must be carried out in the examination of the abdomen; we have, as an initial stage, adopted the procedure of inspecting the region believed to have been damaged, and after dealing with the injury there, the remaining contents—the small intestine from the caecum to the duodenum, the large bowel from the transverse colon, down on either side—are searched. Criticism may be levelled at dealing with soiled gut first, in that spread of infection is likely, but against this may be placed the fact that if a perforation is not sealed at an early stage in the operation the actual manipulations of the gut encourage extensive leakage through the site of injury.

No intraperitoneal medication has been used in the series of cases reported, but we believe that microcrystalline sulphadiazine is of value. It is probably best to leave a small catheter protruding from the peritoneal cavity, and through this to instil 5 g. of the drug in suspension at 8-hourly intervals for 24 hours. To prevent leakage the tube is clipped at the end of each instillation.

Drainage of the general peritoneal cavity has been used only in cases of gross liver damage or those in which frankly infected peritoneal exudate was present.

Individual Injuries

1. Stomach

Little need be said about these except to remark that wherever the anterior stomach wall has been perforated it is essential to open the lesser sac of peritoneum in order that the posterior wall may be examined.

2. Duodenum

Large wounds of the duodenum have a marked tendency to break down and to give rise to a duodenal fistula, from which the patient will ultimately die. In addition to suture of any large rent, a gastro-enterostomy, performed at the time of the initial operation, is probably advisable. Drainage down to the site of the lesion should be instituted.

3. Small Intestine

It is often stated that the whole of the intestine should be examined before a decision is made whether resection or suture is to be carried out. This in practice is not satisfactory, as it is impossible, with multiple perforations, to prevent leakage from these while the rest of the bowel is examined. Unless, as the peritoneum is opened and the examination of the abdominal contents has begun, it is quite obvious that resection will be necessary, perforations should be treated as they present, either by invagination or by one or two through-and-through sutures.

Occasionally it will be necessary to resect a section of the bowel, and some of these repaired perforations may be included in the length of gut removed. Even so, the short period of time spent in the repair has not been wasted, as it has prevented the escape of intestinal contents and consequent soiling.

Resection should be carried out only in those cases in which the mesentery is so damaged as to interfere with the viability of the gut, or in injuries the local repair of which is likely to be followed by stenosis of the intestinal lumen. In our series, resection was carried out as the only intra-abdominal operation in 3 cases, of which two recovered, and, in addition to other procedures, on a further 3, two of which terminated fatally. Post-operative convalescence in these cases has caused little more anxiety than in those in which the lesion has been oversewn. The fatal results occurred in patients with severe associated lesions who were in extremely poor condition before operation. End-to-end anastomosis has been employed, the bowel being severed somewhat obliquely in order to give a larger lumen after suture.

4. Caecum

When the lesion is small and on the peritoneal surface it is perfectly safe to oversew or invaginate the perforation, but when the rent is large and the caecal wall grossly bruised, exteriorization with partial repair to form a caecostomy is advisable. In cases in which the posterior wall, uncovered by peritoneum, is injured, the surface should be exteriorized and the rent left open or sutured, according to the severity of the wound. The caecum will be brought out through a separate muscle splitting or dividing incision.

5. The Large Bowel, excluding the Rectum

The general principle of mobilization and exteriorization of the injured viscus is one that must dominate treatment; but before such procedure is carried out the perforations in the bowel should be temporarily sutured to prevent escape of faeces during the manipulations.

In the case of the transverse or pelvic colon exteriorization is simple, and rarely is mobilization necessary, but in other parts of the large bowel not provided with a mesentery the procedure is more difficult. In a case of injury to the upper part of the ascending colon the whole of the bowel from the caecum to the hepatic flexure may require freeing if the bowel is to be brought to the surface without tension. The peritoneum along the outer border of the bowel is incised, after which the latter is gently stripped of its attachments to the posterior abdominal wall, until it is held only by the thin layer of tissue containing the blood supply. Gauze dissection is of great value in this manœuvre. Some cases with a loose posterior attachment will free easily, but when the bowel is fixed fairly firmly, and the patient is broad and muscular, every possible band of tissue attachment has to be divided to obtain the necessary mobilization. A similar procedure is necessary for lesions of the descending colon, the injured bowel being brought out through a separate incision in the loin.

The type of colostomy performed is a matter of choice. Where it is possible, the ascending and descending links may be sutured together along the lines of a Paul–Mikulicz operation, the damaged portion of the bowel being subsequently cut away. An enterotome is used at a later stage to crush the spur intervening between the two loops of gut. It is, however, a procedure that is not always possible save in the case of the transverse and pelvic colons, and, where feasible, requires more extensive mobilization, the opening up of larger cellular spaces from which toxic absorption may occur, and additional time. We have not employed this technique, and have always exteriorized the bowel as a spur colostomy, using the method described by Ernest Miles. This is a matter of personal choice; but as a result of experience in civilian life and in periods spent at base hospitals we have found that the closure of such a colostomy is not a difficult procedure, and, provided that care is taken not to open the peritoneum, is unaccompanied by danger.

The argument advanced in favour of the exteriorization of all large-bowel wounds is that there is usually an associated bruising of the wall surrounding the actual perforation, and that any suture line is most likely to give way. This is undoubtedly true in most cases, especially when extensive faecal soiling is present. But it can never be denied that a colostomy, however temporary, is but a source of discomfort to the patient, particularly in the ascending colon; where the faecal discharge is fluid. If it can be avoided with safety a service has been done to the patient.

Occasionally the wound in the colon is small, and so clean-cut and without surrounding tissue damage that simple suture may be carried out, or the perforation sutured and extraperitonized by stitching the peritoneum and the rectus sheath to the bowel wall around the injury. This advocacy of any procedure other than exteriorization may be considered dangerous, but with prolonged experience of abdominal injuries selected cases can be treated safely in this fashion. Where the ascending colon has been exteriorized a short-circuit anastomosis between the small intestine and the transverse colon is of value in reducing the fluid faecal loss to a minimum.

In two of the cases in our series such extensive disruption of the colon was present as to necessitate resection with subsequent anastomosis. Both patients died, one after 16 days. This case was associated with a large injury of the duodenum, for which gastro-enterostomy was performed 14 days after the injury. At the time of the second operation the anastomosis was observed to be firmly healed.

6. The Rectum

Where the lesion is intraperitoneal, repair and colostomy should be carried out. If the rupture is small and below the peritoneal reflection, divergence of the faecal flow by a colostomy is probably sufficient; but in cases in which the damage is severe, drainage of the pelvic faecal tissues is necessary, after removal of the coccyx and strapping up the rectum.

7. Solid Viscus Injuries

Wounds of the kidney may be present with other intra-abdominal lesions; when the organ is grossly disrupted, nephrectomy, through the abdominal route, must be carried out. Two cases in our series have been associated with such injuries; both terminated fatally.

Splenectomy

When any but the slightest damage has been suffered by the spleen, splenectomy is the correct treatment to adopt. We had three such cases; in two of them—in which injury to the viscus was the only damage—recovery resulted. The liver was damaged in only one case in this series, the rent being oversewn. This procedure is impossible when the injury is gross, or if it involves the diaphragmatic surface of the viscus and an abdominal approach has been made. Reliance must then be placed on packing, this being removed in 48 hours. When the injury is extensive and there is likely to be a considerable escape of bile, drainage of the area is desirable.

If, on the diagnostic points to which reference has been made, it can be assumed that the injury is likely to be on the diaphragmatic surface, approach through the chest is indicated.

Post-operative Care

Considerable controversy has arisen as to whether these patients should be nursed lying flat or in the typical Fowler position. Our own opinion is that, provided the patient is not sat up until his shock and its effects upon the circulation have disappeared, there is nothing to choose between these alternatives. Some patients who have been nursed lying down have begged to be allowed to sit up; some sitting up have asked to lie down. It is the contrariness of human nature, as we do not believe that ultimate recovery or otherwise is affected thereby.

Gastric suction is instituted as soon as the patient recovers consciousness, the Ryle tube being passed through the nasal route. It is retained until only bile is being drained from the stomach, and during this time fluids are allowed by mouth. So long as stomach suction is maintained—in the average case for from 3 to 4 days—four pints of saline and one of plasma are given by intravenous drip daily. Rarely, when suction has to be continued beyond this period in patients in whom the large bowel is not involved, saline may be administered through the rectal route. Provided a narrow catheter is used, and provided the flow is intermittent—a half-hour in every hour—absorption by this method is satisfactory. From time to time, after suction has ceased, the patient again starts to vomit, and there must then be no hesitation in resuming this and the saline drip.

Any severe ileus is rare in cases so treated, but in the event of abdominal distension becoming increasingly great, intravenous pituitrin—1 c.cm. in 10 c.cm. of water or saline—is of the utmost value, and the passage of flatus and faeces is immediate.

As soon as stomach suction is stopped the diet may rapidly be built up, the inclinations of the patient being largely followed. An enema or colostomy wash-out is useful when the bowels fail to act normally. Sulphaguanidine is valuable in reducing the offensiveness of colostomy.

A course of penicillin is now given as a routine, either by periodic injections or by a continuous intramuscular drip, as not only is the drug of value in counteracting the sepsis of the actual wound, but it has been found that staphylococci and streptococci are normal contaminants of the peritoneum in such cases. Those associated with grossly dirty wounds have been given sulphadiazine in the intravenous drip. In such cases alkali has always been administered by the same route.

Factors in the Causation of Death.—First and foremost in the causation of death, as in all civilian types of abdominal catastrophe, is the period of time elapsing between the onset of the lesion and the start of the operation; the accompanying Table illustrates this point. It will be seen that among all cases coming to operation within 10 hours of the receipt of the injury the mortality is 20%, rising to 71% in those arriving after 20 hours.

Table showing Relation of Time of Wounding to Mortality Rate (54 Cases)

Time Factor	No. of Cases	No. of Deaths	Mortality (%)
Within 10 hours	30	6	20
„ 20 „	17	10	49
Over 20 „	7	5	71

Coupled with this factor is the severity or otherwise of the lesion and associated extra-abdominal injuries. Of the six cases culminating fatally in the first group, five had gross and multiple injuries either inside the abdomen or associated with that lesion, and all died within 36 hours. The sixth patient died after operation for a post-operative obstruction.

Summary and Conclusions

The treatment of gunshot wounds of the abdomen is discussed.

The use and advantages of pentothal anaesthesia in these cases are brought forward.

Pentothal has been found to be an ideal anaesthetic for abdominal surgery in shocked patients.

While this drug can be used with safety where there is only a mild degree of shock and where large doses have to be given, it is difficult of control and cannot be recommended in these cases.

The York Clinic at Guy's Hospital is the first psychiatric in-patient clinic to be established in this country as part of a general hospital in close association with the tradition of general medicine. It was not expected to be able to admit psychiatric patients till after the war, but the foresight of the York Council in proceeding with the building was justified, for at the end of 1943 the opening of the clinic for the purpose for which it was built was urgently requested by the Ministry of Health to provide beds for psychiatric casualties among officers of the Services. An immense amount of work had to be done by Dr. R. D. Gillespie (now Air Commodore, R.A.F.) and Mr. Lees Read to furnish and equip the clinic and prepare the organization. It opened on April 3, 1944, and a report on the first year's work has been issued as a cyclostyled document of six foolscap pages by the acting medical director, Dr. Felix W. Brown. There is undoubtedly a growing demand for treatment by modern psychiatric methods outside a mental hospital, and the York Clinic at Guy's has excellent opportunities to provide the right kind of training for future psychiatrists.

THE BACTERIOLOGICAL EXAMINATION OF INFECTED DENTAL PULP CANALS AND USE OF PENICILLIN IN PULP-CANAL THERAPY

BY

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It has been shown by Bulleid (1938) and others that the commonest organism causing an infection of the pulp canal and periapical tissues is *Str. viridans.* Most strains of this organism are resistant to sulphonamides, especially in the presence of pus, but Fleming (1929) found that many are very sensitive to the action of penicillin, and therefore the effect of this chemotherapeutic agent on infected pulp canals seemed worthy of investigation.

Adams (1944) injected penicillin through the apical foramina in 2-c.cm. quantities, using 2,000 or 3,000 units for each injection. It is difficult to see how the periapical tissues could absorb this volume of fluid, and his criteria of sterility were not given; apparently an insufficient number of consecutive sterility results were accepted as adequate. He obtained a satisfactory result in all of 12 cases which he treated. It is surprising that in every case he apparently assumed that he was dealing with organisms sensitive to penicillin, although sensitivity tests were not carried out. In view of this work it was necessary to repeat the use of penicillin with more adequate bacteriological control.

It was clear that the common methods used in assessing the sterility of pulp canals—namely, (*a*) the absence of clinical signs of periodontitis, and (*b*) that the dressings removed appear clean and odourless—were inadequate for this work. Grossman (1936) showed that of 150 teeth, which by the appearance of the canal and odour of the dressing were judged by several dental practitioners to be ready for filling, 42% were still infected. A putrid odour may be produced by some organisms, especially anaerobic bacteria, but is often absent even in cases of gross infection by aerobic bacteria. A smear of the necrotic contents of the pulp canal, as suggested by Grossman (1940), is a very crude test of sterility. Radiographs of the periapical tissues may or may not reveal the presence of a rarefying osteitis due to infection, but this rarefaction must necessarily continue for some time even if the tissues have been rendered sterile; thus radiographic evidence is of little value. The only methods of ascertaining whether sterility has been achieved that are capable of withstanding criticism by bacteriologists are cultural methods, and the technique should be one which will demonstrate the relative number of organisms and the presence of anaerobic as well as aerobic organisms, and must entail no extra effort or skill on the part of the dental surgeon.

The ability to sterilize the pulp canal and periapical tissues has long been disputed. Gottlieb *et al.* (1938), Thoma (1943), and Grossman (1940) state that these tissues can be sterilized; and Sprawson (1926) concludes that "when tested by cultures and films they can usually, after prolonged treatment, be rendered sterile," but he found that six months or more was necessary to obtain sterility in some cases. Prinz (1911), Bulleid (1938), and others have stated that no antiseptic treatment will permanently sterilize a once-infected pulp canal. It is doubtful, however, if the bacteriological technique employed in all past work has been adequate to enable a final conclusion to be drawn.

Penicillin is a freely diffusible substance, and it was hoped that it would diffuse into the periapical tissues and increase their chance of permanent sterility.

Method

The following procedure was adopted for the bacteriological investigation of infected pulp canals and their treatment with penicillin. Single-rooted teeth only were investigated. On the first visit a radiograph was obtained and the tooth isolated with a rubber dam, the crown being repeatedly swabbed with 70% alcohol. The pulp canal was opened with a sterile rose-head bur in the usual way, from the palatal aspect. The tip half of a sterile paper point moistened with nutrient broth was introduced into the canal and then dropped into a sterile test-tube. A second paper point was then introduced into the canal and dropped into 10 c.cm. of sterile broth. Having thus obtained material for the bacteriological investigation, the pulp canal was cleared mechanically with sterile instruments and reamed to a satisfactory size.

Penicillin was introduced into the pulp canal by saturating sterile absorbent paper points in a solution containing 20,000 Oxford units per c.cm. It was found that, on an average, approximately 50 units of penicillin was introduced with each dressing, which was sealed by a layer of sterile wax, followed by zinc oxyphosphate cement, wax being used to prevent any destruction of penicillin by the cement (zinc oxide with eugenol was observed to destroy penicillin completely); and the above procedure was repeated, usually at 48-hour intervals for the second and subsequent visits, if the organisms were found sensitive to penicillin, otherwise a tricresol dressing was substituted.

The sterile test-tube containing a paper point and the second test-tube with a point in broth were sent to the laboratory, where the following investigations were made.

The first point was withdrawn with sterile forceps and rubbed over a blood-agar plate while a sterile iron strip was introduced into the tube of broth to provide conditions in which both aerobic and anaerobic organisms will grow, cultures being incubated at 37° C. overnight. The direct plating gives a rough quantitative result of the organisms present, while the broth is a more sensitive test for both aerobic and anaerobic organisms—growth of the latter being possible in the presence of the metal strip. Subcultures were made from the broth aerobically and anaerobically to confirm sterility and to carry out penicillin-sensitivity tests on organisms grown.

Results

A case was not considered sterile until a minimum of three consecutive sterile results were obtained; in some cases up to seven consecutive sterile results at 48-hour intervals were obtained, while in others, as a more stringent test of sterility, a sterile point was sealed in the pulp canal for a week and used to inoculate a tube of broth.

Twenty-three cases were treated; with 3 of these no organisms were cultured, and the condition was possibly the result of aseptic gangrene of the pulp. The remaining 20 cases comprised 16 with chronic periapical osteitis, 3 with an acute suppurative inflammatory process superimposed on the latter, and 1 with an acute periodontitis resulting from gangrene of the pulp.

The following organisms were grown from the original paper points in the 20 cases examined: *Str. viridans* (17); non-haemolytic streptococcus (3); beta-haemolytic streptococcus (2); anaerobic streptococcus (1); *Staph. pyogenes* (2); *Staph. albus* (1); *Bact. coli* (3); *B. subtilis* (2); *Ps. pyocyanea* (2), and *Saccharomyces* (1).

It should be noted that in 11 cases a mixture of two organisms was grown: of course, in these cases the infection of the periapical tissue might well have been caused by a single organism, the secondary infection of this tissue depending on the relative invasiveness of the bacteria in the pulp canal.

Individual insensitive strains are often found in groups of organisms which are in general sensitive, and sensitive strains are known to become insensitive when the dosage of penicillin is small. Although the latter point was not observed, in 3 out of 17 cases the original culture of *Str. viridans* proved to be insensitive to penicillin. Insensitive organisms were finally found to persist in 11 cases, and these were therefore treated with tricresol; 10 of them were sterilized after an average of 5 weekly dressings. Of the remaining 9 cases only one was sterilized with penicillin; the remainder received dressings at regular intervals varying from 48 hours to one week without becoming sterile. One case received weekly dressings for 4 months, and on each visit a *Str. viridans* sensitive to penicillin was grown in pure culture. The case rendered sterile with penicillin had an acute periodontitis not related to a chronic inflammatory process of the periapical tissues and required 7 penicillin dressings at intervals of 48 hours before sterility was obtained.

Discussion

The problems met with in the treatment of infected non-vital teeth with associated chronic periapical osteitis are very similar to those presented by chronic bone infection in orthopaedic surgery. In both cases infected and, maybe, necrotic bone is present which is not easily accessible; and a further complication in pulp-canal therapy is the deliberate retention of these dead or relatively non-vital tissues. Robertson (1944) concluded that the local application of penicillin in cases of chronic bone infection has so far been disappointing, and cites three factors which appear to be responsible: (1) failure of continuous application; (2) inaccessibility of bone infection; (3) presence of dead bone.

Considering these points in relation to pulp-canal therapy, it is seen that:

(1) *Failure of continuous application* is equally applicable with the additional factor that as space is limited the amount of penicillin which can be applied must necessarily be small.

(2) *Inaccessibility* is certainly the case in dental pulp infections, since penicillin must diffuse through the apical foramina before the infected periapical tissues are reached.

(3) Whereas *necrotic bone* is not very commonly met in periapical osteitis following gangrene of the pulp, the cementum is often denuded of periodontal membrane, and when this occurs the source of its nutrition is cut off and the result is necrotic cementum. Cementum is histologically very similar to bone, and dead cementum is comparable to a sequestrum. Mowlem (1944) says that "penicillin is unlikely to give bacteriological control in the presence of sequestra," and the findings of this investigation confirm those of orthopaedic surgeons. One case out of 20 responded to treatment with penicillin alone, and radiographically no destruction of periodontal membrane was seen, so that it is just conceivable that no necrotic cementum was present.

The results of this investigation show clearly that penicillin administered as described is of little use in the treatment of infected non-vital teeth. Not only were half the cases ultimately infected with insensitive organisms but even those that were sensitive failed to respond to penicillin treatment.

We would emphasize that there has been insufficient condemnation of the practice of sealing into pulp canals organisms of unknown virulence and invasiveness. Adequate bacteriological control of pulp therapy is possible only through co-operation between the dental surgeon and the bacteriologist, and a satisfactory technique need entail no extra effort from the dental surgeon. Finally, any co-ordinated pathological service should be available easily and cheaply to dental surgeons as well as to medical practitioners.

Summary

A technique is described for the bacteriological control of dental pulp infections.

Of 20 cases examined 17 proved to be infected with *Str. viridans;* 14 of these strains were sensitive to penicillin.

In each dressing 50 units of penicillin were used, and dressings were done at 48-hour intervals.

Only one case was sterilized by penicillin, 7 dressings being necessary.

Eleven cases were infected with organisms which were insensitive to penicillin, and these were treated with tricresol, applied at weekly intervals. Sterility was obtained with an average of 5 dressings.

Eight cases continued to give cultures of an organism sensitive to penicillin even after prolonged treatment with this antiseptic, and these were finally treated with tricresol.

The similarity in the results of this investigation and those found in cases of chronic osteomyelitis treated with penicillin by orthopaedic surgeons is noted.

We are indebted to Mr. A. G. Allen, dental surgeon to the London Hospital, for helpful interest and for access to his patients; and to the Yarrow Fund for a grant to one of us (F. E. S.).

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PENICILLIN IN WOUNDS OF THE CHEST

BY

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In the mass of literature dealing with penicillin therapy it is difficult to obtain a clear picture of what is practical and what is academic. We hope this short paper may be of value.

Since penicillin became available to this centre more than a year ago, over 500 penetrating wounds of the thorax have been treated. We believe that the therapy is best employed as follows.

General Parenteral Therapy

This is used only occasionally, and has not supplanted the well-established sulphonamide drugs, which may often be used with less distress to the patient, as they do not involve three-hourly injections. The indications are: (i) When pulmonary suppuration or severe infection exists with a pyothorax that is being surgically drained. Traumatic lung abscesses—i.e., around foreign bodies—infected missile tracks, and the rare breaking-down lung haematoma have been greatly benefited by general penicillin, which in these instances is more helpful than the sulphonamides. (ii) In severe chest-wall lesions, associated with an open sucking septic pneumothorax, which used to be a grave problem. Their closure after re-excision and removal of rib or scapula fragments (if necessary) is readily effected if combined with general penicillin, assisted in the first three days by local penicillin given by instillation tubes; no such case has failed to remain closed. (iii) For a simple or infected haemothorax general penicillin is of little or no value: it has been established (d'Abreu, Litchfield, and Scott Thomson, 1944) that local intrapleural penicillin is far more efficient as a bacteriostat for Gram-positive infection in such effusions.

Prophylactic Use of Local Penicillin, for Haemothorax

(*a*) *Primary Treatment (e.g., in Forward Units).*—Repeated intrapleural injection of penicillin without bacteriological and radiological check is unwise. The intrapleural injection of 60,000 units in 6 to 10 c.cm. (no more) at the end of the first two or three aspirations is advised; this injection in no way replaces adequate aspiration. As soon as the patient's general condition has been improved by these early aspirations he is usually fit for transfer to a general hospital or chest centre, where further treatment can be more satisfactorily carried out.

(*b*) *At General Hospital Level.*—At this centre the uninfected haemothorax is treated by aspiration without intrapleural instillations except under the following circumstances: (1) Where there is coexistent chest-wall sepsis. (2) When there is recognized or suspected pulmonary infection—e.g., when the radiograph shows a peripherally placed foreign body in the lung tissue or in the pleural cavity. Our practice is to remove such bodies as soon as the patient's general condition is satisfactory; if operation is delayed because of poor general condition and there is a coexistent haemothorax, this is treated by aspiration and intrapleural penicillin. (3) At the conclusion of a thoracotomy for foreign-body removal penicillin, 120,000 units in 10 c.cm. of saline, is instilled after air has been drawn off by an artificial pneumothorax apparatus. Unless there is infection of the pleural cavity, post-operative drainage is not done, and the resultant effusions are aspirated and bacteriologically examined as a routine. The missile bed is insufflated with penicillin powder before the lung sutures are tied.

Local Penicillin in Treatment of Infection

(*a*) *Intrapleural.*—Penicillin is of great value in the treatment of infected haemothorax and empyemata. It is obviously only of use in cases of infection by penicillin-sensitive organisms. Intrapleural therapy is useless for Gram-negative effusions and for penicillin-resistant staphylococci; it is therefore essential to have most careful bacteriological checks. All syringes used in this work require the most careful sterilization by boiling: no chemical method is safe enough prophylaxis: the more careful the technique the less frequent is Gram-negative infection. In an infected haemothorax or empyema containing penicillin-sensitive organisms our procedure is to aspirate the effusion and inject 120,000 units of sodium penicillin for large cavities and 60,000 units for smaller ones in 10 to 20 c.cm. of solution, on alternate days. The instillation is repeated until three specimens of the fluid have been reported to contain no pyogenic organisms on smear or culture. Frequent radiological location of the cavity is essential: even after the cavity is no longer seen radiologically its disappearance must not be assumed, and aspiration must be continued until fluid can no longer be obtained. Towards the end of this treatment the fluid becomes serous and the interval between aspirations can be lengthened to once or twice a week. Active breathing exercises are essential throughout the treatment.

Despite sterilization of the cavity, operative treatment is necessary in certain cases for the purpose of removal of clot and the prevention of excessive fibrin deposition on the pleura (parietal and visceral). The indications for surgery are as follows. (i) The presence of a sucking chest-wall wound in association with a pyothorax demands surgical drainage (closed) and penicillin closure of the wound. (ii) The presence of a large broncho-pleural fistula demands pleural drainage. (iii) The existence of a very large infected effusion associated with a total lung collapse to the mediastinum calls for closed drainage because in these cases so much fibrin is deposited that lung re-expansion and chest-wall movements are hampered; a few intrapleural instillations may be of great value before drainage, because the Gram-positive organisms may be eliminated, with a great decrease in toxicity. (iv) Considerable fibrin-clot formation, as shown radiologically or by repeated needle blockage during aspiration, is an indication for "clot clearance." If at operation a localized pocket is found and the organisms are penicillin-sensitive, complete chest-wall closure is followed by post-operative aspirations and local penicillin therapy. The larger cavities are drained for the reasons given above in (iii). (v) Persistent Gram-negative infection is a source of trouble because it leads to further exudation and fibrin deposition, thereby causing mechanical hindrance to lung re-expansion and chest-wall movements and continued toxaemia. Clot clearance and drainage are done for these cases after an adequate trial of repeated aspiration. We are using succinyl-sulphathiazole suspension for these aspirations, but this work is entirely in the experimental stage.

(*b*) *In Chest-wall Wounds.*—There is little to add to our previous published experience (d'Abreu, Litchfield, and Scott Thomson, 1944). Wounds that have been treated by excision and muscle closure of the pleural "suck" in the forward area arrive with the skin left deliberately unclosed: suture (delayed primary) is done soon after arrival with the assistance of penicillin–sulphathiazole powder. We excise septic chest-wall wounds, including the removal of rib and scapula fragments if necessary, and close them by suture with the aid of penicillin solution introduced by tube instillation: this is given for five days if there is underlying bony damage. The results are very successful even in the presence of frank pus. This method does not seem to be known widely enough. It is the solution of the problem of the septic open sucking wound (d'Abreu, Litchfield, and Scott Thomson, 1944).

We are indebted to Col. William C. McKinnon, the officer commanding, for permission to publish this paper.

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C. F. Dixon and A. L. Lichtman (*Surgery*, 1945, **17**, 11) record their observations on 50 cases of congenital absence of the gall-bladder that have been recorded since 1900 and on 10 cases that have been observed at the Mayo Clinic. Symptoms resembling those of cholecystic disease were present in 58%; 48 had jaundice and 27 stones in the common bile duct. Symptoms were present in 73% of cases in which the patients were more than 45 years of age. Prolonged drainage of the common bile duct with a T-tube is advocated in the cases in which symptoms are present.

A CASE OF PENICILLIN REACTION

BY

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Unlike the sulphonamides, which soon after therapeutic birth began to show occasional reactions, penicillin has maintained a relatively unclouded reputation. Publication of the following case is therefore of interest.

Case History

On Sept. 7, while reconnoitring an enemy-held wood, a tank squadron commander was hit by a fragment of an 88-mm. shell which traversed his tank. The fragment—1½ by 1 cm.—which was embedded superficially in his lower lateral right calf, was removed an hour later and a sulphanilamide dressing applied. The officer remained on duty, but on Sept. 19 the leg became painful and the ankle swollen. He was admitted to a field dressing station, where sodium sulphate dressings were applied. On Sept. 24 sodium penicillin solution was instilled direct into the wound, with a similar application on the following day. On Oct. 2 he was admitted to a casualty clearing station, where a sinus 1 in. long was opened up. Since this officer was a key man urgently required by his unit, undiluted sodium penicillin powder (without sulphonamide vehicle) was applied in a much higher concentration than is normally employed, in the hope that recovery might be hastened. Similar application was made on Oct. 5. Progress was satisfactory, and on Oct. 10 the wound had almost completely epithelized. On Oct. 11 the patient intimated that he had a mild chronic bilateral external otitis. At 5 p.m. the same day two drops of sodium penicillin solution (100,000 units in 5 c.cm.) were instilled with a pipette into each ear. By 2 a.m. the next morning both ears were discharging profusely. His leg, previously almost healed, began to weep copiously, and literally saturated a moderately heavy cotton-wool dressing. The area affected corresponded roughly with that of previous dressings with which penicillin had made contact (Fig. 1). By evening, eczematous weeping patches had broken out over both ears, the lower face, and the chin. On Oct. 13 a penicillin patch test, consisting of two drops of penicillin solution on gauze, was applied to his arm. Within five hours the sensation was "similar to a T.A.B. reaction," and the next morning the patch area presented a weeping eczema similar to the areas originally affected (Fig. 2). A mild secondary infection of all areas subsequently developed. Healing ensued gradually after treatment with "nuflav" powder.

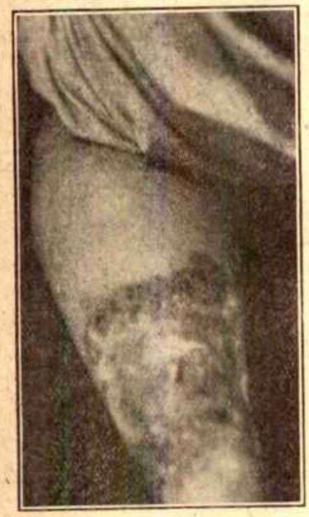

FIG. 1

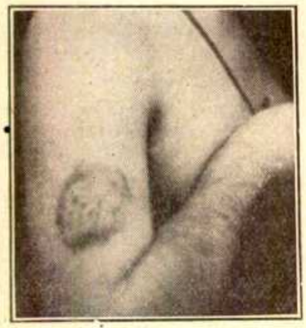

FIG. 2

The patient was seen again in December. The leg remained soundly healed but the chronic otitis persisted.

Comment

The particulars of the penicillin used at the field dressing station are unknown. That used in the ear and on the leg at the casualty clearing station was Pfizer batch 1664, and for the patch test Pfizer batch 1594. It is understood that the above is the only occurrence of a reaction of this type to penicillin therapy in more than 30,000 cases treated in the B.L.A.

No attempt is made to discuss the causative factors of the reaction, and it is impossible to tell whether it was due to penicillin itself or to associated impurities. Presumably, however, it was a matter of personal idiosyncrasy, since many other cases were treated with the same batches of penicillin and showed no reactions of any kind.

Our thanks are due to Lieut.-Col. R. Evans for permission to submit this report for publication.

SUBGLOTTIC STENOSIS AFTER EXPOSURE TO A HIGH CONCENTRATION OF SCREENING SMOKE (ZINC CHLORIDE)

BY

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AND

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On Oct. 3, 1943, in the Mediterranean theatre of war, Pioneer K., a Palestinian Arab aged 28, was exposed to an extremely dense cloud of screening smoke (zinc chloride) issuing from a room below, where smoke generators had exploded. He was one of seven casualties, three of whom died. The following is a record of his case.

Case History

On admission to a general hospital two hours after exposure the patient was found to be moderately distressed. He had a harsh cough with profuse frothy sputum, slight stridor, and vomiting. A few rhonchi were present. Oxygen was not required. Twelve hours later his temperature was 101.8°, pulse 135, and respirations 35. He complained of a sore throat and retrosternal pain and was coughing up frothy salmon-pink sputum, but was no longer distressed. Sulphapyridine was started. Blisters developed on the ears and hands. These were punctured two days later and straw-coloured fluid was evacuated (insufficient for chemical tests). Subsequent healing was uneventful and was not delayed. The bronchitis resolved in five days, leaving the patient apyrexial, with hoarseness and slight cough, and complaining of pain in the throat. The pharynx looked healthy. Indirect laryngoscopy two weeks after the accident revealed a yellowish-white membrane over the anterior surface of the larynx, involving both ventricular bands and vocal cords. There was some generalized oedema, and the entire larynx was of a dusky-red hue. Cord movements were normal. On Oct. 23 (three weeks after admission) he developed stridor, which passed off but recurred on a number of occasions, until on Nov. 2 tracheotomy (under local analgesia) became necessary. This was followed by a right basal pneumonia which resolved under sulphapyridine. By mid-November he was up and about, but on Nov. 18 laryngoscopy showed marked oedema of the arytenoids and ventricular folds, with stricture of the glottic aperture.

The patient came under our care in a Middle East General Hospital on Jan. 13, 1944, presenting the problem of reconstitution of an adequate airway. On admission his general condition was good. There were considerable congestion and oedema of both arytenoids and ventricular bands, redness of the vocal cords, and marked subglottic swelling. During the next six weeks he had two intercurrent attacks of bronchitis with pneumonitis, and one attack of tonsillitis which resolved rapidly under sulphathiazole but delayed any attempt to deal with the stenosis until March, 1944, when partial "corking" of the tracheotomy tube was tried out but could not be tolerated.

On May 17 (7½ months after the accident) direct laryngoscopy demonstrated marked subglottic narrowing, with granulations blocking the lumen. A portion of granulation was removed for examination, and the histological findings were: "Oedematous granulation tissue with fibrosis in the deeper layers. A tendency to haemorrhage is indicated by collections of haemosiderin-containing macrophages. The appearances suggest that it is some mechanical or chemical factor, and no infection, that is responsible for failure to epithelize." Blood Wassermann and Kahn tests were negative. During the next four weeks Jackson bougies (up to size 20) were passed on two occasions, and on July 26 continuous dilatation was instituted by means of a piece of stout rubber pressure-tubing about 2 in. long, the lower end of which was cut obliquely to enable it to lie immediately above the tracheotomy tube. This tubing was inserted into the subglottic position through the tracheotomy stoma by pulling on a stout silk thread passed down through a laryngoscope, brought out through the stoma, and stitched to the upper end of the rubber tubing. The other end of the thread was stitched to the lower end of the tubing, thus making externally a continuous circuit with the tubing in position. A second thread, stitched transversely to the lower oblique end of the rubber tubing, was anchored to the tracheotomy tube when in position. On two subsequent occasions, at fortnightly intervals, the tubing was replaced by a piece of larger bore, but on the latter occasion it would not pass through the tracheotomy stoma and was therefore introduced through the mouth, with the aid of the laryngoscope. A third attempt to replace this tube by one still larger was unsuccessful, and the same tube was reinserted with some difficulty, owing to persistent exuberant granulations. Some discomfort and swelling followed this manipulation, and continuous dilatation was stopped on Sept. 20. At that time it was feared that external operation would ultimately be necessary.

On Oct. 18 the airway appeared to be remarkably good, and direct laryngoscopy revealed the entire absence of granulations and a somewhat small healed lumen below the vocal cords. Dilatation from above by direct laryngoscopy and from below through the tracheotomy stoma was begun with Hegar's dilators—a procedure which the patient bore with remarkable ease. This was carried out on three occasions at weekly intervals, size No. 11 being easily passed on each occasion. During this period progressive "corking" of the tracheotomy tube was effected, and by Nov. 4 complete occlusion was being maintained throughout the 24 hours. Good movement of rather irregular vocal cords was observed on indirect laryngoscopy. The patient's voice was excellent, and he could undergo considerable exertion without embarrassment. On Nov. 18 —13½ months after the accident and 4 months after continuous dilatation was started—the tracheotomy tube was removed. The stoma closed in three days.

Having been discharged from the Service, he was allowed to return to his home, with instructions to attend the nearest hospital for subsequent periodic dilatation.

Comment

This case presents some interesting features: (1) In the literature which we have been able to consult we have failed to discover any reference to the occurrence of stenosis following exposure to screening smokes, and though reference has been made to the possibility of such an occurrence after exposure to mustard gas, no report of an actual case has been found. (2) The persistence of granulations, which disappeared only after continuous dilatation was abandoned—at which juncture it was thought that this method of treatment had been unsuccessful. (3) The employment of Hegar's dilators: the circumstances of this case justified any method of improvisation that was available. These dilators proved to be satisfactory and reasonably convenient.

Continuous Dilatation.—Brief reference to another case which came under the care of one of us (R. B. L.) illustrates the trial of a further method.

A lieutenant aged 25 was wounded in Syria in June, 1941. He was admitted to hospital with a large gaping wound of the right side of the face, mouth, and neck, with loss of a portion of the mandible and thyroid cartilage. A high tracheotomy and gastrostomy had already been performed. There was a fistula between the floor of the mouth and the neck wound, resulting in a constant flow of saliva to the laryngeal wound and tracheotomy opening. This was controlled by the frequent application of an improvised hand-suction apparatus by a special attendant. Six weeks after being wounded he was fit to have a low tracheotomy performed through a transverse incision. At the same time it was thought advisable to attempt to improvise a temporary method of continuous dilatation of the larynx in case this should subsequently prove necessary while the neck wound was still under treatment. A tracheotomy tube, to the end of which a piece of stout rubber tubing was attached, was inserted in an upward direction through the upper tracheotomy stoma. This was left in position for a day or two, in order to demonstrate that the method was satisfactory. Fortunately its later adoption was not necessary, as the larynx healed without any appreciable degree of stenosis.

Our thanks are due to Major-Gen. J. C. A. Dowse, C.B.E., *M.C.*, D.M.S., M.E.F., and to Col. G. H. Haines, *M.C.*, officer commanding a general hospital, for permission to publish this record. We are indebted to Major J. A. Kilpatrick, R.A.M.C., for the early notes on the case, and to Major W. S. Kerr, S.A.M.C., for his help in providing us with some of his personal instruments.

The Scientific Instrument Manufacturers' Association of Great Britain (123, Pall Mall, S.W.) announces that Mr. W. Bowen has presented a substantial capital sum, the income of which he wishes to be devoted towards the encouragement and development of invention, design, research, processes, and manufacturing technique in the scientific instrument manufacturing industry. The Council of the S.I.M.A. have drawn up a deed of trust under which the income from the fund is to be devoted each year to prizes to be awarded to the employees of members submitting papers fulfilling the objects of the Trust.

INTESTINAL OBSTRUCTION BY GALL-STONES

BY

MAURICE LEE, F.R.C.S.

Acute intestinal obstruction by gall-stones, although one of the rarer causes of bowel obstruction, has the highest mortality rate of all the obstructions of the intestine. Vick's (1936) figures are as follows:

Simple Obstruction	%	Strangulation	%
Intussusception	15·0	Strangulated inguinal hernia	20·0
Carcinoma	13·0	Strangulated femoral hernia	19·5
Adhesions	7·35	Strangulated umbilical hernia	5·4
Gall-stones	0·7	Other herniae	2·5
Congenital atresia	0·6	Internal strangulation	11·4
		Volvulus	2·6

Mortality of the Main Types of Acute Intestinal Obstruction

Gall-stone obstruction	50–60%
Carcinoma of colon	35–40%
Adhesions	30–35%
Internal strangulation	30–35%

The rarity of the condition is shown by the following figures. Barnard (1902), at the London Hospital in a period of 8 years, was able to collect only 8 cases of gall-stone obstruction—i.e., an average of one case a year. Gibson (1900), in a series of 646 cases of intestinal obstruction, had only 40 due to gall-stones. Prof. Grey Turner informed me that he has had 15 cases in all his surgical experience.

Many of the cases reported have been in very elderly patients, and in more than a few a second laparotomy has been required to remove a second stone. For example, Hinchey (1940) reported a case in a patient aged 79, and Dulin and Petersen (1939) had a patient of 83 who survived operation. Prof. Grey Turner (1932–3) reported a successful and very unusual case, in a patient aged 81, in which the obstruction occurred in the transverse colon. In my own case (described below) the patient was 87 years old and required two laparotomies within two months. The death rate (50%) is high because of two facts—late diagnosis (or no diagnosis) and the advanced age of the patient. Many of these cases give no history of previous gall-bladder trouble and have been quite well until the intestinal obstruction has occurred.

Gall-stones which give rise to intestinal obstruction are always large and have entered the bowel by a process of ulceration from the gall-bladder. The fistulous communication is usually between the gall-bladder and duodenum, though other internal communications have been described. Neligan (1915) reported an instance in which gall-stones were vomited into a pan by a patient with such force that the sound suggested a volley of buckshot being fired into a metal utensil. In this case the fistulous communication must have been between the stomach and the gall-bladder.

Not all gall-stones that get into the intestine cause acute obstruction. Some are passed naturally per rectum; others travel as far as the anus and there become impacted. It is very rare for the condition to be diagnosed previous to operation; a review of the literature reveals that only 7 cases were so diagnosed. In many cases the obstructive symptoms are at first temporary; the patient is relieved for a while and then the symptoms recur. This is very misleading to the diagnostician, and accounts for the high mortality of the condition. The remissions and recurrences of the obstruction are due to the fact that the gall-stone becomes temporarily obstructed in the bowel, is dislodged by vigorous peristalsis, and becomes impacted lower down in the bowel, where the lumen is narrower. It therefore follows that in most cases of gall-stone obstruction the stone is found obstructing the bowel in the terminal ileum. In my patient this occurred in the first obstruction, but in the second laparotomy the stone was found in the bowel much higher up in the ileum because it was a large stone and therefore could not travel further down. In view of the insidious onset of gall-stone obstruction and the difficulty in diagnosis of the condition in its early stages, the practitioner is faced with a case in which treatment is applied late, and perhaps when the patient is moribund. As in other types of intestinal obstruction, any means that can assist early diagnosis must be used. It is not even now generally realized that vomiting and abdominal pain which last for over 24 hours denote a serious abdominal condition. Again, too rarely is the stethoscope used to auscultate the abdomen. Just as a clinician can diagnose an abnormal heart sound or chest sound only by repeatedly listening to the normal sounds, so only by listening repeatedly to the normal sounds in a normal abdomen can he differentiate these from the abnormal conditions when they present themselves. The chief object of auscultation is to find out if borborygmi are absent or not. Increased borborygmi associated with pain suggest the presence of intestinal obstruction. Increased borborygmi without pain, on the other hand, signify bowel hyperactivity. A silent abdomen on auscultation indicates absence of peristalsis in the bowel and therefore the presence of ileus.

X-ray examination of the abdomen can be very helpful in the diagnosis of cases of intestinal obstruction running an obscure course. It must be emphasized, however, that the interpretation of straight *x*-ray films in the diagnosis of acute abdominal conditions must be made in conjunction with the clinical picture. In gall-stone obstruction the outline of a stone in the intestine may be seen (see Radiograph). This, of course, depends upon the amount of calcium salt present in the stone. But even in the absence of this or in other cases of intestinal obstruction a straight radiograph of the abdomen can often be of help in determining the degree of obstruction as well as its site.

Treatment

In gall-stone obstruction, operation at the earliest moment is the treatment of choice. Because of the excessive vomiting general anaesthesia should not be used. Once the stone is located the intestine over it is incised and the stone removed, the segment of intestine containing the stone having been isolated by careful packing. The incision in the intestine is then carefully sewn up, transversely if possible. The intestine should be examined for the presence of other calculi, but this examination should not be unduly protracted.

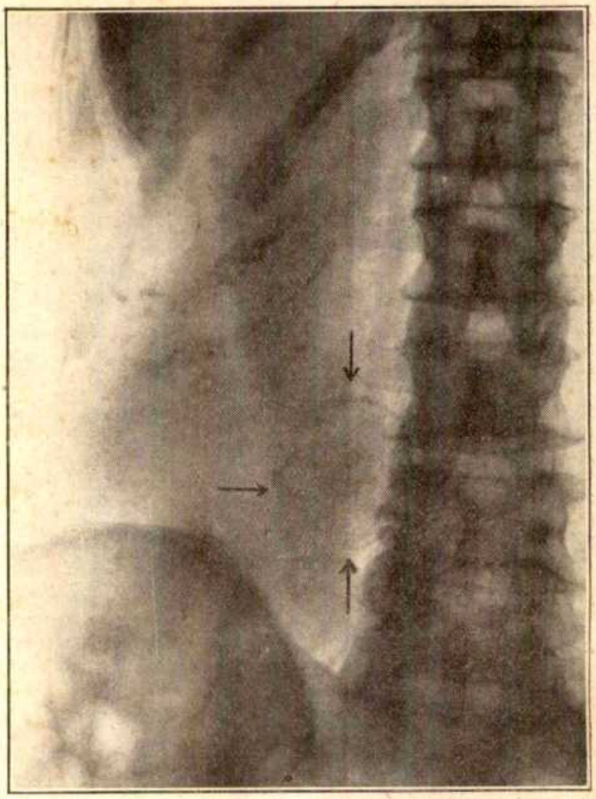
In the general textbooks on surgery it is advised that the stone be pushed into a segment of the bowel either proximal or distal to the site of the obstruction before the bowel wall is incised. In the two laparotomies which I have performed for this condition I found that this was impossible. The stone appeared to be grasped in the intestine in what seemed to me to be a state of spasm. It has been suggested that if this spastic condition could be overcome by injecting the mesentery of the intestine at the site of the obstruction by novocain 1%, the stone could then be milked along the rest of the ileum into the caecum, whence it would pass easily to the exterior. This procedure is feasible if the intestine is obstructed not far from the ileo-caecal junction and if the stone is not too large. In gall-stone intestinal obstruction there is not only an obstruction of the bowel lumen but also an additional spasm of the gut superimposed—a condition described in American textbooks as spastic ileus or dynamic obstruction. Certainly the less time that is taken and the less trauma there is in operations on these old and ill patients, the better is their chance of survival.

An alternative to this procedure is the possibility of crushing the stone *in situ* by the introduction of forceps into the lumen through a stab incision. Wangensteen (1942) states that he attempted this once, but was unable to crush the stone. In my own cases I noticed, while examining the stone (second stone at second operation) after laparotomy, that it crumbled up under the pressure of the scalpel when I attempted to divide it, much to my annoyance, as it would have made a lovely specimen.

Case History

The patient, a deaf woman aged 87, was admitted on Aug. 14, 1944, with intestinal obstruction. The obstruction had been absolute for three days and she had vomited everything for the same period. When she was admitted to hospital the vomit consisted of dark-brown foul material. There was generalized abdominal pain.

On examination, which was made difficult by her deafness, her tongue was dry and furred. The pulse was rapid and irregular because of auricular fibrillation. There was generalized tenderness and guarding of the abdomen but no rigidity. A glucose-saline intravenous drip was started and a laparotomy was performed under spinal analgesia, using heavy nupercaine. A large gall-stone about the size of a walnut was removed from the lower ileum; no other stones were found. After operation she had some diarrhoea and vomited for two days, but on Aug. 19—i.e., five days after operation—she was sitting up in a chair and taking a light diet.



Straight radiograph (portable) of abdomen showing large gall-stone in small intestine.

Second Operation, Nov. 26.—For two days previous to readmission there were vomiting, absolute constipation, and abdominal pain. At operation (under spinal analgesia) the old scar was excised. A large stone about the size of a golf ball was found obstructing the ileum about 3 to 4 ft. from the ileo-caecal junction. The stone was removed and the incision in the bowel wall was sewn up transversely. The post-operative convalescence was complicated by a discharge from the wound, which cleared up by the local application of sulphonamides. The stone was found on analysis to consist principally of cholesterol, with the addition of calcium carbonate and bile pigments. It was light in weight and crumbled into many pieces when an attempt was made to bisect it.

Summary

An explanation is given why gall-stone obstruction carries such a high mortality—namely, the insidious onset, the absence of any previous history, and the advanced age of so many patients.

A history is given of an elderly patient on whom two laparotomies were successfully performed.

Suggestions are made for dealing with the stone in order to avoid any further trauma to the bowel.

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The Trustees of the Nuffield Foundation have agreed to give £30,000 for the provision of scholarships to enable promising officers of Dominion or Colonial origin in subordinate ranks of the Colonial Service to qualify for promotion, particularly in branches of the service where qualifications in medicine or biological subjects are required. Scholarships will be open to candidates of either sex and of any race. Awards will be made by the Trustees on the recommendation of the Colonial Office and the Colonial Government concerned.

Medical Memoranda

Ineffectiveness of Sulphapyridine and Successful Action of Sulphadiazine in a Case of Puerperal Fever

The following case is considered worth reporting, as one illustrating the comparative action of sulphapyridine and sulphadiazine in puerperal fever.

Mrs. P., a primipara aged 19, was delivered on Sept. 21, 1944, after a moderately prolonged labour; low forceps were used and episiotomy was performed under trilene anaesthesia. The infant weighed 10 lb. There was a slight rise of temperature to 99° during the first two days of the puerperium. On Sept. 26 the temperature suddenly rose to 104.6°, the patient developed rigors, suppression of lochia, and a pulse of 140, and felt very ill. Sulphapyridine orally was started at 6 p.m. the same day: 2 g. followed in 4 hours by 2 g., and afterwards 1 g. every 4 hours. The temperature on the 27th was 102.4° in the morning and 104° in the evening. On the 28th the morning temperature was 102.8°, evening 104°; two intramuscular injections of sulphapyridine were given at 1 p.m. and 7 p.m. on the same day in addition to the oral doses. Bacteriological examination of the blood showed that the causative organism was a haemolytic streptococcus. The morning temperature on Sept. 29 was 102.4° and the pulse 120. At 10 a.m. the sulphapyridine was stopped and 4 g. of sulphadiazine was given—2 g. at 2 p.m. and 2 g. at 6 p.m.—followed by 1½ g. every 4 hours until the evening of Sept. 30, and then 1 g. every 4 hours until Oct. 2. At 7 p.m. on Sept. 29 the temperature dropped to 101.6° and pulse to 120; lochia reappeared and the patient said that she felt much better. On Sept. 30 the morning temperature was 99°, pulse 110; evening temperature 98°, pulse 104. The respective temperatures on Oct. 1 were 97° and 98.4°; on Oct. 2, 96° and 96°; pulse normal. Sulphadiazine was stopped and the patient made an uneventful recovery.

COMMENT

Although the patient received large and regular doses of sulphapyridine orally and intramuscularly for 3 days, the infection showed no signs of regressing. Within less than 24 hours of starting sulphadiazine therapy there was a marked subjective and objective improvement in the patient's clinical condition with rapid resolution of the infection. The ineffectiveness of sulphapyridine in this case agrees with the experience of Dr. M. Kalisova in her recorded case of acute appendicitis (*British Medical Journal,* 1944, **2,** 597) in which penicillin was used after the failure of sulphapyridine to control the infection.

This seems to prove the superiority of sulphadiazine over sulphapyridine in combating streptococcal infections.

London, S.E.25. A. FRY, M.R.C.S., L.R.C.P., D.M.R.

Nitrobenzene Poisoning from Furniture Cream

In view of the rarity of poisoning by nitrobenzene, we feel that the following case is of interest.

A man aged 45, who had been in the habit of taking an alkaline mixture, swallowed by mistake a quantity of furniture cream at about 8.30 one morning. He vomited about half an hour later; but as he felt ill he sent for a doctor, who saw him at 9.30 a.m. When seen he showed no sign of any untoward effect from his misjudgment. Later in the day he became drowsy, and when seen again by one of us (C. G. F.) at about 3 p.m. he presented a typical picture of methaemoglobinaemia, with marked cyanosis of the lips and conjunctivae.

He was admitted to hospital about half an hour later. His condition then was poor; he was semi-conscious, very cyanosed, and the pulse was thready. His stomach was washed out, a certain amount of the furniture cream being returned. He was then given 3 gr. of calomel. His condition steadily deteriorated, but we unfortunately were still unable to account for this. We then consulted our local chemist, Mr. T. N. Hitchings, who fortunately suggested the possibility of the presence of a benzene derivative in the furniture cream. On further reference, the identical symptoms were described as following poisoning by nitrobenzene. At about 10 p.m. he was given three pints of Group O blood, and about three pints was withdrawn. His condition gradually became better, full consciousness was regained, and his pulse improved. He made an uninterrupted recovery.

We have since learned from the makers of the furniture cream that the nitrobenzene content is from 4 to 5%. We conclude that the dose of nitrobenzene he had swallowed would have been about 15 minims, which we believe can be lethal.

We have since made contact with the makers and have suggested that, in view of the poisonous nature of the substance, it would be wise to market it in a distinctive bottle, suitably labelled.

W. M. CHAPMAN, M.B., Ch.B.
Shaftesbury, Dorset. C. G. FOX, M.R.C.S., L.R.C.P.

Reviews

NUTRITIONAL KNOWLEDGE FOR RELIEF WORKERS

Nutrition and Relief Work. A Handbook for the Guidance of Relief Workers. (Pp. 111. 5s.) Published by the Council of British Societies for Relief Abroad in association with the Oxford University Press. 1945.

This book is intended to supply relief workers with the theoretical knowledge by which their activities should be guided and the practical instruction that will enable them to overcome the difficulties they will meet in the field. It begins with an account of the composition of food and the purposes for which the constituents of food are used in the body. This is very clear and written in non-technical language, and is followed by a discussion of the effects of undernutrition. It is welcome that this stresses the fact that partial starvation is not invariably accompanied by specific deficiency diseases; that the long extraction of flour and abundant consumption of vegetables, prevalent on the Continent, lessen the danger of such diseases.

Here will be found instruction on the conduct of surveys of the food consumption and of the nutritional state of populations, with examples of forms for use in such surveys. In order that relief workers may not offend against local tastes, customs, and prejudices, an account is given of food habits prevalent in various parts of Europe. A table shows the consumption per head of population, of various foodstuffs, in 16 countries before the war, in 1942–3, and in 1943–4. A chapter on classification and composition of food contains a table showing the calories, protein, fat, carbohydrate, calcium, iron, vitamins A, B_1, C, riboflavin, and nicotinic acid in the edible portions of foodstuffs, as purchased retail. There are also notes on the types of foodstuffs—for example, the composition of flour—now eaten in certain European countries.

Extremely valuable information is given about the handling and storage of foodstuffs. For example, there are full instructions about the storage of flour, whether white flour, high-extraction flour, or flour from mixed cereal grains; the ways of using dehydrated foodstuffs are described. The last chapter deals with various types of improvised equipment for cooking food. Finally there are appendices giving European currencies, weights, and measures, and an English–French–German glossary of words relating to food and cooking.

It is a remarkable achievement to have condensed so much information into a book of 111 pages. It is obvious that the authors possess first-hand knowledge of the matters with which they deal. Though the book is intended for intelligent amateurs, there are few among those who could be classed as professionals who would not find it valuable. The table of composition of foodstuffs, for example, contains information which is not collected in any other publication.

A TEXTBOOK OF MOSQUITO CONTROL

Mosquito Control. Practical Methods for Abatement of Disease Vectors and Pests. By William Brodbeck Herms, Sc.D., and Harold Farnsworth Gray. Second edition, revised and enlarged. (Pp. 419; illustrated. $3.50 or 20s.) New York: The Commonwealth Fund; London: Oxford University Press. 1944.

In the fight against malaria and yellow fever mosquito control is no longer a somewhat academic and experimental issue but is increasingly becoming a well-recognized special branch of public health work. An indication of the strides made in this direction and the highly developed techniques now employed will be apparent from study of the second edition of Herms and Gray's *Mosquito Control.* This very useful and attractive volume is without doubt the most complete account yet published dealing with the practical aspects of mosquito control as a public health measure. A notice of the first edition will be found in our issue of Jan. 18, 1941. The present edition follows in general the lines of the first, of which there have been three reprintings, but, as the authors note in their preface, the rapid development of new techniques of mosquito control in the past three years has made a thorough revision and enlargement of the book advisable to make it more applicable to the requirements of our military Forces and to the needs of occupational Forces later on. Apart from this very desirable end the new edition forms a valuable contribution to the literature on mosquito control under whatever conditions this may be carried out, as with the many additions in the text and additional or rewritten sections it brings the whole subject to a focus and up to date.

Of the fresh or revised sections the most notable are those dealing with the new larvicides, lethal sprays, and repellents, enlarged sections dealing with various forms of surface and subsoil drainage, and the expanded treatment of the now very important question of naturalistic methods of control. There is a new section on mosquito control under military environment, another on mosquito breeding in bombed areas. A chapter on the finding of mosquito breeding-places contains much fresh matter and useful instructions on methods of collecting larvae, while an appendix gives very clear and well-illustrated instructions regarding methods used in the identification of mosquitoes and the use of keys which should be very helpful to those without training in systematic entomology. What is also new is the large chart, for use in training centres, etc., illustrating species sanitation and giving the principal malaria-transmitting anopheles of the world grouped by regions and type of breeding-place, with the usually appropriate control measures to be adopted. The lists of selected works for consultation, at the end of each chapter, have been considerably added to, and there are some excellent new illustrations. Throughout the book is eminently practical, simply and clearly written, and up to date. Needless to say it should be in the possession of everyone concerned or interested in mosquito control work, whether in relation to antimalaria work, to control of *Aëdes aegypti*, or to abatement of mosquito nuisance.

NEUROPSYCHIATRY

Synopsis of Neuropsychiatry. By Lowell S. Selling, M.D., Ph.D. (Pp. 500. 25s.) London: Henry Kimpton. 1944.

This is a reference book for practitioners and students, setting out in the barest outline the essential facts of the various forms of nervous and mental diseases. The essentials of anatomy, physiology, psychology, and psychopathology are given—in the case of neurology with each chapter, and of psychiatry in three preliminary chapters. Neurology is dealt with on an anatomical basis, chapters being devoted to peripheral nerves, the spinal cord, the brain stem, the cranial nerves, the cerebellum, the cerebrum, the meninges, the autonomic system, muscle syndromes, and the convulsive states. Psychiatry is covered by chapters on basic principles, general aetiology, symptomatology, effects of brain trauma, neurosyphilis, alcoholism, drug addiction, the psychoses, the parapsychoses, the psychoneuroses, malingering, psychopathic personalities, behaviour disorders of children, and mental deficiency.

As may be seen, the book is comprehensive and on the whole fulfils its purpose, and may be recommended. It is easy to find faults and omissions in such a compilation—for example, there is no mention of cerebral malaria or trypanosomiasis, but the general practitioner (who unfortunately too often fights shy of textbooks of neurology and psychiatry) will find it very useful, and if it stimulates him to wider reading so much the better. The addition of notes on the military and medico-legal implications of the various conditions dealt with is of undoubted value, and if one might have wished for references to literature this is perhaps too much to ask for in a small volume. There is an adequate index which greatly facilitates reference. Proof-reading has not been too careful—e.g., "a small dose of luminal of half a gram."

HEALTH VISITING AND CHILD WELFARE

A Handbook for the Student Health Visitor. By Edith Wild, S.R.N., S.C.M., R.S.I. With foreword by F. T. H. Wood, M.D., B.S., D.P.H. (Pp. 66. 3s., paper boards.) London: H. K. Lewis and Co.

A Preliminary Course of Child Welfare. By D. A. Kennedy, S.R.N. (Pp. 80. 9d., plus 2d. postage.) London: The St. John Ambulance Association.

Health visitors are the field workers in public health, and they will find Miss Edith Wild's modest little book *A Handbook for the Student Health Visitor* a most useful guide. It is written with sympathy and humour out of an obviously wide experience, and its only fault—an unusual one—is its brevity. The chapters on how to look at babies and at toddlers are full of sound sense, and many medical practitioners will find the advice helpful. The notes on statistics and on co-operation with public officials are also of general application. It is possible that in years to come there may be a closer link between general practitioners and health visitors; if that becomes the case, then doctors will need a little book like this to explain the help they can secure. Meanwhile the health visitors themselves should make full use of it.

A Preliminary Course of Child Welfare, by Miss D. A. Kennedy, is published by the St. John Ambulance Association for its younger members. The material is well presented, with perhaps too much stress on clothing. More might have been said on milk as a food and on the need for boiling it: the scanty references to artificial feeding are commendable, but it is old-fashioned to talk of making cow's-milk mixtures resemble human milk, and unsatisfactory to refer students to the "directions on the tin" for dried-milk feeds.

CLINICAL PATHOLOGY

Clinical Laboratory Methods and Diagnosis. A Textbook on Laboratory Procedures, with their Interpretation. By R. B. H. Gradwohl, M.D., D.Sc. Volumes I and II. Third edition. (Pp. 2,130; illustrated. £5.) London: Henry Kimpton.

The immense compendium by Dr. R. B. H. Gradwohl of St. Louis, Missouri, U.S.A., entitled *Clinical Laboratory Methods and Diagnosis*, has appeared in its third edition in two large volumes. This work covers not only every aspect of clinical pathology but such subjects as museum technique, the bacteriological and chemical examination of foods, and crime detection by laboratory methods—indeed everything, and perhaps more than everything, that a pathologist may be expected to do. Its length is added to by its discursive style, by a profusion of excellent illustrations—some of which, though interesting, are superfluous (e.g., 6 photographs of cases of elephantiasis, and 4, including an almost full-page plate, of the marijuana plant)—and by such over-treatment of a subject as the 16 pages of tables of comparative results given by 30 different serological tests for syphilis. These are drawbacks only in their effect on price and weight, and the possessor will find these volumes an almost inexhaustible source of unfamiliar information, much of it contributed by experts in particular fields. New or revised subjects include the latest complexities of blood-grouping, the use of the photo-electric colorimeter, and the assay of vitamins and oestrogens.

Notes on Books

Lippincott's Quick Reference Book for Medicine and Surgery, by Dr. George E. Rehberger of John Hopkins University, first appeared in 1920 and now comes to us again in a twelfth edition (Philadelphia and London: J. B. Lippincott Company; 90s.). Those who are not acquainted with this tome will gather some idea of its scope and size from the subtitle—"A Clinical, Diagnostic, and Therapeutic Digest of General Medicine, Surgery, and the Specialties, compiled Systematically from Modern Literature"—and from the fact that the pages (10 in. by 7 in. and mostly printed in double columns), number 1,460, without reckoning the coloured plates. Its ten main parts (each with a thumb-index) cover almost the whole field of practical medicine except psychiatry. Each disease or disorder is treated alphabetically within the appropriate part, and there are five subsidiary parts, one listing all the drugs mentioned in the body of the work. In his brief preface Dr. Rehberger says that the sections on gynaecology and genito-urinary diseases have been entirely rewritten and all the other sections carefully revised in the light of the many new discoveries and developments which have entered the field of medicine since 1939. He mentions in particular chemotherapy, shock treatment, burns, deficiency diseases, and nutrition as having called for drastic revision of the text.

Dr. E. W. Caryl Thomas has prepared a new edition of his little *Synopsis of Forensic Medicine and Toxicology*, which made its first appearance in 1933. It is largely a reproduction of the previous issue, but there are signs of revision and amplification. As a means of rapid survey of the whole subject just before his examination the student will find it a useful supplement to his class textbook. The booklet is published by John Wright and Sons Ltd., of Bristol, at 10s.

The latest edition of the *Tuberculosis Reference Statistical Yearbook*, published by the New York Tuberculosis and Health Association, 386, Fourth Avenue, covers the year 1943, with comparative summaries for 1942 and for the five-year period 1939–43.

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MALNUTRITION IN SOUTH AFRICA

In 1938, in the four Provinces of the Union of South Africa, 58,165 European boys were examined by school medical officers and placed in one or other of the conventional groups of the Dunfermline scale[1]—(1) excellent, (2) good, (3) slightly subnormal, (4) bad—and 40.3% were placed in Groups 3 and 4 and therefore regarded as "malnourished." The term malnutrition has been extended, as in this country, to fit this classification. As here used it may include disturbances of metabolism, development, or function, due, for example, to disease or psychological maladjustment, beside those due to defects in the food. To find out how much of this "malnutrition" is caused by dietetic deficiency and to assess the value of methods used for detecting malnutrition, an intensive survey was made of 1,345 children, aged 8 to 16 years, in the Cape Peninsula. The results are discussed[2] by Prof. Brock, who directed the survey, and Dr. Latsky, nutrition officer of the Nutrition Section of the Department of Public Health. Children with evidence of active disease were excluded. The remainder were divided on the basis of the clinical examination into normally nourished (Groups 1 and 2 on the Dunfermline scale) and malnourished (Groups 3 and 4); but the results of other tests were given some consideration, especially when there was doubt about a child's group. The proportion of children classified as malnourished was 48.6% among Cape coloured children, 31.8% among children in schools in a native location, and from 17 to 65% in four European schools. The proportion was considerably higher in a school attended by poorer-class Europeans than among the coloured children. The relatively small proportion among the children of the native reserve, whose staple diet was mealie meal, was remarkable.

The results of seven other tests were considered in relation to this division. The mean haemoglobin concentration was 14.53 g. per 100 ml. in the normal and 13.77 g. in the malnourished groups. However, since haemoglobin varies with age and with sex above the age of 13, the significance of this difference cannot be appraised without a knowledge of the age and sex distribution in the two groups. Skiagrams were taken of the wrists of each child under standard conditions, and 420 (210 from each group of the same mean age) were compared. The average skeletal age of the normal group was 12.65 years; that of the malnourished group, 11.76 years. The method was, however, not very accurate; it was difficult to decide into which 6-month group an *x*-ray observation should be placed. No correlation was found between the urinary excretion of calcium, tested by the method of Sulkowitch, and the concentration of calcium and phosphatase in plasma; nor was plasma calcium below 9 mg. per 100 ml. or phosphatase over 12 Bodansky units higher in the malnourished than in the normal group. The average number of carious teeth per individual was remarkably small—0.7 in the malnourished and 0.5 in the normal group; the difference was not statistically significant. After a great deal of work it was decided that results obtained with the Birch-Hirschfeld biophotometer were so variable and subject to so much error that they could not be relied on as evidence of vitamin-A deficiency. No Bitot's spots or keratomalacia were detected; in a substantial number of children, especially among the coloured, dryness and roughness of the skin, particularly of the extensor surfaces of the upper arm—possible evidence of vitamin-A deficiency—were detected. The results of an ascorbic acid saturation test and the somatometric measurements were considered separately. The saturation test used was that of Wright *et al.*,[3] in which 14 mg. per kg. of body weight are injected intravenously and the urine is collected during the next five hours. Wright took the excretion of 40% of the dose in five hours as the lower level of normality. This test was done on 380 children. Baumann and Brock[4] consider that children who excrete between 36 and 39% of the dose cannot be regarded as suffering from vitamin-C deficiency to any important extent. Forty-three children excreted less than 40% of the dose, 24 between 36 and 39%, and 19 less than 36%. Latsky[5] discussed the A.C.H. and Tuxford indices in nutritional assessment. He concluded that by the aid of neither A.C.H. nor Tuxford indices was it possible to discriminate between malnourished and diseased children; a high proportion of children (12.5% by A.C.H. and 40.5% by Tuxford) who were normal according to the clinical examination were subnormal according to these tests. Of the whole number on whom the measurements were made 15.6% were subnormal according to the A.C.H. and 55.5% by the Tuxford index.

Another survey[6] was made of 7,000 Bantu children in three urban and six rural districts, using clinical examination and somatometric measurements, supplemented by estimations of haemoglobin and examination of urine and faeces for parasites. The proportion who showed evidence of disease and/or malnutrition in these nine districts ranged from 43 to 90%. The incidence of evidence of food deficiency among boys and girls was: well-defined phrynoderma, B. 12.7, G. 8.0%; pellagra-like dermatitis, B. and G. 1.8%; stomatitis (including angular stomatitis—most often dry, cracked, and frequently red, raw lips), B. 18.4, G. 9.6%; glossitis, B. 6.75, G. 3.8%; soft spongy gums, B. 3.2, G. 1.6%. The higher incidence of deficiency disease among boys may be due to the fact that the girls ate far more vegetables than the boys did.[7] (During the siege of Madrid glossitis was much commoner among females.[8]) Approximately 1 child in 5 had grossly carious teeth. The mean haemoglobin concentrations were: boys 12.2, girls 12.1 g. per 100 ml. A survey[9] was made among Europeans in rural areas with the object of discovering some of the causes of the widespread malnutrition in these areas. The farmers appear to depend too much upon bought foodstuffs and to consume too little of the dairy products and vegetables they might produce themselves. Socio-economic surveys in Cape Peninsula and in Witwatersrand show the familiar relation between malnutrition, poverty, and the number of children in a family, and the lower consumption of milk and fruit by malnourished children.

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[1] *Guiding Principles for Studies on Nutrition of Populations*, L.O.N. Publ., 1939, Geneva.

[2] *S. Afr. med. J.*, 1942, **16**, 255.

[3] *Arch. intern. Med.*, 1937, **60**, 264.

[4] *S. Afr. J. med. Sci.*, 1942, **7**, 212.

[5] Ibid., p. 217.

[6] *S. Afr. med. J.*, 1944, **18**, 100.

[7] Ibid. p. 135.

[8] *Rev. clin. españ.*, 1940, **1**, 323.

These investigations bring out the need to devise and standardize methods of assessing nutritional state. The proportion of children placed in Groups 3 and 4 even in the schools attended by the well-to-do was much higher than the proportion put in the corresponding groups in England and Wales; while it appears from surveys of food consumption that the diet of Europeans in South Africa does not compare unfavourably with British diets, and the death rates of infants and young children and the tuberculosis death rate are not those of a grossly undernourished people. However, standards differ widely. It is doubtful whether the results obtained by different observers, by methods which do not measure some feature in terms of precise units and give the results in figures, can ever be made comparable. Even methods that give results in figures are liable to error. It is fortunate that the Sicca method of estimating haemoglobin was used, since such Sicca apparatus as have been tested have proved to be accurately calibrated. But in comparing the results with those obtained in Britain by the Haldane method it must be remembered that 100% Sicca is 13.8 g. of haemoglobin per 100 ml., while 100% Haldane turns out to be 14.7 or 14.8 g.[10 11] It would be better if individual somatometric measurements were published, even if the author chooses to jumble them up in some index. The vitamin-C test employed is not a saturation test in the sense in which the expression is commonly used; it is unlikely that the results will be comparable with those of the tests in more general use.

The interest in nutrition roused by the results of the 1938 survey led to the establishment of a National Nutrition Council in the Union of South Africa,[9] under the aegis of the Department of Public Health. A great deal of research has been carried out into these methods of assessment. Such studies should not, however, be made in each country separately. It is essential that methods should be so standardized that the results will have the same meaning in any country. Valuable work along these lines has already been done by the League of Nations. Such standardization is needed now more than ever, since the privations of the war will stimulate nutrition surveys throughout the world. The Advisory Committee on Nutrition Surveys of the English Group of the Nutrition Society has, during the last six months, set up a standing committee, which includes scientists of 10 nations and has Prof. Fridericia as chairman, to consider and advise on this problem.

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[9] *First Report on the Activities of the National Nutrition Council*, V.G., No. 13, 1944, Dept. of Public Health, Pretoria.
[10] *British Medical Journal*, 1944, 1, 248.
[11] Ibid., p. 251.

PATHOGENESIS OF CEREBRAL MALARIA

Infection of man with the malignant tertian malaria parasite, *P. falciparum*, is liable to result in a bewildering variety of clinical manifestations, of which one of the most important is cerebral malaria. The usual explanation of this grave complication is that the red cells parasitized by *P. falciparum* tend to adhere to one another and to the blood-vessel walls, and that thrombi composed of infected erythrocytes form in, obstruct, and distend small cerebral vessels. These red-cell plugs damage the contiguous endothelial lining, and blood from the damaged vessels causes the small haemorrhages to be seen post mortem, particularly in the white matter. Occlusion of the vessels cuts off the supply of blood to the areas involved and causes the mental and neurological changes indicative of the disease. This view of pathogenesis has been criticized as not wholly accounting for the development of the condition. Viswanathan[1] and Rigdon,[2] for example, put forward other hypotheses. The former reports 44 cases of cerebral malaria among 996 cases of malignant tertian infection. Of these 44, 8 patients died and were examined post mortem. Viswanathan asks why some only of a comparable series of healthy men suffering from subtertian malaria develop cerebral malaria, and why of these only some die, even while on prompt treatment, and others recover. In those who died, moreover, he found that death occurred even after treatment had been adequate to clear the peripheral blood and the cerebral capillaries of parasites. In histological studies of the fatal cases he found pigment but rarely parasites in the cerebral vessels. As a result of his investigation Viswanathan concludes that the primary lesion in cerebral malaria is damage by a malaria toxin to the capillary endothelial wall, and that thrombus formation occurs secondary to this, with accumulation of red cells and pigment, the presence of actual parasites in the plug being immaterial. In support of this thesis he cites five cases in which the cerebral attacks actually started in the absence of parasites from the peripheral blood, and in three of these which ended fatally no parasites were to be found in the cerebral capillaries.

From a wide survey of the literature on cerebral malaria in both man and experimental animals Rigdon arrives at different conclusions. He also is not satisfied that changes in the brain result from the formation of either parasitic emboli or thrombi, nor does he believe they are caused by the presence of malaria pigment in the capillaries. He points out that malaria toxin has never been produced *in vitro* or demonstrated *in vivo*, so he doubts whether a hypothetical toxin should be blamed for the cerebral lesions. Rigdon is more impressed by the degenerative processes seen in the brain cells, and by the absence of any excess of fibrin-like substances in the peripheral blood or in the cerebral capillaries of patients dying of cerebral malaria. He considers the degenerative changes in the walls of these small vessels to be the result of anoxia rather than of other pathological processes hitherto described. As a result of anoxia the permeability of the capillaries increases and blood leaks into the brain. Red cells also escape from the injured walls of the affected capillaries, so causing the appearance of capillary haemorrhage characteristic of cerebral malaria. Rigdon also blames the anoxia for focal degenerative changes in the myelin and in individual nerve cells throughout the brain. Comparable changes occur elsewhere in the body, particularly in the cardiovascular system, so progressively intensifying the cerebral anoxia until death results.

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[1] *Indian med. Gaz.*, 1944, 79, 455.
[2] *Southern med. J.*, 1944, 37, 687.

Neither of these alternative explanations of the cause of cerebral malaria can yet be accepted as being less open to criticism than the usual one. In the meanwhile it is generally agreed that the successful treatment of cerebral malaria depends on prompt and vigorous parenteral treatment of the parasitic infection with quinine or with mepacrine, and the intravenous administration of salt and fluid in the form of hypertonic glucose saline solutions.

DETECTION OF NICOTINIC ACID DEFICIENCY

Laboratory estimations of vitamin B_1, riboflavin, and vitamin C in body fluids, such as blood and urine, have proved a tolerably good guide to the level of these vitamins in the human subject. This is not the case with nicotinic acid, which is not excreted entirely unchanged but is partly converted into derivatives such as nicotinamide, coenzymes I and II (di- and tri-phosphopyridine nucleotides), and nicotinamide methochloride or a related substance. It was formerly supposed that nicotinic acid was excreted partly as trigonelline, but this is now disputed by Coulson, Ellinger, and Holden,[1] who believe that most of the so-called trigonelline is really nicotinamide methochloride. A few years ago attempts were made to diagnose nicotinic acid deficiency by estimating the urinary excretion of nicotinic acid or its derivatives, such as coenzymes I and II, in the blood. Experience has shown that such estimations are of little value for the laboratory diagnosis of disturbed nicotinic acid metabolism. Thus Spies and his co-workers[2] noted a wide variation in the nicotinic acid content of urine both in the same individual and from person to person; even in pellagrins the nicotinic acid excretion is stated not to differ significantly from normal.[3]

Najjar and his co-workers[4] claim to have devised a specific chemical reaction whereby nicotinic acid deficiency can be quantitatively measured. By the adsorption of urine on zeolite and treatment of the eluate with alkali and butanol they have obtained a fluorescent pigment called "F_2," which can be estimated fluorimetrically. The amount of F_2 excreted is stated to increase after the ingestion of nicotinic acid and several related compounds, and to be often absent from the urine of pellagrins. Further work by Huff and Pelzweig[5] suggested that F_2 was nicotinamide methochloride, but Ellinger and Coulson[6] showed later that nicotinamide methochloride is not fluorescent in aqueous solution. F_2 is probably derived from nicotinamide methochloride by the action of alkali, and according to Ellinger and Coulson is a mixture of the *o*- and *p*-carbinol of N-methyl-dihydronicotinamide. Najjar, White, and Scott[7] have recently isolated F_2 in crystalline form from urine and studied its properties. According to them it is derived from N-methyl nicotinamide-carbinol and is probably the butyl ether of this compound.

In his latest paper Najjar[8] proposes a test for the detection of nicotinic acid deficiency based on the measurement of N-methyl nicotinamide chloride in the urine instead of the fluorometric measurement of F_2. As N-methyl nicotinamide chloride can be conveniently prepared in the laboratory Najjar uses it as the standard of reference, the urinary output of N-methyl nicotinamide being expressed in terms of N-methyl nicotinamide chloride rather than in arbitrary fluorescent units of F_2, as done formerly. Najjar gives an oral test dose of 100 mg. of nicotinic acid, and estimates the urinary excretion of N-methyl nicotinamide during the following four hours. He considers an excretion of less than 2.1 grammes of the compound in this period to indicate nicotinic acid deficiency. Coulson, Ellinger, and Smart[9] have also used the assay of nicotinamide methochloride in urine as an index of nicotinic acid nutrition in R.A.F. personnel. The nicotinamide methochloride of Coulson, Ellinger, and Smart appears to be identical with the N-methyl nicotinamide of Najjar. This method needs further investigation before it can be accepted. Thus, Ellinger and Coulson[10] have shown that the excretion of N-methyl nicotinamide depends on a number of factors, including not only the intake of nicotinic acid and its derivatives but also exercise, food, the presence of methyl donators in the tissues, and the efficiency of the methylating mechanism of the body. Sargent, Robinson, and Johnson[11] consider that as a rule the level of F_2 in the urine runs parallel with the nicotinic acid intake, though they have observed well-nourished persons who excrete no F_2, and an excessively high excretion of F_2 during starvation. They also record that some subjects fail to show a larger excretion of F_2 after test doses of nicotinic acid. Mickelson[12] studied two groups of young men on daily intakes of 10 mg. and 20 mg. of nicotinic acid respectively for nearly six months, and failed to observe any significant difference in the F_2 excretion in the two groups. Furthermore there was no difference in the F_2 excretion in the two groups after a test dose of nicotinic acid.

It is clear that we still have no simple laboratory method for estimating the level of nicotinic acid nutrition in man.

CLEARING THE THROAT

Sulphonamide snuffs, first employed by Delafield, Straker, and Topley,[13] are of undoubted value in the treatment of nasal carrier states. The throat carrier presents a more difficult problem: the organisms are more deeply situated when the tonsil is involved, and the frequent swallowing of secretion prevents the long-continued action which can be secured by applying a powder to the nasal mucosa. All that we know about the sulphonamide effect on bacteria points to the necessity for continuous and prolonged action, and the throat is one of the most unpromising areas in the whole body for securing this. Nevertheless, attempts have been made to eradicate haemolytic streptococci from the throat, or at least to prevent their access to it, by the use of sulphonamide lozenges, and opinion on the efficacy of this proceeding has been divided. The sceptics will find strong support for their attitude in the observations reported by Vollum and Wilson in the opening paper of this issue. Opportunities for a controlled trial of the method were presented by outbreaks of haemolytic streptococcal infection involving a large proportion of the population of two schools. All the carriers having been identified, some of them were given lozenges containing sulphapyridine and sulphathiazole to suck, while the remainder were treated in other ways or not at all. The treatment was continued for from 5 to 7 days in two series with 6 and in one with 12 lozenges daily, containing 1/2 grain of each drug. Not only was there no effect on existing carriers, but 7 boys out of 24 so treated in order to prevent their acquiring the infection became carriers during the period of treatment. Although the total numbers concerned are not large, this study was so carefully controlled in every way that its conclusions must be accepted. Sulphonamide lozenge therapy, at least with these drugs in the doses used, is evidently useless. The dose given was presumably too small to produce a systemic effect, and a distinction should perhaps be drawn between this proceeding and the administration in ordinary tablet form of 1 gramme or more daily for prophylactic purposes. Much evidence has now accumulated that this serves to prevent relapses in rheumatic fever, and recent observations on a very large scale in American naval personnel support the conclusion that doses of this order afford some protection against acute infections. It is perhaps easier to curb the more violent activities of the haemolytic streptococcus than to prevent it altogether from establishing itself in the throat. A similar study to that now described by Vollum and Wilson, but conducted with penicillin pastilles as recommended by MacGregor and Long,[14] would be of great interest. Penicillin is a far more potent agent than sulphonamides; indeed, according to recent observations by the same authors,[15] it exerts an astonishingly rapid bactericidal action in the mouth. They obtained some evidence that penicillin pastille treatment will alleviate acute streptococcal throat infection and eliminate the organism itself, although in chronic tonsillar carriers it reappears after treatment has stopped. How far the use of these pastilles will succeed where sulphonamide lozenges have failed remains to be discovered.

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[1] *Biochem. J.*, 1944, **38**, 150.

[2] *J. Amer. med. Ass.*, 1938, **111**, 584.

[3] *Proc. Soc. exp. Biol.*, N.Y., 1941, **36**, 374.

[4] Ibid., 1940, **44**, 386; 1941, **48**, 413; *Science*, **1941**, **93**, 20; *J. clin. Invest.*, 1942, **21**, 263.

[5] *Science*, 1943, **97**, 538; *J. biol. Chem.*, 1943, **150**, 395.

[6] *Nature*, 1943, **152**, 383; *Biochem. J.*, 1944, **38**, 265.

[7] *Johns Hopk. Hosp. Bull.*, 1944, **74**, 378.

[8] *Johns Hopk. Hosp. Bull.*, 1944, **74**, 392.

[9] *British Medical Journal*, 1945, **1**, 6.

[10] *Biochem. J.*, 1944, **38**, 265.

[11] *J. clin. Invest.*, 1944, **23**, **714.**

[12] *Fed. Proc.*, 1944, **3**, 61.

[13] *British Medical Journal*, 1941, **1**, 145.

POSTGRADUATE TRAINING FOR SERVICE M.O.s

In September, 1941, the Council of the B.M.A. decided to represent to the Government the need for suitable postgraduate training facilities for medical officers on their return from the Forces. Six months later the Goodenough Committee was appointed to consider, among other matters, arrangements on a national scale for postgraduate medical teaching and research. The committee recommended that the responsibility for postgraduate medical education should rest with the universities having a medical faculty, and that each of them should appoint a special committee for postgraduate medical studies, with a postgraduate dean to organize and supervise the arrangements. These recommendations were sent to the Minister of Health and the Secretary of State for Scotland in October, 1943, in advance of the committee's completed report, and it was then decided to set up at once the administrative machinery proposed by the committee. Since then the nature of the training facilities to be arranged by the universities for various classes of returning Service M.O.s, and the financial aid to be provided from public funds, have been discussed at conferences of university representatives held under the auspices of the Ministry of Health. The broad outlines of the Government's plan have now been published and are reproduced in the *Supplement* (p. 61). In some respects the scheme falls short of what the B.M.A. wanted. In particular a refresher course which may be taken in two weeks cannot be regarded as adequate for the "clinical rehabilitation" of the man recruited from general practice. There will be no dispute about the wisdom of providing opportunities for further hospital experience for the men who joined up within a year of qualification, but whether such men after four or five years' service will be attracted to resident posts carrying an annual salary of £350 is another question. If doctors in this group have acquired family responsibilities, however, salaries may be supplemented by a grant under the Further Education and Training Scheme arranged for ex-Service men and women by the Ministries of Labour and Education, and it is to be hoped that the help available from this source will be given generously. For the man aiming at a career as a consultant or specialist the salary proposed is more satisfactory, though here also some further help, which in this case would have to be provided for a period of years, might be necessary in individual cases. The promise of a post of the registrar type for the prospective specialist will allay the anxiety felt by many medical officers about their prospects of securing appointments of this kind on release. Throughout the discussions the B.M.A. representatives have emphasized the importance, in the public interest, of making the financial provision generous enough to attract the many Service doctors who will need professional re-education before beginning or resuming civilian practice. It is open to question whether this object has been wholly achieved. In other respects the arrangements for providing suitable hospital posts, including specially created posts where necessary, will be welcomed, and should materially help the younger Service doctors to make up for lost time in equipping themselves for the future.

FIJI LEPER SETTLEMENT

The Fiji Government has published a well-illustrated account of the Central Leper Hospital, Makogai, by the experienced medical superintendent, Dr. C. J. Austin. The island is a beautiful one, 2½ by 3 miles in extent, with separate villages for different races, for patients are admitted from the Solomon, Cook, and Gilbert as well as the Fiji Islands. There is a fine hospital with an *x*-ray plant and other buildings. Nursing is supplied by missionary sisters of the Society of Mary and native nurses trained by them to the great advantage of the settlement. Land is available for cultivation by the able-bodied; others are employed in fishing, building, etc., through which the patients earn money and the cost of living is reduced. Sports, concerts, and other amenities are provided, and religious services are conducted by resident or visiting clergy of several denominations. A Leper Trust Board, supported by New Zealand, runs a Christmas Day Fund and a comfort fund. The Fijian patients have increased from 352 in 1919 to 444 in 1943, but it is satisfactory to note that this is due to earlier admissions, for the number of early neural cases has increased from 0 to 27, and the advanced lepromatous ones have fallen from 32 to 0. Half of the hydnocarpus oil used in treatment is supplied by 1,000 trees planted in 1928. During the last ten years an average of 40 patients have been discharged yearly with only 10% of relapse, including those for trophic lesions in crippled nerve cases. The compulsory isolation system is believed to be a success.

Dr. H. Guy Dain, Chairman of Council of the B.M.A., has been elected a Fellow of the Royal College of Surgeons of England.

We are asked by the Central Medical War Committee to draw the attention of readers to an advertisement in our advertising columns this week for five general practitioners, one surgeon, and one pathologist for service with a large commercial company operating in the Middle East. The filling of these posts is an important and urgent matter, and the Central Medical War Committee will most carefully consider the possibility of any selected applicants within its jurisdiction being allowed to accept them.

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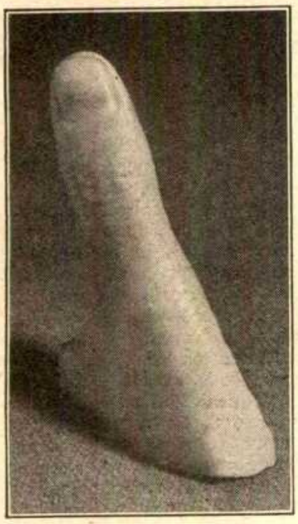
[14] *British Medical Journal*, 1944, 2, 686.
[15] *Nature*, 1945, 155, 201.

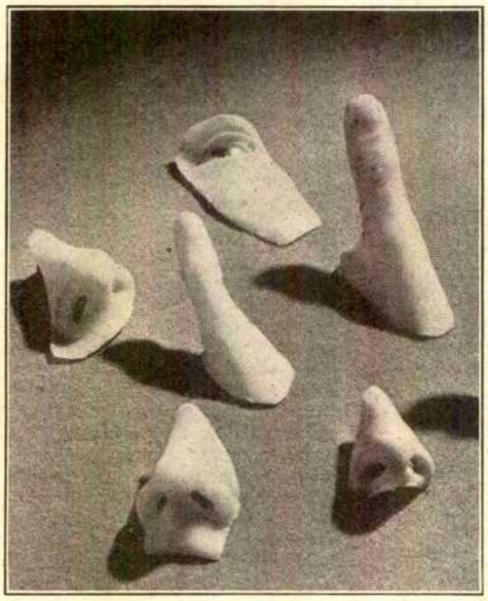
POLYVINYL CHLORIDE FOR PROSTHESES

[FROM A CORRESPONDENT]

Polyvinyl chloride (P.V.C.) compounds have had many and interesting applications during the war, notably for the sheathing and insulation of cables and for the proofing of fabrics. They are used also in the preparation of surgical prostheses, such, for example, as noses, ears, and fingers. War causes a large number of disfiguring injuries which severely tax both the skill of the plastic surgeon and the endurance of the patient. Treatment of such injuries generally involves a long series of operations and continual nursing care, during the course of which the patient's ability to co-operate may be impaired by the realization that he appears frighteningly disfigured. In addition to loss of tissue due to burns and injury, there is often a further loss by disease which it is generally impracticable to remedy by reconstructive surgery and which necessitates some form of false features or prosthesis.

Prostheses have been made for the plastic surgeon from metal painted to resemble tissue, gelatin-glycerin mixtures, vulcanite, wax, dental acrylic resins, and rubber latex. Of the hard materials, dental acrylic resins such as "kallodent," if prepared with skill, give the best result in cases for which a hard restoration is suitable, while rubber latex provides a good but much less permanent restoration. These prostheses may be attached to the face with adhesives or may be fitted to the frame of a pair of spectacles. Naturally, when the attachment is to the skin by an adhesive, the weight of the restoration must be small. Imperfections in fitting of the appliance and matching are generally corrected by cosmetic creams and powders, and the fatty basis of the cream may have a destructive effect on the fine edge of the rubber latex restoration. There is also a tendency for rubber prostheses to darken on ageing.





In view of the inertness and flexibility of plasticized polyvinyl chloride compositions, it was thought that they should be suitable for making prostheses. A considerable amount of work has therefore been done on the material by Imperial Chemical Industries, and is briefly recorded here with the aim of assisting those who wish to pursue the investigation.

It is well known that polyvinyl chloride swells in the presence of plasticizers such as tricresyl phosphate, dibutyl phthalate, or dihexyl phthalate, and may be dissolved at raised temperatures to form flexible rubber-like products. The physical properties of the resultant materials depend on the proportions and on the type of plasticizer used. The completely "gelled" plasticized compositions are thermoplastic and can be moulded by compression or injection methods. Polyvinyl chloride–plasticizer mixtures can also be prepared in the form of pastes, varying in consistency from thick cream to putty. These pastes can be transformed by heat to flexible rubber-like products and shaped during the process by a simple moulding operation. It was considered that this technique would be particularly suitable for making prostheses which are often complex in form and of varying thickness. It was realized, however, that care would have to be taken in choosing the most suitable ingredients for the composition for use in contact with the human skin. Tricresyl phosphate is very often employed as the plasticizer in polyvinyl chloride pastes, but for this application it was decided to use only phthalate esters as plasticizers—e.g., dibutyl phthalate and dihexyl phthalate. Again, lead salts are commonly used as heat stabilizers in polyvinyl chloride compositions, but were replaced by calcium stearate, a less toxic though less efficient heat stabilizer.

The following problems were investigated: (1) Development of a composition suitable for the production of an adequately flexible restoration, and having a reasonable shelf life. (2) Development of the best gelation technique—i.e., the optimum temperature that will give a restoration of the maximum strength. Thin edges may be needed for attaching the prostheses to the skin; they are not strong enough unless a relatively high temperature of gelation is employed. (3) Finding of a pleasing "base" colour. (4) Development of techniques to secure accurate fitting.

The use of dibutyl phthalate instead of the more usual tricresyl phosphate as the plasticizer introduced difficulties in obtaining a paste with an adequate shelf life, and it was finally decided that, for the time being, the paste should be made from the polymer and the plasticizer immediately before use. Polyvinyl chloride compositions are more flexible when plasticized with dibutyl phthalate than with an equal amount of tricresyl phosphate.

A temperature of gelation of 140° C. gave satisfactory restorations, but difficulties arose from discoloration of the composition, particularly because of the omission of a lead salt stabilizer. A wide range of satisfactory pigments has not yet been developed, but good results were obtained in a "natural" pink shade by the use of cadmium red with a white pigment. Titanium dioxide was used at first for this white pigment, but zinc oxide gave better colour stability.

The method of making a restoration—e.g., a nose—is as follows:

The nose is made in wax or "plasticine," modelled either to the patient's face or to a plaster mask of the face secured by a moulage method. The wax or "plasticine" is then invested in one half of a large dental flask in plaster-of-Paris. When the plaster has set the "plasticine" is removed and new hot wax poured into the cavity to replace it to a uniform thickness all round the mould, thickening where this is necessary—for example, at the tip of the nose—but realizing that the thicker the wax the heavier the final restoration will be. Plaster-of-Paris is then poured in and the reverse half of the flask filled with plaster and closed. When this investment has set entirely, the flask is placed in boiling water until all the wax is removed. The flask and plaster investment are then thoroughly dried out in an oven to ensure that the necessary temperature of gelation will be attained. When quite dry the mould is removed from the oven and allowed to cool to a temperature of about 50° C.

Pigmented polyvinyl chloride powder is stirred with dibutyl phthalate in a mortar until a smooth paste is obtained. Equal parts by weight of the plasticizer and polyvinyl chloride are convenient proportions, but the result may be made more flexible or less flexible as desired by increasing or reducing the amount of plasticizer. Ability to form pastes depends on the type of polyvinyl chloride, and specially prepared "corvic" polymer was used in these experiments. The mould is then filled with the polyvinyl chloride paste, possibly tinted in addition to match more closely the skin adjacent to the particular restoration. The flask is secured, replaced in the oven, and left for one hour at 140° C. After gelation the flask is taken from the oven and allowed to cool, when the restoration is removed and trimmed. The prosthesis may be fixed by means of adhesives such as gum tragacanth or spirit gum, or by conventional methods involving attachment to spectacles. Metal moulds give a better surface to the prosthesis, but such moulds are less easy to prepare than those of plaster. Additional paints to help in matching the prosthesis to adjacent tissue have been developed by I.C.I.

The illustrations show some examples of the type of work made with polyvinyl chloride pastes, and the simplicity of these methods suggests many applications.

GUESTS FROM LIBERATED EUROPE

Many professional and other people in the liberated countries are keenly anxious to renew contact with their colleagues in Britain, and arrangements were made for visits by representatives of French doctors, the Belgian universities, and French school-children. A French medical delegation of 10 has been here from April 7 to 17 as guests of the British Council, in conjunction with the Royal College of Physicians, and were entertained at functions by other organizations, including the Royal Society of Medicine. The delegation saw hospitals in London and elsewhere, and visited Oxford and Cambridge. The members were:—Académie de Médecine: Prof. Baudouin, Dean of the Faculty of Medicine, Paris, Prof. A. Lemierre, and Dr. P. F. Armand-Delille; Conseil Supérieur de Médecine: Dr. Ravina, Dr. A. Laporte, and Dr. H. Descomps; Provinces: Prof. C. Soula (Toulouse), Prof. Gernez-Rieux (Lille), Prof. Roche (Marseilles), and Dr. Nedelec (Angers).

The first of four groups of Belgian professors representative of all Belgian universities are here from April 16 to 30. The other groups will follow at intervals between May and July. The members of the first group are: Prof. V. Bohet, Professor of English, Liége; Prof. N. Goormachtigh, Faculty of Medicine, Ghent; Prof. P. Govaerts, Faculty of Medicine, Brussels; Prof. M. F. L. Hemptinne and Prof. C. J. Jungers, Faculty of Science, Louvain.

The French school-children, six boys and six girls, came at the invitation of the Lord Mayor of Birmingham and the city's schools and with the assistance of the British Council.

Prof. L. P. Garrod lectured in Paris under the auspices of the British Council, and published an account of his impressions in last week's *Journal*.

BRITISH COUNCIL FOR REHABILITATION

The establishment of a British Council for Rehabilitation, under the chairmanship of Lord Rushcliffe, is a further indication of the place now rightly accorded in our national life and thought to the problem of the health and resettlement of injured and disabled persons, one which was recognized by the Government last year when it passed the Disabled Persons (Employment) Act. Among the objects of the council are: (*a*) To act as a central co-ordinating body for the various interests concerned in the widest aspects of rehabilitation. (*b*) To promote and correlate courses of study. (*c*) To invite the active co-operation of Government Departments, hospitals, universities, training colleges, educational institutions, and research foundations in promoting the study and practice of rehabilitation. (*d*) To secure the active co-operation and participation of commerce, industry, and professional bodies in the problems of resettlement. (*e*) To encourage the formation of follow-up schemes for the rehabilitated. (*f*) To consider, promote, or oppose legislation which may affect the interests of the disabled and to make such representations as may be desirable.

The council will comprise two representatives from each of the member organizations, a number of elected members, with such others as the council may from time to time appoint provided the total of elected members does not exceed half the number of representatives; and two delegate members from each regional council that may be set up.

The member organizations are: Association of Industrial Medical Officers (Drs. N. T. Glynn and C. L. Potts), Association of Occupational Therapists, Board of Registration of Medical Auxiliaries, British Federation of Social Workers, British Hospitals Association, British Legion, British Medical Association (Mr. A. M. A. Moore and Dr. J. A. L. Vaughan Jones), British Orthopaedic Association (Mr. W. Gissane and Air Commodore H. O. Clarke), Central Bureau for Insurance Nursing Ltd., Central Council for the Care of Cripples, Charity Organization Society, Chartered Society of Physiotherapy, Hospital Almoners' Association, Industrial Orthopaedic Society (Sir Ambrose Woodall and Mr. Percy F. Pollard), Industrial Welfare Society, Institute of Labour Management, Miners' Welfare Commission (Mr. E. A. Nicoll), National Association for the Prevention of Tuberculosis, National Council of Social Service, National Institute for the Blind, National Institute for the Deaf, National Institute of Industrial Psychology (Dr. S. L. Simpson), Research Board for Correlation of Medical Science and Physical Education, Roffey Park Rehabilitation Centre (Dr. Ling), Royal College of Nursing, Royal Faculty of Physicians and Surgeons of Glasgow (Dr. G. H. H. Stevenson), St. Dunstan's, Scottish Orthopaedic Council (Mr. Alexander Miller), Society of Medical Officers of Health (Dr. James Ferguson), Spero Fund for the Industrial Welfare of Tuberculous Persons, Trade Union Congress.

The elected members include Dame Georgina Buller, Mr. N. St. J. Buxton, Mr. Norman Capener, Dr. F. S. Cooksey, Mr. E. S. Evans, Mr. H. E. Griffiths, Mr. S. L. Higgs, Dr. H. Joules, Dr. R. L. Kelham, Prof. J. M. Mackintosh, Mr. S. A. S. Malkin, Mr. Donald C. Norris, Dr. J. D. Robertson, and Mr. R. W. Watson-Jones.

Funds are needed if the council is to be a success and to do all that has to be done for the injured themselves and for their resettlement in productive activities. Donations should be sent to Mr. H. Vezey Strong, at the council's offices, 32 Shaftesbury Avenue, London, W.1.

Reports of Societies

PENICILLIN TREATMENT

At a meeting of the Manchester Medical Society on March 7 Dr. G. S. SMITH opened a discussion on penicillin.

In his introduction he emphasized that the choice of cases and the control of penicillin treatment had to be based largely on bacteriology. He outlined the principles involved and described the methods of giving penicillin and its dosage in systemic and local use. He mentioned that although the continuous intramuscular drip for systemic treatment had its own difficulties it was generally preferred to the interrupted three-hourly dosage in seriously ill patients. A review of the first 100 cases receiving penicillin treatment in the Manchester Municipal Hospitals was summarized as follows:

(1) In 13 cases of osteomyelitis there were good results, but penicillin did not prevent the development of a local abscess in bone or periosteum, which always required surgical treatment. (2) Of 10 patients with septicaemia (eight staphylococcal, one *Streptococcus pyogenes*, and one a non-haemolytic streptococcus) seven recovered after seven days of full systemic treatment and one died from pericarditis. (3) In 15 adults with pneumonia who had failed to respond to sulphonamides or were unsuitable for sulphonamide treatment the general symptoms improved in all cases but two, where the temperature did not fall satisfactorily and they had deep empyemata. Five patients in this group died, four from bacterial endocarditis and one from acute nephritis which was present before the pneumonia started. Seventeen infants and young children, mostly after whooping-cough, had bronchopneumonia; here the bacteriology was uncertain, but penicillin was tried after the failure of sulphonamides and 12 did well, while five died (two within four hours of starting treatment). Prolonged treatment was necessary in these cases, the response being rather slow, and a second course was sometimes needed. (4) Six cases with empyemata, four in children and two in adults, were given penicillin locally to sterilize the pus in the chest, followed by drainage in each case, the results being satisfactory. (5) Nine cases of uterine sepsis, after pregnancy or abortion, that failed to respond to sulphonamides were due to *Streptococcus pyogenes* (five), *Staphylococcus pyogenes* (two), and *Cl. welchii* (two); recovery followed in all but one patient who died before penicillin could have had any effect. (6) Three women and one man with a long history of unsuccessful sulphonamide treatment for gonorrhoea responded well to penicillin. (7) Three patients with cavernous sinus thrombosis, all staphylococcal in origin, recovered after intensive penicillin therapy, though one patient died some months later from staphylococcal arthritis of the hip-joint. (8) Four patients with meningitis had intrathecal penicillin; from one of these a penicillin-sensitive *H. influenzae* was isolated, and this child had lumbar puncture and intrathecal penicillin twice daily for six days. All four recovered. (9) In 20 patients with severe local sepsis, mostly staphylococcal in type, the results were generally good; one patient with a severe anthrax lesion on the face responded well.

Prof. J. MORLEY, after quoting the good results that were being obtained in the Italian campaign, thought that in civilian cases penicillin would be more suitably given by continuous intramuscular drip, thus requiring a trained nurse all the time, and in consequence it could not be satisfactory as a domiciliary treatment. Dr. B. WOLMAN quoted cases treated with penicillin, and Dr. P. GABARRO referred to its value in plastic surgery. Dr. H. J. VOSS mentioned the use of penicillin cream on carbuncles, and said that it was necessary to continue penicillin treatment for a very long time in cases of puerperal fever, white-leg, etc. Mr. F. ROBINSON said it should not be forgotten that the good results obtained in plastic surgery were only in part due to the use of penicillin; they were primarily due to the very careful technique carried out by plastic surgeons who paid close attention to the principles of surgery in dealing with the injuries: removal of dead tissue and dirt, early closure and early skin grafts leading to complete healing by first intention.

Nova et Vetera

SIMON LUDFORD, M.D.

Munk in the *Roll of the Royal College of Physicians* (vol. 1, p. 64) has a good deal to say about Simon Ludford. Apparently he was originally a Franciscan friar and later a London apothecary. The University of Oxford admitted him M.B. in 1554. Not content with this the University, in the following year, admitted a coppersmith, David Laughton by name, also M.B. The College of Physicians looked upon each as "ignorant, unlettered, and incompetent," and reproved the University by letter for its laxity and advised more cautious conduct in the future dispensation of medical degrees. The University seems to have revoked its licences to practise, and the coppersmith appears to have reverted to his original occupation. Ludford was more persevering. In 1560 he was admitted M.D. at Oxford, and in 1563 F.R.C.P. He even rose to the dignity of a Censorship on three occasions. He died in October, 1575. I give an abstract of his will:

> Symon Ludford, Doctour in Phisick, dated 1, July 1575. (P. C. C. Pickering, 38.) Sowle into the handes of all mightie God the father my creator, the Sonne my redeemer and the holie Ghost my comforter . . . in whome onlie . . . I hope to have the fruycon [fruition] of the presence of the deitie with the electe. My bodie in St. Steven in Walbroke where I am now a parishyoner: suche debtes and dueties as I doe owe shalbe trewlie answered and paid. All suche my goodes, chattalls, householde stuffe shalbe parted into three equall and indifferent partes accordinge to the use and custome of the Citie of London, whereof one parte I give to Jane, my loveing wief, the seconde parte unto William Ludforde my sonne, the thirde parte I reserve to myself. I wille that there shalbe made and preached at my buriall to the edeficing of Gods churche one sermon by Mr. Nowell,* Deane of Pawles (if he may be hadd) and I give to him for his pains 20s. To my Companie of Grocers in London that shall goe with my bodie to the murialle £6.13.4 for a recreation amongest them to be hadd. To Jane Martin, the child that now dwelleth with me, £20 when 18. The lease of my great messuage and the houses belonging to the same not to be praised [appraised, or valued] with the rest but my wif to have the use and custodie and there dwell with the use of all the wainscott sethinge and seling† fastened to the same. 40s. to the hospitals of St. Thomas in Southwarke, St. Bartholomew in Smithfeld and to the late erected hospitall called Christs Hospitall. £3 among the poor prisoners of the six prisons, Newgate, Ludgate, the two compters, the Marshallsee and Kings Bench in Southwarke. Servant, James Armeson £4. Maid, Jane Franklin £4. Residue, wife Jane. Friends Edward Skeggs, Poulterer, Robert Frier, citizen and goldsmith, overseers. Signed and sealed 14, october. Proved, 27, october 1575. (4 witnesses.)

I like to think that Ludford surmounted the difficulties of his early medical career and died in the odour of professional sanctity as M.D. The will shows that he was still a member of the Grocers' Company at the time of his death, for he left money for the customary funeral feast. At this date the Society of Apothecaries had not been founded, and those who practised this craft were members of the Grocers' Company. I can't help wondering whether the College of Physicians altogether approved of one of its Fellows being an apothecary member of the Grocers', but there is nothing in Munk to show that it objected.

The tripartite division of the goods of the deceased according to the custom of the City of London is extremely ancient, and goes back to Anglo-Saxon times in England. I owe the transcript of the will to my friend the late Mr. Harvey Bloom.

R. R. J.

The *Scotsman* recorded lately the severance of one of the remaining links with Lord Lister. Mr. Andrew Brown, who has died in his 94th year, was engaged in business as a maker of hospital appliances in Glasgow until he retired in 1939. He made sterilizing apparatus for Lister during his service at Glasgow Royal Infirmary and was personally acquainted with him. Not long ago he presented to the Glasgow Corporation a steam carbolic spray made to Lister's instructions in the earliest days of antiseptic surgery. Andrew Brown became a Burgess of his native city.

Correspondence

Women in Labour

SIR,—I can well believe that nothing other than humanitarian motives has led Dr. John Elam to write the letter on women in labour. Furthermore, I can well imagine that many of the facts contained in his letter are in the main accurate, and it seems certain that in our maternity hospitals full use is not being made of the methods of analgesia now available. That this failure to afford relief to the sufferings of women in labour is due to any "indifference" or callousness on the part of the obstetricians I hasten emphatically to deny.

Surely Dr. Elam must be aware of the difficulties under which institutional midwifery is being conducted at the present time—difficulties which show little sign of any abatement in the near future and which are daily and nightly causes of grave anxiety to those of us who are resident obstetric officers. Owing to the changed social conditions more and more women are compelled to seek admission to hospital for confinement, the population of all industrial areas has steadily increased, and the average age of primigravidae has shown a distinct upward tendency in the last few years. These factors have all tended to increase the work of our maternity hospitals, and the demand for maternity beds is now greater, more pressing, and more insistent than at any time since the outbreak of war.

To add to the difficulties the shortage of nursing staff is notorious and continues to be a "national problem"; this factor alone has of necessity led to a lowering of the standards of institutional midwifery until it is clear that the margin of safety has disappeared, and those of us engaged in the practice of this branch of obstetrics know full well that a sharp rise in maternal mortality is now inevitable.

These matters may or may not be capable of a speedy solution, but if solution there be, it must clearly be on a national basis, and no local effort is likely to achieve success. We working obstetric surgeons are certainly powerless to alter them. For some years our utmost endeavour has been to keep the maternal mortality figures as low as possible and to preserve the lives and health of the women and infants given into our charge. In this critical phase of the country's maternity services, it does seem that to castigate us for failure to relieve pain by the use of gas-and-air analgesia is, to say the least, untimely.

Regarding the technical aspect of the question, I would point out the difficulties encountered either in purchasing new anaesthetic apparatus or in having faulty instruments repaired. Furthermore, as Dr. Elam is well aware, the gas cylinders of various types of machines are of different sizes and therefore not interchangeable. Trilene-and-air anaesthesia is still very much on trial, and recent papers dealing with trilene anaesthesia clearly show that trilene is a substance which possesses many grave disadvantages as an anaesthetic agent. It cannot in the existing state of the law and the rules of the Central Midwives Board be administered by midwives, and an obstetric officer who permitted it to be administered by anyone other than a registered medical practitioner could not hope to escape the legal consequences of an anaesthetic death.

In conclusion may I refer Dr. Elam to a recently published report on "A National Maternity Service," pages 30 and 31, in which it is clearly indicated that the widespread use of analgesia in labour can only be hoped for when in this country we establish in the future a maternity service of the type recommended by the Royal College of Obstetricians and Gynaecologists.—I am, etc.,

WILLIAM J. CLANCY,
Obstetric Officer.

City General Hospital, Sheffield.

SIR,—As one who has had two children in the past two years I should like whole-heartedly to endorse the sentiments expressed in Dr. John Elam's letter. In furtherance of the object of analgesia in childbirth, I suggest that the following be incorporated in the routine of antenatal care:

(1) Instruction in the art of relaxation. I do not think that, as is so often claimed, this mitigates the severity of the individual

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* Alexander Nowell, Dean of St. Paul's. See *Dictionary of National Biography.*

† Sethinge and seling. I cannot explain the meaning of this, but suggest that it may mean tapestry which covered the walls and ceiling. I have never met the words in any other ancient will, but wainscot is referred to occasionally.

pains, but I am convinced that it hastens the dilatation of the cervix. (2) Instruction in the use of gas–air apparatus, stressing the following points: (*a*) The mask to be held close to the face, and the patient to breathe deeply during the pains. (*b*) When the pains are coming frequently and severely (at a point, of course, to be judged by the attendant doctor or midwife) the patient to breathe *normally* into the mask between pains. Thus a certain concentration of nitrous oxide is maintained in the lungs and the maximum is easily reached by deep breathing when each pain starts. (3) Reassurance; tell your patient she won't be allowed to suffer: thus fear, the great inhibitor of uterine action, is removed. In order to carry this out every practitioner should familiarize himself with one method of drug analgesia in obstetrics, such as omnopon, scopolamine, seconal, etc.—I am, etc.,

Woman Doctor.

Trichlorethylene in Midwifery

Sir,—I have read Dr. D. C. Devitt's letter about trichlorethylene (March 24, p. 422) with interest and agreement. After using Marrett's inhaler (with the addition of a handle cum rack for mask) for two years I, too, find it superior to gas–air in labour. One advantage is that if the nurse takes over from the mother and uses full-strength vapour straining is stopped and the head can be extracted with complete concentration on the job.

A field in which, I think, trilene could be extended with advantage in general practice is as an adjuvant to nitrous oxide in dentistry and for young children. I suppose one may sufficiently anaesthetize 98 to 99% of individuals with gas for dental extractions, but, in my hands at any rate, quite a large proportion complain of nausea or vomiting afterwards and are unfit to go home without a considerable rest. By using a small bottle with a wick as supplied with some gas machines and a few drachms of trilene, cyanosis can usually be avoided and a much less upsetting administration secured without the unpleasant attentions of the dentist who may force an ether-soaked swab into the mouth. Children take trilene with gas particularly well. I may instance my own boy, who, after a 20-minute administration for discovery and removal of a needle from the thigh, went into a normal sleep without retching and woke without knowing that anything at all unusual had happened.—I am, etc.,

Birmingham. W. Brian Gough, M.B., D.A.

Unilateral Hypotony during Anaesthesia

Sir,—The article by Drs. Ina and G. J. C. Brittain on unilateral hypotony during anaesthesia (March 31, p. 442) should, I think, be regarded as a warning of what can be done unthinkingly in the cause of healing. It is to me almost unbelievable that anyone should have so little imagination (quite apart from the lack of good technique involved) as to inflict on a patient what is therein related.

"That first fine careless rapture," sometimes to be observed in those feeling the freedom of a recently acquired facility in any specialty, may be noticed even among anaesthetists, and it is sometimes detectable in the manner in which a mask is clamped upon a patient's face and thus left. Harness, by reason of the mechanical thrust involved, tends to impair the airway, and because of its labour-saving properties tempts the unwary to do no more than apply it; the result can be an airway far from perfect, and, apparently, trauma such as has just been reported.

It would therefore seem reasonable to hope that the young anaesthetist will at first eschew the lures of harness and whenever possible learn to procure a good airway by manual manipulation, and, having acquired this facility, continue to use harness only when absolutely necessary (for example, closed circuit); and further that the mask will be chosen and applied and the harness adjusted with care and discretion, with no hesitation to use the hands afterwards as occasion demands.

Mechanization has its uses, but unthinkingly applied is not necessarily progress.—I am, etc.,

London, N.W.11. Stephen Coffin.

Newer Concepts of Breast-feeding

Sir,—Your contributor Dr. M. Witkin (March 31, p. 441) has once more made an attempt to bring new light to the question of breast-feeding which is developed from his previous attempt (*Arch. Pediat.*, 1939). Breast-feeding is a biological and physiological function of the female; the breast is but an appendage of the skin with highly specialized secretive tissues, and while the anatomical structure is discussed the physiological function of the gland is not mentioned. Any dairy farmer will state that in order to obtain good quality and quantity of milk it is essential: (1) to have a gentle sustained force to expel the milk; (2) to empty the gland as quickly as possible; and (3) to strip the gland completely at the end of milking. Here, then, we have a good precept to follow; if, as stated, there is some blockage to one or more of the ducts the obstruction will be overcome by the babe with a mouth specially formed for this work—a physiological method, better than manual expression, which can and does often cause trouble.

The assertion that both breasts should be employed is debatable. The breasts vitally secrete milk as the result of suckling, which increases the blood flow through the gland, the selective cells abstracting sugar, fat, and protein in that order; the chemical stimulus affects both breasts and prepares them for lactation, which is maintained by suckling; the absence of nervous control precludes reflex stimulation of the other breast, but the actual flow at the breast is determined by: (1) suckling (the greatest stimulant *per se* of lactation); (2) rate at which the child takes feed; and (3) stripping.

Feeding, as suggested, on both breasts does not allow either breast to function normally, correctly, and completely. Admitted that in the interval between feeds there is a slow production of a small quantity of milk, it is not until the babe has been at the breast for two minutes that the milk really begins to flow, not because of obstruction to one or more of the lactiferous ducts, but because of stimulation by suckling and the change from the resting to the secreting phase. During the period of suckling the various food substances are abstracted in correct proportion, and the final five minutes are essential for the stimulation of the gustatory juices of the feeder emptying the gland and obviating the necessity for manual expression of the milk. If both breasts are used the meal will not be balanced, but will have a high sugar and fat content with resultant signs of over-feeding and carbohydrate and fat dyspepsia, and neither gland will be stimulated or emptied completely.

It is not to be wondered at that increasing difficulty is being experienced in breast-feeding if both breasts are used. The majority of breasts are physiologically functioning correctly, and the number with pathological changes are exceedingly few, for these respond perfectly well to normal suckling. By all means let there be change for the better as our knowledge increases, but let due regard be paid to physiological processes, of which lactation is one of the simplest and best known, though often least understood. Pay a little attention to the knowledge of those whose livelihood depends on a good supply of milk—namely, the dairy farmer—and finally pity the poor twin who would have to have second feed in the proposed regime.—I am, etc.,

Leeds. R. O. Barber.

Ointment for Burns in Children

Sir,—Our object in sending this communication is to draw attention to a dressing that has been found to be of considerable use in the treatment of burns and superficial septic wounds in children. The ideal criteria for such an ointment are that: (*a*) the ointment should be bacteriostatic; (*b*) it should be an epithelial stimulant; (*c*) it should be analgesic.

Bearing these factors in mind we have evolved an ointment of the following composition: Sulphanilamide 5; urea 20; water-soluble base to 100. After experiment the base found most suitable was one of sodium alginate 10, liquid paraffin 10, water to 100, preserved with phenyl mercuric nitrate 1:600. The advantages claimed are theoretically that: (1) the sulphonamide fraction is enhanced by the destructive action of urea on *p*-aminobenzoic acid, normally present in serum; (2) there is a combined local analgesic and epithelial stimulant effect of the urea; (3) there is an anti-adhesive factor in the base.

In practice it is found that the ointment is inexpensive and does not deteriorate on storage and can be adequately sterilized. Clinically our practice has been to apply a thick layer of the ointment with a gauze dressing to the wound and for dressings to be done on every second or third day. In the cases so far treated epithelization has occurred rapidly, and it has been very noticeable how little pain has been experienced during the changing of the dressings. The ointment is suitable for issue in collapsible tubes for use as an emergency first-aid dressing for first-degree burns and superficial grazes.

We are aware that allantoin in combination with sulphanilamide has been used in similar conditions. The action of allantoin appears to be due to the formation of urea, but we are unable to satisfy ourselves that there is any advantage gained by the use of a more expensive and complex substance.

We should like to acknowledge the help and encouragement received from the honorary surgeons at this hospital.—We are, etc.,

P. D. A. Durham, M.B., B.S., D.C.H.
Alec Rae, M.P.S.

The Hospital for Sick Children, Great Ormond Street.

Haemoglobin Tests for Blood Donors

Sir,—In common with the other large hospitals, a blood bank was started here just before this war broke out. After its inception we were struck by the fact that quite a number of anaemic-looking donors turned up to give blood, and were inclined to connect this with the not too infrequent fainting encountered. Consequently since Dec. 28, 1942, we have regularly carried out haemoglobin estimation (Sahli) on every donor before bleeding, and made it a rule never to take blood if the haemoglobin were under 85%.; or, in exceptional circumstances—e.g., at times of unusually heavy demand for blood—we would temporarily lower the standard to 80%.

Whether as a result of this selection, or for other reasons, we have practically ceased having fainting donors after venesection. We have now collected figures from 3,049 donors, and the tabulated results are as follows:

Hb %	Male		Female	
	Total No.	Percentage	Total No.	Percentage
45–49	1	0·1	3	0·2
50–54	—	—	3	0·2
55–59	—	—	5	0·3
50–64	5	0·4	15	0·85
65–69	7	0·55	27	1·55
70–74	16	1·25	63	3·55
75–79	16	1·25	165	9·3
80–84	96	7·5	518	29·4
85–89	233	18·1	534	30·2
90–94	358	27·9	285	16·15
95–99	277	21·5	114	6·5
100–104	195	15·2	28	1·5
105–109	65	5·0	3	0·2
110 and over	16	1·25	2	0·1
Totals	1,284		1,765	

This shows that a fair proportion of anaemic donors, many of them normal in appearance, may have been bled had we not taken the precaution described above. In fact, the figures show that if we had adhered rigidly to our higher standard of fitness for blood donation we should have had to reject over 25% of our subjects, and even on our lower standard the percentage would have been over 10. In actual practice we rejected approximately 15%.—I am, etc.,

A. M. Nussey, M.D., M.R.C.P.,
Physician.
C. E. M. Ware, M.B., B.S.,
Pathologist.

Selly Oak Hospital.

Sulphadiazine and Measles

Sir,—Some months ago I was called to see a child of 8 years and found her to be in the early stage of measles. The case was as severe as could be. The rash had developed during the preceding twenty-four hours and had in that time reached the confluent type. The child's temperature was 104.6° F., respirations were 30, accompanied by a distressing cough. There were no signs of pneumonia, but widespread rhonchi were present all over the chest. I suspected the probable onset of pneumonia, and as a precautionary measure put her on sulphadiazine. Owing to pressure of work I was unable to visit the case again until two days later, when I found the patient sitting up in bed looking cheerful and well. The rash had practically disappeared. The temperature and respiratory rate were normal and there was no cough. She was, in every sense of the word, convalescent. The course of events within 48 hours impressed me as dramatic.

Shortly afterwards there was an outbreak of measles at the public school under my care, and I decided to use sulphadiazine as a routine procedure in every case. I have now had the opportunity of analysing the results of the 43 cases which occurred during the term at the school. The conclusions I have arrived at are as follows: (1) The febrile stage averaged less than 48 hours. In the majority of the cases the temperature fell to normal within 24 hours. (2) The "illness" of the patient was of similarly very short duration. (3) The rash disappeared far more quickly than usual, as also the catarrhal signs. (4) All the cases were "well" within 2 days. (5) There were no complications.

I should be interested to know whether similar results have been experienced in other epidemics elsewhere, and, more important still, whether the type of measles has in any case been of this exceptionally mild order. Unless this is so, it would seem that the use of sulphadiazine in measles should be a routine procedure. Another very important consideration arises. Since the patient is clinically well and symptom-free within 2 or 3 days can the period of quarantine be considerably reduced proportionately?—I am, etc.,

Oxford. J. Frankland West.

Sulphonamide Therapy in Otitis Media

Sir,—Surely there can be little doubt of the value of sulphonamide therapy in early treatment of otitis media and prevention of mastoid complication. The dangers pointed out by Mr. A. R. Dingley (March 24, p. 422) of using a sulphonamide drug are less than the dangers of not employing one. In my experience in a busy country practice early employment cuts short the whole illness, lessens discharge, and, in very many cases, has saved paracentesis. One case of deafness which I noted was in a patient who was unable to tolerate the drug orally. I have not found deafness resulting from sulphonamide administration, and it has particular value in children.

The chief objection to sulphonamide therapy may be that the ear-nose-and-throat surgeon will intervene less often—acute mastoid infection is becoming much less frequent since the introduction of sulphonamides—and no doubt, with the extended use of penicillin, it is a question whether better results may be obtained.—I am, etc.,

Boreham Street, Sussex. C. Grahame.

Adrenaline in the Treatment of Malaria

Sir,—The use of adrenaline in the treatment of malaria, as advocated by Prof. M. Ascoli, head of the Clinica Medica of Palermo University, is of paramount importance and is rational for the following reasons: (1) It is easily administered intravenously. (2) It is harmless to the host, as it is already present in the body and *is not a foreign substance.* (3) It can be given to ambulant cases, and therefore there is no necessity, with the exception of malignant cases, to hospitalize men found to be suffering from malaria in all its stages. (4) The action on the spleen is immediate and dramatic.

Pioneer work has been done by Prof. Ascoli, but outside Italy little is known of this method of treatment. In Italy itself over two hundred pamphlets have been published by independent observers. Prof. Ascoli based his treatment on three facts: (1) The spleen contains the reserve supply of red blood cells. (2) The spleen is a contractile organ, and by contracting floods the general circulation with red cells whenever there is a call for additional oxygen, as in asphyxia, diminished atmospheric pressure (high altitudes, etc.), emotional states, fatigue, etc. (3) The stimulus is supplied by the medullary hormone of the suprarenal glands.

These facts were ascertained by experiments on dogs carried out by Barcroft and Binet. The contraction of the spleen after intravenous adrenaline is easily felt and takes under two minutes to complete. Relaxation is complete in about four minutes. The congestion of red blood cells in the spleen, where there is little or no plasma to protect them, exposes them to attack by the malaria parasites. These mature, sporulate, mature, sporulate again, without giving any indication at first of their presence, as there is no access of fever until the parasites reach the general circulation in sufficient numbers. If, in the treatment of malaria, the spleen is neglected the obvious result is that anaemia, more or less severe, sets in, while relapses occur every time the spleen, for one reason or another, is made to contract.

Relapses, therefore, after quinine treatment are easy to account for. It simply means that the spleen has been neglected. Relapses frequently occur in men immediately after discharge from hospital, the obvious reason being that they have been kept in bed for a period and drenched with quinine, etc. They have become soft and easily fatigued and they are discharged heavily clothed and carrying more or less heavy equipment. The fatigue produced calls for additional oxygen in the blood stream. The spleen immediately responds and in doing so lets loose a new army of parasites, many of them in the stage of sporulation, with the result that there is a sudden rise of temperature and all the signs and symptoms of a relapse.

It is an established fact that the natural protective power of the blood plasma is able to deal with large numbers of parasites circulating freely in the blood stream. It is claimed by many workers in this field, in addition to Prof. Ascoli, that, if the spleen is emptied daily for, say, thirty days, there is no need for any other form of treatment. Quinine is given only when there is a rise in temperature, and then only in comparatively small doses. However, combined operations, using adrenaline to drive the parasites out into the open and quinine at the same time administered orally, subcutaneously, or intravenously to aid in the destruction of the freed parasites, would appear to be the common-sense method of attack on malaria. Prof. Ascoli is now experimenting with injections of adrenaline three times a day so as to shorten the period of treatment from thirty days to ten or twelve, and is meeting with success. For this, of course, hospitalization is necessary, whereas the daily treatment is being carried out in the out-patient department of the Clinica Medica, Palermo University, where men, women, and children of all ages flock. Babies receive their injections in the jugular vein without any mishap and take the same doses as adults. Pregnant women also take the same doses, and here the use of adrenaline is particularly indicated, as it has no effect on the course of the pregnancy. To bring about the same results with quinine would certainly interrupt the pregnancy. Thirty-six healthy full-time babies were born last year in Palermo—the mothers having been treated with adrenaline intravenously with satisfactory results so far as the malaria was concerned and no harm to the babies.

In malignant or cerebral malaria the results are most striking. The theory is that the foci of malaria parasites in the capillaries of the brain are forced through to the venous circulation by the effect of adrenaline on the arterioles and the consequent general rise in tension and pressure. Several letters appeared in the *British Medical Journal* last year under the heading of "Cerebral Malaria." In each case the observer stated he began treatment *with an immediate injection of adrenaline.* He goes on to describe how he followed this up with intravenous quinine and gives all the credit for the sudden improvement to the quinine, whereas the fact is obvious that the injection of adrenaline gave the "knockout blow" and the quinine merely did the cleaning up.

There is some evidence, too, that a patient treated with adrenaline is immune from subsequent fresh infection, and this opens up a field for investigation and observation. In this connexion it is interesting to note that in 1942 a battalion of Italian infantry stationed in Sicily was moved to Sardinia. Soon after arrival about 80% of the unit went down with malaria. On investigation it transpired that all of the 20% who escaped had had malaria in Sicily and had been treated with adrenaline. It is not possible at this stage to explain this remarkable phenomenon. It may be coincidence, but, on the other hand, I have spoken with individuals who were treated over five years ago and they have had no sign of malaria since, no relapses, and no fresh infection, though they continued to live in a malarious area. The extreme importance of the phenomenon, if proved to be correct, is self-evident. It opens up untold possibilities and may well revolutionize our whole outlook on malaria. It may be that here we have the ideal prophylactic, and the day may come when everyone going to live in the Tropics will undergo a course of preventive treatment.

In conclusion, here is a form of treatment which is at once rational, simple, inexpensive, and safe. It can be carried out in the field and the saving in man-power is real, not only in the emergency of war but afterwards in civil life. If the spleen is thoroughly cleaned there can be no relapses. At the same time the saving in quinine and allied products will be colossal. The same, too, applies to post-war expenditures, as the need for hospitalization would be reduced to a minimum.—I am, etc.,

D. C. MacDonald,
C.M.F. Lieut.-Col., R.A.M.C.

Prophylactic Control of Malaria

Sir,—That "prevention is better than cure" has been well proved by the measures taken in the Australian and American Armies in the South-West Pacific to control malaria. In Burma and India the problem is more difficult, owing to the denser population in malarious areas and the impossibility of removing natives to other islands, as can be done in the Pacific. In the earlier stages of the war, in both theatres, the malaria rate was excessively high, but by the end of 1944 it had fallen in the Pacific to a figure only one-eighth of that on the Burma Front, and this was due to the very high standard of antimalaria discipline which came to be rigidly enforced in the Australian and American Armies, where it was laid down that the prevention of malaria in the field is not a function of the Medical Services but of the Command.

The general level of antimalaria discipline in our Burma operational areas is, however, lower than that of the Pacific Armies. A good example of the benefits obtainable by unremitting attention to detail was given by the O.C. of an Australian battalion, who showed that this discipline could be maintained even when his troops were in contact with the enemy, and he was able to reduce his unit's malaria rate to only a fraction of that of other units. This convinced the Australian military authorities of the practicability of reducing malaria in the field. After investigations carried on in the Assam–Burma area a series of experiments in two Australian research centres proved that malaria can be effectively suppressed by the administration of mepacrine. By this method all cases of malignant tertian are cured provided the drug is taken continuously for a month after leaving the malarious area, but benign tertian, with its greater tendency to relapse, requires a longer period for complete cure. A wide series of cases based on these findings showed 100% of recoveries. This improved malaria control is a distinct step in advance of the last great war, where large numbers of soldiers had to be temporarily invalided on "return trips," which became very popular.

It has been shown that mepacrine (atebrin) can be taken daily for an indefinite time, rendering the blood plasmodium-negative to mosquitoes. Other measures are also necessary. In anopheles-infected areas the orders are that gaiters must be worn, sleeves pulled down, and mosquito lotion applied to exposed parts of the skin. At night mosquito nets must be tucked under the mattress or weighted down. D.D.T. is being found to be the most effective insect-killing agent, and big quantities of it are being shipped to India.

In view of the large numbers of malaria-infected men arriving in Great Britain coming under the care of medical men many of whom have never been abroad, the question arises as to how the Indian and Pacific experiences in combating malaria can be best put into effect here. The usual methods of diagnosis by blood examination and treatment of an attack are well known, but the subject of periodic relapses and the eradication of gametocytes would appear to need further attention. Army Orders of February, 1944, prescribed a course of fourteen days, on the first two of which quinine is given, then five days of mepacrine, and two days without any antimalaria drug, followed by five days of pamaquin. Sufficient trial of the research work done in India and Australia has shown that the simpler procedure of placing sole reliance on mepacrine to prevent relapses is effective provided it is regularly administered, and the therapeutic discipline for this is the responsibility of the doctor at home. In the field on active service that same responsibility becomes the concern of the military authorities, who if they show any laxity are soon discovered by a rise in the malaria rate of the men in their command. Mepacrine, one tablet a day, can be taken for indefinite periods with no ill result.

Malignant tertian (otherwise subtertian malaria in our present faulty nomenclature), because of the rapid multiplication of plasmodia in the red blood corpuscles, can produce a dangerous infection requiring special treatment, whereas the benign forms can usually be brought under control in three days, but are more subject to relapse. But these relapses never occur if attention is paid to the details of prophylaxis. A summation of the present position is that although malignant tertian can be prevented and cured by mepacrine, benign tertian is prone to recur when the suppressive mepacrine is stopped.—I am, etc.,

G. D. G.

Hereditary Haemorrhagic Telangiectasis

Sir,—In his excellent account of a case of telangiectasia of the Osler type Dr. D. Cappon (March 31, p. 440) mentions that the patient has had a few of the red spots on the ends of her fingers, but does not state whether any were to be seen through the finger-nails. So far as I know, telangiectases (punctiform or small streaks) under the finger-nails are pathognomonic for telangiectasia of the Osler type, whether any familial history can be elicited or not. Anyhow, the diagnosis of telangiectasia of the Osler type can (though rarely) be made in the absence of any family history. In such cases either the information about the family history must be defective or else the patient must be regarded as the first in the family to manifest the condition (a gene mutation). Not long ago, for instance, a patient of this class was shown at the Royal Society of Medicine with typical telangiectases, some beneath the finger-nails, but with no family history of any similar condition.—I am, etc.,

London, W.1. F. Parkes Weber.

Neurological Symptoms in Infective Hepatitis

Sir,—In view of the attention being paid to neurological symptoms in cases of infective hepatitis, the following case may be of interest.

A female patient after two months in hospital developed polyneuritis. The peripheral paralysis spread upwards, and threatened the respiratory muscles. The specialist's report was: "Vomiting, illness, paralysis. Toxic hepatitis and polyneuritis (virus infection). Slight jaundice. Muscular wasting, and loss of power in limbs and trunk. No tendon jerks. Contraction of ankle flexor groups."

Using microchemical methods, we searched for any toxin. The patient was given charcoal, and the charcoal subsequently recovered from the faeces and examined. Two known toxins could have caused the condition—coniine and hypoxanthine. Neither could be found, but there was a profuse growth of *Cl. welchii.*

The patient then improved, and then relapsed. Another examination was negative. She then died. From the liver an alkaloidal base was isolated which gave the following reactions: It had a penetrating, irritant odour. Heated with sulphuric acid and pot. bichromate, it gave a smell of butyric acid. There was no precipitate with platinic chloride in the cold, but an opacity appeared on heating. The watery suspension was muddy, and cleared on heating. The base was liquid, and gave a purple colour with alloxan. It gave rhombic plates, with notched edges, with Reinicke's salt. These are the reactions of the pyridine derivative, coniine. The boiling-point was higher than that of the pure alkaloid.

It has been thought that coniine can be formed from urea and butyric acid. *Cl. welchii* is a producer of butyric acid. It is possible that this neuritis was due to a toxin, of the nature of coniine, formed in the patient's liver.—I am, etc.,

Wakefield Laboratories, Bethlem Royal Hospital. C. Lovell.

Fulminating Gas Gangrene

Sir,—In order to be able to draw the correct conclusions from the case described by Lieut.-Col. C. J. Cellan-Jones and Major E. M. Griffin (April 7, p. 482) the matter requiring clarification is the term "thorough wound toilet." Everything hinges on this. It is imperative to know whether the wound was really widely opened up by extending the original wound and explored thoroughly in its full extent, fascial planes widely opened, foreign material removed, and every bit of dead and damaged tissue excised. We have had a number of localized gas gangrenes in battle casualties, and in every case the primary operation was inadequate, although every one has been described as a wound excision. Pending further information, no criticism is offered, but in a wound operated upon within 8 hours the avoidance of gas gangrene is entirely a surgical problem.

No dead tissue, no gas gangrene.—I am, etc.

St. Margaret's Hospital, Swindon. F. Louis, F.R.C.S.

Estimation of Heat Radiation in Clinical Practice

Sir,—The question raised by Dr. C. B. Heald (March 24, p. 421) concerning the effect of an interposed layer of lint in the application of radiant heat is an interesting and important one, but, unfortunately, it is one of those to which the physicist cannot provide a simple answer. This is the reason why it was omitted in our recent paper on the estimation of heat radiation (Dec. 23, 1944, p. 811). The problem has already been discussed to some extent in an earlier paper (Jan. 16, 1943, p. 66), when we had to deal with the case of the patient in the heat cradle who is wrapped in a blanket. The interposed material will be warmed up by the radiation from the radiation source and will act as a secondary radiator. The secondary radiation is of longer wave-length, depending on the temperature of the blanket. It is, however, likely that a good deal of heat is transferred by conduction through the narrow air space between blanket and patient, and this effect renders the whole problem rather complex. Experiments to determine these factors separately are in progress, and the results will be published in due course in the *British Journal of Physical Medicine.*

The more specific question of how much of the original radiation from the treatment source penetrates the interposed material can already be answered. Using the same radiation flux ($\sim$1 cal./cm.^{2}/min.) we have determined the absorption in various materials of the radiation from a tungsten filament lamp (radiation maximum at $\sim$1.5 μ) and an electric fire (radiation maximum at $\sim$3 μ). In the following table the percentage of original radiation flux reaching the skin through the various interposed materials is given for these two sources.

Source	Lamp	Fire
Lint	31%	24%
Blanket	25%	19%
Cotton sheet	48%	30%
Linen sheet	44%	30%
Towel	27%	22%

It must be emphasized that these values are rough ones, indicating only the order of magnitude of the transmitted radiation flux. Nevertheless it appears from the results that the shorter wave-lengths have a somewhat greater penetration. Secondary radiation and heat conduction were excluded in these experiments.—I am, etc.,

Radcliffe Infirmary, Oxford. K. Mendelssohn.

Ovariotomy or Caesarean Section?

Sir,—Mr. Malcolm Donaldson (April 7, p. 495) rightly emphasizes good antenatal treatment in the early months of pregnancy as the solution of this problem. This implies the attendance of the patient at the first opportunity; it is easier to diagnose ovarian cyst in the early months than in late pregnancy, and a complete examination must be made at the first visit, including pelvic examination. In the clinic with which I am associated both of these requirements are fulfilled. Uncomplicated cases are not booked after the sixteenth to eighteenth week and all new patients are examined bimanually. In 1944 there were 1,275 bookings and six cases of ovarian cyst were seen. In each case ovariotomy or ovarian cystectomy was done. None of these patients suffered interruption of pregnancy as a result of the operation, and most of them have since been delivered.

It is my opinion that the practice of removing ovarian cysts in early pregnancy is not widely followed because: (1) The diagnosis of symptomless ovarian cyst is made, as a rule, by bimanual examination and not by abdominal palpation alone.

Routine bimanual examination is often not done in hospital clinics, less often in child-welfare clinics, and practically not at all in general practice. (2) There is an unfounded fear that ovariotomy in early pregnancy may cause abortion. Caverley, in 1931, reported an abortion rate of 11.4%, but from my own experience this figure appears to be too high. I have records of 18 cases without a single one of abortion. Progesterone is given before and after operation, and it may be that this safeguard explains the difference.

With regard to ovarian cyst complicating labour, I feel that some mention should be made of vaginal manipulation directed towards dislodging the cyst. With anaesthesia and the Trendelenburg position it may be remarkably easy, and with reasonable care is not dangerous. Failure to displace the cyst, in my opinion, calls for lower-segment Caesarean section followed by ovariotomy, as with Bonney and Marshall I consider this treatment to be more humane and less risk to the patient.—I am, etc.,

Sunderland. FRANCIS J. BURKE, M.R.C.O.G.

"Predisposition" to War Neuroses

SIR,—It is being emphasized with increasing frequency in articles on war neuroses, and taken very much for granted as an established fact (e.g., S. I. Ballard and H. G. Miller, *Journal*, March 3, p. 293; L. Minski, *Journal*, March 31, p. 444), that predisposition to breakdown under war conditions can be correctly estimated from the occurrence of nervous and mental illness in the family and personal history of the patient, and (Minski) from a poor work record. It is a matter of some importance to point out that this is largely assumption and is not justified in the present state of our knowledge. It may later be proved to be the case; psychiatry would be a simpler science if the principle implied were confirmed, but it has certainly not been substantiated. I have shown elsewhere, from my experience in the last war, that many individuals who had attacks of neurotic disorder and others with a bad family history made excellent soldiers and sometimes won decorations for bravery. My experience in the present war has added further corroborative evidence to this observation. So far as a good work record is concerned, it may of itself denote freedom from actual breakdown, but it not uncommonly is, for example, an indication of obsessional over-conscientiousness and inferiority.

Clearly, before the significance of family history and previous nervous illness can be assessed, a control investigation will have to be undertaken to show what proportion of soldiers who have been stable and successful under active war conditions reveal such psychiatric incidents in their personal and family records.—I am, etc.,

London, W.1. FREDERICK DILLON.

Once Again Barotrauma

SIR,—I am indeed sorry for your reader who, interested in barotrauma, wishes to know more about it. He must by now be in a state of advanced bewilderment. After a good deal of controversy, he was told in an annotation (Feb. 10, p. 190) that the condition was definitely not inflammatory. Later, he may have read my letter (Feb. 24, p. 276) pointing out that if we accept your annotator's well-founded opinion on the absence of inflammation, the term "otitic" is just as bad as the old "aero-otitis," now generally discarded as misnomer. He may later still (March 10, p. 346) have been pleased by the fairness and good sense of your annotator, who, stimulated by my letter, replaced "otitic" by aural.

So far, so good; but now it is all changed again! Air Cdre. Dickson in his recent letter (March 24, p. 423) expresses the view that whereas "otitis" implies something infective, "otitic" does not do so, and that there is enough inflammation to the condition to justify retaining the term "otitic" anyway. Moreover, up to now the reader has learned that actual rupture of the drum was a rather rare complication of barotrauma. The second paragraph of Air Cdre. Dickson's letter suggests it to be of regular occurrence. What a wealth of diverging views!

Duly influenced by the opinion of the R.A.F. expert, your reader will be apt to conclude that the process is an inflammation after all. The surprising part about this opinion is, however, that it is plainly at variance with the view of the pathologist of the team, Wing Cmdr. Colin Campbell, who in his address at the R.S.M. (Dec. 3, 1943) and as co-author of Air Cdre. Dickson's paper (*J. Laryng.*, 1943, 58, 483) made such a convincing case for the absence of inflammation in the lesion. Has Wing Cmdr. Campbell failed to convince Air Cdre. Dickson? Or has he himself changed his opinion?

At least the issue now is clearly set: if the condition is inflammatory, your annotator as well as myself are wrong, and "otitic" has the right to stand; if not, "otitic" should go. However, may I in order to cut short an argument which can only lead to "it all depends on what you mean by inflammation" propose: if Air Cdre. Dickson would leave his "acute otitic," I will drop the "pressure syndrome," and we all meet, with your annotator, on "aural barotrauma" from now onwards.

One more point. It is not only the name of the thing which is controversial. Clinically, too, barotrauma will continue to be a problem as long as the essential preventive measure is neglected—i.e., to teach the airman to perform himself Politzer's method. To train him in Valsalva's experiment is unsatisfactory. Barotrauma starts when the Valsalva fails. The Valsalva fails soon, and as soon as it fails the mere attempt is harmful. For reasons beyond the scope of this letter, the unsuccessful Valsalva aggravates the block at the pharyngeal end of the tube, and is thus inducive to barotrauma. The case for politzerization is that it will succeed in most instances in which Valsalva fails, and that it can do no harm. The scheme, with a suitable bag, is well practicable. I know a number of pilots as well as high-altitude passengers, whom, after barotrauma, I have taught to use the Politzer bag and who have been clear ever since, and do not care to board a plane without it. Of course, Politzer's method may not be feasible for the fighter pilot forced to lose height suddenly in the pitch of battle, but I understand that the great majority of cases arise out of much less momentous incidents.

The routine use of Politzer's method by the airman himself will prevent barotrauma, provided nobody suffering from a cold or sore throat is allowed to fly—i.e., nobody in whom politzerization on the ground might be impossible or contra-indicated. The Politzer bag should, I think, form part of every airman's kit, and the instruction in its use a short (it takes only ten minutes) though integral part of his training. High-flying civil aviation, too, should give the matter their attention. On most airfields a doctor is available. Politzerization should be obtainable for those passengers whose ears feel blocked on landing. It could be easily arranged for, to the immediate relief and delight of the passengers and to the prevention of airborne deafness. *Sic finit* barotrauma, until the pressure-conditioned aircraft will make it altogether extinct.—I am, etc.,

St. James' Hospital, S.W.12. A. B. ALEXANDER.

SIR,—Air Cdre. E. D. Dalziel Dickson's letter (March 24, p. 423) and that of Dr. R. M. S. Matthews (March 31, p. 458) prompt me to submit another term for the condition which they call "otitic barotrauma"—namely, "anisobaric otitis."

"Inflammation," as Air Cdre. Dickson states, is an inevitable sequel of the forces producing the disability, and because this is the most important sign, varying in degree from slight capillary dilatation to that associated with rupture of the ear-drum, "otitis" is reasonably descriptive of the condition, whatever the qualification attached to it. "Anisobaric otitis" is euphoniously self-explanatory—an inflammation of the ear caused by unequal air pressures applied to it. Like "otitic barotrauma," it is wholly *Greek* in derivation.—I am, etc.,

T. A. JAMES.

Shall We Nationalize Medicine?

SIR,—In your issue of April 7 (p. 497) Lord Horder asks: "Shall we nationalize medicine?" If we *had* to choose one of two alternatives: "Shall we nationalize medicine?" or "Shall we commercialize medicine?" I wonder which Lord Horder would consider the lesser evil?

Since the last war medicine has undoubtedly, to a very great extent, been commercialized. In places it has become a sheer commercial "ramp," and with the almost complete disappearance of etiquette, as it was understood in my grandfather's time, the relationship between large numbers of the "medical trade" has become shocking.

I am open to correction, but I believe I am right in saying that the friendly spirit of co-operation and good will which exists to-day between Service members of the profession, where all "cut-throat" competition and commercialism, fee-hunting, etc., are removed, suggests that in a *first-class* State medical service (in which each one of us had an assured position and an allotted task) better relationships might exist among the medical fraternity than is the case to-day. We might even then learn (1) to unite, (2) to cease fighting one another, and (3) to combine in order to work constantly for improved conditions both for ourselves and for our patients.—I am, etc.,

Hassocks, Sussex. CHARLES A. H. FRANKLYN.

SIR,—Lord Horder (April 7, p. 497) says the word "politics" is used in two senses—namely, civil administration and partisan influence. I agree. Are not these two senses better understood if we read "efficiency" for civil administration and "self-interest" for partisan influence? By "efficiency" I understand the most efficient service possible under the circumstances of to-day—i.e., having regard to medical personnel available, the number and distribution of persons to be cared for, the financial and other resources, etc. Medical efficiency is a *practical* problem. By "self-interest" I mean the economic, professional, and other self-regarding interests that actuate all social groups, like the "profession," the "people," the "State," etc. Medical interests constitute a highly emotional problem.

On this basis it would seem that the questions to be asked are two: (1) How can the profession of medicine best be organized to give the "most efficient" service? (2) How can the profession *and other "groups"* learn to put the interests of society before and not after their "self-interests"? To ask this last question is *not* to answer it. I agree with Lord Horder that if we create a service into the conduct of which partisan self-interest can easily be injected, then no matter how "efficient" that service may be, it will soon be a bad service. I agree with Prof. Ryle that to oppose alterations in the service just because self-interest seems to dictate opposition would be to create a most serious crisis in the profession (of course, we believe we shall *never* do that!).

I am sure we ought to seek to separate these two questions in our minds and take care not to think about them on the false assumption that administration and partisanship are both the same thing—namely, "politics."

As a G.P. I believe that the proposals advanced by the B.M.A. are, on the whole and in general, the best and soundest solution of both the practical and the emotional problems that has yet been made. Thoughtful practitioners should support them in every possible way—political and otherwise.—I am, etc.,

Worcester HOWARD E. COLLIER.

Civilian Mass Radiography

SIR,—Let us hope that your leading article on civilian mass radiography (April 14, p. 521) will receive proper attention from the authorities who are to be entrusted with the launching of this scheme. One has been accustomed to regard reports issuing from the Medical Research Council as bearing the stamp of true scientific authority; but in their recent report on mass miniature radiography one's trust is rudely shaken. It seems almost unbelievable that the M.R.C. should recommend that, to quote the words of your leading article, "in doubtful cases the medical directors of the unit must often decide *from one interview and radiograph*" (the italics are mine) "not only whether the subject has pulmonary tuberculosis, but also whether the disease is active." As you rightly observe, "anyone who has had experience in a chest clinic will realize the absurdity of this suggestion"—and also, might I add, the danger.

Early symptomless tuberculosis has been the subject of correspondence and criticism on several occasions in the past, but once a novel measure has caught on with the public authorities (in this case the Services—Navy, Army, and Air Force), it is apt to run riot. In the *Journal* of Aug. 24, 1940, there appeared an article on mass radiography by Lieut.-Col. E. L. Cooper, Assistant Director-General of Medical Services, Australia, which evoked letters criticising his conclusions. A letter from Sir Henry Bashford (Sept. 21, p. 395) ended with these words after acknowledging the value of mass x-ray examination of recruits for the Army: "But it is profoundly to be hoped, if the process is to be extended to the normal school, industrial, and social life of the country, that the utmost care will first be taken to learn and assess what is in fact prognostically significant in these x-ray findings; and to avoid unnecessarily labelling and perhaps segregating—with possibly dire psychological consequences . . . new hosts of young men and women as cases of pulmonary tuberculosis." There was also a warning letter from J. F. Brailsford (Oct. 5), a radiologist of repute. In a letter (Nov. 2) I ventured to call attention to the wise words with which Lieut.-Col. Cooper himself had concluded his article: "This paper must close upon a note of caution. There has been much criticism of the microradiographic method of diagnosis. . . . It is not the opposition which is to be feared . . . ; a greater danger is that of the too ardent advocate. . . . *No one should be labelled tuberculous on the unsupported evidence of a 35-mm. film*," to which I added with some trepidation, "nor even . . . on the *unsupported* evidence of a full-size film."

In the *Journal* of May 8, 1943 (p. 565), the subject was again revived, in the form of a review of the results of mass radiography of 7,500 cases in the R.A.F. by Fl. Lieut. A. G. Evans, which again drew letters of criticism from J. F. Brailsford and Z. P. Fernandez (June 19, p. 770). In July of the same year correspondence on symptomless early tuberculosis in which the diagnosis was based solely on x-ray evidence again became the subject of discussion, following an article by Margaret C. Macpherson, of the Research Department, Brompton Hospital (July 24, p. 98), who advocated treatment of such cases in adolescents by artificial pneumothorax. Letters criticizing this view followed from A. Niven Robertson (Sept. 18), Price Williams and F. R. Walters (Oct. 9), and from myself (Nov. 13), when I ventured to put the following as the critical question to be answered: "Can x-ray examination alone prove the existence of a tuberculous focus in its earliest phase in the absence of all clinical signs and symptoms?" I went on to say: "We have been told by expert radiologists recently that though a shadow may be definitely diagnosed as tuberculous in origin, *it is often impossible to say whether it indicates active or merely obsolescent tubercle*, and that a shadow seen to-day may be gone a few weeks later."

These criticisms all came from men who had special experience in tuberculosis work. Of one thing I feel sure: mass radiography, *unless under the control of both experienced clinicians and experienced expert radiologists equipped with first-class apparatus*, will result in the addition of large numbers to the ranks of those unfortunates who have been wrongly labelled tuberculous.—I am, etc.,

Southborough, Tunbridge Wells. E. WEATHERHEAD.

Final M.B. of London University

SIR,—I fully concur with what has been said by Dr. D. S. Porter (March 3, p. 310) and Dr. H. B. Hewitt (March 17, p. 387) about the new regulation for the Final M.B. of London University, and wish to support whole-heartedly their appeals.

I am among those unfortunates who have been "bunkered" in Part III by the old regulation during the war. Why the new regulation should apply only to those candidates who are now beginning to sit their finals and not to their wartime predecessors is beyond my comprehension. If anything, it should be vice versa! The general atmosphere and conditions prevailing now (and for some time past) are certainly more conducive to preparation for and sitting an examination than they were earlier in the war.

Obviously, the regulation is grossly unfair, and it would indicate some consideration for those of us in the Forces if it were extended to include the earlier wartime candidates. I should be most grateful if you would publish this letter, and I sincerely trust that the authorities concerned will give the matter their serious consideration.—I am, etc.,

TREVOR DAVIES,
Surg. Lieut., R.N.V.R.

Obituary

SIR JAMES BARRETT, K.B.E., C.B., C.M.G., LL.D., M.D., M.S., F.R.C.S., F.R.A.C.S.

The death of Sir James Barrett, briefly announced last week, removes an outstanding figure from the profession in Australia who gained distinction in many fields of endeavour. No one played a more active and pervasive part in the modern development of Melbourne in its educational, medical, and public affairs. He was consulting surgeon to the Victoria Eye and Ear Hospital, consulting oculist to the Royal Australian Navy, and honorary secretary of, and a leading spirit in, the Victorian Bush Nursing Association. He presided over the Annual Meeting of the B.M.A. in Melbourne in 1935 and a year later was elected Chancellor of the University, after holding office as Vice-Chancellor since 1931.

[Photo by Cato, Melbourne

James William Barrett was born on Feb. 27, 1862, eldest son of James Barrett, M.D., a native of Banbury, Oxfordshire, who qualified in medicine in London, and after acting as doctor on an emigrant ship to Melbourne remained there and became physician to the Alfred Hospital. J. W. Barrett began his education at Melbourne Grammar School and matriculated at the University at the age of 15. After graduating M.B., B.S., and two years as R.M.O. at the Melbourne Hospital, he came to England, took the M.R.C.S. in 1884, and during the next two years worked as demonstrator in physiology at King's College, London, clinical assistant at Moorfields Eye Hospital, and assistant surgeon to the Western Ophthalmic Hospital. He had passed the Final F.R.C.S. examination, but could not be granted the diploma before his 25th birthday. On returning to Melbourne Barrett proceeded to the degrees of M.D. and M.S., became demonstrator of physiology in the medical school of the University, and soon after arrival was appointed to the visiting staff of the Victoria Eye and Ear Hospital; he resigned that post in 1913 on accepting election as ophthalmologist to the Melbourne Hospital. For many years he lectured on the physiology of the special senses in the University.

During the early part of the last war he served as A.D.M.S., Australian Forces in Egypt, and then as consulting oculist and aurist to the Egyptian Expeditionary Force with the rank of lieut.-colonel, first in the A.A.M.C., later in the R.A.M.C. His valuable war services were recognized by the award of the Order of the Nile (3rd Class) in 1916, and the K.B.E. and the C.B. (Military Division) in 1918; he had received the C.M.G. in 1911. After the end of the war he became consulting eye specialist to the Royal Australian Navy and oculist to the Royal Victorian Institute for the Blind and to the Marine Board of Victoria. In 1927 he was a founder and original Fellow of the Royal Australasian College of Surgeons.

Sir James Barrett's extra-professional interests were remarkably wide and varied; a list of the presidencies and chairmanships he had held would take up many lines of print. There seem to have been few good causes or public enterprises in Victoria, or indeed in the Commonwealth, which went without his active support. His pen was never idle. Many of his articles on public health, education, electoral reform, and Imperial and Australian politics were written for the *Melbourne Argus* and afterwards reprinted in two volumes. His informal reminiscences appeared seriatim in the *Melbourne Herald* in 1938. Twenty years earlier he published two books—*Twin Ideals: An Educated Commonwealth* and *The Australian Army Medical Corps in Egypt*, the latter written in collaboration with Lieut. P. E. Deane. In 1919 Barrett published *War Work in the Y.M.C.A. in Egypt* and *A Vision of the Possible: What the R.A.M.C. Might Become*; he also wrote *The Diary of An Australian Soldier* and *Save Australia*. He represented the B.M.A. in Australia at the Winnipeg Annual Meeting in 1930, and on the occasion of receiving the honorary degree of LL.D. from Manitoba University it was said at the Congregation: "His writings, which have been extensive, deal in great part with medico-sociologic and medico-military problems. Eminent as a surgeon, soldier, author, and philanthropist—a great Australian whom a sister Dominion delights to honour." His Presidential Address at the Melbourne Annual Meeting was an interesting and suggestive statement of hospital problems as they presented themselves in Australia and New Zealand, in which he drew illuminating and instructive parallels and contrasts between the hospital systems in those two Dominions and in Great Britain. He had something of real value to say to the visiting members, and said it with clarity and emphasis.

E. LAMING EVANS, C.B.E., M.D., F.R.C.S.

We regret to announce the death on April 6 at Sidmouth of Mr. Evan Laming Evans, emeritus surgeon to the Royal National Orthopaedic Hospital, consulting surgeon for orthopaedic cases to the West End Hospital for Nervous Diseases, and consulting orthopaedic surgeon to the British Postgraduate Medical School, Hammersmith.

He was born on Sept. 3, 1871, youngest son of Worthington Evans, and was educated at Eastbourne College and Trinity College, Cambridge, where he graduated B.A. in the Natural Sciences Tripos of 1892. He took his clinical course at St. Bartholomew's Hospital, and after qualifying as M.B., B.Ch. Cantab. in 1896 was house-surgeon there, and won the Raymond Horton-Smith Prize for his M.D. thesis in 1901. During the South African War he served on the medical staff of the Welsh Hospital, receiving the Queen's Medal with three clasps, and on his return to civil life made orthopaedic surgery his career. He was for many years a member of the visiting staff of the Royal National Orthopaedic Hospital and surgeon to the Royal Surgical Aid Society, consultant to the Industrial Home for Crippled Boys and to King Edward's Hospital, Ealing.

Laming Evans joined the B.M.A. in 1896, was vice-president of the Section of Orthopaedics at the Bradford Meeting in 1924, and president of that Section when the Association met at Winnipeg in 1930; he was also a past-president of the Orthopaedic Section of the Royal Society of Medicine and of the Harveian Society of London. He was created C.B.E. in 1920. His published writings were all on orthopaedic subjects and included an essay on astragalectomy for the *Robert Jones Birthday Book* and a paper on late results of the manipulative treatment of congenital dislocation of the hip, printed in the *British Journal of Surgery*. His elder brother, the Right Hon. Sir Laming Worthington Evans, Bt., who died in 1931, held a succession of Ministerial posts in the Government and was Secretary of State for War for two periods.

Mr. A. ROCYN JONES writes:

With the passing of E. Laming Evans almost the last link between two periods of orthopaedic surgery is removed. He began his training in orthopaedics at the old Royal Orthopaedic Hospital in Hanover Square—the building itself has long since disappeared—and in a day when most of the work of an orthopaedic surgeon consisted in manipulation and tenotomy, for the attack on deformity by open operation had scarcely begun. Indeed, he was fond of relating with what patience his masters would unfold an intractable club-foot, only calling to their aid the ingeniously contrived Scarpa shoe—a splint which is but a name to-day and is undeservedly discarded. He witnessed the wide extension of orthopaedic surgery and took a hand quite early in the development of its operative procedures. But to the end he retained the impress of his early training, for he would, by patient repeated manipulation alone, produce an astonishingly good correction of a badly deformed foot where a less-disciplined junior would seek relief by open section. The same capacity was manifest in his treatment of congenital dislocation of the hip, where by manipulative skill and meticulous after-care he produced results which were unsurpassed. In open operations he was careful but not adventurous, although he took a boyish delight in practising any new procedure; and his enthusiasm never waned. He achieved a peculiar success with Whitman's operation for the difficult paralytic calcaneo-cavo-valgus disability: his results were so consistently good that he adhered to this operation when it had lost favour with other surgeons.

Never was a surgeon more conscientious in the discharge of his hospital duties—he was chairman of the medical board for several years—and especially in the operative treatment and after-care of his patients. It was perhaps because of this devotion that he was apt to be ruffled by the occasional perverse indifference of someone he was trying to help; in such a mood he could be formidable. His crowded clinic at the Royal National Orthopaedic Hospital was eloquent testimony to the high regard for his work, and many of his house-surgeons will read of his passing with deep regret and will reflect upon how much they owe to him for guidance in the principles of orthopaedics.

A. W. SHEEN, M.S., F.R.C.S.

Prof. G. **Grey Turner** sends the following tribute:

The death of Prof. A. W. Sheen of Cardiff when in full work in his 76th year will be very much regretted by his many friends, for he was a man of striking personality with a great gift for companionship. During the earlier part of his career he was particularly interested in those conditions which are likely to be met with among the population of an industrial area, and, like other surgeons, was trying to evolve the best and most practical technique. With his experience of operating in the homes of the people and in the smaller hospitals, he had a good deal to do with the development of surgery in South Wales. During the 1914–18 war he commanded the 34th (Welsh) General Hospital, first at Netley and later in India. In that capacity his experience with the Imperial Yeomanry Field Hospital in the South African War stood him in good stead. At the end of hostilities Sheen acted as consulting surgeon to the war hospitals of India and did much for the rehabilitation of the wounded. This question continued one of his great interests and afterwards he did much to promote its study in connexion with industrial injuries. After returning to this country Sheen settled for a time in London, where among other activities he worked at the Shepherd's Bush Orthopaedic Hospital. But his most fruitful period began when he was chosen professor of surgery and director of the surgical unit of the Welsh National School of Medicine in Cardiff. His work there lay very largely in the organization of the new venture. As professor he was very active and strove hard to justify the creation of the special surgical unit at the Cardiff Infirmary. The early days were troublous; but, as a result of his clear conception of the course that was in the best interests of the development of such a school and his determination and tenacity, he did a very valuable piece of work. Though in this direction he earned such a creditable record it can only be known to a few that his plans for the future were on the grand scale.

Sheen was never satisfied with anything but a very high standard of endeavour. Some years before the war he inspected the surgery examinations in the University of Durham, and all were impressed by the thoroughness which he brought to that task. In private life he was most hospitable and loved to entertain those associated with the work of the department of surgery, and the outside examiners especially will remember the delightful time when they were guests in his house. He was very systematic and painstaking and master of university routine, though he sometimes inveighed against the restrictions and narrowness of traditional practice. Sheen was fond of travel and was always welcome on the visits of the Moynihan Club and at the congresses of the International Society of Surgery. But above all else he loved companionship, was a good talker, told a story with due emphasis, and always had a ready jest to point a moral. He was very kind to young people and fond of little children. Sometimes a rather brusque dictatorial manner was repellent, or his breezy style gave the impression of flippancy, but these were only poses which disguised sincerity and a generous warm heart.

The following well-known medical men have died abroad: Dr. **Sokrates Lagoudakis**, the eminent leprologist, at Alexandria, aged 82; and Dr. **Graeme Monroe Hammond**, who had been a leading New York neurologist, aged 86.

No. 9 of the *Medical Chronicle*, published in Moscow by the U.S.S.R. Society for Cultural Relations with Foreign Countries, consists of a number of short articles of professional interest, and makes two announcements. One is that the Saratov Institute "Microbe" recently marked its 25th anniversary. This institution is carrying on scientific work in microbiology and epidemiology in the south-east of the U.S.S.R. With its practical work, which consists in promoting and combating epidemics, the Institute combines extensive scientific research and the training of medical and sanitary officers in the control of malignant infections. The other announcement is of the 70th birthday of Prof. Nikolai Semashko, director of the department for organizing health protection and general hygiene at the 1st Medical Institute in Moscow, and also chief executive officer of the U.S.S.R. Hygiene Society.

Universities and Colleges

UNIVERSITY OF ABERDEEN

The University Court on April 11 was informed that the King had approved an Order in Council for the establishment of the Crombie Ross Chair of Mental Health in Aberdeen University. Gifts of £10,000 from the Crombie Ross Benevolent Fund and £5,000 by Dr. John A. Ross for the foundation of this Chair were announced in 1944.

At a graduation ceremony on March 29 the following medals and prizes won in the Faculty of Medicine were awarded:

Chanock Gold Medal in Anatomy: James B. Johnston; *proxime accessit,* Alexander J. Watson. *Dyce Davidson Gold Medal in Materia Medica:* Douglass W. Taylor. *Fife Jamieson Memorial Gold Medal in Anatomy:* Gordon L. Ritchie and Alexander J. Watson (equal); *proxime accessit,* James B. Johnston. *Lizars Gold Medal in Anatomy:* James B. Johnston; *proxime accessit,* Gordon L. Ritchie. *Struthers Gold Medal and Prize in Anatomy:* Gilbert F. Hamilton, M.B., Ch.B.

UNIVERSITY OF EDINBURGH

At the graduation ceremonial on Jan. 20 the degree of M.D. was conferred, *in absentia,* on Lieut.-Col. J. M. Matheson, R.A.M.C. Through a printer's error the name appeared as J. M. M. Batheson in the *Journal* of Feb. 3 (p. 169).

UNIVERSITY OF WALES

Welsh National School of Medicine

The following candidates have satisfied the examiners at the examination indicated:

M.B., B.Ch.—*Surgery:* W. H. Beasley, B. L. Crystal, G. K. Davies; Hannah P. Evans, L. A. J. Evans, M. Evans, Joan Guy, P. G. Jagger, Jane W. James, W. J. Jenkins, D. G. Jones, D. R. Lewis, Joy A. MacGregor, Barbara D. S. Marshall, J. Matthews, D. B. Price, Gwladys M. Sewart, Glenys M. Thomas, D. Tooms (with distinction), L. L. R. White, Catrin M. Williams, D. M. Williams, Roberta Williams, W. O. Williams. *Obstetrics and Gynaecology:* A. J. Barry, E. M. L. Evans, W. J. Jenkins, D. O. Lewis, Isobel F. A. Mitchell.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

At a meeting of the Council of the College held on April 12, with the President, Sir Alfred Webb-Johnson, in the chair, the following were elected Fellows under the Charter which permits the Council to elect annually to the Fellowship, without examination, two Members of 20 years' standing: H. Guy Dain, M.D., Chairman of Council, British Medical Association, and Brig. Harry Stobie, Professor of Dental Surgery in the University of London and Dean of the Royal Dental Hospital.

Mr. R. P. Scott Mason was elected a member of the Court of Examiners for three years from May 10.

The Jacksonian Prize for 1944 was awarded to Lieut.-Col. Kenneth W. Starr, F.R.C.S., for his essay on the causation and treatment of delayed union of fractures of the long bones. The subject for the prize for 1946 will be "Traumatic Aneurysm." Mrs. Lilian Lindsay, L.D.S., Librarian of the British Dental Association, was awarded the John Tomes Prize for 1942–4 for her outstanding research work in the bibliography of dental science. The first award of the Begley Prize was made to Peter Charles Conlon of the London Hospital.

It was decided to institute two courses a year of lectures on surgery, beginning in the autumn of 1945. Lecturers will be selected by invitation. Fellows and Members of the College will be admitted free and there will be an admission fee of two guineas for others for each course of 12 lectures.

The Council confirmed its previous intention to grant a higher diploma in dental surgery, which will be subject to obtaining power to revise the Charters. It is proposed to entitle the diploma "Fellowship in Dental Surgery."

Mr. Eardley Holland was re-elected the representative of the College on the Central Midwives Board; and Air Vice-Marshal Geoffrey L. Keynes was nominated for reappointment as an external examiner in surgery for the Faculty of Radiologists.

Diplomas of Membership were granted to W. McC. Anderson, D. J. Atherton, and R. S. Jones.

Diplomas in Child Health were granted jointly with the Royal College of Physicians of London to the following successful candidates:

Gwladys V. S. Aldridge, Florence H. Auckland, Annie C. Brown, E. A. Cachia, Marjorie E. Claye, Kathleen M. Corbett, P. D. A. Durham, P. G. Finch, J. H. Gibson, H. McC. Giles, D. B. Jelliffe, E. Kost, Josephine M. Lord, Katleen M. Miller, Dorothea B. I. Montgomerie, Moira K. E. Reaney, D. C. Thursby-Pelham, E. Tuckman.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

The following have been elected to the Fellowship of the College: G. S. Adam, Caroline A. Elliott, E. A. Gerrard, A. M. Hill, J. J. Kearney, R. J. Kellar, Alice M. Kenny, W. K. McIntyre, B. T. Mayes, H. K. Pacey, F. Stabler, F. R. Stansfield, G. A. Thompson, The following have been awarded the Diploma of the College: Isabel H. M. Blyth, J. T. Carson, H. J. A. Conte-Mendoza, G. K. Emsley, J. L. Farmer, J. J. Handler, D. Heap, A. Henderson, M. Hutchinson, W. Johnston, E. E. Jones, Kathleen Lawrence, Betty J. Poland, D. B. Stewart.

The Services

Capts. R. McIlwraith and J. A. Tulloch and Lieuts. S. W. Pleasants and D. Train, R.A.M.C., have been awarded the M.C. in recognition of gallant and distinguished services in North-West Europe.

Major (Temp.) P. C. Mitchell, R.A.M.C., has been awarded the M.C. in recognition of gallant and distinguished services in Italy.

The President of the U.S.A. has awarded the Soldier's Medal to Capt. J. McLean, R.A.M.C., in recognition of distinguished services in the cause of the Allies.

The Order of the Star of Nepal, Fourth Class, has been conferred upon Capt. Barnett Freedman, R.A.M.C. (since died), by His Highness the Maharaja in recognition of distinguished services in the cause of the Allies.

The Efficiency Decoration has been conferred upon the following officers of the Territorial Army: Lieut.-Col. (Temp. Col.) A. O. Bekenn, O.B.E., R.A.M.C., T.A.R.O.; Majors (Temp. Lieut.-Cols.) G. A. Kane, C. F. Mayne, O.B.E., J. E. Morrison, and W. Morrison, M.C.; Majors L. J. Beynon, E. S. Kirkhouse, and G. B. Matthews; and Capt. N. W. Kidston, R.A.M.C.

The following appointments have been announced in recognition of meritorious services:

O.B.E. (Military Division).—Lieut.-Cols. (Temp. Cols.) J. Rannie, T.D., and S. J. L. Lindeman, M.C., R.A.M.C.

M.B.E. (Military Division).—Major (Temp. Lieut.-Col.) T. N. Hart, and Capt. (Temp. Major) J. W. Campbell, R.A.M.C., T.A.; Capt. Marguerite E. M. Day, R.A.M.C.

Freed by U.S. Forces.—Capt. A. Farquhar, R.A.M.C.

Repatriated.—Major D. L. Charters, R.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Killed in action.—Lieut. Frederick William Marshall Greaves, R.A.M.C.

Accidentally killed in India.—Capt. Christine Mary Edmonds, R.A.M.C.

NAVAL MEDICAL COMPASSIONATE FUND

A meeting of the subscribers to the Naval Medical Compassionate Fund will be held at the Medical Department of the Navy, 64, St. James's Street, S.W.1, on Friday, April 27, at 3 p.m., to elect six directors of the fund.

Medical Notes in Parliament

National Health Service

On April 12 Dr. Summerskill asked what purpose had been achieved by issuing the White Paper on the health services in view of the fact that Mr. Willink, in response to representations from the B.M.A., proposed an alternative structure fundamentally different from that outlined in the White Paper. She further asked why the proposed salaried medical service operated from health centres and offering a new advance in medical practice had been dropped at the request of the B.M.A. Dr. Summerskill also asked what was the purpose of the experimental health centres contemplated in the alternative proposals to those contained in the White Paper, in view of the fact that they would provide accommodation from which doctors could conduct private practice more conveniently but on the same terms and lines as those practising from their homes. Mr. Willink answered these three questions together. He said he welcomed the opportunity to clear up misunderstanding on the matter. The proposals in the White Paper were for discussion before the Government decided on the terms of draft legislation. Discussion was invited with all the major professional and other organizations affected, and this had been and was still taking place. In the course of it various possible modifications of the detailed proposals had been discussed by Mr. Johnston and himself. Soon Mr. Johnston and he would consider with their colleagues some of these alternative methods of achieving the White Paper's objective, which was a comprehensive service of health for the nation. The Government would have then to decide whether these or any of them were desirable alternatives. Before informing the Government of their views on these possible alternatives, the various organizations—medical, dental, voluntary hospital, local authority—were considering, on reports from their representatives who took part in the talks, the matters which had been discussed. To some of those reports or to varying rumours about those reports recent references had been made. When the views of the different organizations were available the Government would decide upon the content of draft legislation for submission to the House. Discussion of much detail which might not need to be included in the Bill itself would go on. Until then the three stages of the procedure originally laid down—the White Paper, discussion of the White Paper, and final preparation of draft legislation—were being adhered to. The objects of this second stage had been those which were clearly set out in the introductory paragraphs of the White Paper.

Dr. Summerskill suggested that the B.M.A. and other medical organizations had already thrashed out every question of principle with the Ministry. Did not the report, which had been published and was in the hands of every doctor and of many lay people, alter every principle laid down in the White Paper? Mr. Willink said Dr. Summerskill was under a complete misapprehension. The White Paper afforded a new focus for discussion, particularly after it had been discussed in the House of Commons. No report had been published. Every copy was marked "Not for publication." Dr. Summerskill was wrong when she spoke of anything having been dropped. The Government as a whole had not considered the outcome of these negotiations.

Dr. Russell Thomas suggested that Mr. Willink had changed his mind on realizing that Parliament had no mandate to enslave a free profession. Mr. McNeil asked whether the Government had indicated to the B.M.A. that the proposals they were now discussing were acceptable to the Government as a basis for negotiation. Mr. Willink repeated that Mr. Johnston and he had not discussed with their colleagues the outcome of these negotiations. His statement did not mean that he himself was dissatisfied with the conclusions reached by Mr. Ernest Brown.

Mr. Pethick Lawrence asked if Mr. Willink had given any indication to the medical authorities that he himself would support these proposals with his colleagues in the Government. Mr. Willink said that in discussions of this kind he would not express an attitude to any proposals which might embarrass the Government's ultimate decision on them.

Mr. Shinwell said members of the B.M.A. had stated that their interpretation of their discussions with the Minister led them to conclude that he had made certain concessions, or had agreed to put modifications before his colleagues in the Government. Mr. Willink said he had no knowledge of what statements had been made by members of this large Association.

Dr. Summerskill gave notice that she would raise the subject on the adjournment at the first opportunity. Later Mr. Greenwood asked the Government to arrange for a White Paper to be issued showing the departures made from the White Paper which had been discussed and approved by the House. He also asked for a free and open discussion on the matter before the B.M.A. conference at the beginning of May. Mr. McEntee asked why a paper marked "Not for publication," and not made available to the House, had been sent out by the B.M.A.

Mr. Eden said this last question was not within his jurisdiction. As regards Mr. Greenwood's question, no conclusions whatever had been reached as the result of the conversations since the House debated the White Paper. If conclusions were reached, they would have to be considered by the Cabinet and after that a report made to the House. At this stage they were purely exploratory, and members of the Cabinet were entirely unaware of them. Mr. Greenwood, while accepting these assurances, said tentative conclusions had leaked out all over the country and in every hospital. He still thought a White Paper should be issued to the House. Mr. Eden said no abnormal procedure had been followed. Conversations had been going on not merely with the B.M.A. but with local authorities as well. The first stage was that the Government must be made aware of the situation and must come to its decisions. It would then consider how most fairly to present its conclusions to the House so that the House might have a fair and full opportunity to express itself.

Pure Milk

Lord Bledisloe in the House of Lords on April 11 asked what the Government was doing to augment the pure milk output; whether they agreed that mastitis, contagious abortion, sterility, and Johne's disease involved a yearly underproduction of 200,000,000 gallons of milk, and whether remedial measures capable of immediate application were contemplated. He said he was pleased that for the first time the representatives of the Ministry of Agriculture and of the Ministry of Health would both speak in an agricultural debate. He was also glad that Lord Moran, President of the Royal College of Physicians, would take part. Lord Bledisloe asserted that in quality of milk supply, individual consumption of milk, yield per cow, bovine disease, veterinary treatment, and the numbers and qualifications of veterinary surgeons, Great Britain compared unfavourably with most other civilized countries. The problem needed to be tackled at its source, which was animal disease. Nearly half the cattle in the country were affected with tuberculosis and reacted to the tuberculin test, although only 0.5% of the cows gave milk containing bovine tuberculosis germs. It would be serious if all cattle reacting to the tuberculin test were slaughtered, as in the United States. All the diseases he had named were, in the opinion of veterinary surgeons, preventable.

There were approximately 3,000,000 dairy cattle in Great Britain with an average annual yield of 500 gallons. The pre-war human consumption of milk per head was 0.45 of a pint daily. It was now 0.58 of a pint, an increase of 30%. The well-to-do had consumed less, the very poor had consumed more, and the balance of the increase had been due to the National Milk Scheme. He suggested that the lowest target to aim at was 0.75 of a pint daily with rather more for children and nursing mothers. On that basis the national consumption would be over 2,000,000,000 gallons per annum, the product of over 1,000,000 additional cows. At present the yield per cow was lower owing to lack of feeding concentrates.

Disease in Cattle

The human consumption of milk and the bovine milk yield in Great Britain were low by comparison with other countries. The Survey Committee of the National Veterinary Medical Association had declared in 1940 that the "wastage of milk caused by disease among dairy cattle was colossal." The Committee on Cattle Disease of the Economic Advisory Council had asserted in 1934 that the milking life of a dairy cow was only half what might be expected under ideal conditions. That committee said that 58% of the cows passing out of herds were disposed of on account of disease. The incidence of bovine tuberculosis over the country varied, but was put at about 40%. In some areas the percentage was nearer 90. The loss to the farmers from this disease was put at £3,000,000 yearly. The right method of controlling this disease was on an area basis, gradually extending the areas of immunity.

Relatively little had been done by the Government to eradicate bovine tuberculosis, and still less against the other four diseases he had specified in his opening question. Losses from these were more serious. All four diseases were increasing, and the annual loss of milk through them was put at about 200,000,000 gallons. As a policy for the Government he suggested a survey of the incidence of disease throughout the country; an increased bonus for milk from attested herds; and an intimation that within five or ten years milk from herds not clear of tuberculosis and other preventable disease would not be accepted for human consumption. He further suggested a free State veterinary service; the marking of cows eliminated from attested herds so that they could not be sold into other herds; compulsory vaccination of calves against contagious abortion; compulsory health service for cattle instead of the present voluntary panel scheme; establishment of disease-free areas and their extension; establishment of a State abattoir service.

Lord Cranworth said the veterinary profession had introduced two vaccines which were approximately 90% effective against contagious abortion. The use of one was compulsory in the Province of Quebec. Lord Iveagh spoke on mastitis and said the hands of his milkers continued to be infected, however well they cleaned them. The infection was due to the handles of the churns which came back from creameries where they had been handled by men who did not clean their hands after handling dirty churns from other places. Workers in cowsheds who had infected hands could infect every door-handle, every milking stool. This disease had never been found on the hands of those who did not handle milk or milk churns. It did not readily multiply on the human hand.

Scheme of Control

The Duke of Norfolk could not accept as accurate all the figures which had been given. Milk delivered off the farms during the last six months was 12% more than for the corresponding six months of 1939-40. There had been some adverse effect on the cleanliness of the milk, but all possible steps had been taken to maintain cleanliness and purity. There were now 635,000 attested cattle. The four major diseases mentioned by Lord Bledisloe were not notifiable. He could not admit that they were entirely avoidable. Research was at present handicapped by shortage of labour, buildings, and veterinary surgeons. A voluntary scheme for control of diseases of dairy cattle had come into operation in England in June, 1942, and in Scotland a few months later. The Ministry of Agriculture provided free laboratory diagnosis, free abortion vaccine, and, at a low price, sulphanilamide for certain forms of mastitis. Vaccination of calves against contagious abortion was introduced at the end of 1944. Unfortunately the Ministry of Agriculture had been unable to supply the whole of the vaccine demanded and had to curtail the scheme. Farmers had been encouraged to dispose of animals suffering from disease not readily susceptible to treatment. Orders for slaughter were resorted to only in very bad cases. Proposals on the training of veterinary surgeons would come before the Council of the Royal College of Surgeons that week and should carry matters further towards legislation to give effect to the Loveday report.

Medical Opinion

Lord Addison said clean milk could not be expected until the water supplies of farms were boldly improved. Lord Moran said that if consumption of milk were increased to 0.8 of a pint per head daily the nation would need a 75% increase in winter production and a 30% in summer production. Dairy cows would have to be increased from 3,200,000 to 4,500,000. That was not an unreasonable target. The National Milk Scheme should become permanent after the war. Milk must eventually be sold by its nutritive value, not by its volume. The controversy on pasteurization was moribund. The bacteriologist had laid it down that this treatment did not affect the nutritive quality of milk. It was not easy to understand why microbes in water caused dismay to the public while microbes in milk were accepted with equanimity. If cattle diseases could be got rid of, milk production would go up by 25%.

Lord Geddes urged research to discover how cows' resistance to disease was affected by varying types of food and by the mineral content of the soil. Lord Glentanar said farmers declared that it was always the best milking cows which developed mastitis. Over-production of milk put a great strain on the metabolic process. Lord Teviot said milk should make contact with the air as little as possible. An eminent physician told him that milk-bars were places which spread diseases.

The Earl of Listowel recalled that under the Food and Drugs Act, 1944, administrative responsibility for hygienic milk production on farms would pass from local health authorities to the Ministry of Agriculture. This change could not be implemented by the Ministry without an increase of its staff, impracticable till after the war in the Far East. Available statistics did not expose the whole extent to which public health had been undermined by dangerous milk. In 1942 a warning had been sounded by a committee of the Medical Research Council on Tuberculosis in Wartime. The death rate did not indicate the ravages of non-pulmonary tuberculosis. They did not know the full extent of the diseases of human, not bovine, origin carried into homes by germs from those who had handled the milk. The plain fact was that our dairy cattle were riddled with disease and appalling damage had been done to thousands of people, mainly in the rising generation. The most effective prophylactic method at present was that which attacked the disease-carrying germ not in the animal but in the product. The quantity of milk heat-treated would be increased by the payment of an allowance from the Ministry of Food for milk so treated. Surveys had been completed in 216 of 621 areas in England and Wales on the classes of milk supplied in each area and the availability of apparatus for heat treatment. The Ministry of Health was convinced that heat treatment, properly carried out, destroyed the germs which materially affected the nutritive quality of the milk.

On the following day, April 12, Lord Listowel amended his remark that the dairy cattle of Britain were riddled with disease.

Health of African Troops

In the House of Lords on April 10 the Duke of Devonshire made a statement on his visit to the West and East African troops serving in India and Burma. He said that the morale of the troops was very high and their health very good. The doctors had been rather afraid that the relative immunity which Africans had obtained from all types of malaria prevalent in their own countries might be of no avail against the somewhat different types prevalent in Burma, but, on the whole, those fears had proved to be ill founded, and the incidence of malaria, when one compared the present campaigns with those of the past, had been remarkably low. The food had been very good indeed, and that had certainly helped to keep the African troops fit and cheerful. He had visited a number of hospitals and was told that there had been no shortage of drugs or medical requirements, which were in sufficient supply.

No. 13

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended March 31.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each Infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	66	4	29	3	—	86	10	38	7	6
Deaths		—	1				2	1		
Diphtheria . ..	495	17	126	97	14	724	39	201	119	30
Deaths	6	—	—	2	—	11	2	5	4	—
Dysentery	394	39	164	3	—	309	55	103	1	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	4	—	2	—	—	1	—	—	—	—
Deaths		—					—			
Erysipelas			38	12	5			40	14	1
Deaths . ..		—					—			
Infective enteritis or diarrhoea under 2 years				19					5	
Deaths	49	8	4	6	2	53	10	12	13	3
Measles*	22,183	1652	290	35	37	2,643	300	436	406	9
Deaths	21	3	—	1	1	—	—	1	2	1
Ophthalmia neonatorum	64	2	20	—	—	74	4	21	—	—
Deaths										
Paratyphoid fever ..	4	—	—	—	—	—	—	2 (B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	746	38	8	6	7	1,277	88	11	23	3
Deaths (from influenza)	27	2	3	—	—	32	2	4	1	1
Pneumonia, primary ..			194	19				266	33	
Deaths		40		4	11		59		22	16
Polio-encephalitis, acute	—	—				—	—			
Deaths		—					—			
Poliomyelitis, acute ..	6	1	—	—	2	6	1	—	—	—
Deaths		—					—			
Puerperal fever		6	19		—		3	16		—
Deaths										
Puerperal pyrexia‡ ..	138	12	13	—	—	168	11	16	4	2
Deaths .. .		1					—			
Relapsing fever ..	1	—			—	—	—			—
Deaths . ..										
Scarlet fever	1,361	52	166	31	48	2,450	165	243	27	78
Deaths	—	—	—	—	—	2	—	—	—	—
Smallpox	—	—	—	—	—	1	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	8	—	2	5	1	5	—	—	10	3
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	1	—
Deaths				—	—				—	—
Whooping-cough* ..	1,123	44	99	29	24	2,141	212	116	88	16
Deaths	11	2	3	2	3	13	2	—	7	1
Deaths (0–1 year) ..	375	47	46	33	28	396	56	84	52	25
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4.677	679	570	191	149	5,076	823	631	289	151
Annual death rate (per 1,000 persons living)			12·9	12·3	§			14·5	18·9	§
Live births	5,850	596	792	308	252	7,451	903	959	439	299
Annual rate per 1,000 persons living ..			15·8	19·9	§			19·5	28·7	§
Stillbirths	186	20	31			217	17	31		
Rate per 1,000 total births (including stillborn)			38					31		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* there was a lowered incidence of infectious diseases, the total notifications for the country falling by the following amounts: measles 3,324, whooping-cough 330, scarlet fever 161, dysentery 26, diphtheria 4.

In Cheshire, Knutsford U.D., 16 cases of dysentery were notified. Warwickshire reported 32 fewer cases of whooping-cough than last week. Measles notifications fell by the following numbers: Yorks West Riding 664, Middlesex 529, Gloucestershire 273, Devonshire 182, Surrey 171, Somerset 157, Lancashire 156. Small increases were recorded in London, Essex, and Hertfordshire.

Dysentery still remains prevalent. Fresh outbreaks occurred during the week in Wiltshire 31 (Salisbury M.B. 24), Staffordshire 13, and Yorks East Riding 11. The other large returns were Lancashire 59, London 39, Gloucestershire 29, Surrey 22, Middlesex 21, Yorks West Riding 21, Warwickshire 17, Suffolk 12, Derbyshire 12, Somerset 10.

In *Scotland* also infectious diseases were less prevalent, the returns being lower by the following numbers: measles 140, whooping-cough 73, acute primary pneumonia 56, dysentery 41, scarlet fever 35. The incidence of dysentery is still very high, although it has fallen by one-third during the past fortnight; the largest returns were Edinburgh 50, Glasgow 21, Dundee B. 15, Fife County 13.

In *Eire* whooping-cough notifications were 20 fewer than last week, and measles 13 fewer, while those for scarlet fever rose by 10, and for diphtheria by 1. Diphtheria continues to be widespread; the 97 cases occurred in fifty-two areas.

In *Northern Ireland* notifications of scarlet fever went up by 14, whooping-cough by 12, and diphtheria by 4; those for measles dropped by 4.

Diphtheria

There is usually a rise in the incidence of diphtheria in the first weeks of the year. Not only has this *not* happened this year but the number of notifications during the first twelve weeks of 1945 was smaller than that reported during the twelve weeks of last summer, when diphtheria was at the lowest level ever recorded. The notifications during the first twelve weeks of the year during the period 1940–5 number: 8,536, 13,525, 10,822, 10,099, 8,279, 5,498. An interesting feature of the recent returns is that the rises in the total for the whole country are often due to local outbreaks. Increases of from 10 to 65 during the past three months have been recorded five times in Lancashire, four times in Yorkshire, twice in Cheshire, and once in Durham, Warwickshire, and Wales. The most notable of these local outbreaks were those in Caernarvonshire, Bangor M.B., where the cases rose from 4 to 55 during Jan. 13–20, and in Yorks North Riding, Whitby R.D., where the rise was from 0 to 24 during March 10–17. Perhaps these severe local outbreaks occur in pockets of non-immunized children. The decline in the incidence of diphtheria has not been uniform throughout the country, and the north has now a larger percentage of the cases than a few years ago. The percentage distribution for the first twelve weeks of the past six years is:

Region	1940	1941	1942	1943	1944	1945
London	4·4	4·4	3·7	5·0	4·7	4·1
South-East	6·0	4·1	3·5	3·7	3·7	4·1
South-West	5·5	7·7	3·5	2·7	2·9	3·8
South Midland ..	5·1	6·8	4·1	2·6	3·2	2·9
Eastern	3·1	2·2	2·1	2·4	3·1	3·0
West Midland ..	12·9	13·8	12·1	15·6	15·5	13·3
North Midland ..	6·4	8·2	6·8	5·6	3·9	5·0
North-West	20·2	22·8	26·5	25·9	22·3	23·0
Yorkshire	11·4	11·6	15·3	16·9	15·7	15·4
Northern	9·2	6·8	12·2	11·1	14·8	15·7
Wales	15·8	11·5	10·0	8·4	10·0	9·5
Port Sanitary Districts	0·1	0·2	0·2	0·04	0·1	0·2
England and Wales ..	100	100	100	100	100	100

The fatality rate, judged from the experience of the great towns, has also fallen, and is only half of the rate of five years ago. For the 126 great towns the deaths per 1,000 cases during the first twelve weeks of the year during 1941–5 were 62, 51, 48, 34, 30. It is not possible from official statistics to compare the age distribution of diphtheria cases prior to June, 1944, but the reports of medical officers of health suggest that the age of attack has increased and adolescents and adults form a larger proportion of the cases than ten years ago. Despite the lowered killing power, the present form of diphtheria is of a virulent type and often leads to a grave type of paralysis.

The success so far obtained in depressing the incidence of diphtheria does not warrant any let-up in the immunization campaign. The majority of children have now been protected, but the proportion does not approach 75%. A few years' births can easily reverse the proportion of immunized to non-immunized if there is any falling off in the numbers of young children being inoculated.

Week Ending April 7

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,343, whooping-cough 1,043, diphtheria 453, measles 22,599, acute pneumonia 693, cerebrospinal fever 66, dysentery 306, paratyphoid 3, typhoid 5. One case of typhus occurred in Liverpool port health district during the week ending March 24.

Medical News

Sir John Boyd Orr, M.D., F.R.S., standing as an Independent candidate in the Scottish Universities Parliamentary by-election, has been returned with a majority of 12,020 votes over the Liberal National candidate. Dr. Robert D. M'Intyre, standing as a Scottish Nationalist, has been returned for the Motherwell Division with a majority of 617 over the Socialist candidate. Dr. M'Intyre is at present in the service of the Glasgow Corporation Public Health Department.

Dr. W. B. J. Pemberton, of Bermondsey, S.E., has been adopted as Liberal National candidate for the Parliamentary Division of West Bermondsey, and Dr. D. Stark Murray as Labour candidate for Richmond, Surrey.

The following films will be shown by the Scientific Film Association at the Royal Society of Medicine, 1, Wimpole Street, W., on Wednesday next, April 25, at 5.30 p.m. and again at 8 p.m.: "A Cautionary Tale about Sepsis," "A B C D of Health," "The Treatment of Bronchiectasis in Childhood," and "The New Lot." Admission will be by ticket only, and those who have not already done so should apply immediately to the honorary secretary of the Medical Committee, Dr. S. J. Reynolds, 14, Hopton Road, S.W.16.

The Association for Scientific Photography has formed a Medical Group which is holding its first meeting on Wednesday, April 25, at 6 p.m. in the Hastings Hall, B.M.A. House, Tavistock Square, W.C. Business will include passing rules and electing two Provincial members to the committee. Fl. Lieut. H. Mandiwall, M.B., will then read a paper on "Visual Education in Medicine." Each member may introduce two visitors at this meeting.

Prof. P. A. Buxton, F.R.S., will give an address on "Natural History of Scrub Typhus" before the Royal Institution (21, Albemarle Street, W.) on Friday, April 27, at 5 p.m.

Tuesday, May 1, is Hospitals Day for London. Those who wish to help should write to the appeal secretary of their local voluntary hospital or to Lord Luke, Chairman, Hospitals Day, 36, Kingsway, W.C.2.

Sir Howard Florey, F.R.S., professor of pathology in the University of Oxford, has left London for Sweden to lecture on subjects connected with penicillin. His visit has been arranged by the British Council at the invitation of the Swedish Medical Society. Lectures to medical organizations in Stockholm and other cities on "The Experimental Background to the Clinical Use of Penicillin" and "The Use of Penicillin in the Clinic" will be illustrated by films and slides, and Sir Howard has with him a film on penicillin laboratory investigations to show to specialists. He will also visit Finland.

Two scholarships of £50 each are to be awarded by the National Association for the Prevention of Tuberculosis to health visitors wishing to specialize in tuberculosis work. Details from the Secretary-General, N.A.P.T., Tavistock House North, Tavistock Square, W.C.1.

The President of the Polish Republic has conferred the Order of Polonia Restituta, Second Class, on Sir John Fraser, Bt., K.C.V.O., Ch.M., F.R.C.S.Ed., principal and vice-chancellor of the University of Edinburgh, and the Third Class of the Order on Prof. L. S. P. Davidson, M.D., F.R.C.P., professor of medicine, University of Edinburgh.

Summer courses for leaders of physical recreation, arranged by the Central Council of Physical Recreation, will be held at Lowther College, Bodelwyddan Castle, Abergele, from July 28 to Aug. 25. Thirteen different courses will fill the four weeks, and are open to men or women of 18 and over, and there is also one course for boys and girls of 16 and over who wish to help with physical recreation in clubs, youth centres, etc. Full particulars of fees and accommodation can be obtained from the General Secretary, Central Council of Physical Recreation, 58, Victoria Street, S.W.1.

Letters, Notes, and Answers

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ANY QUESTIONS?

Acute Gastro-enteritis

Q.—*I have been attending many cases of "abdominal influenza," with severe and continuous pain in the upper abdomen, slight vomiting, but no bowel action. The pain persists for 10 days, gradually lessening. Sometimes there was a less severe repetition. The temperature is about 100–102° F. (1) What is the pathology of this complaint? (2) How can such an attack be distinguished in the early stage from an "acute abdomen" needing operative surgery? (3) What is the treatment?*

A.—We may take leave to doubt whether such a condition as "abdominal influenza" actually exists. Certainly there seems to be no evidence that influenza virus or antibodies have been demonstrated in cases so classified. Most illnesses of this kind are Salmonella infections, acquired from water, food, or carriers. Diarrhoea may not occur, and it is usually absent in paratyphoid fever. Relapses or second attacks are not infrequent. The underlying morbid anatomy is an acute gastro-enteritis. An aetiological diagnosis can be made by blood culture, agglutination reactions, or cultures from the stools. Differentiation from surgical lesions is made by the early presence of fever, the absence of rigidity or severe tenderness, and the general march of the symptoms. There is no specific treatment, as neither penicillin nor sulphonamides are effective. A less common cause of symptoms of this type is a sub-icteric attack of infective hepatitis.

Acute Lumbago

Q.—*What is the pathology of acute lumbago—the instantaneous onset of agonizing, immobilizing pain often unassociated with muscular effort at the time? If it is due to spasm of the erector spinae muscles, then what is the cause of the spasm and what maintains it?*

A.—To discuss the pathology of acute lumbago fully would take pages. The cause of the instantaneous onset of severe pain which is occasionally met with is generally believed to be muscle spasm affecting small areas of the erector spinae or quadratus lumborum. Vigorous effort is quite unnecessary to give rise to it; even a small movement in changing posture may suffice, especially if the spine is in a twisted position or if there is any morbid condition of the facets of the intervertebral joints, inflammatory or degenerative, or thinning of the intervertebral disks with or without prolapse of the nucleus pulposus, so that the vertebrae are not held firmly by the attached ligaments. The acute pain which is set up in the knee when a loose body or a thickened synovial fringe is caught between the articular surfaces is of the same nature. Another cause is believed to be herniation of fat lobules through small apertures in the layers of deep fascia which have been demonstrated by biopsy. Local areas of inflammation which may be due to gouty deposits may be irritated by slight movement and an acute spasm results in adjacent muscle bundles. The relief obtained by injecting 10 or 20 c.cm. of 1% novocain saline is due to relaxation of the spasm; suitable manipulation may produce the same result. Fuller discussion of these factors will be found in papers by Capener (*Ann. rheum. Dis.*, 1944, **4**, 29) and by Ackerman and Copeman (*Quart. J. Med.*, 1944, n.s., **13**, 37).

Ill Effects of Tobacco

Q.—*What is the active principle in tobacco which is responsible for the well-recognized effects of tobacco poisoning on the gastro-intestinal mucosa, the heart, and the eye? Is there any method of assaying the blood or tissue levels of this substance?*

A.—It is uncertain what the question means when it speaks of the well-recognized effects of tobacco poisoning on the gastro-intestinal mucosa, etc. While some clinicians believe that smoking increases the tendency to gastric ulcer, others deny this, and the work of Schnedorf and Ivy (*J. Amer. med. Ass.*, 1939, **112**, 898) failed to discover any effect of smoking on gastric acidity. Since Ivy is an experienced and impartial worker, great weight must be given to his results. Nor can it be said that the effects of tobacco poisoning on the heart are well recognized. It is, of course, true that athletes in training do not smoke, but the detrimental effect may not be on the heart. While some observers think that smoking increases the tendency to coronary disease, there is no actual evidence that it does. So far as the eye is concerned, tobacco amblyopia is certainly a well-recognized effect. It has always been presumed to be due to the nicotine present in tobacco smoke, but there is no proof of this.

Morquio's Disease

Q.—*A child aged 3 years, suspected of rickets on account of some deformity of the chest and spine, has been x-rayed, and diagnosed as probably a case of Morquio's disease. What is the treatment for this unusual condition?*

A.—This "disease" was also described by Brailsford in 1926. It is one of the queer congenital dysplasias, causing dwarfism and multiple deformities of the spine and limbs. A synonym, equally illuminating, is "chondro-osteodystrophy." Although affecting mainly the bony and cartilaginous tissues, there is no known disturbance of calcium metabolism. The origin of the condition would appear to be a developmental anomaly arising in intra-uterine life. For the "disease" there is no treatment, but for the deformities orthopaedic correction may be indicated.

The Pain of Abortion

Q.—*In a case where there was a miscarriage in a primigravida at 20 weeks, and in another where large quantities of progesterone had been given to prevent a threatened abortion, when the abortions became inevitable there was an extreme amount of pain, consisting of long spasmodic contractions much longer in time and stronger in severity than would be expected. Could the progesterone be responsible and have there been any similar experiences?*

A.—The amount of pain experienced during abortion is very variable—as it is during labour at term. The pain caused by contractions of the uterus, as distinct from that due to distension of the vagina and perineum, is not dependent on the duration of the pregnancy and the size of the baby, and it is not uncommon for abortion pain to be extremely severe and distressing to the patient. Some women who have experienced both, assert that the pain of abortion is worse than the pain of labour. As suggested in the question, this may sometimes be explained by the fact that the premature expulsive contractions of the uterus are spasmodic or colicky and incoordinate. The outlook of the woman may be important; unlike labour at term, abortion is accompanied by a sense of disappointment and the knowledge that the discomfort will be fruitless. This can not only affect the woman's resistance to pain but in itself disturb uterine polarity. Although it has been suggested that progesterone renders uterine contractions incoordinate in the sense that it prevents purposeful expulsive action, and although spasmodic dysmenorrhoea rarely occurs except when the uterus has been subjected to the influence of this hormone, there is no evidence as yet to show that abortion is more painful when it follows progesterone therapy. It can certainly be very distressing even when progesterone has not been administered—as in the first case mentioned in the question.

Treatment of Cholecystitis

Q.—*Have any of the sulphonamides been used in the treatment of chronic cholecystitis, and if so with what results—or is surgical procedure still essential? A patient on x-ray examination shows no stones but a low-grade cholecystitis. Gastric symptoms are almost absent but there is some general rheumatism.*

A.—The sulphonamide drugs are secreted in the bile in the same concentrations as, or higher than, they occur in the blood. It is therefore easily possible to secure bacteriostatic concentrations of these drugs in the gall-bladder. No record of the effects of treatment of chronic cholecystitis in this way has been noted. It would presumably be necessary to give the drug for a considerable period of time in a dosage of the order of 1 gramme 6-hourly, and a careful watch would have to be kept on the white blood count, particularly during the second to sixth weeks of treatment. From the scientific point of view there would be little to recommend trying such a treatment in a single case; but in the present instance, where the indications for surgery seem rather slender, it might be a justifiable clinical experiment.

Nutritive Value of Egg-white

Q.—*Albumin water is sometimes advised for ill patients. What is the nutritive value of egg-white?*

A.—The caloric value of an egg weighing 50 grammes is 68. The yolk of the egg provides 53.5, and the white 14.5 calories, which is derived from 3.5 grammes of protein. The white is made up with either 6 or 10 oz. of water, and a 2-oz. feed will contain about 3 or 5 calories. This is a very small amount, and a lump of sugar weighing 5 grammes provides 20.5 calories. In three books on paediatrics albumin water is still mentioned among other fluids in the treatment of gastro-enteritis, and two of the books give directions for making it; one says it should not be used as it may cause vomiting if the child is sensitive to eggs; three other books do not mention its use. It seems a wasteful and expensive way of giving a very little food.

Injury from Ear-syringing

Q.—*Does syringing of ears (1) cause rupture of ear-drum, or (2) precipitate an acute suppurative otitis media in an appreciable number of cases where an ordinary metal syringe is used? A man with Eustachian catarrh developed acute suppurative otitis media (right) after syringing of the ear.*

A.—(1) If done properly syringing should not cause rupture of the ear-drum. The stream of water should always be directed against the posterior meatal wall. Most alleged cases of rupture are in fact infections caused by syringing in the presence of an unsuspected pre-existing dry perforation. Rarely the nozzle of the syringe becomes detached and a genuine traumatic perforation results.

(2) The same considerations apply. Infection cannot take place through an imperforate drum. It may well appear to do so, as suppuration follows the acute catarrhal condition where the organism is sufficiently virulent or the patient's resistance is lowered.

Rotation of Hip-joint

Q.—*How does the orthopaedist define internal rotation of the hip-joint? Presumably the right femur with hip and knee extended would be internally rotated by clockwise rotation. If hip and knee are now flexed and the foot carried over to the left side of the body is this internal rotation of the hip, though the femur now rotates contra-clockwise?*

A.—There is no ambiguity about rotatory movements at the hip, provided that comparisons with the hands of a clock are avoided. The axis of rotation is the centre of the femoral head, and since its surface forms the greater part of an almost perfect sphere, rotation can be estimated with equal facility whether the hip is flexed, abducted, or adducted. Internal rotation is a rotation towards the mid-line of the anterior sector of the thigh; the anterior surface of the femoral head moves medially and more deeply into the acetabulum; the great trochanter moves forwards and, if it lay in the neutral position, becomes slightly more prominent; and the lesser trochanter moves posteriorly and laterally, so that it often becomes invisible in an antero-posterior radiograph.

A simple method for estimating the range of internal rotation, though not accurate, is good enough for almost all clinical work. The patient lies supine with his feet together, the great toes pointing to the ceiling. Move the sound lower limb out of the way by abducting it; then with the ankle on the affected side in the neutral (standing) position, rotate the whole lower limb inwards, taking care not to shift the pelvis out of the horizontal plane. Rotation inwards through one-third of a right angle would be recorded as I.R. 0-30°. It may be that the limb shows some internal rotation deformity—i.e., the foot cannot be brought into the vertical plane when the patient is supine—then one starts from the position of deformity and measures the rotatory movement that is possible: it might be, say, 10-35°. In such a case there would, obviously, be no range of external rotation. A prettier method is to place the patient supine with the knees flexed at a right angle over the edge of the bed. The leg can then be used as the arm of a protractor, and it is certainly easier by this method to assess the range of rotation accurately. The source of error in both methods is the possible ligamentous instability of the knees: there is a small range of rotation even in the normal joint.

Immunization against Non-endemic Diseases

Q.—*If there is a risk of the introduction of typhoid, cholera, and typhus into this country from the Continent after the war, should immunization against these infections be encouraged?*

A.—Outbreaks of typhoid, cholera, and typhus in different parts of Europe and the Far East are hazards which will require careful and prompt handling if they are not to spread to other centres, including our own country. Typhoid and cholera could be imported here by people who have suffered typical or atypical attacks of these infections and are still carriers of the organism. Typhoid, however, is nowadays a rare infection among the troops on account of prophylactic vaccination, and as they are the principal migrants it seems unlikely that there will be many fresh introductions of this disease during and after the war.

Cholera is not now endemic in Europe; but it is in Burma, India, and farther East. There is no general prophylactic vaccination against cholera, so that convalescent carriers returning from these countries are to be expected. However, cholera is predominantly a water-borne infection, and unless there were a breakdown in sanitation it would have little opportunity to spread in this country. Anticholera vaccines are available, usually combined with T.A.B. vaccine.

Typhus is a louse-borne disease, and if outbreaks in Europe and elsewhere can be dealt with as effectively as was the Naples epidemic by the widespread use of the delousing powder D.D.T., there seems little risk of its being imported. Typhus vaccination is used extensively in the Services and no doubt would be available, if needed, for civilian use. Vaccination against these infections is generally reckoned to give protection for at least two years; after that time, if there is likely to be exposure to the risk of infection, a repeat "boosting" dose is given.

Measles Prophylaxis

Q.—*What are the current views on the prophylaxis of measles—i.e., by the injection of convalescent serum, immune globulin, etc.?*

A.—When a case of measles has occurred in a family there is a choice of two alternatives: (1) to aim at complete protection of the susceptible contacts, who will, of course, become susceptible again between two and three weeks later; or (2) to attenuate the infection, which lets the child off with a mild attack and gives it, so far as we know, lasting immunity. Measles is rare in infants under 3 months of age, but from 3 months to 2 years children should, if possible, be completely protected, and for this purpose an intramuscular injection of 5 c.cm. of pooled convalescent measles serum within 5 to 6 days of exposure—i.e., 1 to 2 days after the appearance of the rash in the original case—is the most reliable procedure. However, convalescent measles serum is not easily obtainable, and the doctor then has a choice of pooled adult serum, obtainable in many areas through the M.O.H. and the E.P.H.L.S., parental whole blood or serum, or placental globulin, obtainable commercially. The protecting dosage of adult serum for children under 3 years of age is 10 c.cm. (double that amount of whole blood), and of placental globulin 5–7 c.cm. For attenuation, half the dose required for protection is used; a good working rule is to give 1 c.cm. of adult serum for every year of life after 2 years. Doctors must remember that there is a small risk of "homologous serum" jaundice from 2 to 4 months after the injection, particularly if pooled serum is used. Lately a new product, gamma globulin, has been used in America and may soon be available here. It is a concentrate of the natural antibodies in adult serum, and controlled trials indicate that its potency is about twice that of convalescent serum.

Miscarriage and Rh Factor

Q.—*In a recent miscarriage (primigravida) at 20 weeks resulting in a live birth—apparently normal foetus which lived for 15 minutes—the mother was of blood group O and Rh-negative; (foetus was blood group B and Rh-positive. W.R. was negative. Could this be sufficient to cause the miscarriage? and is there any advice that should be given to the mother in respect of any future pregnancy?*

A.—From the information given it is unlikely that the blood-group differences between mother and child were responsible for the miscarriage at 20 weeks, unless it was clearly a hydropic foetus. Rh incompatibility is only rarely the cause of such a disaster in a first pregnancy, unless the mother had become sensitized to the Rh factor by a previous blood transfusion. The mother's serum should be examined for anti-Rh agglutinins and for evidence of "incomplete" or "blocking" antibodies, and this should be done towards the end of any subsequent pregnancy. If evidence of anti-Rh is then forthcoming, steps should be taken to prepare to transfuse the infant immediately after birth with Rh-negative blood. Meanwhile the mother should be told not to worry about it, but to await further pregnancy hopefully.

John Knyveton's Diary

Q.—*Is it known whether Knyveton's "Diary of a Surgeon in the Year 1751–2," edited by Ernest Gray and published by D. Appleton-Century Company in 1938, is fact or fiction, or a skilful combination of both? It is a remarkable book if it is what it purports to be—and even more remarkable if it is not. There are, however, various anomalies, some chronological, which make one doubt its strict authenticity.*

A.—This question was dealt with by J. Paul de Castro in the journal called *Notes and Queries* (Feb. 1, 1941, **180**, 76). Mr. de Castro, the author of a life of Richard Mead, based his comments largely on Knyveton's activities during his leisure hours outside Infirmary Hall. Briefly, his criticisms are as follows: (*a*) With reference to the dinner at the Devil Tavern, it is pointed out that, as Knyveton himself says, Samuel Johnson was already a famous man, and it is therefore unlikely that two medical students would have been invited on the spur of the moment to join him at dinner in a very exclusive club. Further, Johnson is referred to as "the doctor." In point of fact he did not receive his doctorate until 1765. (*b*) The scenes described in the Rainbow Tavern are those of a "disorderly house"; yet only five years earlier this tavern was selected for the annual banquet of the Royal Society. (*c*) Knyveton and his friends took a walk "past the grounds of the new house of my Lord Mansfield." Sir William Murray did not become Lord Mansfield until 1755. (*d*) March 15, 1752, was not a fine and sunny day; on the contrary it was remarkable for the great damage caused by high winds.

There are a number of other criticisms, of which the following are samples. (*a*) Despite what Knyveton says regarding his preference for the anatomy book which had belonged to his uncle, there is surely something wrong here. The first edition of the *Anatomy* of Thomas Gibson was published in 1682, and Gibson died in 1722. The last recorded edition appears to have been the sixth (1703). Cheselden's book was very widely used in 1751. (*b*) Henry Baker, the author of *The Microscope Made Easy*, is said by the editor in the glossary to have been at one time President of the Royal Society. This is not the case. (*c*) Spallanzani was only 22 years old when the Diary was supposed to have been written; the first of his great papers did not appear until 1768. (*d*) Lind's *Diseases of Europeans in Hot Climates* is stated by Knyveton to have been "recently published." It was not in fact published until 1768.

It seems to be established that the book is not an authentic journal. There is no means of deciding whether it is pure fiction or a mixture of fact with fiction. Apart from discrepancies such as those noted, the facts are relatively accurate, and there is no doubt that the book does give a very clear and readable picture of the medical life of the time.

INCOME TAX

Car Allowance: Depreciation

"A." is employed whole-time in a number of hospitals. He receives an allowance of £*x* to cover repairs and road tax and a mileage allowance at the Civil Service rate. Can he claim depreciation?

⁂ The intention of the employing authority appears to be to bear the whole cost of the use of the car for professional purposes, and we are of opinion that the mileage allowance would be regarded as covering the depreciation of the car.

Investments in Building Societies: Start of Consulting Practice

C. C. M. inquires (*a*) whether there is any legal objection to investing more than £5,000 in various building societies, and (*b*) what is the position during the early years of the setting up of a consulting practice when expenses may exceed gross earnings.

⁂ (*a*) There is no such legal objection; if the £5,000 is exceeded the investor is nevertheless entitled to the benefit of any arrangement made by the building society under which the interest is paid without deduction of tax. (*b*) If the expenses exceed the gross earnings the resulting loss can be set off against other taxed income under Sec. 34 of the Income Tax Act, 1918. It is to be assumed, however, that the expenses claimed will be scrutinized from the point of view of the extent to which they can properly be allowed as incurred to obtain the small receipts expected in the very early years.

Liability of Married Persons

S. J. has married recently and inquires as to the effect on his income-tax liability.

⁂ As the marriage took place before April 5, 1945, the higher personal allowance (i.e., £140 in lieu of £80) will be due to S. J. for 1944–5. His wife will be entitled to the £80 personal allowance against her earnings up to the date of marriage, and to the married woman's earned income allowance of £80 against subsequent earnings in 1944–5. For 1945–6 the two incomes will in effect be aggregated and the tax assessed on the husband, but the wife will remain entitled to the £80 married woman's earned income allowance, but *not* to the reduced rate of tax—unless, of course, the £165 chargeable at the reduced rate on the husband's earnings is correspondingly restricted.

Cost of Instruments and Car

F. C. took up his first appointment last September, and has been told that he cannot claim a deduction for instruments for at least a year. He receives a travelling allowance of £100 a year and has been using a bicycle, but proposes to buy a car.

⁂ The cost of the initial equipment of instruments, etc., is regarded as an outlay of capital, and is not deductible for income-tax purposes. Repairs and replacements, however, can be charged against salary, provided that the maintenance of the equipment is wholly, exclusively, and necessarily required in performing the duties of the appointment. As regards the purchase of the car, the same rule applies. There is, however, the additional difficulty that as a bicycle has hitherto been sufficient F. C. will have to bear the onus of proving that a car has become necessary. If he can do this he is entitled to claim the excess of the running cost (including depreciation) incurred for professional purposes over the £100 a year allowance he receives.

LETTERS, NOTES, ETC.

Cause and Treatment of Stitch

Dr. J. KENNISH (London, S.W.4) writes: It may help Mr. Hollman (*Journal,* March 10, p. 355) and his friends if I suggest that one teaspoonful of confection of sulphur taken the night previous to the cross-country run will probably prevent the "stitch." About fifty years ago my fellow-student runners rarely had stitch after adopting the above treatment. We ran in all weathers—through rain, sleet, and snow. We always wore ordinary light running costumes.

Common Salt for Cleaning Teeth

Dr. H. WATSON TURNER (London) writes: In your "Any Questions?" (Feb. 17, p. 244) you give a most pleasing, simple, and excellent answer under the above heading. For 3½ years during this war I worked as temporary assistant dental surgeon to a county health service, and this question and answer opens up, to my mind, the most important fact of all our dental work—oral and nasal hygiene. School inspections are often far too casual—just a glance and note if the teeth are to be extracted or "filled." I always advise a saline solution as being simple, easily obtained, cheap, and effective as a mouth-wash and gargle for cleaning gums and cheeks, and brushing the teeth and washing the nose.

Relation between Herpes and Varicella

Squad. Ldr. H. R. E. WALLIS, R.A.F.V.R., writes: At the age of 12 I had chicken-pox. Last year, at 29, I developed herpes zoster and was confined to bed at home. Eighteen days after the onset of pain my daughter, aged 16 months, developed chicken-pox, and two days later my wife also succumbed. Neither of them had previously had chicken-pox or herpes. It seems, therefore, that chicken-pox does not confer an immunity against herpes. It would be interesting to know if the reverse is true. Perhaps the mechanism is that when a patient meets the virus he develops chicken-pox if he has not previously been infected and herpes if he has. Another point that may be relevant is that about 28 days before the onset of pain I had acute pain in the sacral region, which I considered at the time to be due to fibrositis caused by exposure to damp. Perhaps this was a prodromal manifestation at the time of entry of the virus into the nervous system. The last contact with a case of herpes zoster was nine weeks before my attack began, and I had not seen a case of chicken-pox for several months. Accounts of other experiences would be interesting. I am afraid I have no access to recent published work on the subject.

Dr. C. COLEY GRAYSON (Birmingham) writes: As another instance of the apparent connexion between herpes zoster and varicella may I cite the following: A girl 6 years old was brought to me on Feb. 26 with a typical herpes zoster of the upper abdominal wall on the right side. (Unusual at that age, I thought.) Her brother, aged 4, was brought to me to-day (March 13) with an unmistakable varicella. The interval between the two cases (15 days) is well within the incubation peiod of varicella. Both children had measles two months ago.

"General" Practice in Australia

A SURGEON with the British Pacific Fleet writes: One of the most impressive things to a medical visitor to Australia is the high standard of general practice. Most Australian graduates after completing their house appointments aspire to travel to England ("go home," as they say) and see some work there. A high percentage achieve their ambition and not only go home, but while there obtain higher qualifications such as the M.R.C.P. and F.R.C.S., with the result that a relatively large proportion of Australian practitioners possess these qualifications. Quite apart from this, however, a sound curriculum and good teaching in the Australian Universities have combined with the natural enterprise found in a young country and fostered by its vast spaces and scattered population to produce a very competent type of all-round country practitioner with much initiative, as the following incident will show. A practitioner "out back" had under his care a boy aged 13 with osteomyelitis of the upper end of the tibia. He operated and drained a subperiosteal abscess, and for a time the boy appeared to be doing well, as the local condition subsided and healing took place. His general condition, however, began to deteriorate; he became cyanosed and dyspnoeic, and developed precordial pain with a fast, weak pulse. The practitioner diagnosed suppurative pericarditis. There was no consultant available from whom to obtain help, and he related quite simply how the only person with whom he could discuss the case was the boy's own father, who agreed that his son was dying and consented to an operation. The practitioner explained the desperate nature of this; he had not only never done the operation but had never seen it done. As the boy was too ill for a general anaesthetic, a little novocain was infiltrated into the presternal tissues as he lay in bed. This intrepid practitioner then very modestly and simply explained that he had been afraid of haemorrhage from the internal mammary artery. So he drilled a hole through the sternum with a perforator and burr. The pericardium bulged into this opening and he incised it, evacuated the pus, and put in a drain. The boy made a good recovery from his desperate condition. Pericardiac surgery in a country homestead by a family practitioner who had not only never previously had any experience of it but had never even seen it performed, and who himself had unaided to make the diagnosis which called for it, indicates a truly high standard of work among practitioners "out back."

Liquid Paraffin and Delayed Dentition

Dr. W. L. ENGLISH (Crewe) writes: From clinical observation babies seem later in cutting teeth than formerly, and when the teeth eventually appear they are often carious and ill developed. One or two doses of calcium and vitamin D subcutaneously show at times an immediate and gratifying acceleration of development in these cases of delayed dentition. It is fairly certain that dentition is a pre-natal issue, possibly as early as the appearance of the enamel and dental germs in the second and third months of pregnancy and embryonic life. The development of these germs depends to a great extent on the environment of the foetus, which is, of course, dependent on the source of nourishment of the foetus—the maternal metabolism. It is generally accepted that the fat-soluble vitamins A and D are necessary for the development of both bone and teeth in the foetus. For the last few years it has become fashionable for pregnant women to take liquid paraffin. The use of this inert substance is insisted on by midwives, and, I fancy, by most ante-natal clinics: expectant mothers would consider it almost a crime if they did not follow the fashion. To what extent has this widespread use of an inert oil been responsible for delayed dentition and caries in deciduous teeth? I understand that liquid paraffin will absorb, and in doing so rob a woman of, the fat-soluble vitamins A and D. So much liquid paraffin ingested, so much fat-soluble vitamin eliminated and lost. If this is fact, the practice of taking liquid paraffin is robbing the foetus of something which is essential to the development of both teeth and bones. Perhaps someone with more knowledge of these matters than I have will give an authorative opinion.

Antibiotic Action of Moulds

Dr. M. COPLANS (Hendon) writes: With reference to the inquiry on this subject by Capt. I. G. Anderson (April 7, p. 504) the following information may prove useful to him as a starting-point for further study: (1) *British Medical Journal,* March, 26, 1927, p. 580. Annotation, "French Experimental Work on Tuberculosis." (2) *Bulletin de l'Académie de Médecine,* Feb., 15, 1927, **97,** No. 7 p. 202, "Nouvelles Recherches sur le Développement du Bacille Tuberculeux. Applications Thérapeutiques," by Drs. A. Vaudremer, E. Puthomme, and J. Paulin. The organism employed appears to be *Aspergillus fumigatus* (not *niger*). There is a reference to Vaudremer's earlier work which appeared in the *Annales de l'Institut Pasteur,* March, 1910. (3) There is also a publication by Dr. Albert Vaudremer, "Le Bacille Tuberculeux. Etudes Bactériologiques, Cliniques et Thérapeutiques," Paris, 1927, Les Presses Universitaires de France. (*Vide* Chap. 20, p. 191, "Traitement par le Liquide de Culture d'*Aspergillus fumigatus* Filtré.") There is an excellent bibliography

Mixed Drinks

Dr. PABLO OSVALDO WOLFF writes from Buenos Aires: Referring to the discussion of "Mixed Drinks and Hangovers" in the *British Medical Journal* of Nov. 11, 1944, I may be permitted to add that the main reason for worse after-effects of cocktails and other mixed drinks than of pure drinks is to be found in the presence of relatively considerable essential oils which mixed drinks very often contain. The same amount of good brandy, in the same concentration, will generally do much less harm than do mixed drinks under equal conditions. The bad effect of those essential (volatile) oils, especially on the heart and the circulation and on the central nervous system, is well known. There exists some literature on the subject; may I quote only one paper written by my late friend Prof. W. E. Dixon, *Brit. J. Inebriety,* 1929, p. 148; another by Brasher, ibid., 1931, **29,** No. 1; G. Guillain, *Bull. Acad. Méd.,* Paris, 1929, p. 538.

Corrigenda

Delay of proofs in the post prevented Major Kendal Dixon from correcting a mistake in his article on "Penicillin and Fibrinolysis" last week. In the second paragraph of column 2 on page 515 the number 1,000,000 units should read 100,000 units.

In the report of the meeting of the Section of Otology of the Royal Society of Medicine (April 7, p. 493) the ranks of the two R.A.F. speakers were incorrectly given. They should be *Air Commodore* E. D. Dalziel Dickson and *Wing Commander* G. H. Bateman.

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INTRAVENOUS ARSENIC IN TREATMENT OF ANGINOUS FORMS OF GLANDULAR FEVER

WITH NOTES ON CLINICAL AND LABORATORY DIAGNOSIS

BY

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Severe inflammation of the tonsils and fauces in glandular fever may cause serious illness which may even threaten life. It is the purpose of this paper to report the remarkably beneficial effect produced by intravenous injection of arsenic in six examples of this anginous form of glandular fever which have been met with at intervals over a period of 18 months. In general, the treatment of glandular fever is solely palliative, but for this special anginous group arsenic not only produces conspicuous and rapid improvement but may on occasion appear to be life-saving. Case histories illustrating the results of such treatment are recounted, and discussions on other methods of treatment and on the diagnosis and aetiology of the condition follow. For purposes of illustration reference is made to further cases of glandular fever seen during the same period, though not treated with arsenic.

Case I

An officer, aged 21, noticed between June 4 and 8, 1942, that he was sweating at night. This increased during the following week, but he still felt well during the daytime. On June 10 he complained of sore throat for the first time, and during the next 4 days his neck became swollen and stiff. Dysphagia developed, and became so severe that he could swallow liquids only. On June 15 he was admitted to a military hospital. On examination he looked ill and toxic. Cervical glands of the anterior and posterior triangles on both sides were grossly enlarged, giving a bull-neck appearance. Both tonsils were enlarged and inflamed and covered with purulent-looking exudate. A throat swab at this time showed only a few spirochaetes, but no fusiform bacilli or pus cells; culture for *C. diphtheriae* was negative, but there was a moderate growth of a haemolytic streptococcus. 48,000 units of diphtheria antitoxin were given on admission. During the next 48 hours the condition of the patient became grave. There was considerable bleeding from the tonsils. The spleen and axillary glands became palpable. All local and symptomatic treatment was without avail. The result of blood counts on June 16 and 17 are shown in Table I, and the Paul-Bunnell titres on the latter day confirmed the diagnosis. The Kahn test and aerobic blood culture were negative. On June 17 administration of sulphapyridine (10 g. in the first 24 hours) was begun, and at the same time novarsenobillon (M. and B.) 0.45 g. was given intravenously. In 12 hours dramatic improvement was evident, with cessation of tonsillar bleeding and an abrupt fall in temperature and pulse. Everyone who saw the patient was impressed by the rapid transition from an exceedingly grave state to commencing convalescence. Uneventful complete recovery followed.

TABLE I.—*The Haematological Findings in the Anginous Cases I–VIII*

Case	Date	Days from Onset of First Symptoms	Paul-Bunnell Titre	White Cells per c.mm.					
				Total W.B.C.	Neutrophils	Eosinophils	Basophils	Lymphocytes	Monocytes
I	16/6/42	10	—	24,600	9,550	40	50	13,100	1,850
	17/6/42	11	10,240	25,800	12,800	200	200	10,300	2,300
	9/7/42	33	10,240	7,400	3,200	—	—	3,700	500
	1/9/42	87	nil	7,500	3,800	70	40	3,350	240
II	26/8/42	9	80	5,200	2,420	20	40	2,100	620
	27/8/42	10	1,280	15,500	6,400	—	100	8,200	800
	26/9/42	40	320	7,500	2,200	20	80	4,600	700
III	2/9/42	78	640	20,600	6,600	50	50	11,350	2,550
IV	20/3/43	9	—	16,000	2,900	150	150	12,800	
	22/3/43	11	640	12,200	1,200	—	—	4,050	6,950
	28/3/43	17	1,280	6,200	1,050	310	250	4,160	430
V	17/3/43	14	80	5,300	2,760	—	—	1,060	1,480
	23/3/43	22	160	—	—	—	—	—	—
VI	2/6/43	15	640	10,800	3,560	—	108	4,968	2,160
VII	—	12	640	38,000	8,360	100	90	27,550	1,900
	—	33	1,280	4,600	1,290	20	—	3,100	180
VIII	—	19	5,120	21,500	3,750	400	170	16,450	730

NOTES.—The Paul-Bunnell tests were done by the method of Barrett (1941). For the most part, lymphocytes and monocytes appeared to be fully mature. In some films a small proportion of the lymphocytes showed evidence of immaturity of the slight degree quite commonly seen in lymphocytosis of varied origin. Occasional immature monocytes were also seen. Cells with vacuolated cytoplasm or with irregular or deeply indented nuclei were not seen. The majority of the lymphocytes were of the small or medium-sized variety.

Case II

An officer, aged 22, noticed stiffness of the neck and shoulders on Aug. 17, 1942, followed by sore throat and shivering on Aug. 21. He was admitted to a military hospital on Aug. 22. On examination there were glandular enlargements in both posterior triangles of the neck and in the right axilla. Temperature 101.4° F. The tonsils were greatly enlarged and acutely inflamed. A throat swab showed no Vincent's organisms; culture for *C. diphtheriae* was negative and there was an almost pure growth of a haemolytic streptococcus. During the following week intermittent pyrexia to 104° continued, the tonsillar swelling with ulceration and exudate increased, further glandular swellings appeared, and on Aug. 29 the spleen was palpable for the first time. Sulphanilamide therapy was started on Aug. 25, a total of 20 g. being given in 72 hours. A blood count on Aug. 26 showed only an absolute neutropenia; but a Paul-Bunnell titre of 1 in 80 was suggestive, and prompted repeat examinations on the following day, when the count and a titre of 1 in 1,280 established the diagnosis of glandular fever. The Kahn test was negative on Aug. 26. Slight albuminuria was present throughout, and for this reason the administration of arsenic was not at first considered advisable. During the next 10 days the temperature tended to fall and there was a slight improvement in the general condition, but the appearance of the tonsils and the glandular and splenic enlargements were unchanged. On Sept. 6 novarsenobillon 0.15 g. was given intravenously. The small dose was chosen on account of the albuminuria. On the next day the temperature and pulse rate had fallen to normal, the albuminuria ceased, and there was conspicuous subjective improvement. Uneventful and rapid full recovery followed without further injections or local treatment.

Case III

An officer, aged 20, was admitted to a civilian hospital in mid-June, 1942, with "septic throat." A blood count at that time showed W.B.C. 10,000 per c.mm., with neutrophils 19%, lymphocytes 66%, monocytes 15%. A Paul-Bunnell test was not done, and we have no information regarding enlargement of lymph glands or spleen, but the subsequent history suggests that this initial illness was glandular fever. The patient returned to duty at the end of July, though not feeling really well. In mid-August he again complained of sore throat with dysphagia and of neck stiffness and sweating. He came under our observation on Aug. 31, when he was admitted to a military hospital. On examination he did not appear acutely ill. Temperature 100° F. There were groups of enlarged discrete glands in the anterior and posterior triangles of the neck on both sides and in the axillae and groins. The spleen was not palpable at any time. The right tonsil was greatly enlarged and ulcerated, with blood and mucus on its surface. This swelling was so pronounced as to immobilize the soft palate on that side, and swallowing provoked nasal regurgitation of fluids and tonsillar bleeding. A throat swab showed no Vincent's organisms; culture for *C. diphtheriae* was negative and there was only a scanty growth of a haemolytic streptococcus. During the next few days the ulceration of the tonsil developed and deepened and the pyrexia continued though the general condition remained much the same. A blood count and a Paul-Bunnell test on Sept. 3 established the diagnosis of glandular fever. No benefit had followed local and symptomatic remedies, and on Sept. 4 novarsenobillon 0.15 g. was given intravenously. On the following day the temperature had fallen to normal and the tonsillar swelling had diminished. After a further 24 hours the tonsillar swelling and exudate had completely disappeared, and rapid convalescence with full recovery followed. No sulphonamide drug was given in this case.

Case IV

A gunner, aged 22, developed sore throat and swelling in the neck on March 12, 1943. He was admitted to a military hospital on the same day. On examination the tonsils were considerably enlarged and the fauces swollen and red. There was no exudate. Large glands were palpable below the left angle of the jaw. The next day there was a membrane on the left tonsil. 32,000 units of diphtheria antitoxin were given and at the same time administration of sulphapyridine was started, a total of 19 g. being given during the next few days, during which the local throat condition remained unchanged and there was continued pyrexia. On admission a throat swab showed large numbers of Vincent's organisms; culture for *C. diphtheriae* was negative. On March 17, when sulphapyridine was discontinued, sulpharsphenamine 0.45 g. was given intravenously. On the following day the temperature was normal and it remained so, rapid subsidence of the throat condition taking place. On March 19 the spleen was palpable and there was an enlargement of axillary, inguinal, and epitrochlear glands. Facilities for further laboratory investigations now became available, and blood examinations on March 20 and 22, together with a Paul-Bunnell test on the latter day, confirmed the diagnosis of glandular fever.

Case V

An officer, aged 28, developed sore throat with swelling of glands on both sides of the neck on March 4, 1943. After 48 hours' treatment with sulphapyridine and local applications the condition appeared to subside completely. It recurred on March 15, and he was admitted to a military hospital on the 17th. On examination he looked ill. Temperature 100.5° F. There were discrete enlarged glands in both posterior triangles, especially in the suboccipital region, and also in the anterior triangles, axillae, and groins. The spleen was not felt. Both tonsils were greatly enlarged, almost meeting in the midline, and showed ulceration with yellow sloughs on their medial aspects. A throat swab showed no Vincent's organisms; cultures for *C. diphtheriae* and for haemolytic streptococci were negative. The blood picture was suggestive of glandular fever, but a Paul-Bunnell titre of 1 in 80 was inconclusive. Progressive deterioration in the general condition followed during the next few days, with remittent pyrexia to 103° F., severe dysphagia, and bleeding from the throat. On March 20 novarsenobillon 0.3 g. was given intravenously. By the same evening there was considerable subjective improvement, and after a further 24 hours the swelling of neck and throat and the tonsillar bleeding had greatly diminished. The spleen was palpable on March 21. During the next few days swelling of the throat further diminished and the patient was able to eat soft food. The sloughs on the tonsils persisted, with further profuse bleeding on March 23, and as remittent pyrexia also continued a further 0.3 g. of novarsenobillon was given intravenously on March 26. On March 30 the throat was completely normal in appearance and the spleen and glands in axillae and groins were no longer palpable, and only a few glands could be felt in the neck. The temperature fell by lysis after the second injection and remained normal after April 1. On March 23 a blood count showed a pronounced mononucleosis and a Paul-Bunnell test a rise in titre to 1 in 160.

Case VI

An officer, aged 37, was admitted to a military hospital on June 1, 1943, complaining of weakness, general malaise, and sweating. About a fortnight previously he had had coryza, with left-sided sore throat and dysphagia. On examination he was feverish (temperature 99°-100° F.) and the throat showed an enlarged and inflamed left tonsil: there was an ulcer with a sloughy base. There were only one or two small glands in the posterior triangles, but enlarged groups of glands were present in both axillae. The spleen was easily felt, and was firm. A papular rash was present over the trunk and buttocks. A throat swab showed many Vincent's organisms. Cultures for *C. diphtheriae* and for haemolytic streptococci were negative. On June 2 the blood count and a Paul-Bunnell titre of 1 in 640 established the diagnosis of glandular fever. A blood count showed 4.5 million red cells, 100% Hb, and 10,800 white cells, of which 33% were polymorphs, 46% lymphocytes, 20% monocytes, and 1% basophils. The Paul-Bunnell test was positive at 1 in 640. On June 4 the glands in the neck were larger, fever was persisting, and the splenomegaly and the rash were unchanged. Intravenous novarsenobillon 0.3 g. was given at noon: within 6 hours there was a diminution of pain and dysphagia, and on the next day the temperature dropped to normal. During the succeeding days the throat healed, the rash faded, and the spleen became smaller. The patient was discharged from hospital on June 14.

Cases VII and VIII

These were mild anginous cases which were under observation concurrently with the first three. They presented no exceptional clinical features and did not receive treatment by arsenic. Accordingly no further description is given, but their haematological findings have been tabulated for purposes of illustration.

Local Treatment of Very Severe Throat Infections

The throat lesions of the anginous type of glandular fever may be among the most severe that can be encountered. Not only may there be massive oedema accompanying the acute inflammation of the tonsils and neighbouring structures, but these may become extensively ulcerated; considerable bleeding may ensue. Bronchopneumonia may develop and bring about a fatal issue. Severe dysphagia often occurs, militating against the full fluid intake so desirable in acute febrile illnesses. In addition, if the lesion is unilateral it may cause asymmetrical dysfunction of the soft palate with resulting regurgitation of fluids through the nose. In these circumstances local treatment becomes a matter of concern.

Scrupulous attention to cleansing of the throat, teeth, and gums was the first essential. No benefit was to be obtained from the usual gargles, such as eusol 1 in 4 solution or Milton fluid, nor from Mandl's paint. It seemed that swabbing with hydrogen peroxide (10 vols.) was the most effective local treatment in the acute stage, while applications of hot cotton-wool or of kaolin eased the pain in the neck. After the very acute stage, and for residual ulceration of the tonsils, a paint made up of equal parts of liq. arsenicalis and tinct. ipecacuanhae was the most effective local application. In throat lesions of this severe order fluids had to be given neither hot nor very cold. In none of our cases was the reduction of fluid intake through dysphagia sufficiently prolonged to necessitate rectal or intravenous infusions. It was important to avoid any medicine containing piquant flavouring agents such as peppermint or ginger. Irritant solutions had to be avoided, and the well-known Army "three fifteens," containing sod. brom. 15 gr., chlor. hydras 15 gr., and tinct. opii 15 m., could not be employed. Morphine 1/4 gr. by injection had at times to be used to induce sleep.

The Use of Intravenous Arsenic

It is evident from the foregoing histories that arsenic was employed in Case I with the aim of countering a Vincent's infection which was believed to be complicating anginous glandular fever. The seeming beneficial effect of the drug in this case prompted its experimental use in Cases II and III even though no Vincent's organisms had been found in the throats. In both, rapid subjective and clinical improvement resulted, and substantially similar results followed the same therapy in the remaining cases. In view of the small number of cases treated in this way, and in the absence of any controlled observations, impressions alone and not definite conclusions are the result. We are aware that in many instances a termination of the condition by crisis does occur, and that there is great variation in the severity and duration of illness in different cases. But in all the cases described here the immediate improvement in the patient's local and general condition, and the marked subjective improvement upon which all the patients themselves commented, do render it difficult to escape the conclusion that the arsenic was greatly beneficial. We find ourselves unable to offer any explanation of its mode of action, for the apparent effect did not extend to other manifestations—e.g., glands and spleen continued to enlarge in some cases, and it is interesting to note that in Case IV the Paul-Bunnell titre continued to rise.

Observations on the Diagnosis of the Condition

The diagnosis of glandular fever is usually not difficult. The disease is suspected more often than it exists, but, in general, strong clinical indications are followed by haematological confirmation. Certain relevant points emerge from consideration of these cases.

1. *History.*—In nearly all cases of glandular fever the history reveals some days of malaise before the onset of the acute illness. It is not uncommon for a patient to mention a recent feverish illness, with or without sore throat, from which an incomplete recovery has been made—e.g., Cases III, V, and VI. Sweating is usually a conspicuous symptom, and may even be the patient's principal complaint.

2. *Glandular Enlargements.*—Posterior triangle glandular enlargements are suggestive in association with sore throat, but if there are no other glandular enlargements the diagnosis is not likely to be established. The natural reluctance to examine the axillae thoroughly in feverish patients should be set aside, since with considerable glandular enlargement here the diagnosis becomes much more probable. The glands in the groin are rarely of diagnostic help unless they are enlarged to a very considerable degree.

3. *Throat Inflammations.*—The suspicion of glandular fever should be aroused in any severe inflammation or ulceration of the fauces in which the findings on microscopical and bacteriological examination of swabs are insufficient to account for the condition—e.g., Cases I and III. Conversely, in some cases the bacteriological findings appear at first adequately to account for the condition of the throat and so obscure the diagnosis—e.g., Case II, in which a pure growth of haemolytic streptococci was obtained, and Case IV, in which large numbers of Vincent's organisms were found.

4. *Blood Cytology.*—Table I illustrates well the wide range of variation which may be met with in the total and differential leucocyte counts, and it is evident that no one diagnostic picture can be described. Further to illustrate the variations which may occur, a case of "glandular" type (Case A, Table II) seen subsequently in an adult showed 3,000 per c.mm. of lymphoblasts and monoblasts out of a total white cell count of 32,000 per c.mm.: at a subsequent count a week later these cells had completely disappeared. While in general some fairly marked departure from the normal is encountered, the blood picture may at first fail to suggest the possibility of glandular fever. It is well for the clinician to bear this in mind in the interpretation of blood counts on cases which are clinically suggestive. In these anginous cases the important feature was a departure from normal in a direction other than the absolute neutrophilia which one would expect in a severe septic throat. Such a finding should certainly prompt repeat counts to determine the maximum mononuclear cell increase.

5. *Paul-Bunnell Tests.*—Whatever may be the significance of the agglutinins for sheep erythrocytes which are developed in this disease, demonstration of their presence in appreciable titre is still an essential factor in diagnosis. Attention is drawn to the following features: (1) In cases seen by the 12th day or earlier a diagnostic titre of agglutinations had already been reached. The very high level of 1 in 10,240 on the 11th day in Case I and its maintenance after a further 22 days is particularly noteworthy. (2) Case II, showing a titre of 1 in 80 on the 9th day and 1 in 1,280 on the following day, illustrates the rapid rise which may occur and emphasizes that repeated estimations of titre may be necessary. (3) In general there was no correlation between the titre attained and the severity of the illness; but the fact that a rapid increase may occur in a short time probably renders this observation invalid in the absence of serial daily determinations. (4) The importance of the absorption tests with guinea-pig kidney extract and autoclaved ox erythrocytes is well illustrated by Case I. In this the final test on the 87th day of the disease gave an unabsorbed titre of 1 in 320, but the agglutinations were completely absorbed by ox-cell suspension and are not to be regarded as of glandular fever type; the titre is accordingly recorded as *nil.*

6. *Response to Therapy.*—Any beneficial action of sulphonamides in glandular fever is exceedingly doubtful, as indeed might be expected if the disease is in fact due to a virus. In this series Cases II and IV received such therapy with no improvement; and Kilham and Steigman (1942) record the same lack of response in five anginous cases. In any acute throat condition treated by sulphonamides without response the possibility of glandular fever should be borne in mind, especially in cases in which a presumably sulphonamide-sensitive organism is present in large numbers (e.g., Case II). In the Army over-seas, the possibility of faucial diphtheria, often presenting atypical features, is of course ever in mind and carefully excluded. Our claims for the beneficial action of arsenic in these severe anginous manifestations of glandular fever may be contested on the ground that they were in effect examples of Vincent's angina superimposed upon glandular fever and that the favourable course was but a substantiation of the merits of the conventional treatment of Vincent's infection. But only three of the cases showed microscopical evidence of Vincent's infection, and the response in the other cases was similar in kind and degree. This prompts the reflection that many cases diagnosed as Vincent's angina, might on further investigation be revealed as cases of anginous glandular fever.

Changes in Bone Marrow

The neutropenia present in many of these cases prompted inquiry into changes in the bone marrow. Sternal puncture was accordingly performed on two cases of mild glandular type. The blood changes in one of these has been previously referred to. The differential counts on the marrow cells are recorded in Table II together with the results of white blood counts taken at the same time. (The classification of the cells has been condensed for the sake of brevity.)

Both marrow smears showed an approximately normal degree of cellularity. It is noteworthy that the highly abnormal blood picture in Case A is not reflected in the marrow. The somewhat high myeloblast count in both suggests a disturbance of granulopoiesis. That this is probably a maturation defect at the myeloblast level is indicated in Case B by the diminution in numbers of more mature myeloid cells—an observation which coincides with the marked blood neutropenia. The normal erythropoiesis is in accord with the customary absence of anaemia usual in these cases.

It is regretted that circumstances were unfavourable to the carrying out of sternal puncture on some of the severe anginous cases. The determination of the degree and level of the marrow defect in such cases would have been of great interest in view of their similarity to agranulocytic angina in some points. It may be noted, however, that the neutropenia in Case B was as pronounced as any met with in our anginous cases.

Table II.—*The Blood and Marrow Findings in Two Further Cases of Mild Glandular Type*

Marrow			Blood		
	Case A	Case B		Per c.mm.	
				Case A	Case B
	%	%	Total W.B.C. ..	32,000	17,000
Segmented polymorphs	18·0	8·4	Neutrophils ..	5,250	1,200
			Lymphocytes ..	21,250	14,450
Metamyelocytes ..	23·2	13·4	Monocytes ..	2,560	1,180
Myelocytes ..	19·2	11·2	Lymphoblasts and monoblasts	2,940	170
Premyelocytes ..	8·2	8·2			
Myeloblasts ..	6·2	9·6			
Lymphocytes ..	13·0	15·2			
Monocytes ..	0·6	5·4			
Haemocytoblasts ..	0·4	2·2			
Erythroblasts ..	3·0	6·6			
Normoblasts ..	8·2	19·8			

Observations on the Aetiology of the Faucial Ulceration in These Cases

Glandular fever presents many diverse signs, and in general this may be ascribed to the great variation in the amount and situation of the lymphoid hyperplasia throughout the body. It is indeed remarkable that in a generalized septicaemic infection such as this, whose dominant feature is lymphoid hyperplasia, many areas of lymphoid tissue appear to escape relatively unaffected. There is a tendency to regard anginous glandular fever as a distinct type, whereas rather would it seem to be a fortuitous manifestation of a general infection depending upon the occurrence of a maximum degree of hyperplasia in the lymphoid tissue of the fauces with subsequent ulceration of the overlying mucosa.

It has been seen that neutropenia of some degree was present in all our cases at some stage of the disease, and Kilham and Steigman (1942) report a similar finding. It has been suggested that this neutropenia bears a direct aetiological relationship to the occurrence of faucial ulceration—that the lesions are in fact of similar nature to those seen in agranulocytic angina. Against this view the following points may be mentioned: (1) The neutropenia is not confined to the anginous type of the disease. (2) In no case did it amount to the complete or nearly complete disappearance of neutrophils seen in agranulocytic angina. (3) Neutropenia of the same intensity as that seen in many of these cases—perhaps even a greater intensity—is observed in many conditions of which faucial ulceration is not a feature. (4) The stage of the disease at which it was observed in our cases varied greatly and in general could not be correlated with the condition of the throat: for example, Case I, one of the most severe, showed a neutrophilia during the worst phase, a moderate neutropenia appearing later; while in Case IV healing occurred despite the persistence of a severe neutropenia. (5) In agranulocytic angina there is evidence of long-continued neutropenia before the onset of faucial ulceration. The same may be the case in glandular fever, but in general the period of malaise before the faucial ulceration starts is relatively short, though it seems a more likely occurrence in the "double" or relapse type of illness seen in Cases II and V. If neutropenia does occur it no doubt facilitates the invasion of broken surfaces by secondary bacterial invaders, and so the initiation of a further degree of neutropenia by sulphonamides might adversely affect the outcome. Hence we consider that sulphonamide therapy is absolutely contraindicated in all cases of glandular fever, for a greater degree of neutropenia so induced may facilitate the development of the anginous form as the disease progresses. A possible example of this occurrence is Case V.

On the available evidence our conclusion is that neutropenia plays probably only a secondary part and is not in itself the cause of the ulceration. Further studies are needed for elucidation of this point. Blood and marrow studies during interim periods, such as were observed in Cases II and V, might yield information of interest

Summary

Among patients with anginous forms of glandular fever are to be found some of the severest throat infections encountered in medical practice. Acute inflammation with purulent exudate, oedema, ulceration, haemorrhage, and mechanical interference with the action of the soft palate may severally be present.

Six patients suffering from anginous glandular fever were treated with intravenous arsenicals. Speedy and conspicuous benefit was obtained.

The haematological findings in these and other cases are tabulated and discussed. In cases seen before the 12th day a conclusive diagnostic titre of agglutinations had already been reached.

The general treatment and management of very severe throat infections are considered.

Diagnosis is reviewed briefly from the standpoints of history, glandular enlargement, throat inflammation, haematology, and response to drugs.

Neutropenia was present at some stage in each of our cases. Its significance is discussed. Since sulphonamides are apt to cause neutropenia they are contraindicated in this disease.

Our thanks are due to Major G. L. Robinson, R.A.M.C., for carrying out laboratory investigations in Cases IV, V, and VI.

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(It is regretted that the exigencies of oversea service have prevented fuller access to the literature.)

H. H. Clemens (*J. Pediat.*, 1945, **26**, 66) records his observations on 80 cases of exanthema subitum (roseola infantum), of which 42 were in boys and 38 in girls. Most occurred in February, March, April, and October. The disease is characterized by an abrupt onset, malaise, and termination in an afebrile exanthem. Fever, irritability, and slight enlargement of the lymphatic glands are typical in the eruptive stage. Complications are very rare. The blood shows relative leucopenia and neutropenia with lymphocytosis by the third day of disease.

POTENT ANTI-Rh AGGLUTININS DEVELOPED IN AN Rh-NEGATIVE FEMALE AFTER MULTIPLE TRANSFUSIONS OF Rh-POSITIVE BLOOD*

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In the case here reported iso-immunization to the Rh factor followed repeated blood transfusions and resulted in haemolytic reactions of varying degree and in the development of anti-Rh agglutinins of exceptionally high titre in the serum of the recipient. The recipient was Group O, as were all the donors. All ABO blood-grouping and cross-matching tests were performed in tubes (5 cm. by 1 cm.). In the cross-matching tests equal volumes (0.4 c.cm.) were used of serum, citrate-saline, and citrated cell suspensions of 0.5% strength in terms of cell sediment. Mixtures were stood five minutes and then centrifuged at 1,500 revs. per min. for two minutes. Readings were made with the naked eye after adequate agitation of tubes. Blood groups were always tested on cells and serum. In cross-matching tests the recipient's serum was tested against the donor's cells, and the donor's plasma against the recipient's cells. In Rh investigations the tube technique described below (on p. 586) was used.

Case History

An unmarried woman aged 47 sought medical advice in April, 1943, because of increasing lassitude and pain in shoulders and elbows. She had recently had a "chill." On April 29 she had a severe bout of melaena and pain in her abdomen, left side of chest, and knees. There was no fever. The Widal reaction was negative. On the 30th she had a haemoptysis. Purpura now appeared on the limbs and trunk. On May 1 the blood count was: red cells, 1,552,000; platelets, 144,000; leucocytes 19,800. Haemoglobin 36%; coagulation time, 2½ minutes; bleeding time, 12 minutes. Her last menstrual period began on May 3, and lasted 16 days; the loss was profuse. The spleen was not palpable. Her previous medical history was unimportant. The patient had never had a blood transfusion and had never been pregnant. In spite of the platelet count a very tentative diagnosis of thrombocytopenic purpura was made. It was decided to give blood transfusions to raise the haemoglobin to a level high enough to permit of splenectomy. At this time the Rh group of the patient was not ascertained. Concentrated red-cell suspensions only were used in the 10 transfusions reported below. All transfusions were given at very slow drip rates. Blood older than eight days was not used. The standard mixture of donors' blood from which concentrated red-cell suspensions were prepared was: whole blood, 400 c.cm.; glucose, 20 c.cm. of 15% solution: and sodium citrate, 120 c.cm. of 2.5% solution. The sequence of events was as follows, dating from the first transfusion given on May 1.

1st Day.—First transfusion. Given 450 c.cm. (two donors). No febrile reaction. Later, one donor was found to be Rh+, but the other was never traced.

2nd Day.—Second transfusion. Given 450 c.cm. (two donors). No febrile reaction. Both donors later found to be Rh+. Cross-matching tests for the first two transfusions showed compatibility Marked improvement followed these transfusions.

3rd Day.—The patient had a severe vaginal haemorrhage, but, despite this, was much better. On the 4th day the R.B.C. was 3,720,000 and the Hb 66%; next day the Hb had fallen to 60%.

6th Day.—Third transfusion. Red cells were prepared from two donors, both subsequently found to be Rh+. When 200 c.cm. had been given the patient had a rigor. Transfusion was promptly stopped. The temperature rose from 99 to 103° F. No improvement. On the 8th day the Hb had dropped to 46% and the R.B.C. to 2,480,000. On the 9th day the patient suffered from retinal haemorrhages. On the 11th day multiple ecchymoses appeared on the trunk and there was a profuse epistaxis. A specimen of blood collected from the recipient on the 9th day was now referred for investigation. In respect of the third transfusion a pre-transfusion sample of the recipient's blood had been conserved in cold storage, as had samples of blood from both donors. Cross-matching tests were repeated, using all these specimens, but no incompatibility was detected with the tube-centrifuge technique described above. The specimen of recipient's blood collected on the 9th day was tested for the Rh factor, and the cells gave a good positive reaction. No irregular agglutinin was detected in the serum.

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* This article came into our hands when the untimely death of one of the authors—Dr. G. L. Taylor—was announced.

13th Day.—R.B.C., 1,696,000; Hb 35%; platelets 52,000. Clinical condition suggestive of infective endocarditis.

14th Day.—Fourth transfusion. Given 500 c.cm. (two donors). No febrile reaction. The sample of recipient's blood collected on the 9th day was used in the cross-matching tests, which showed compatibility. General condition improved. The donors were never traced, so that their Rh groups are not known.

17th Day.—R.B.C., 1,992,000; Hb 46%. A specimen of the recipient's blood was collected and used in cross-matching tests for the next two transfusions; no incompatibility detected.

20th Day.—Fifth transfusion. A suspension of 500 c.cm. of red cells was prepared (two donors). Transfusion stopped when 250 c.cm. had been injected, because the needle slipped out of the vein. No febrile reaction. Later, one donor was found to be Rh-negative, but the other was never traced.

21st Day.—Sixth transfusion. The 250 c.cm. remaining in the bottle used the previous day was given. In addition 450 c.cm. of red cells (two donors) was given; both donors later found to be Rh+. No febrile reaction. Some hours after transfusion the patient had pains in her knees, but she had had similar pains previously. Two days later she had pains in the back and knees. A radiograph of the spine was negative.

28th Day.—Acute pleurisy with audible rub developed on left side. No cough or haemoptysis. General condition fair. Some irregular pyrexia.

33rd Day.—R.B.C., 3,120,000; Hb 53%.

38th Day.—R.B.C., 2,560,000; Hb 50%.

43rd Day.—R.B.C., 1,696,000; Hb 26%. This fall was probably in part due to the very severe purpura present.

44th Day.—Seventh transfusion. Given 450 c.cm. (two donors). Later, one donor was found to be Rh-negative, but the other was never traced. The specimen of recipient's blood used in the cross-matching tests was collected the day before transfusion, and no incompatibility was detected. When nearly all the blood had been given the temperature rose sharply from 98.4 to 104° F. The patient had, however, been running a slight irregular pyrexia. The pulse rate rose from 128 to 136. The general condition rapidly deteriorated, and for some hours the patient was delirious. Next morning there was slight jaundice, which lasted a day only. The urine was a deep orange colour but apparently otherwise normal. Four days later the R.B.C. was 2,384,000 and Hb 34%.

51st Day.—Eighth transfusion. Given 480 c.cm. (two donors). Cross-matching tests, using a sample of the recipient's blood collected three days previously, revealed compatibility. Subsequent tests showed one donor was Rh+ and the other Rh-negative. Soon after transfusion the recipient became very restless and her condition deteriorated seriously. The temperature rose from 101 to 102° F. and the pulse became rapid and thready. A few ounces of dark urine were passed shortly after transfusion, and a note was made that blood was present in the urine. A second specimen of dark urine was voided half an hour after the first, but it was not so dark. Two hours later more urine was voided; though still dark, it was much clearer than the first two specimens. Subsequent specimens of urine were of normal appearance. Either the second or the third of the dark specimens of urine was examined with a spectroscope, but no haemoglobin was detected. It seems probable that the first specimen of dark urine contained haemoglobin. Tests for bile salts and pigments were negative. Three days after transfusion the Hb was still 34%, but the R.B.C. had fallen to 1,969,000.

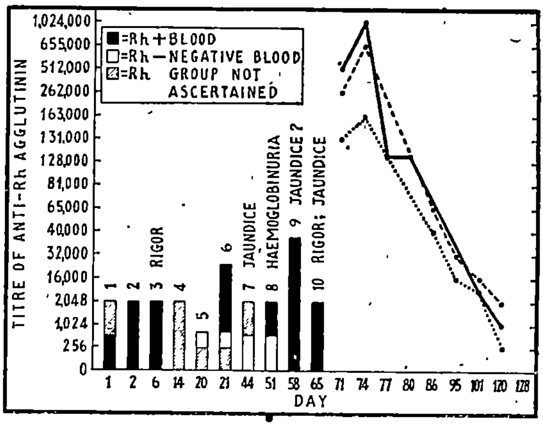
58th Day.—Ninth transfusion. Given 900 c.cm. of red cells from four donors, all later found to be Rh+. Cross-matching tests, using a specimen of the recipient's blood collected two days previously, revealed no incompatibility. Nothing untoward noted during transfusion (which took over six hours), but soon after transfusion the recipient was restless, irrational, and incoherent. The temperature rose from 100 to 103.4° F. and the pulse became rapid and feeble. Next morning there was a suggestion of jaundice, but nothing definite. Urine normal. Three days later the R.B.C. was 1,616,000 and Hb 26%. The large-volume transfusion of red cells had been without beneficial effect. Patient now very anaemic. Numerous petechiae and ecchymoses present. Spleen just palpable.

65th Day.—Tenth transfusion. 450 c.cm. of red cells prepared (two donors). Both donors subsequently found to be Rh+. No cross-matching tests were carried out at the transfusion laboratory, since a recent specimen of the recipient's blood was not available. However, a sample of her blood was collected immediately before starting transfusion, and a cross-matching test by the slide technique was performed while transfusion was in progress. Distinct agglutination of the donors' corpuscles was observed. A message was then received that 200 c.cm. of blood had been injected and that the recipient was having a rigor and had pain in the occipital region. Transfusion was immediately stopped. The temperature rose from 98 to 101° F. Next morning there was slight transient jaundice.

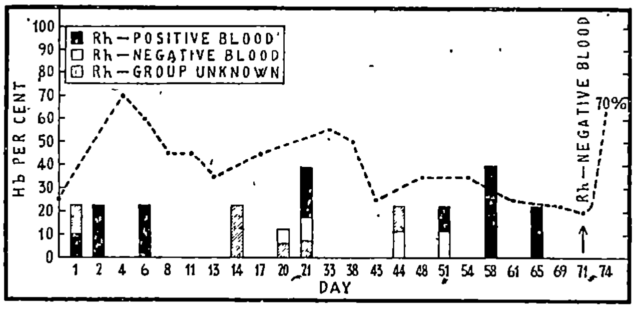
66th Day.—Further investigations requested. The pre-transfusion sample of the recipient's blood was referred for investigation. Specimens of the donors' bloods had been conserved. Cross-matching tests were carried out by the tube-centrifuge technique and the donors' cells were agglutinated into solid clumps which vigorous shaking of the tubes failed to disrupt. The donors' plasma did not agglutinate the recipient's cells. Recipient's and donors' groups were confirmed as O. The recipient's serum was then tested by the tube-centrifuge technique against the cells of 46 Group O persons, and 36 of these were strongly agglutinated. Relaxation of the rule that concentrated red cells should not be issued without preliminary cross-matching tests, using a fresh sample of the recipient's blood, resulted in the incompatibility being missed, and nearly had serious consequences for the patient. Blood urea, 75 mg. per 100 c.cm. Urine normal. Four days after transfusion the Hb had fallen to 22% and the red cells to 1,248,000.

71st Day.—Further tests revealed that the recipient was in fact Rh-negative and that her serum contained a potent anti-Rh agglutinin, with a titre of 1: 512,000. The technique of titration was that described by Taylor and Race (1944).

Efforts were forthwith made to trace all donors used in the transfusions, in order to ascertain their Rh groups, and these have been given above. Independent serial titrations of the recipient's serum were carried out against the cells of three Group O Rh+ donors (see Graph 1). A maximum titre of 1: 1,024,000 was attained on the 74th day—i.e., on the ninth day after the tenth transfusion. The effects of the various transfusions on the haemoglobin level are shown in Graph 2. In tests against the cells of 1,674 Group O persons the recipient's serum agglutinated 1,404 (84%) and reacted negatively with 270 (16%).



GRAPH 1.—Serial titrations of anti-Rh agglutinin in recipient's serum against cells of three known O Rh+ persons. The maximum titre was attained on the ninth day after the last transfusion of Rh+ blood, and thereafter steadily declined.



GRAPH 2.—The curve shows haemoglobin level during the period when transfusions of Rh+ blood were given.

Subsequent blood transfusions were uneventful. A further 14 transfusions were given, involving the blood of 27 Rh-negative donors. Improvement followed every transfusion and there were no febrile reactions. The haemoglobin was raised from 29 to 70%.

These transfusions rallied the patient temporarily, but ultimately her condition rapidly deteriorated. Petechiae and ecchymoses constantly appeared in various situations, and profuse haemorrhage occurred at times per vaginam. Gradually the patient became emaciated, and ultimately, since treatment was of no avail, transfusion therapy was discontinued. The patient died on the 128th day.

Necropsy was performed by Dr. W. Panes, assistant county pathologist for Monmouthshire. The primary disease was lymphadenoma, the distribution of which was confined to the liver, gastrohepatic lymph glands, and ovaries. Multiple ecchymoses were present in the tissues, which were oedematous. The spleen weighed 1 lb. and was engorged. The liver was not enlarged, and contained much deposit of iron. The kidneys were normal macroscopically, but were not examined histologically. The uterus was slightly enlarged and several fibromyomata were present.

Discussion

The first three transfusions were given on the first, second, and sixth days respectively, and five of the six donors used were Rh+, while the Rh group of the sixth is not known. The original Rh+ diagnosis was made on the third day after the third transfusion, and was certainly due to large numbers of surviving cells of the Rh+ donors in the recipient's blood. Differential agglutination tests (see Wiener, 1942, and Mollison, 1943) might have revealed the true diagnosis, but as so much Rh+ blood had been transfused this is doubtful. In the event, the Rh+ diagnosis induced a false sense of security, in no way lessened by the fact that the next three transfusions were not complicated by febrile reactions (although two at least of the six donors used were Rh+) and no incompatibility was observed in the cross-matching tests. The reaction complicating the third transfusion was possibly haemolytic in nature, since there was no subsequent rise of haemoglobin. Haemolytic reactions complicated the seventh, eighth, ninth, and tenth transfusions. However, for the above-mentioned reasons, and because of the clinical condition of the patient, the significance of these reactions was not at first apparent. Only in retrospect did the position become clear. It was because of the reaction and the agglutination observed in the cross-matching tests (by the slide method) in the tenth transfusion, and the failure of the patient to improve despite transfusions, that further investigations were requested. Only when the Rh-negative diagnosis was made and the anti-Rh agglutinin discovered in the recipient's serum was the whole history reviewed and the facts as outlined above placed in their true perspective.

Cross-matching by the tube-centrifuge technique probably explains why incompatibility was not detected earlier. DeGowin (1938) reported a haemolytic transfusion reaction (Case 6) in which cross-matching tests by the tube-centrifuge technique did not reveal incompatibility. The recipient and donors belonged to Group A, and in the light of present knowledge it is probable that immunization to the Rh factor was involved. The tube-centrifuge technique is eminently satisfactory for rapid blood-grouping and cross-matching tests in the ABO system, but it certainly does not suffice in cross-matching tests when very weak anti-Rh agglutinins are present in the recipient's serum, and especially if tubes are stood only for a few minutes before being centrifuged; when, however, the Rh antibodies are strong, the tube-centrifuge technique is satisfactory (Drummond—personal observations). To detect incompatibility due to anti-Rh agglutinins the cross-matching tests should be performed by the following method.

Equal volumes (about 0.05 c.cm.) of serum and of red-cell suspension (0.5–1% in terms of sediment) are mixed in a small tube; 2 in. by 1/4 in. precipitin tubes serve well. In the great majority of cases agglutination due to Rh cannot be detected by the slide or tile method commonly used for ABO grouping. In addition to the cells of intended donors the recipient's serum should, whenever possible, be tested against, say, four or five lots of Rh+ cells known to be strongly reacting and against control Rh-negative cells. Serum and cell suspension are mixed by flicking the tube with the finger. Capping or corking the tubes will prevent evaporation. Readings are made after an hour at 37° C. Some of the cell sediment is carefully drawn up the stem of a Pasteur pipette and spread gently and evenly on a microscope slide and examined for agglutinates under a low power. In a negative reaction the cells are free and evenly distributed, but aggregation due to sedimenting may be mistaken for true agglutination.

The serum of the case here reported was of the ordinary 85% type, which contains one agglutinin, and had, in addition to complete or agglutinating antibody, some of the recently described "incomplete" (Race, 1944) or "blocking" antibody (Wiener, 1944). It is possible, but very unlikely, that the earlier direct tests of the patient's serum and the donors' cells failed to disclose incompatibility, because the antibody was then mostly or entirely of the incomplete sort.

There is another probable reason why incompatibility was not detected earlier—namely, that the anti-Rh agglutinins, initially only weak, would be completely absorbed by the substantial amounts of Rh+ cells transfused. Therefore, for an interval after each transfusion no anti-Rh agglutinin would be detectable in the recipient's serum.

Cases have been reported (Wiener and Peters, 1940; Boorman *et al.*, 1942; Diamond, 1942; Wiener *et al.*, 1942; Dameshek and Levine, 1943; Mollison, 1943; Beck *et al.*, 1944) in which serious or fatal haemolytic reactions complicated only one or a few transfusions of Rh+ blood in Rh-negative recipients. In the above case, despite the tremendously potent Rh antibodies (titre 1 : 1,024,000) present in the recipient's serum so soon after the tenth transfusion, and the substantial amounts of Rh+ blood transfused (14 donors were Rh+, 3 Rh-negative, while the Rh groups of 5 are unknown), symptoms during the majority of the transfusions were entirely absent. Thus, except for a rigor during the third transfusion, the first six transfusions were entirely symptomless, while the seventh was practically completed before symptoms, not especially severe, occurred. Symptoms were entirely lacking during the eighth and ninth transfusions, though they afterwards became manifest. Yet in the ninth transfusion no less than 900 c.cm. of red cells was given (4 Rh+ donors!). The rigor was not severe in the tenth transfusion. Nevertheless, haemolysis certainly occurred in the seventh, eighth, ninth, and tenth transfusions, as evidenced by jaundice or haemoglobinuria and the fact that there were no surviving Rh+ cells shortly after the tenth transfusion. It is also noteworthy that the haemolytic reactions were not followed by suppression of urine. The urine was alkalinized as a routine by large doses of potassium citrate given by mouth. It is likely that absence of alarming symptoms during practically all the transfusions was due to the fact that the transfusions were all given at very slow drip rates, the duration of each transfusion being usually anything from four to seven hours or more. The lessened severity, or indeed even total absence, of symptoms when incompatible blood has been transfused at a slow drip rate has been alluded to by Mollison (1943) and by Drummond (1944); see also reports by Boorman *et al.* (1942, Case 1) and Burnham (1930).

Conclusion

The above case illustrates the importance of (i) ascertaining the Rh group of a recipient as a preliminary when multiple blood transfusions are contemplated; (ii) the possible danger of being misled when an Rh-negative recipient's blood gives an Rh+ reading after a blood transfusion; (iii) never omitting cross-matching tests, which should be made in tubes by a reliable method.

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A. Bloxsom (*J. Pediat.*, 1945, **26**, 32) records his observations on 40 persons—2 adults and 38 children—injected intradermally with recent convalescent measles serum. The serum was given in 0.4-c.cm. doses on successive days until 2 c.cm. had been given. The results were as follows: 35 children and 2 adults did not develop measles; 2 children developed uncomplicated measles before the course was completed, and 2 children developed attenuated measles fourteen days after the inoculations.

THE WAR-DISABLED

THEIR EMOTIONAL, SOCIAL, AND OCCUPATIONAL SITUATION

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One of the chief tasks incumbent on a nation at war is to look after those of its citizens who have been severely disabled in the service of their country. For the uninformed this is merely a surgical and financial matter, but the informed have long known that the working capacity and social readaptation of the disabled man do not exclusively depend on his physical condition. To a large extent they depend on his state of mind. An able-bodied man who goes out to fight and comes back badly maimed encounters a variety of problems arising from his disability; according to his temperament and character he either is able to solve them or fails. If he fails he creates a good deal of unhappiness for himself and those around him, and eventually he may become a liability to the community. While great strides have been made in many aspects of the after-care of the disabled, it is felt that the psychological aspect has so far received insufficient attention.

What follows is a summary of detailed reports on each of the disabilities studied—loss of limb, blindness, loss of vision in one eye. Considerations of space necessitate omission of much of the confirmatory and explanatory evidence. 200 amputees, 103 war-blinded, and 102 monocular individuals were examined psychiatrically, each of them for at least two hours. Characteristics common to all three types of disabled men, and differences in their emotional, social, and occupational situation specific for each of the disabilities, are discussed.

I. EMOTIONAL SITUATION

A. Common Characteristics

Common Psychological Features.—Severely disabled men, irrespective of the specific nature of their disability, are apt to regard it as a defect which lowers their status in the eyes of their fellow citizens. In extreme cases, sometimes with but more usually without foundation, the men are afraid that they may become an encumbrance to their families or to the community at large. Fear that they may not stand an equal chance with able-bodied men is very common. They are appreciative of acts of kindness if not overdone. Those who are badly disfigured are especially concerned by the doubt whether they are lovable by women any longer, and acknowledge gratefully any evidence that this is still the case. Fear that they receive sympathy or pity, which they loathe, rather than true affection, which they want, is hard to dispel. Their feelings of inferiority account for their frantic desire to conceal their disability and, if it makes them dependent on other people, to assert their independence. Like any other minority uncertain of its social status, they clamour for their rights and are very sensitive to any real or imagined encroachments upon them. Since time immemorial evil-doers have repeatedly been depicted as disabled, freaks, or cripples. These writers obviously sensed that disablement mobilizes aggressiveness arising from envy and frustration. Owing to their ill-temper, disabled persons are often difficult to get on with.

Types of Emotional Reaction

1. *Resignation; Indifference.*—Arguing that it is no good crying over spilt milk, a severely disabled man may arrange his life according to the changed circumstances; or, if his intelligence is too low to grasp the full extent of his handicaps, he may be indifferent to what has happened. But more commonly a disablement causes an emotional disturbance which persists after the almost universal initial upset.

2. *Depression.*—Mourning is the normal emotional reaction to any bereavement; and just as the mourner either gives way to his feelings or conceals them in front of others, so the disabled man, inevitably mourning his losses, either is frankly depressed or hides his grief behind a wall of psychological defences. In some men grief over loss persists. In a constant depressive mood, or in moody spells, they surrender to feelings of helplessness, despondency, a sense of unworthiness, and self-accusatory and self-condemnatory ideas. They shun crowds, social gatherings, and places of entertainment, but are equally afraid of the long hours of self-imposed loneliness. They want to have the constant companionship of an understanding friend who will "do" for them what they are unable to do for themselves, but who otherwise takes no notice of their disability and treats them as "normal" in all possible ways. In public they feel that everybody looks at them and passes remarks about them. A harmless remark may make them cry.

3. *Anxiety.*—Most disabled men realize that, in view of the present scarcity of man-power, their immediate future is not in danger. But the disabled ex-Service man hankers for permanent security and wants to be employed on his merits and not out of sympathy. He is afraid that after the war he will be unable to compete in a labour market flooded by returned able-bodied soldiers and highly skilled workers released from the war industries. In addition to justified concern there are commonly elements of unreasonable fears, specific in object, abnormal in quality, and related to their depressive states. Such disabled men minimize their working capacity and magnify the obstacles ahead. They paint a gloomy picture of the future and visualize themselves, whatever their real prospects, as starving, begging, or grinding a barrel-organ at the street corner. A disabling injury shatters a man's belief in his inviolability. Most disabled men are therefore more than usually afraid of further injury to themselves; in some this fear assumes quite grotesque proportions.

4. *Resentment.*—A prominent feature in a group of disabled men is resentment, either with or without depression. These men project resentment at their own fate on their current difficulties, suspecting ill will where none exists. Some men of this type ruin their occupational security and marital happiness by their uncontrollable temper, while others, like plaintive, peevish, and sulky children, refuse to make any real effort to earn their living. Others find a scapegoat for their resentment by directing it against the Government, various Ministries, the Army, or the community at large.

5. *Defiance.*—As in the air-raid slogans—"We can take it" and "Business as usual"—some disabled men adopt a defiant attitude towards their disability. Men of this type are usually good soldiers. On the battlefield, though severely wounded, they carry on until they collapse; and in hospital they wish to get up before they are fit. If a change of occupation is required they settle down to their training with great seriousness and determination; sometimes defiantly they choose occupations for which, in view of their disability, they are ill suited. The necessity of providing for their dependants is constantly on their minds. Their conduct calls for admiration, on which some of them thrive; others resent it and only want to be regarded as "normal." Some realize that they are constantly fighting against feelings of depression; others deny it, stating that their only concern is to get on with the job. If their façade cracks under the pressure of adversity they are apt to break down.

6. *Cheerfulness.*—Some disabled men appear to be in high spirits. These men are well liked by the staff in hospital, where, laughing and joking over their disability, they keep up morale in the wards. If any chance of recovery is left, and even if there is none, they are firmly convinced that in the end all will be well. They profess to be in no doubt that jobs by the score are waiting for them once they have been discharged. Strange though it may seem, this kind of attitude is particularly common in the early phases of the severely disabled, who by this process of make-believe deceive themselves concerning the incapacitating effect of their disability. Useful as it is at the beginning, this mechanism of self-deception, if continued, not infrequently prompts them in the choice of unsuitable occupations and seriously impedes their successful training. A certain number of men no doubt realize that they are acting, and while they are trying to "laugh it off" inwardly feel differently. Genuine satisfaction over loss was expressed by a small number of men, who had in this way expiated a deep sense of guilt.

B. Specific Differences

Quantitative Differences

A glance at Table I shows that the severity of the emotional reaction to disablement depends only to a limited extent on the severity of the actual handicaps. Compared with other disabilities a depressive mood prevails most often in the blinded. But for the excellent care of the blinded at St. Dunstan's this would more frequently be the case. For the same reason, despite the severity of their disability the blinded are less resentful at their disablement than other classes of the disabled.

Table I

	Depression %	Resentment %	Anxiety %	Defiance %	Cheerfulness %	Resignation; Indifference %	Grossly Abnormal %
Loss of one eye	23	20	34	8	1	14	—
Leg amputation	11	18	6	24	27	12	2
Arm amputation	24	27	6	20	16	7	—
Blindness ..	30	11	—	24	12	8	15

Generally, arm amputees are more severely affected emotionally than leg amputees. The high incidence of morbid anxiety, of depressive and resentful reactions, in those who have lost one eye is remarkable. Loss of an eye is not a disability which calls for much defiance to overcome it. Once again the effectiveness of the handling of the blinded at St. Dunstan's is underlined by the high frequency of defiant and cheerful reactions in them. As might be expected, in the disabilities considered, leg amputees and monocular personnel constitute the highest percentage of those who resigned themselves to their loss, while grossly abnormal emotional reactions occurred most often in the totally blinded.

Qualitative Differences: (*a*) Loss of Vision in One Eye

Soldiers who lose one eye are usually retained in the Army. This gives them temporary security, which is, however, insufficient to prevent a certain number of them from worrying unduly about their own future and that of their dependants. Another common source of anxiety is dread of injury to the remaining good eye. Fear of blindness in the one-eyed accounts for most of their complaints, such as headaches, eye-strain, blurring of sight, photophobia, and night-blindness. There is no physiological basis for these complaints, which are often very much dramatized. Their danger-consciousness rather than their actual handicap impairs the military and civilian working efficiency of many one-eyed men. Typical of this group is a monocular regimental policeman who did not dare to go out in the daytime because of the bright sunshine or at night because he might bump into something, and who hesitated to arrest an offender because the man might struggle and injure the good eye.

Loss of an eye is usually easily detectable. People are apt to comment on the one-eyed man's defect, and if his socket is still discharging he may be repugnant to other people. In view of the intact vision in the remaining eye, monocular persons, in contrast to the blind, are painfully aware of the social effect of their disability. This causes mental suffering in a fair number of them; some are frankly depressed, others are resentful about it. Both mental attitudes may result in social withdrawal.

Under Service conditions loss of an eye entails lowering of medical category and not infrequently of military status. For combatant soldiers especially this is an additional strain, which either aggravates their depressive mood or reinforces their resentment at their disablement.

(*b*) Blindness

Compared with other war-disabled, the totally blinded are worse off because of the severity of their handicaps and better off because of the care they receive at St. Dunstan's. Blinded men, with few exceptions, have to change their occupations, and they are incapable of taking full part in sport. Visual pleasures can only be conveyed to them through the medium of an escort. They learn to move about in familiar surroundings, but need to be escorted in strange districts and across roads on which there is much traffic. Their reliance on sighted people—for instance, in reading their incoming letters—deprives them of a good deal of their privacy.

Their restrictions and their unavoidable dependence on sighted people are naturally strongly felt by many of them. Some of them are unable to shake off their initial despondency and are subject to depressive moods, which, it is true, decrease in intensity and frequency as time goes on. Many blind men need company or must be busy to keep their spirits up; if left alone or idle their mind goes back to what is now denied to them.

To ward off depressive introspection or retrospection blind men make use of two psychological defence measures. They either admit their handicaps but make a determined effort to master them, or they deny their existence, make light of them, or profess to be little concerned about them. In the former case these men plunge into their new training to the exclusion of everything else; in the latter they display a false jocularity often coupled with a self-deceiving optimism regarding recovery of their vision. Men with empty sockets may cheerfully accept their misfortune, firmly convinced that their sight will come back.

Thanks to St. Dunstan's, fear about the future, resentment, and bitterness are less common in the blinded than in other groups of the severely disabled. But the general belief that blind persons are meek is basically erroneous. As they are unable to see what delays their attendants, their very disability makes for impatience. Frustrated in their major aims and in many small ways, they are apt to be ill-tempered; slips on the part of sighted people, whom they envy, especially rouse their temper. But their defencelessness, their dependence on sighted people, and their need for affection compel them to check their aggressiveness, which shows itself very clearly in their sarcastic wit, their dreams, and their fantasies.

Misinterpretation of imperfectly understood happenings, allied to feelings of inferiority, makes the blinded suspicious, and doubt as to whether they are still lovable, jealous. Their jealousy and suspicion may assume grossly pathological proportions, and may then, in combination with dreaminess and solitariness, become symptoms of a clinical picture which to all intents and purposes conforms to Kraepelin's paraphrenia. Two men in the series of blind men examined developed a typical schizophrenia subsequent to their blindness. A hysterical overlay is also common in the blinded.

(*c*) Amputation

The situation of the amputee differs from that of the two other groups of disabled in two ways: (1) he can be provided with an artificial substitute which is of functional value; (2) he re-enters the labour market at an early date without the backing of an organization such as St. Dunstan's.

1. The functional efficiency of artificial legs is superior to that of artificial arms. About a half of the arm amputees studied could not or would not make use of their artificial arms. Minor limitations and complaints, such as aching of the sound leg after a day's strenuous work and difficulty in lifting weights and in kneeling, are fairly common in leg amputees. Generally speaking, the loss of a limb has a slowing-down effect.

2. In many cases the amputee is able to return to his previous job or, at least, to his previous trade. If not, to find a suitable job may constitute a major problem: many firms are apt to employ amputees in inferior jobs. Amputees, more than others, are conscious of their precarious work-position, and the possibility of stump relapses requiring hospital treatment is an ever-present worry.

During the early stages, before the provision of an artificial limb, the immediate effects of their disability are the men's main concern. During this period grief over loss or defensive ultra-cheerfulness usually prevails. A man on crutches is an object of pity, and the loss of an arm is, and remains, very conspicuous. Cheerfulness may be merely protective against depressive thought and feeling, and is then based on combatant pride and exultation over survival; or it may be quite genuine in a few isolated instances of unwilling soldiers who were glad to be "out of it" ("Blighty reaction"). Right from the beginning a certain number of men, conscious of their responsibilities and obligations, were firmly determined to make a fresh start and to master their disability.

With provision of artificial limbs the struggle for existence begins. By this time early grief over loss and false cheerfulness have receded. Instead, as a result of the impact with social and occupational difficulties, defiant and resentful attitudes grow in frequency (Table II). Until then the wounded soldier had been nursed and fêted; now he begins to realize that society still makes demands upon him. Some men are spurred on by these demands, whereas others only feel bitter about them. Bitterness originally arising from their disablement is fed by their actual handicaps—e.g., stump relapses or deficient functional value of the artificial limb—or by unsuitable or uncongenial employment. Men of the defiant type overcome and may even thrive on the obstacles placed in their way. Their impressive success is related to their previous personality, and can by no means be expected from every amputee.

Table II

Artificial Limb	Depression %	Resentment %	Anxiety %	Defiance %	Cheerfulness %	Resignation; Indifference %	Grossly Abnormal %
Prior to provision	19	11	7	14	29	17	3
After provision	12	28	4	27	21	7	1

II. SOCIAL SITUATION

Success and failure of the disabled man's social readaptation on return to civilian life depend on his attitude to the community and on the attitude of the community to him. An important factor is undoubtedly his attachment to or detachment from the Army. If the "Blighty" effect is pronounced his readaptation is easy, but if his identification with and integration within the Army had been complete, detachment becomes difficult. He then decries the separation from his comrades, whom he envies because they are able to carry on the fight, and, though he may not recognize it, he feels guilty over being "out of it." Averse to mixing with civilians, whom he tends to despise, he tries to surround himself with serving men, thus painfully reminding himself of what he has lost for good. Some men take refuge in the company of others who share their fate; extreme cases of depression turn away from the community altogether, whereas men of the resentful type become troublesome through their impatience, irritability, and disgruntled mood. Men who have lost their one and only prop by their discharge from the Army start on a roving aimless existence.

The community, on the other hand, receives the returned disabled soldier with a mixture of curiosity, praise, pity, and horror. People want to know how it happened, and express disappointment if it was "only" due to a Service accident at home. They acknowledge the hardships and dangers to which he had been exposed while they lived in relative comfort and comparative safety. At the same time he demonstrates to them what is inevitable in warfare, what is even highly desirable if done to the enemy but what they do not want to happen to or to see in those who are near and dear to them. To make up for this they therefore celebrate the return of the disabled soldier and shower gifts upon him. They put the flags out in his village, arrange reunion parties, while perfect strangers stand him free drinks in the local and passers-by slip shilling-pieces into his pockets. Inadvertently, admiration for the returned hero has passed into charity for the war cripple. Both pity and excessive praise are ill received by disabled soldiers, who sense what they call insincerity. They neither feel like nor wish to be treated as returned heroes. They ask for recognition of their services but not for noisy praise. For the same reason most disabled men do not want and even reject special privileges, but gratefully accept unobtrusive consideration and allowances for the specific requirements of their disability.

The social situation of the three disabilities under consideration varies in some respects. Blindness has primarily an awe-inspiring effect which makes many people reluctant to visit the recently blinded, to approach him, or even to talk to him. If the barrier is broken their talk is often unnatural because they are afraid of saying the wrong thing. Many blind persons complain that their presence has a dampening effect on other people's hilarity. Fear of blindness is much more common than that of any other mutilation. Hence pity and charity are much more frequently and more liberally forthcoming towards the blinded than towards other disabled. By overdoing it people may do more harm than good. Blinded persons resent both sloppy pitying and patronizing interference by sighted people, well-meaning in their intentions but ill informed about the real handicaps of the blind. Amputees need less assistance than the blind and therefore resent it all the more. Well fitted with an artificial limb, they like to think that their defect is not noticeable, and are disappointed if this is not always the case. Loss of an eye does not call for much sympathy. Monocular persons meet with a certain amount of social prejudice and, as the derogatory usage of the word denotes, the one-eyed may be subjected to some harmless badinage.

What is true for the large community is equally true for the small family circle. To see her son maimed is grievous for every mother, and elicits in her a response of loving care. For her he is her hurt child, and she treats him as such. Conversely, the disabled man on return home is in need of and appreciates acts of kindness and consideration, but after a while he gets tired of being mollycoddled and recovers his sense of independence. Many a loving mother or wife, however, keeps on fussing over him; they open doors for him which he could open, rush up and down the stairs which present little difficulty to him, and show great concern if he ventures to go out alone.

Women in general approach disabled men in three different ways. Cases of mild or moderate disablement may become a centre of attraction for a certain type of woman. A state of helplessness appeals to the maternal feelings of others, and they stick loyally to him however severely he is disabled. If he is very badly maimed some women will turn away from him: self-interest and the horrifying effect of the disability prevail.

III. OCCUPATIONAL SITUATION

Success of resettlement of disabled men depends on their actual handicaps, the functional efficiency of artificial substitutes (in amputees), the previous personality of the men, their emotional reaction to disablement, the efforts of the authorities concerned with their placement, the attitude of their employers, and the suitability of their employment.

So far as the men are concerned, factors which make for good working efficiency are: (1) absence of residual complaints; (2) a previous conscientious personality; (3) a defiant attitude towards disability; (4) anxiety about the future; (5) disinclination to relax (in the blinded). Men of the defiant type, all out to attain equality with able-bodied workers, will do well even against heavy odds, while men anxious about their present or future security may content themselves with inferior jobs so long as they make a decent living. Many blind men dread their leisure hours, when they become dispirited and tend to brood. They are therefore eager to work extra hours, but do not stand up well to industrial slackness.

Factors which imperil successful resettlement or impair the disabled men's working efficiency are: (1) the presence of residual complaints—e.g., stump relapses in amputees; (2) domestic trouble brought on by disablement; (3) dependent trends, sometimes allied with hysterical features; (4) depression; (5) resentment; (6) over-defiance; (7) self-deceiving over-cheerfulness; (8) intelligence too high or too low for the job obtained.

Men who had previously been work-shy can obviously not be expected to be first-rate workers simply because they are disabled. They usually make the most of their disability and complain that excessive demands are made on them. Grief over loss, if persisting, paralyses a man's initiative and, like resentment, prevents him from making a whole-hearted effort at work. Both resentful and depressed individuals withdraw socially and are, for this reason alone, ill suited to join a working community. Suppression of the disabling effect in self-deceiving over-cheerful individuals, and desire to attain the unattainable in over-defiant individuals, may be operative in the choice of unsuitable occupations. Both attitudes may lead not only to disappointment but in some instances to a complete breakdown.

Adverse outside factors beyond the control of the disabled men are: (1) erroneous vocational guidance; (2) employment in unsuitable jobs, especially inferior jobs; and (3) unsatisfactory management at their place of employment. With a few exceptions, all the amputees were in employment at the time of examination. A high proportion of men who in peacetime had been skilled workers changed over to clerical occupations after their disablement. Their tendency to give up their skilled jobs was generally not warranted by the type of their disability. Roughly half of the leg amputees were in occupations which required prolonged standing, such as fitters, welders, and assemblers; or walking and car-driving—e.g., factory inspectors, salesmen, roundsmen; or even heavy lifting—e.g., stokers and railway porters. About a third of the arm amputees were in occupations which required great manual skill, such as fitters and welders. About two-thirds of the amputees were satisfied with their employment. Those who were dissatisfied complained that their occupations were too strenuous, were only temporary and must come to an end after the war, were too monotonous, or did not give them enough scope or a chance of promotion.

The majority of the blinded who were examined were happy at their work; a small minority stated that their jobs were boring in view of their intellectual capacities and aspirations. The war-blinded studied were employed on progress chasing, splicing, viewing, fuel-tank pressure testing, building up air intakes, identifying, assembling, machine-operating, and deburring; one was a tobacconist, and another—a work-shy hysterical individual—a sweeper. The progress chaser and the sweeper were semi-sighted. Monocular men could not be followed up into civilian life.

Summary

405 war-disabled persons were psychiatrically examined (200 amputees, 103 blinded, and 102 who had lost vision in one eye).

Their emotional, social, and occupational difficulties are discussed.

The physical handicaps of monocular persons are negligible. Physical handicaps apart, the difficulties are predominantly emotional in the one-eyed, social in the blinded, and occupational in the limbless.

Rehabilitation of the war-disabled can only be successful if due regard is given to their emotional, social, occupational, and financial situations.

My thanks are due to the Army authorities for permission to publish this article.

OXALURIA IN BRITISH TROOPS IN INDIA

BY

J. M. BLACK, M.B., F.R.C.S.Ed.

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The most interesting feature emerging from a survey of urological cases admitted to the surgical division of a British general hospital was the frequency of oxaluria as a cause of symptoms. The cases investigated were those of men from a British division in training in India and admitted to hospital during the 12 months Jan. to Dec., 1943.

Relative Frequency of Urological Conditions

Of 1,000 operations carried out during Jan. to Dec., 1943, 68 were for urological conditions and only 28 for acute abdominal conditions. Table I shows the total number of urological cases investigated and treated during that period.

Table I.—*Summary of Urological Cases (77)*

Condition	No. of Cases
Oxaluria	43
Ureteric calculus	16
Renal calculus	7
Hydronephrosis	5
Sulphapyridine kidney	4
Tumour of kidney	1
Bladder diverticulum	1

Of the 77 cases investigated no fewer than 43 (55%) were found to be suffering from oxaluria. Oxaluria was not diagnosed until a full investigation—viz., cytological and bacteriological examination of the urine, cystoscopy, and intravenous or retrograde pyelography—had been carried out.

Clinically oxaluria manifested itself in one of the three different ways shown in Table II.

Table II.—*Oxaluria: Symptoms (43 Cases)*

Symptoms	No. of Cases
Oxaluria with renal colic	20
Oxaluria with haematuria	15
Oxaluria with epididymitis and cystitis	8

A short case history of each type best illustrates the clinical symptoms and signs.

Oxaluria with Renal Colic

Pte. H., aged 23, was playing cards after dinner when he was seized with violent pain in the right iliac fossa. He felt sick but did not vomit, and there were no accompanying urinary symptoms. Twenty minutes after the onset of symptoms he was admitted to hospital with a diagnosis of "? perforation." He had had no previous symptoms.

On examination he was restless and pale, and was vomiting. Tenderness, rigidity, and hyperaesthesia were present in the right iliac region. No abnormality per rectum. After admission he passed 4 oz. of concentrated urine, the laboratory report on which read: "A few R.B.C. and many calcium oxalate crystals." Cystoscopy, carried out on the following day, revealed a trigonitis with pouting oedematous ureteric orifices. Cultures from the cystoscopic specimen of urine were sterile.

Retrograde and intravenous pyelograms showed a normal renal tract. The man was discharged to his unit, symptom-free, after nine days in hospital, and reported to the surgical out-patient department for three weeks.

Of the 20 cases of oxaluria with renal colic only five had urinary symptoms—frequency or strangury. Two had suffered from recent previous attacks and two had lately had amoebic dysentery. (A relationship between oxaluria and amoebic dysentery has been emphasized by Manson-Bahr.)

The average duration of symptoms before admission was 19 hours and the average stay in hospital 17 days. During this time eight of the patients were cystoscoped and retrograde pyelography was done, and in the remaining 12 intravenous pyelography was carried out; all were negative for calculus. The influence of diet and the importance of fluid intake were stressed to each man on his discharge from hospital, and there were no recurrences requiring readmission.

Oxaluria with Haematuria

Pte. G., aged 33, was on a route march on April 5, 1943, and at 10.30 a.m. halted to pass urine. He noticed his urine was "slow in coming" and was like blood. He carried on till afternoon, and again passed urine "like blood"; he reported to the R.M.O. and was sent to hospital.

There was no previous history of symptoms of calculus. On close questioning, he had been drinking a "lot of strong tea" before starting on the route march. For the past two months he had passed urine only twice in the 24 hours.

Physical examination revealed nothing abnormal. Urine passed after admission to the ward was deeply stained with bright-red blood. Cystoscopy at 5 p.m. the same day showed intense congestion of the trigone and blood-stained urine spurting from both orifices. White crystalline material (oxalate crystals) was embedded in the bladder mucosa in large amount and was floating in the fluid medium. The bladder was washed out with normal saline. A catheter specimen, taken before cystoscopy, showed: "Albumin: a heavy cloud. Deposit: numerous R.B.C.; no pus cells; no organisms. Many Ca oxalate crystals. Cultures sterile."

He was put on forced fluid intake, and in 24 hours (April 6) a laboratory examination of urine showed: "No albumin; deposit *nil.*" Cystoscopy on April 13 showed a healthy bladder mucosa; no evidence of crystals or blood-clot; both ureteric orifices secreting normal urine. Examination of urine revealed: "Albumin *nil*; no R.B.C.; a few Ca oxalate crystals; occasional epithelial cells only; culture sterile." Radiographs taken after intravenous uroselectan showed "a normal renal tract."

On April 26 the patient was discharged to duty; no recurrence has been reported.

The investigation of the 15 cases of oxaluria with haematuria is summarized in Table III.

Table III.—*Haematuria with Oxaluria: Symptoms*

Symptoms	No. of Cases	Average Duration of Symptoms before Admission (Hours)	No. of Previous Attacks	Average Stay in Hospital (Days)
Painless haematuria	4	21	Nil	24
Haematuria with dysuria	4	54	3	26
Haematuria with renal or ureteric pain	7	58	6	19
Average		44		23

The urine in all 15 cases contained red cells and calcium oxalate crystals, and culture from the urine was sterile. Cystoscopy showed a trigonitis in all cases, and in six of them small brownish particles (old blood-clot) were present in the bladder. Intravenous pyelograms or retrograde pyelograms, done in all 15 cases, demonstrated no abnormality.

Oxaluria with Epididymitis

There were eight cases of this condition, which in my opinion is a distinct entity.

Typical Case History.—Pte. S., aged 21. Five days before admission he had frequency and burning, and after micturition some pain referred to the point of the penis. The next day he felt pain in the left testis and groin, and the left testis was swollen. There was no history of injury or V.D. infection, or exposure to such infection. On examination there was no urethral discharge; the left epididymis was swollen, soft, and tender, with maximum tenderness at the lower pole, and also tenderness along the left vas deferens. Per rectum there was definite tenderness but no thickening of the vesicles. Urethral smear and Kahn test were negative. Urine examination on the day of admission revealed "a few R.B.C. and epithelial cells; oxalate crystals in large numbers; cultures sterile." Cystoscopy on day of admission: Marked trigonitis; crystals of ? oxalate embedded in bladder mucosa. The bladder was washed out with normal saline. I.V.P. and cystogram showed normal renal tract. After three weeks' treatment with forced fluid intake and rest in bed the epididymitis cleared up completely.

With regard to *symptoms*, five of the eight cases had some dysuria before the onset of pain and swelling of the epididymis, which was affected on the right side in six cases and on the left in the other two. Two men gave a history of mild trauma to the affected organ; in two the condition developed after lifting heavy weights, and in the other two P.T. was the alleged cause.

Clinical examination revealed no systemic upset, the temperature and pulse rate being normal. The epididymis in all cases was swollen, soft, and tender, and the maximum intensity of signs was at the lower pole. There was also definite tenderness of the vesicles on rectal examination.

The urine in all cases showed calcium oxalate crystals, and cultures were sterile and there were no pus cells in the deposit. Both urethral smear and Kahn test, done in five cases, were negative.

The average duration of symptoms before admission was three days and the average stay in hospital 17 days. The short duration of the symptoms, the absence of systemic upset, and the rapidity of resolution, together with the absence of any infection of the urinary tract, make me believe that the condition is one of irritative epididymitis due to oxaluria and direct spread down the vas—the "straining" at P.T., etc., possibly causing this back-flow.

Oxaluria in Cases of Renal and Ureteric Calculi

In two of the 16 cases of ureteric calculi in this series oxalate rystals were present in the urine, and in the calculi recovered alcium oxalate was the main constituent. In three of the even cases of renal calculus oxalate crystals were found in the rine, and oxaluria was present in two of the five cases of ydronephrosis investigated.

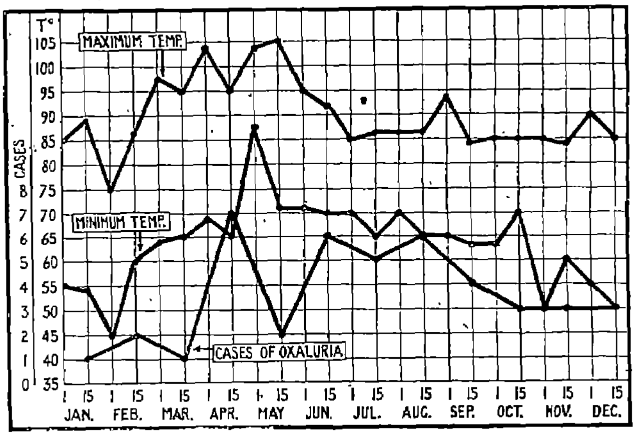
Discussion on Oxaluria

It is well known that oxalate crystals can be passed in the rine for years without any tendency to calculus formation. xalates may be deposited at any reaction. Most commonly hey are deposited after the urine has been passed and cooled. ut they may be present *in vivo* in suspension in the urine nd cause irritation, and occasionally even slight haematuria Harrison, 1939). Microscopically they may be in the octohedral r envelope form, in the dumbbell form, or in the biscuit form.

To avoid oxaluria, sorrel, rhubarb, and asparagus—which ontain more than 2 g. of oxalic acid per kilogramme—and xcess of chocolate should be eliminated from the diet. The eneral opinion is that it is useless to try to control oxaluria by educing the calcium intake or by increasing the magnesium–alcium ratio, and that neither acid nor alkaline therapy is dicated in cases of calcium oxaluria.

The frequency of oxaluria in the present series can be scribed to: (1) the climate—causing loss of body fluid by weating and concentration of the urine; (2) the diet—adequate fluid intake and the presence of oxalate-forming food in the diet (tomatoes, strong tea). Neville in 1935 found that oxaluria was apt to occur in vitamin B deficiency, but in this series there was no clinical evidence of such deficiency. The association of amoebic dysentery with oxaluria noted by Manson-Bahr was observed in only two of our cases. The excessive formation of vitamin D by sunlight is said to be connected with tropical lithiasis.

The seasonal occurrence of oxaluria is illustrated by the fact that 30 cases were admitted to hospital during April to Sept., 1943 (the hottest part of the year), and only 13 cases during the periods Jan.–March and Oct.–Dec., 1943—times when the weather is definitely cooler (see Graph).



Graph showing minimum and maximum temperatures for 1943 and occurrence of oxaluria.

It would appear that the oxaluria resulting from the two constant factors often causes haematuria, which leaves the binding material in the form of blood protein. Oxaluria continues (demonstrated by the finding of oxalates in the urine in three of the cases of renal calculus and in two of ureteric calculus) and stone formation results. Diagrammatically its formation can be shown thus:

(1) Diet (2) Inadequate fluid intake
\ /
OXALURIA
/ \
Haematuria Deposit of oxalate crystals
| |
Fibrin Retention of fragments of crystals
\ /
Calculus

All the stones recovered and examined consisted of a mixture of calcium oxalate and calcium phosphate. There was no pure oxalate stone. *Treatment* thus resolves itself into the prevention of oxaluria by: (1) Elimination of oxalate-forming foods from the diet. (2) Ensuring a fluid intake of adequate amount to prevent concentration of the urine. (3) In hospital cases, especially those requiring immobilization, a fluid intake of at least eight pints a day and ammonium chloride to prevent phosphatic deposit. The *duration of incapacity* in oxaluria and ureteric and renal calculus is shown in Table IV.

TABLE IV

No. of Cases	Condition	Average Stay in Hospital (Days)
43	Oxaluria	19
16	Ureteric calculus	44
7	Renal calculus	56

Conclusions

The presence of oxaluria, and the haematuria accompanying it, accounted for the majority of urological cases requiring hospital treatment. The combination of haematuria and oxaluria is the direct precursor of calculus formation. Infection does not seem to be a factor.

Adequate fluid intake and the avoidance of oxalate-containing foods are the two measures most likely to prevent oxaluria and the complications resulting from it.

Summary

Of 77 urological cases occurring in men of a British division in India and admitted to a British general hospital during Jan. to Dec., 1943, 43 (55%) had oxaluria. Oxaluria was also present in five cases of renal and ureteric calculus reviewed in this series, and in two cases of hydronephrosis. Of the cases of oxaluria 30 occurred in the period April–Sept., 1943.

Eight cases of epididymitis considered to be due to oxaluria were investigated.

My thanks are due to Major J. L. Dales, R.A.M.C., who carried out the laboratory examinations; to Major N. A. Lawler, R.A.M.C., who was responsible for the radiology in the cases reported; and to Col. Frank Cook, officer commanding 60 B.G.H., for permission to publish this paper.

Reference

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INTRAVENOUS ANAESTHESIA WITH PENTOTHAL SODIUM

BY

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This is a short survey of points arising out of the use of pentothal sodium since its introduction, including its administration to more than 700 acute battle casualties in a tropical area.

Most of the soluble hexobarbitones are powerful hypnotics only, and are unsuitable for continuous intravenous anaesthesia. Pentothal sodium has been of more general use in acute war surgery here than any other anaesthetic drug. The contraindications to the use of pentothal become less and less in proportion to the accumulated experience of the anaesthetist. The barbiturates are exciters of the parasympathetic nervous system. After a possible early dilatation the pupil tends to remain small, the only reliable third-stage eye sign being its central position. Hiccup and irritative spasmodic cough are not uncommon. The pharyngeal and laryngeal reflexes may remain active, and may be evoked by stimuli arising about the mouth, jaw, or pharynx, or by pain stimulus from a distance. These reflex disturbances are much more common in exhausted battle casualties, and especially in cases of injury involving the neck and thorax.

Continuous intravenous anaesthesia has been avoided in penetrating injuries of the upper abdomen and in severe wounds of the jaw or neck. The latter may be associated with oedema, or there may be mechanical obstruction by displaced tissues or blood, directly interfering with the airway.

Method

The anaesthetist should have two hands free to supervise or carry out any necessary measures of resuscitation during operation. To this end many suggestions have been published already, but the simplest method seems to be that of a rubber tube and glass cannula interposed between syringe and needle. There are obvious disadvantages in any fastening of the syringe to the patient's arm. A syringe-holding clamp has been devised (Fig. 1) which fits firmly to any arm-board. This has been used for nearly three years, and proved a definite aid. The actual syringe-holder consists of a trough which is adjustable to hold firmly any syringe from 10-c.cm. to 50-c.cm. capacity. A swivel allows of ready adjustment of the rubber tube to the line of the vein, so that the needle lies comfortably, and fixation by adhesive is seldom necessary. A three-way tap is useful in dealing with numbers of cases consecutively. One arm of the tap is connected to a pentothal reservoir, one to the syringe, and on to the third fit the tube and cannula. The syringe is easily refilled, and remains fixed and sterile. Between cases only the tube to the patient needs removal and sterilization. For success with the method good syringes, preferably all-glass, are essential, as most metal-and-glass types allow of back leakage of the solution round the piston. The tap is turned off (*a*) when piercing the vein; (*b*) in the intervals between the injection of solution; and (*c*) when refilling the syringe with solution. There is less possibility of blood clotting in the needle if a 17- to 19-gauge needle is used, and also if a minute quantity of solution is injected at frequent intervals to prevent stagnation of blood in the needle. In head operations or when both arms are involved the anaesthetist must work at the ankle, where in many cases, even after compression, veins are not easily visible or palpable. In such cases anaesthesia is induced by injection of a small hypnotic dose into any accessible vein, and, if necessary, the airway is controlled by intubation. Vasodilatation then occurs, and there will be present at the ankle, or on the dorsum of the foot, a network of prominent veins which allow of easy puncture even when no vessels were apparent before induction. Anaesthesia can be carried on at the ankle, combined, if necessary, with transfusion of any suitable fluid, without the necessity for cutting down on a vein.

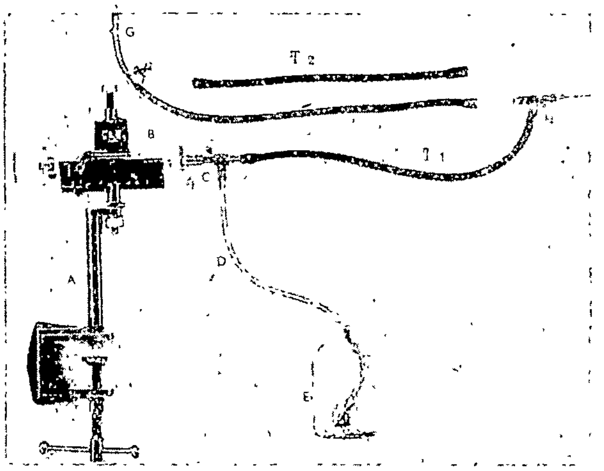

Fig. 1.—Apparatus connected as for combined anaesthesia and transfusion. A: Clamp to screw on to any arm-board holding syringe B. C: 3-way tap. D.: Weighted tube to pentothal reservoir E. G: Tubing from transfusion bottle plugged via glass cannula into Y-connexion H on which fits needle. T1: Tube to needle. T2: Tube and cannula to fit needle for anaesthesia without transfusion.

Owing to the increased sensitivity of the pharyngeal and laryngeal reflexes, any artificial airway, either pharyngeal o nasal, is very likely to set up a laryngeal spasm. This may be most troublesome and sometimes difficult to abolish completely Spasm may occur or persist at a plane of anaesthesia deepe than that required for the operation itself. Spasm and coughing are not always evidences of light anaesthesia when using barbiturates. To deal with spasm of any severity access to the tongue and posterior pharynx must be easy, as most case will respond to the hooking forwards of the base of the tongu with a finger or tongue forceps. The latter can be used unopened as a curved spatula. To allow of easy access a prop has been devised (Fig. 2), which is shaped to fit comfortabl between the teeth before induction, without causing gagging o discomfort.

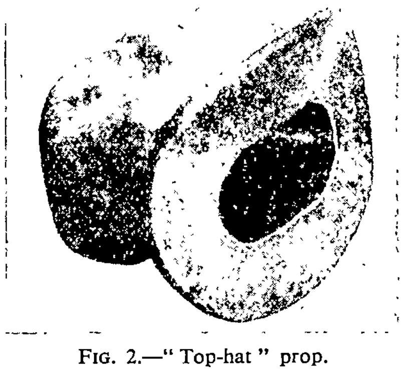

Fig. 2.—" Top-hat " prop.

The head should be placed in a position approaching that o normal comfortable sleep. With the small prop in the mou the head is turned gently to one side immediately sleep is induced, and the chin is supported; the tongue does not tend to fall back, and the breathing, which formerly may have been oral, now becomes quiet and entirely nasal in most cases. The prop itself is in no sense an airway, but it has a central oval aperture which will admit any of the flat-type rubber or metal pharyngeal airways. As explained before, the introduction of any such airway is inadvisable. If an airway is used it should be greased with a stiff ointment containing one of the surface-acting local analgesics. A thick pad of sorbo rubber introduced between the chin and the clavicle is very suitable as a chin support.

Results

Pentothal gives good results in 2½% solution. In this strength accidental paravenous injection has not caused irritation to the tissues. Only once has thrombosis occurred with this solution. In this patient thrombosis was at the bend of the elbow, the injection having been given at the wrist. Solutions keep well, and no clinical differences have been noted when using solutions 48 hours old. As a test, a 2½% solution in ordinary tap-water in a non-sterile tube was kept open on the laboratory bench for 72 hours. Subsequent cultures were sterile. To part of this same solution were added two strains of staphylococci and one of streptococci from routine laboratory specimens. No growth was obtained after culture for 48 hours.

Respiratory depression is lessened and all-round improvement in results obtained by the use of some form of gaseous inhalation in combination with intravenous pentothal. In most of the cases oxygen alone or gas and oxygen have been used. Cyclopropane was available late in the series. The administration of a gas–oxygen mixture facilitates maintenance of anaesthesia, aids relaxation, and lessens the total amount of pentothal necessary. Enough oxygen must be used to avoid cyanosis. By this method the retardation in rate and the shallowness of respiration commonly seen in anaesthesia with pentothal alone are avoided. Early spasm, if slight, can be abolished by introduction of carbon dioxide or by an increase in the pressure of the inhaled gases. In a few cases mild spasm or irritative cough may persist despite these measures. This is of small significance in operations on the limbs, and the anaesthesia should not be deepened unless the symptoms interfere with the surgeon, provided always that there is no evidence of lack of oxygenation of the patient.

Adequate premedication with morphine 1/8 to 1/4 gr., combined with scopolamine 1/150 to 1/100 gr. or atropine 1/100 to 1/75 gr., decreases the tendency to spasm and also the total dosage of pentothal required. A warning is essential in acute war surgery—at least in this theatre of war. From the point of view of the anaesthetist, the battle casualty usually arrives in the operating room over-morphinized. In most cases this appears to be due to somewhat lavish use of morphine, but in the debilitated state of many severe casualties even moderate morphine dosage may have a profound effect. It has been found wiser to omit any morphine pre-operatively unless the patient has been under local observation for some hours. A very small pupil is the commonest eye sign in battle casualties reaching operation, and the size does not alter throughout the anaesthesia with pentothal.

In many cases deep anaesthesia is unnecessary. In the toilet of most wounds, using the combined method, 0.3 to 0.75 g. is sufficient. In the major surgery of multiple compound fractures and in amputations it has not been necessary to exceed a dose of 1.5 g. Three disarticulations at the hip for gas gangrene—one of 70 minutes' duration—were carried out with a dosage of 0.75 g. each; there were no untoward symptoms, and all recovered well.

In a sudden military emergency with influx of wounded in large numbers, nursing facilities are strained and patients must return to bed from the operating theatre in a state in which they will need little or no immediate post-anaesthetic care. It has been found that most patients arouse in the theatre after provision of all anaesthesia necessary for their surgical needs. Vomiting has been conspicuously absent, and there has been no anxiety as to maintenance of free airway after return to the ward. Most of the men can take fluid and nourishment soon after their return to bed. They are encouraged to drink water in plenty up to 20 minutes before operation.

Sulphonamides have not been regarded as a contraindication to the use of pentothal. In the presence of sepsis and debility, caution and a much-decreased dosage of pentothal are essential. In this series no state of toxaemia or exhaustion has been an absolute bar to its use. It has not been employed in jaundiced patients. Although working in adverse tropical conditions and with patients debilitated by infective states, no case of delayed recovery of consciousness has been seen, despite the probability of latent liver deficiencies. Shock is not always a contra-indication to pentothal anaesthesia. Some casualties arrive pale, restless, and confused, and in these the intravenous injection of a few cubic centimetres of solution facilitates the introduction of plasma or other fluids and the use of a face-mask for inhalation of oxygen. These patients are kept only just asleep, and operation is not begun until recovery from shock is evident. If ether or high cyclopropane percentages are thought necessary a few cubic centimetres of pentothal are used merely as a single-dose pre-hypnotic, but ether is avoided wherever possible.

Conclusions

Pentothal in 2½% solution by the continuous method, preferably combined with inhalation of oxygen, gas–oxygen, or cyclopropane mixtures under slight pressure, is an anaesthetic of wide and satisfactory application in the treatment of acute battle casualties. A syringe-holding clamp, which facilitates administration, is described, also a mouth-prop. It is recommended that no artificial airway should be introduced, owing to the likelihood of cough and spasm. Intubation necessitating the maintenance of deeper anaesthesia was reserved for special indications.

I am indebted to Lieut.-Col. B. B. Hickey, R.A.M.C., for permission to publish this article, and to Dental Mechanic S. Dale of A.D. Corps for his advice in the design of the prop. Acknowledgment and thanks are due to the staff of the various Army workshops for their ready help in making the clamp and prop, and for prompt aid at all times in the construction and repair of anaesthetic apparatus.

The syringe, tap, and two-way adapter shown in Fig. 1 are made by Messrs. Becton Dickinson, but suitable apparatus is obtainable from Medical and Industrial Equipment Ltd., 12, New Cavendish Street, London, W.1.

TREATMENT OF SOFT WARTS WITH PODOPHYLLIN

BY

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A treatment for condylomata acuminata which deserves to be widely known because of its simplicity and high rate of success has been described by Culp, Magid, and Kaplin (1944). From their results in a series of 100 cases treated with podophyllin they claim that:

> "(i) Podophyllin has been found to be unusually successful in producing prompt and complete disappearance of condylomata acuminata regardless of the size, number, location, or duration of the growths. . . . (ii) Podophyllin may be applied locally to the lesions as a 25% suspension in mineral oil or as a paste composed of the powdered drug and water. Anaesthesia is not required. (iii) Treatment is simple, the convalescence usually is painless, and the lesions disappear within two or three days after a single application, leaving no ulceration or scarring. Repeated applications of the drug may be necessary in a few instances. . . . (iv) The surrounding normal tissue is unaffected by the drug, but in isolated cases of extensive application under tight prepuces some balanitis may result. . . (v) The dramatic results obtained in this series of 100 cases and the simplicity of the treatment with podophyllin prompt us to recommend more widespread application of this type of therapy."

I have treated a series of 25 cases of condylomata acuminata and have confirmed the success achieved in the U.S.A. In addition one case of extensive warts of the face has responded equally well to podophyllin treatment.

Method

A suspension of podophyllin resin *B.P.* 25% in liquid paraffin *B.P.* was shaken and then applied liberally to the affected area, care being taken to ensure that the numerous crevices of a profuse crop of warts were penetrated and no attempt being made to confine the preparation to the lesion itself. The suspension must remain in contact with the warts for at least six to eight hours, and clothing must be prevented from absorbing it or rubbing it off. Hard crusts remaining from previous treatment must first be removed before a further application is made. The crusts can be softened with the podophyllin oil and left to soak in for a few minutes, after which they are easy to detach. After six to eight hours the oil should be washed off with soap and water, and the parts dried carefully, and kept dry with a powder such as pulv. zinci co. If this is not done inflammation may occur. An ordinary orange stick proved useful, the blunt end being used to apply the oil and the sharpened end to remove crusts and open up fissures between multiple warts to assist penetration.

Results

Twenty-five cases consisted of single or multiple condylomata acuminata of the penis or anus. Isolated warts shrivelled up and became yellow within 24 hours and dropped off in a few days, leaving no ulceration or scarring. Profuse growths usually required two or three applications. Treatment is painless. Normal tissue is substantially unaffected, in contrast to the action of the usual caustics. There is, however, a risk of inflammation, especially balanitis; but this may be obviated if precautions are taken as described.

One of these cases needs special mention. The man had been under treatment for penile warts for a year before I saw him. Treatment had consisted of (i) circumcision and cauterizing of warts with the galvano-cautery; (ii) application of a diathermy cautery three times; and (iii) two courses of small doses of *x* rays six and seven months previously. But after each treatment the warts recurred. On examination there was a most profuse cauliflower growth of warts covering and hiding the end of the penis. The warts were growing from the urinary meatus, glans penis, coronary sulcus, and along the line of the circumcision scar. Secondary infection had occurred, with the production of a profuse purulent offensive discharge. Compresses of flavine were used to combat the infection. Podophyllin in oil was applied to small areas at a time, so that in five weeks some 15 applications had been made. At the end of this period the penis was substantially normal except for scarring from previous treatment. One month later a few warts began to recur, but two applications in a week led to their complete disappearance.

After success in this case, with the meatal warts other cases of single meatal warts were treated successfully, without apparent ill effect on the mucous membrane of the urethra. In these cases the urine should be held for six to eight hours, so that the podophyllin is not washed away.

Another case is in a different category. It was a profuse eruption of warts of the face; chiefly in the beard area, maximal over the chin. The onset had been 18 months previously. In the interval treatment had been with (*a*) chemical caustics, (*b*) curetting, and (*c*) small doses of *x* rays. During four weeks 15 applications were made. Single warts dried up and fell off after one application, small bunches of warts responded to two applications, whereas the thickened and deformed skin of the chin required 10 applications.

Commentary

Single soft warts may be removed with success by several methods—e.g., caustics, curetting, ligature, and galvano- and diathermy cauteries. Most of these are painful. Multiple warts are more difficult to cure, and require either special skill or special apparatus. They present particular difficulty to *x*-ray therapy by reason of their situation and multiplicity, and also, in hairy regions, because of fear of epilation and permanent skin changes.

Podophyllin in oil is easy to obtain, simple in use, and successful in the more awkward kind of case—warts of the urinary meatus, and multiple warts of the penis, vulva, anus, and face.

To obtain success with podophyllin thorough and prolonged application is necessary. The case of warts of the face and two cases of warts of the anus had been treated by a colleague with podophyllin, on my recommendation, without success. Failure is thought to have been due to the podophyllin being absorbed into dry gauze dressings in the first instance and into underclothing in the second. Complete success was later obtained by ensuring that the oil remained in contact with the warts.

Summary

The results of treatment of warts with podophyllin reported by Culp, Magid, and Kaplin have been confirmed.

The preparation used was podophyllin resin *B.P.* 25% in liquid paraffin *B.P.* This is easy to obtain.

The treatment is simple and requires no special skill or apparatus, but the application should be thorough and prolonged.

It is suitable not only for single soft warts but also for more difficult cases, such as warts of the urinary meatus and multiple warts of the penis, vulva, and anus.

In addition multiple warts of the face disappeared under this treatment.

Two cases that had failed to respond to *x*-ray therapy were treated successfully.

The excellent results justify a wider acquaintance with podophyllin treatment and a trial in cases other than condylomata acuminata.

Reference

Culp, O. S., Magid, M. A., and Kaplin, J. W. (1944). *J. Urol.*, 51, 655.

Medical Memoranda

Treatment of Chronic Otitis Media

Recruits are referred to specialists by Army medical boards if they have puzzling ear conditions. Most men have perforated tympanic membranes, the perforation usually being located centrally or antero-inferiorly, and so they are easy to cure. Some have attic perforations and some a polypus, and these are more difficult, yet usually possible, to cure. Most men have had the discharge lasting over many years, and the only treatment they have had has been hydrogen peroxide or glycerin of carbolic drops, no attempt being made to clean the ear before using these. The object of this note is to condemn all treatment that does not first involve dry cleaning of a discharging ear, and to give the family physician an easy method of cure. The treatment I adopt is as follows:

Method

I give each man 24 "peerless wood applicators," which can be repeatedly boiled, or, if the meatus is small, a fine metal probe; an ounce packet of long-fibre cotton-wool; freshly prepared boric-iodine powder (Lederman, 1917) and, if the perforation is small, a Fowler auto-insufflator, which acts like a Politzer bag; a powder-blower; and a bottle of liquid paraffin and an eye-dropper. I spend some time teaching each man to lay a thin transparent plaque of cotton-wool 3 in. long on the first and second fingers of the left hand, to lay the stick or probe on the cotton, and then to place his thumb, touching the first and second finger-tips, over the stick, so that the two fingers and thumb encircle two inches of the cotton and stick; and, finally, grasping the proximal inch of cotton with his right fingers and thumb, to rotate the cotton and stick, not moving his left fingers. The method of preparing boric-iodine powder is described by Carruthers (1943), while the method of preparing the cotton-covered stick is illustrated in five pictures in the same book.

I then teach the man how to straighten the external auditory meatus. If the right ear is affected I tell him to put his left hand over (not behind) his head and grasp the tip of the right ear with the first finger and thumb of the left hand, and pull the ear upwards, keeping the ear in contact with the skull, and then slightly backwards. The man is then told to rest his right hand on his cheek, and, holding the cotton-covered stick with his fingers, to worm it gently two inches into the ear, and repeat this cleansing process until the cotton returns clean or covered with blood. If the perforation is small the patient then uses Fowler's auto-insufflator—which blows the pus out of the middle ear—and repeats the cleaning process. He next takes up a powder-spoonful of boric-iodine powder, and, still keeping the meatus straight, blows the powder into the ear.

The above treatment is carried out three times a day. The patient is instructed never to let water enter the ear, and so before he immerses his head under water he fills the ear with liquid paraffin and plugs it with cotton-wool. He is also told never to turn his ear into an incubating-tube by wearing cotton-wool in it. This treatment usually cures a chronic otitis media in two or three weeks.

As an alternative treatment one can fill the ear with a suspension of sulphanilamide (1 g. to 30 c.cm.). This method is especially good with young children who will not tolerate the ear being cleaned, as they can lie on the bad ear for 15 minutes to empty it, and have this treatment done, after which cotton-wool can be applied.

Banham (1944) has recently published two prescriptions as an alternative to boric-iodine powder; one contains sulphapyridine as well as boric-iodine powder, while the other has equal parts of sulphathiazole and boric acid powder. Hollender (1943) recommends sulphanilamide, provided it be mixed with boric acid powder, for if used alone it forms an obstructing cork. The choice between sulphanilamide and sulphathiazole depends on the bacteriological nature of the discharge—sulphathiazole being used in the presence of a staphylococcic or pneumococcic infection, and sulphanilamide in the presence of a streptococcic infection.

The first and second treatments described have allowed many recruits to pass into the Forces.

Darlington. W. S. THACKER NEVILLE, M.D.Dub., F.R.C.S.Ed.

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A Case of Gunshot Wound of the Abdomen

The case described below is remarkable for the length of bowel resected at operation, and also raises the question of the dosage of morphine that should be used for the severely injured.

CASE NOTES

An Indian sepoy aged 24 was brought to a mobile surgical unit 18 hours after he had received a rifle-shot in the abdomen. On examination he was found to have a ragged wound in the right iliac fossa through which a large mass of intestines was protruding. This had been covered with a shell dressing. He was accompanied by a medical officer, who said that when brought to him some two or three hours previously the patient was so distressed that it was decided to give him a large dose of morphine. As it was impossible to have a light at the time, the medical officer was uncertain how much morphine he was giving, but he believed it was from 1/2 to 1 gr. No attempt had been made to resuscitate the man with plasma. His condition when seen by us was very poor. His breathing was slow and shallow and his pulse rapid and feeble. He was fairly alert mentally, and did not appear to be very uncomfortable. He was given atropine 1/50 gr. hypodermically and was taken to the theatre for operation without delay. Anaesthesia was induced with ethyl chloride, followed by ether on an open mask (Ogston's). Carbon dioxide had to be used for adequate breathing, and nikethamide (coramine) was injected hypodermically and intravenously (1.7 c.cm. each). An intratracheal tube was passed under direct vision and oxygen was given throughout.

The wound was enlarged and practically the whole of the ileum was found to be prolapsed. It was also perforated in a number of places and was gangrenous. Twelve and a half feet of the small intestine from the ileo-caecal valve upwards was rapidly resected, and the proximal end was inserted into the transverse colon, the distal end being invaginated into the caecum. Sulphanilamide powder was introduced into the peritoneum and the wound was closed, with a drain into the recto-vesical pouch. During the operation one pint of plasma was given by drip.

Convalescence was complicated only by sepsis in the wound. The general condition of the patient was remarkably good throughout, and he spent the first few days wondering why he was not getting his bowels open and why he was denied his rice and vegetables. A continuous intravenous drip saline was maintained for four days with sulphapyridine in each bottle, and an unsuccessful attempt was made to keep a Ryle tube in place. The patient was evacuated in very good condition on the seventeenth day.

COMMENTARY

This case brings out a point which has been learned by experience—namely, that in abdominal wounds more than six hours old it is undesirable to postpone operation for the sake of resuscitative measures however grave the patient's condition may be. In this case plasma was given as early as possible, but the operation was not delayed in the hope of an improvement in the general condition.

Although a large dose of morphine is by no means ideal in such cases from the anaesthetist's point of view, it might well be argued that this patient would not have survived to reach the surgical team had not a large dose of morphine been given. In view of the variety of ways in which individuals react to morphine it is not suggested that the use of a massive dose, as in this case, should be indulged in as a routine, but it is perhaps reasonable to speculate that this was one of those fortunate people who apparently react wholly favourably to morphine, and that it enabled him to survive this extremely severe injury and operation.

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Reviews

YEARBOOK OF UROLOGY

The 1944 Year Book of Urology. By Oswald S. Lowsley, M.D., F.A.C.S. (Pp. 416; illustrated. 18s. 6d.) Chicago: The Year Book Publishers; London: H. K. Lewis and Co.

Although urological research has been severely restricted by the war, the *1944 Year Book of Urology* does not appear to have suffered. It is as full of interesting material as its predecessors. Perhaps the only reminders in its pages that the world is at war are the absence of any reports or papers from clinics in occupied Europe, and the appearance of a special article on the use of penicillin in the treatment of urogenital infections. This article, by Capt. L. R. Reynolds and Lieut.-Cmdr. Weyrauch, is based on observations made on a very large series of cases examined in various hospitals of the U.S. Navy. It is particularly worthy of attention. There can be no doubt that penicillin is of inestimable value in the treatment of gonorrhoea, especially in those complicated cases in which the sulphonamides have proved successful. A course of 100,000 units of penicillin will bring about a cure in well over 95% of all patients with uncomplicated gonococcal urethritis if the drug is given in ten doses of 10,000 units every three hours. In the treatment of non-gonococcal infections the effect of penicillin is unfortunately much less impressive.

The *Year Book* also contains interesting articles on the surgery of the kidney and the adrenals. Dr. S. F. Wilhelm of New York has planned a new technique for operations on cases of obstruction at the pelvi-ureteric junction. Instead of implanting the divided ureter into the pelvis he splits the end of the ureter and implants the pelvis into it, thus avoiding the possibility of forming an obstructive flap. Drs. E. S. Judd and F. Z. Havens of the Mayo Clinic contribute a useful article on the treatment of the traumatic avulsion of the skin of the penis and the scrotum. They describe the use of both grafts and plastic operations. Dr. L. E. Sutton of Syracuse University gives an account of a case treated by first carrying out a perineal urethrotomy and then burying the denuded penis under the skin of the abdominal wall. All these articles are beautifully illustrated, and the *1944 Year Book of Urology* maintains the high standard of its predecessors.

PHYSICAL MEDICINE

Physical Medicine in General Practice. By William Bierman, M.D. (Pp. 654; illustrated. 37s.) New York: Paul B. Hoeber, Inc.; London: Hamish Hamilton.

Before reviewing any book it is customary for the reviewer to read the preface with some care, so that the intentions of the author and the scope of the work may be gathered. On this occasion it was decided to go through the book and then, as it were, write a preface for it, as found by personal study. On doing so, three outstanding impressions were left: first, that here was a book that gave an accurate, comprehensive, and yet fairly judicial conspectus of the possibilities of physical medicine for general practitioners who wished to be well informed on the subject; secondly, there jumped to the mind the old Chinese proverb that "A picture is worth a thousand words," because the numerous line illustrations throughout the book seemed to clarify some point of technique or help the practitioner to visualize some special position of patient or apparatus; and, thirdly, that those techniques which need considerable "filling out" have suitable references at the end of each chapter. It was interesting to find, on reading the preface, that all these three points were particularly emphasized by the author.

Though the book keeps closely to its original aim of being informative for general practitioners, there are here and there useful practical hints on technique that can with advantage be absorbed by the physical-medicine specialist or the physiotherapist. Considering the size of the volume there are extremely few techniques or statements that are not consistent with the best British practice in this field. The technique illustrated on page 156 (Fig. 91) is not one that would be considered free from risk of burn in England, while that in Fig. 92 would be considered a safe and useful method. It is also rather curious that in the section on hyperpyrexia there is no mention of the Kettering hypertherm, which is the American apparatus found most useful in England for this form of treatment. But these exceptions are few, and the book certainly well fulfils the purpose of the author. It may therefore be recommended with confidence—primarily to general practitioners, but also to technical experts in this subject, whether consultants or medical auxiliaries.

A PARENTS' GUIDE

The Intelligent Parents' Manual. A Practical Guide to the Problem of Childhood and Adolescence. By Florence Powdermaker, M.D., and Louise Ireland Grimes. (Pp. 256. 10s. 6d.) London: William Heinemann Medical Books. 1944.

This is an American book, but it has been anglicized by Dr. Newfield—a necessary proceeding these days. As it stands it is a most admirable volume which gives sensible information on the upbringing of the child at all stages of its development. If every parent would behave in the way recommended here no young person could complain that he had not had every possible chance to start well in life, and if any difficulties remained they must be due to inherent defects of one sort or another in the child. The progress of mental and physical growth is dealt with in considerable detail up to 6 years of age; thereafter school life and adolescence are discussed in more general terms, though the answers to most of the problems which arise between 6 and 16+ are to be found. Perhaps the most important and necessary exhortation is that parents and elders generally should respect their children. Respect is generally demanded but seldom given. It would be easy for individual readers to pick on minor faults in the text, but these are of no significance when compared to the general excellence of the book. Doctors are so often asked to recommend a useful guide for parents, and they need have no hesitation in recommending this volume—small and compact, clear in diction, free from technicalities, and comparatively cheap.

PHYSIOLOGY

Handbook of Physiology and Biochemistry. By R. J. S. McDowall, M.D., D.Sc., F.R.C.P.Ed., Professor of Physiology, King's College, London. Thirty-eighth edition. (Pp. 898; with 305 figs. 25s.) London: John Murray.

The present edition represents an interesting milestone in the progress of this, the oldest textbook of physiology in our language, for the name of Halliburton is now dropped from its title, and that of Prof. McDowall, who has edited the book for the past thirteen years, remains. The book, originally *Kirkes's Physiology* when it first appeared in 1848, was for many years known as *Halliburton's Physiology*, and will henceforth be called *McDowall's Physiology*.

During the editorship of the present editor the book has been almost rewritten, and the title was altered by the addition of the words "and Biochemistry" at the 35th edition, which appeared in 1937. In the opinion of the reviewer this addition was unfortunate, since the book cannot pretend to be a handbook of biochemistry, for it merely contains, and quite properly contains, those allusions to biochemical matters which are indispensable to the proper understanding of physiology. Some 80 new illustrations are added to the present edition, and one is glad to note the dropping of the elementary histological matter of the previous editions. This subject, like biochemistry, is best dealt with in separate works, though its value to a full understanding of physiology is beyond question.

The general quality of the production is first-class, and there is a good index.

Notes on Books

EDMUND B. SPAETH'S *Principles and Practice of Ophthalmic Surgery* (Henry Kimpton; 50s.) has quickly established itself as a standard book in English on the surgery of the eye. Though the third edition is published within three years of the previous one, it shows extensive revision, in both additions and deletions. The book now reads more evenly, and much of the jerkiness of the earlier issues has disappeared. The most extensive additions deal with squint and the experiences gained during the war in the treatment of injuries. It is to be hoped that future editions will accentuate the tendency shown by the present one, with its greater emphasis on the author's personal experiences as against a merely encyclopaedic presentation.

Bentley and Driver's Textbook of Pharmaceutical Chemistry, revised by JOHN EDMUND DRIVER, Ph.D., M.Sc. (London: Oxford University Press; 21st.), is a manual for students in pharmaceutical chemistry which has a high reputation and one which the new (fourth) edition will maintain. This edition includes the substances which have become official by their inclusion in the five Addenda to the *B.P.*, 1932, which have now appeared. For those doctors who are interested to have a readable and not bulky reference book on the chemistry of pharmacopoeial substances this work can be recommended with confidence.

Whitaker's Almanack for 1945 has now been published from 13, Bedford Square, London, W.C.1, after some inevitable delay. The usual three editions will be available—the complete edition, cloth bound, with 1,052 pages, at 10s.; the shorter edition, paper bound, with 704 pages, at 6s.; and the library edition, bound in leather, at 21s. Postponement of publication has enabled the editor to include a New Year Honours List as a supplement to the index, which now runs to 90 pages.

The British Journal Photographic Almanac for 1945, published at 5s. by Henry Greenwood and Co. Ltd., 24, Wellington Street, Strand, W.C.2, contains much of practical interest to photographers, both amateur and professional, and includes an article on the causation and prevention of photographic dermatitis by Dr. L. B. Bourne, medical officer to A. C. Cossor Ltd.

Preparations and Appliances

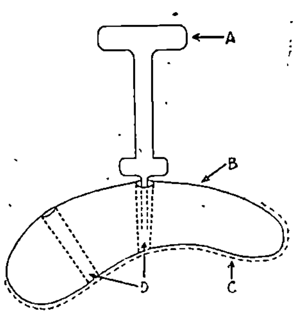
A NEW METHOD AND APPLIANCE FOR GRAFTING EYE SOCKETS

Mr. H. P. PICKERILL, C.B.E., M.S., F.R.A.C.S., writes from Wellington, New Zealand:

In 1919 I had the privilege of giving a clinical demonstration before the Oxford Ophthalmological Congress of the grafting of an eye socket disorganized by gunshot wound, to prepare it for the reception of a glass eye. From then until two years ago I, and probably all other plastic surgeons, have continued to use the same method—i.e., removing all scar tissue, dilating the soft tissues, and pressure grafting on stent or other substance—but the great difficulty then was to get a glass eye to fit the socket one had made, and glass eyes are still undoubtedly much superior to other materials. It never dawned on me until two years ago to reverse the process—to make all sockets to fit stock-sized glass eyes!

Material and Procedure

1. A stock-sized glass eye of the right colour is obtained.
2. This is enlarged a little with wax and then duplicated in acrylic resin—by taking moulds in stent, plaster, or gelatin.
3. Two holes are drilled through this acrylic mould, the same size as the nozzle of a Record syringe. One hole is drilled in the exact spot of the centre of the pupil. Into this hole is fitted a pin about 1½ in. long with a little shoulder on it to prevent it going too far in.
4. The socket is then prepared in the usual way. A half-thickness skin graft is cut with the dermatome and fixed on the acrylic mould, which is inserted in the socket.
5. The pin is inserted and fixed with strips of strapping from forehead to cheek and nose, so that it and the future pupil will be in correct position. The lids should also be sutured together, if indicated. If a dental splint can be used for fixation so much the better, but artificial dentures frequently prevent this.



6. In ten days' time some discharge appears. The pin is removed and the socket gently syringed (through the holes provided) with saline (later with boric lotion), the pin and strapping being replaced.
7. The appliance is retained in position for one month; it may then be removed every other day for cleaning and reinserted, pressure being kept up by elastoplast strips. In two months (minimum) the appliance can be discarded and the stock glass eye will be found to fit perfectly.

In the accompanying sketch A points to the pin made of 1/2 round stainless steel wire; B to the section of acrylic mould; C to the skin graft; and D to the holes drilled for syringing and reception of pin.

There is no co-ordinated movement, of course, but I have never seen any grafted eye socket in which such movement was possible. The method gets over the almost insuperable difficulty of having a special eye made for every grafted socket.

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INDUSTRIAL TOXICOLOGY

After the Medical Research Council reconstituted the Industrial Health Research Board in 1942 it took the very wise step of setting up a new department of industrial medicine at the London Hospital under Dr. Donald Hunter, who gave a vivid account of the work of his department about six months ago.[1] Some of the examples of industrial poisoning he then quoted were dealt with in much detail in his Croonian lectures, published first in the *Quarterly Journal of Medicine*[2] and subsequently in book form.[3] Long and bitter experience has taught those who work on problems of industrial medicine that substances of the highest value in production processes often have, by very reason of their valuable chemical and physical properties, a high capacity for harm to living tissue. Scientific knowledge of these properties, of their correlation with specific tissue injury, of their mode of entry into the body, and of their predilection for certain tissues and organs—this is the principal means of widening the field in which substances already in use can be applied to new processes and new agents can be introduced without increasing the danger of exposing industrial workers to their influence. On these principles are based the whole system of prevention of such danger and of adequate treatment if in spite of precautions injury should occur. And of perhaps greater importance is the thorough training of the industrial doctor in the principles and practice of clinical medicine.

The physical form or chemical constitution of a substance may greatly influence its toxicity. Many metals are comparatively inert in the form of powder but are highly toxic when inhaled as fume. Thus nickel is in itself not toxic, but as the gaseous compound nickel carbonyl it may cause severe congestion and oedema of the lungs. The influence of valency of the metal radical on its toxicity is exemplified by chromium, where toxic action is confined to the hexavalent compounds. Trivalent chromium salts, such as the phosphate and carbonate, are harmless, but the hexavalent compounds used in chromium plating attack the skin and nasal mucous membrane, causing chrome ulceration and perforation. Inorganic and organic compounds of the same metal may have a completely different toxic action, as seen in the case of lead and arsenic. The classical picture of lead colic, anaemia, and palsy of inorganic lead poisoning differs profoundly from the cerebral manifestation of intoxication with tetra-ethyl lead, while the local irritation of mucous membranes set up by contact with the dust of arsenic is a far less serious injury than the acute haemolysis caused by arseniuretted hydrogen. The chemical constitution of some of the more complex organic members of the aromatic and chlorinated hydrocarbon groups is sometimes an indication of their probable toxicity. Thus the addition of a nitro or nitroso group to the benzene ring usually produces a more toxic compound; the ortho-isomer of tri-cresyl phosphate is more dangerous than the para- or meta-isomer; the toxicity of the chlorinated hydrocarbons rises with the molecular weight, though subject to a compensating decline due to decreasing volatility.

The two chief paths of entry of industrial toxic substances into the organism are by inhalation and through the skin; and, generally speaking, inhaled toxins exert the maximum effect, with a clinical picture sometimes differing in many respects from that produced by skin absorption or ingestion. The erethism of poisoning by mercury vapour—a mental syndrome of suspicion, timidity, fear, and irrational behaviour—is practically never seen in the "mercurialism" of therapeutic administration; most cases of acute occupational poisoning by nitrobenzene and aniline arise through skin contamination, whereas in benzene poisoning inhalation is by far the most important channel, as also with "narcotic" substances such as trichlorethylene and ethylene dichloride. The polyneuritis of tri-cresyl phosphate poisoning, however, is practically identical whether caused by inhalation of the fumes or, as in the "Jake paralysis" in America in 1930, by ingestion of an adulterated beverage.

The predilection of any given toxic agent for any specific organ or tissue appears to depend on all these factors and their various combinations. The affinity of the "narcotic" poisons, such as trichlorethylene, for the higher centres of the central nervous system is that of all anaesthetics; the specific action of benzene on the bone marrow may be an expression of its outstanding lipoid-solvent power; the cyanosis of T.N.T. poisoning an expression of the affinity of many of the aromatic nitro and amino compounds for the oxygen of oxyhaemoglobin; the so-called "aniline" cancer of the bladder may be associated with the chronic trauma caused by excreted irritating decomposition products; the "chloracne" of chlorinated naphthalene wax is a result of irritation of the sebaceous glands by chlornaphthalene followed by hypersecretion and plugging; the loss of weight, sweating, and high temperature of poisoning by dinitrophenol are due to the fact that it is a strong stimulant of metabolism. The special susceptibility of the liver and kidneys to some of the chlorinated hydrocarbons and of the kidneys to at least one member of the glycol group, dioxan, has not so far been fully explained. Certain it is that many of the halogenated organic compounds are recognized liver poisons. The clinical picture, first and most clearly seen during the last war from the use of tetrachlorethane as an aeroplane dope, is that of toxic jaundice from acute necrosis of the liver. The combination of liver and kidney injury has occurred chiefly from the use of carbon tetrachloride as a fire extinguisher, while ethylene dichloride has also a nephrotoxic and hepatotoxic action, though less than that of carbon tetrachloride and tetrachlorethane. Diethylene dioxide (dioxan) may also cause enlargement of the liver, but in fatal cases the liver injury was overshadowed by acute haemorrhagic nephritis. How far personal or organ susceptibility determines toxic action is uncertain, but undoubtedly it does exist. Cases of benzene poisoning may occur, for instance, in only a few individuals of a large number similarly exposed, or in some receiving comparatively slight exposure. Age and sex appear to be less important factors than weakness of the general constitution or of special organs or systems. From this point of view no worker with considerable abnormality of the blood picture should be exposed to benzene; nor with liver insufficiency to carbon tetrachloride or trinitrotoluene; nor with albuminuria to ethylene or diethylene dioxide; nor with a sensitive skin to arsenic or tetryl.

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[1] *Health Research in Industry.* M.R.C. Industrial Health Research Board. H.M. Stationery Office. (1s.)

[2] *Quart. J. Med.*, 1943, 12, 185.

[3] *Industrial Toxicology*, 1944, Oxford, The Clarendon Press. (Pp. 80. 10s. net.)

One of the most recent tendencies in the progress of industrial hygiene is the choice of persons for particular work with regard to such special susceptibility, and it is a measure which might well be further encouraged as a means of preventing injury by toxic substances. Medical supervision, with periodic medical examination, of workers in various hazardous industries has also made great progress since its compulsory application to firms employing a large number of workers and its voluntary adoption by many smaller firms. These measures, together with provision of adequate ventilation, insistence on personal cleanliness of workers, and general hygienic conditions of workshops, have gone far towards reducing the risk to health arising from exposure to substances whose toxicity is recognized and understood. It is to be hoped that new compounds will be fully tested before being used in production, and that ever-increasing efforts will be made to substitute any found to be comparatively innocuous for those whose ill effects on the industrial workers must surely outweigh their value as technical aids to industry itself.

SOCIAL SERVICE IN WARTIME

The more reconciled the British people become to State intervention in social concerns the more strongly do they appear to cherish the voluntary principle. Even if State control and provision were complete it would only mean the release of voluntary agencies for the opening up of new fields. The war, which has seen such a great regimentation of the nation, has seen also the spirit of voluntary service rise to new occasions. This is well illustrated in the experience of the National Council of Social Service, which has lately issued a report covering the last twenty-one months of its work.[1] In 1938, at the time of Munich, the National Council called a number of voluntary bodies into consultation in view of the expected disorganization of social life in the event of war. An effort was then made, as the report says, "to plan our services so that their maximum potential would be released in the hour of need." The subsequent story makes a fine record, though not in the least a dramatic or spectacular one.

The work has taken a highly complex pattern—citizens advice bureaux, youth organizations, old people's welfare, communal feeding, women's social service clubs, the institution of training schemes for social workers, and many other activities, diverse in their nature but directed to the same end. One recent development is the setting up of machinery for maintaining a close relation between the National Council of Social Service and the National Council for Maternity and Child Welfare. The one body will make available to the other its various services and contacts so far as these are relevant to the other's objects; duplication of services will be eliminated and activities extended as far as this liaison makes it possible. Another field in which the National Council has been engaged is a study of the post-war holiday problem—a problem which may be much more serious than it appears to be at a casual glance. After the tension of war years there will be a tremendous demand for holidays—a demand increased by the holidays-with-pay arrangements—and unless something is done by way of organization and control there is likely to be an overwhelming congestion at holiday centres, with such wear-and-tear of body and frustration of spirit as will make the holiday of less than no value to many who flock to the coast. The National Council suggests that it is a task for the Government to establish a national holidays corporation which would make emergency provision, including the acquisition and control of wartime hostel and camp accommodation. Thus the British citizen who has had to submit to control of his industry during the war years may have still to submit to control even when he relaxes, and it will cheer him little to be told that this is for his own good. It may come to "coupons for holidays," but the words have an ugly ring in the ears of a free-born Briton.

Then there is the work which the National Council has undertaken in the rural areas. For years it has been drawing attention to the danger of the countryside taking second place in the facilities provided for social and community life. It has made grants and loans for the establishment of village halls; it has encouraged music and drama, helped rural industries, and has done much to increase interest in parish councils. Perhaps it is worth while to point out that there is another community standing in as great a danger of neglect as the 20% of the population who live in rural areas—namely, the neo-suburban community. We know of single estates of flats and houses under one ownership, situated around London and other cities, in which there may be a population of a couple of thousand, equal to that of a good-size village, but without any communal provision. A village of that population would have its church, two or three chapels, and perhaps a hall, not to speak of inns and clubs, but on these housing estates there is very generally no focus of community; and the matter is made worse because the people often have moved from in-town surroundings, where they had some sort of community centres, even if rather tawdry ones. But no doubt this problem, too, is in the mind of the National Council, which, under the chairmanship of the Warden of All Souls, has achieved so much in so many fields. This is the twenty-fifth year of the Council's work, and it is regarded as a turning-point in the development of voluntary service, marked by the growth of machinery for consultation among voluntary organizations pursuing like ends.

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[1] National Council of Social Service, 26, Bedford Square, London, W.1.

CONDITIONS FOR GOOD VISIBILITY

The visibility of an object depends on a variety of factors, such as its size, the illumination on it and its surroundings, and the contrast between it and its background, as well as on the state of adaptation of the eye by which it must be recognized. These factors are all related to one another in different ways; for instance, the level of illumination will affect the state of adaptation of the eye, or the smaller an object the more brightly must it be lighted to make it visible. Hence the determination of the optimum conditions for the performance of a visual task, whether in a factory, school, office, or home, is not always simple, and much information is usually needed before the most satisfactory results can be achieved. It is probable that in the majority of cases in which the problem arises the only factor in the set-up which can be varied will be the illumination, because the size and contrast of the detail making up the pattern of the task are usually fixed by its very nature, whether it be type-setting or hemming a handkerchief.

A method of attacking such problems can, as pointed out by Beutell, be "based on the proposition that the illumination required for any visual task, as compared with the simplest possible task, depends upon certain conditions adversely affecting its performance; that these conditions can be defined; and that if the relationship can be ascertained between each of the conditions and the illumination required to compensate for it, then the illumination suitable for the performance of the task ought to be capable of actual computation."[1] As a result of this suggestion of Beutell's a series of investigations into the effect of some of the variants of visual tasks on the relationship between illumination and visual efficiency was initiated and the first report, on the effect of size of work, published jointly by the Industrial Health Research Board and the Illumination Research Committee of the Department of Scientific and Industrial Research in 1935.[2] A second report, by H. C. Weston, has just been put out by the Industrial Health Research Board under the title "The Relation between Illumination and Visual Efficiency—the Effect of Brightness Contrast."[3] The task chosen for this set of experiments was the recognition of the position of the gap in a series of Landolt's broken rings under different conditions of illumination and contrast. Both "reverse" (light on dark) and "normal" (dark on light) contrast were used. The results, presented in an intimidating mathematical form, show that there is no constant relation between brightness contrast and the illumination required to ensure maximum visual efficiency. If the size of the task detail is great enough, and the contrast not too poor, differences in contrast will not affect performance. If, however, the size of the object to be recognized is small the amount of contrast it presents to its background is most important for visual efficiency. The lower the contrast the higher must the illumination be raised before a maximum performance can be obtained, but no amount of illumination can bring the performance of a task involving poor contrast up to the level of one where the contrast is good. From the practical point of view this means that, whenever possible, visual tasks which call for the recognition of fine detail should be arranged so as to give as much contrast as possible between detail and background. Where (and this covers a large number of cases) this is not possible, as, for instance, in sewing with a matching thread and particularly when the colour is a dark one, it is necessary to ensure that the lighting on the task is as good as it can be. It is interesting to note in passing that, under any given set of experimental conditions, a task in "reverse" contrast was performed better than one in "normal" contrast.

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[1] *Illuminating Engineer*, 1934, 27, 5.

[2] Joint Rep. Indust. Health Res. Board (M.R.C.) and Illumin. Res. Cttee. (D.S.I.R.), H.M.S.O., 1935.

[3] Rep. No. 87, published by H.M. Stationery Office, 1945

CARE AND TEACHING OF HANDICAPPED CHILDREN

Special educational treatment for handicapped children is dealt with in draft regulations published last week by the Ministry of Education and summarized on another page. Blind, deaf, epileptic, physically handicapped, and aphasic children will normally be educated in special schools. Blind and those epileptic children who need special educational treatment must be taught in boarding schools. Other handicapped children, including the partially sighted, the partially deaf, the educationally subnormal, may go to an ordinary school if they can have suitable special educational treatment there and if this would not be detrimental to the other children. Otherwise they too will go to special schools. Two new groups of handicapped children are recognized—maladjusted children and those with defects of speech; and power is given to local education authorities to maintain children at special schools up to the age of 19 instead of 16. Where it is necessary to board out a handicapped child with foster-parents the authority must arrange for inspections of the home. The work of the school medical service is to be much extended under the new Education Act, and research will be encouraged. The regulations provide for the medical inspection as soon as possible after admission of every child admitted to a maintained school for the first time, and, in the last year of his attendance, of every pupil at a maintained primary or secondary school. In all special schools and institutions not maintained by a local education authority every pupil must be medically and dentally inspected on admission and at least once a year. Another wise provision is that which requires every authority to appoint a senior dental officer.

HOSPITAL MEALS

The Ministry of Health has issued a circular to hospital authorities giving recommendations on catering. The circular has been prepared primarily with a view to the feeding of hospital staffs, but the recommendations apply with equal, if not greater, force to the feeding of patients. The need for a scientific approach to this subject—including judicious buying, good cooking, palatability, and attractive presentation—is emphasized. The most difficult recommendation is the first—namely, that where practicable the catering department of a hospital should be in the charge of a full-time and suitably trained officer, such officer to be responsible for ordering foodstuffs, framing menus, management and control of the kitchens, dining-rooms, and the ward meal service, and for supervision of special diets. In the smaller hospitals some combined arrangement may perhaps be made for the purpose. It is also recommended that this officer should be trained in nutrition and dietetics, or, in the large hospitals, that he should have one or more persons on his staff specially trained in these subjects. The difficulty seems to lie in the lack of trained persons. The British Dietetic Association, which is the qualifying body for the Board of Registration of Medical Auxiliaries, has a membership of some 277, of which dietitians and food supervisors in civilian hospitals number only about 100, and there are in Great Britain between 350 and 400 voluntary hospitals alone with over 100 beds. It is further suggested that hospitals should review the design and arrangements of kitchen and food store-rooms, and prepare for necessary improvements as soon as these can be undertaken. Adequate dining-room or mess-room accommodation should be provided for all the non-resident, as well as the resident, staff who want such facilities as hot meals or light refreshments or hot drinks. It is pointed out that hospital rations cover, and are designed to provide for, occasional meals for non-resident staff. An expert staff of the Ministry of Health and the Department of Health for Scotland and the Dietetic Advisory Service of the King Edward's Hospital Fund for London are freely available for the regular visiting of hospitals and for advice on catering improvements. The Ministry of Labour and National Service for its part is trying to meet the requirements of hospitals for domestic staff, and during the last twelve months 41,500 women and 3,300 men have been placed in hospitals or similar institutions in that employment. Certain courses of training have been arranged, particulars of which can be obtained from the Employment Exchanges to which hospital vacancies are notified. One is a training scheme for large-scale cooking and lasts for six or twelve weeks, according to the previous experience of those attending.

HUMAN REQUIREMENTS OF VITAMIN C

What is the minimal daily requirement of vitamin C necessary for good health? According to various workers this varies from 10 mg. to 100 mg., depending on the method of investigation. Those who use the saturation test as an index of vitamin-C nutrition recommend daily intakes of from 75 mg. to 100 mg. The rationale of this test is that after a large test dose the needs of the tissues for vitamin C are satisfied before it increases in the blood to the threshold value, when much more is excreted in the urine. The value of the saturation test has recently been questioned. There is no general agreement on how big the test dose should be, or on how the results should be interpreted; the threshold value for vitamin C varies widely from person to person; and Crandon's work on experimental scurvy[1] proves there is no evidence that saturation with vitamin C is necessary for health. As almost any concentration of vitamin C in the plasma appears to be compatible with good health,[2 3] the saturation test is not of much use in diagnosing vitamin-C deficiency or in computing the vitamin-C requirements of man.

More help is likely to come from estimation of the vitamin C in whole blood (not plasma) or in the white-cell–platelet or buffy layer of centrifugalized oxalated blood.[2 3] A constant level of the vitamin, no matter how low, indicates a positive balance; falling values point to a gradual depletion of vitamin C. There is no clinical justification for the view, commonly held, that a concentration of vitamin C above 0.6 to 0.7 mg. per 100 c.cm. of plasma is necessary for health. From measurement of the vitamin C in the white-blood-cell layer Pijoan and Lozner[4] have calculated the minimum requirements for man. One of these authors lived for twenty-two months on a diet providing 25 mg. or less of vitamin C daily. Although plasma vitamin C was only 0.0 to 0.2 mg. per 100 c.cm. and no vitamin C was being excreted in the urine, no ill effects were observed, and an experimental wound in the back healed normally. The white-cell–platelet content of vitamin C was constant at 26±2 mg. per 100 g. on a daily intake of 18 to 25 mg. It would therefore appear that good health can be maintained on a daily intake of 25 mg. of vitamin C. This may be regarded as the protective minimum, because on intakes below this figure Pijoan and Lozner found that the vitamin C in the white-cell–platelet layer showed a continuous fall.

In gauging the vitamin-C nutrition of the individual one must measure the vitamin content not of the plasma but of the tissues, and the best guide to this is whole blood or white-cell–platelets. Vitamin C in the plasma represents an overflow or a phase of positive balance, and it appears in the urine when the renal threshold value is reached. So it is thus possible to be in good health with a plasma vitamin C at or just above zero, and none in the urine. These observations of Pijoan and Lozner receive support from other quarters. Najjar and his colleagues[5] kept seven young adults on a constant daily intake of 25 mg. of vitamin C for eighteen months without finding anything abnormal by clinical or laboratory tests. Stamm, Macrae, and Yudkin[6] did not observe a single case of scurvy among 2,962 R.A.F. personnel on a diet containing from 17 mg. to 26 mg. of vitamin C daily. Farmer[7] also found that experimental scurvy could not be produced in human volunteers unless the daily intake fell below 10 mg. It would thus seem that approximately 25 mg. of vitamin C is the minimum daily requirement of the vitamin for the average individual. This will keep a positive vitamin-C balance. Whether there is an optimum intake higher than this, and, if so, how much, is a matter for conjecture.

THE QUESTION IS . . .

The publication some time ago of *Our Towns: A Close-up*[8] which was a disclosure of slum life as shown up by evacuation, disturbed the public conscience to an extent that far more ambitious social treatises have failed to do. The National Council of Social Service has now followed it up by a pamphlet prepared by the Women's Group on Public Welfare, and entitled *What Do You Think?*[9] which is a series of study-outlines based mainly on the earlier publication and intended for the use of discussion groups. The purpose is to get discussion going all over the country, not in large bodies but in groups of from seven to fifteen people. Discussion has been defined as conversation with a point to it, and it is believed that more useful results may be brought about in this way than by the holding of mass meetings, which create a great deal of sound but merely explode in air. This syllabus ranges over such questions as the family, the living wage, the house and its housekeeper, education, neighbourliness, the use of leisure, and good health. It is largely in the form of a series of questions, to some of which the answers are obvious—" Is it more economical to spend money on preventing illness or on curing it ? "—while others are more debatable. The groups are asked to say how to prevent noisy people from disturbing quiet people, and also how to prevent quiet people from irritating noisy people. Another provoking question is, " If some families refuse to take the trouble to achieve good health, what would you do ? " If discussion groups can be arranged it may mean that wider and wider circles of people will learn to think objectively, feel generously, and act in co-operation, and something may be done, beyond what any legislation can do, to remedy those social faults and incompetences on which *Our Towns* threw so lurid a light.

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[1] Crandon, J. H., Lund, C. C., and Dill, D. B., *New Engl. J. Med.*, 1940, **223**, 533.

[2] Heinemann, M., *J. clin. Invest.*, 1938, **17**, 751; 1941, **20**, 39.

[3] Butler, A. M., and Cushman, M., ibid., 1940, **19**, 459; *J. biol. Chem.*, 1941, **139**, 219.

[4] *New Engl. J. Med.*, 1944, **231**, 14; *Johns Hopk. Hosp. Bull.*, 1944, **75**, 303.

[5] Najjar, V. A., Holt, L. E., and Royston, H. M., *Johns Hopk. Hosp. Bull.*, 1944, **75**, 315.

[6] *British Medical Journal*, 1944, **2**, 239.

[7] *Federation Proc.*, 1944, **3**, 179.

[8] See *British Medical Journal*, May 8, 1943, p. 571.

[9] National Council of Social Service, 26, Bedford Square, London, W.C.1. (1s.)

WARTIME INJURIES IN ENGLAND AND WALES

BY

PERCY STOCKS, M.D.

General Register Office

The disturbances in social conditions during the last five years, affecting the distribution, housing, and working conditions of the population, their means of transport, and the lighting of streets and buildings, might be expected to leave clear impressions upon the rates of mortality from accidental causes among civilians. For various reasons, such as unavoidable delays in publication of the Registrar-General's annual reports, little detailed information has yet been made available on this question, and a good deal of misconception exists in consequence. It may be that useful lessons for the future years of peace can be learnt from the behaviour of death rates from different forms of accidents during the war, particularly with regard to those occurring on the roads and in the home.

Furthermore, the war has brought us for the first time statistical information on an almost national scale regarding types of injury resulting from various forms of external violence and causing admission to hospitals. Plans for house-building, town-planning, road construction, and restoration of private motoring, hospital treatment, and rehabilitation of injured persons are all in the air, and it seems desirable that some information should be given now about accidents and fatalities in recent years. The trend of civilian mortality from various forms of violence in different sex and age groups will first be considered, and then the kinds of injury which have been found in patients admitted to E.M.S. hospitals, both from the Services and from the civilian population.

Civilian War Fatalities

The numbers of civilian deaths registered in England and Wales during the four years 1940 to 1943 and classified as due to operations of war (International List No. 197) were as follows:

	1940	1941	1942	1943
Males	11,691	10,798	2,044	1,571
Females	10,524	8,745	1,747	1,431

Of these 48,551 deaths, 39,727 were registered in the 12 months from July, 1940, to June, 1941, inclusive. They comprise deaths from injuries caused by enemy action and by manœuvres and practices for offence or defence, and the figures include women in the Services up to mid-1941, merchant seamen who died in this country, and the Home Guard. Nevertheless, the great bulk of the deaths resulted from haphazard night bombing; and had the population been distributed as in peacetime and remained within their homes the death rates might have been expected to vary little with sex and age except so far as these affected recovery rates after injuries not immediately fatal. When the death-rates of separate sex–age groups are expressed as percentages of the rate for the population as a whole, indices slightly below 100 up to age 55 followed by increases over 100 thereafter, and showing little sex difference, would have been anticipated if all groups of the civilian population had moved from their homes, resorted to shelters, and otherwise reacted to the situation in the same way.

TABLE I.—*Civilian Death Rates from Operations of War in 1940–3 for Different Sex and Age Groups, Expressed as Percentages of the Rate for Persons of All Ages in the Same Year*

Age Group	1940		1941		1942		1943	
	M	F	M	F	M	F	M	F
0–	63	58	68	66	55	70	57	62
5–	52	50	57	53	78	51	86	77
15–	124	82	141	77	122	69	112	69
45–	144	98	144	88	166	87	165	87
55–	156	111	165	97	163	102	167	104
65–	141	128	144	109	142	143	150	131
75+	157	168	138	130	171	194	177	162
All ages	115	87	124	81	123	81	91	64

Table I indicates how far the actual indices departed from this hypothetical position, and some inferences may be drawn from the differences. Children under 5 years of age experienced rates much more favourable than those of all civilians, to the extent of about 40% in 1940, 33% in 1941, 37% in 1942, and 41% in 1943. Children of school ages showed corresponding advantages of 49% in 1940, 45% in 1941, 35% in 1942, and 18% in 1943, their advantage diminishing as the dispersed children returned to their homes. Women reduced their rates by 1942–3 to 31% below the average at ages 15–45 and to 13% below average at 45–55. All other sections showed rates above the average, the excess increasing for men aged 45–65 to about 65% in 1942–3. The large excess for old people of both sexes was no doubt due partly to inability or disinclination to take shelter and partly to lower recovery rates from injuries not immediately fatal.

Civilian Road Fatalities

TABLE II.—*Civilian Death Rates from Road Accidents in 1939–43 for Different Sex and Age Groups, per Million Living*

	1939	1940	1941	1942	1943
Children:					
0–	95	121	152	130	97
5–	114	117	158	135	123
Men:					
15–	248	232	255	175	139
45–	253	260	265	200	166
55–	406	420	423	281	226
65–	634	631	607	469	349
75+	1,171	1,068	969	731	538
Women:					
15–	44	42	45	37	31
45–	52	52	59	41	36
55–	105	90	96	68	53
65–	223	167	178	130	99
75+	361	280	258	189	191
Persons all ages	177	168	181	136	110

Table II shows the civilian death rates caused by road accidents (International List Nos. 170, 171), which for persons of all ages changed little from 1939 to 1941, but declined considerably in 1942 and again in 1943. The decrease in road traffic might have been expected to affect all age groups to about the same relative extent, but it is important to notice that children did not share in the improvement in mortality, their rates being still slightly higher in 1943 than in 1939, after being very much elevated in the intervening years. At ages 15–55 males registered an improvement, starting after 1941, of about 40% from 1939 rates, and women about 30%, while people over 55 of both sexes showed progressive decline in death rates, until by 1943 they reached about one-half of the 1939 levels. Children suffered twice as heavily from road accidents in 1942–3 as from operations of war, and their continued high rate of mortality despite diminished road traffic is a matter which needs serious consideration in post-war planning.

Accidental Deaths in the Home and Elsewhere

TABLE III.—*Civilian Death Rates from Violent Causes, other than Operations of War and Road Accidents, in 1939–43 for Different Sex and Age Groups, per Million Living*

	1939	1940	1941	1942	1943
Children:					
0–	498	553	582	550	527
5–	104	125	147	135	133
Men:					
15–	359	412	424	403	415
45–	626	680	611	532	512
55–	975	1,019	872	745	688
65–	1,135	1,302	1,169	978	946
75+	2,801	3,159	2,612	2,381	2,108
Women:					
15–	100	98	115	100	99
45–	246	237	197	187	169
55–	367	389	327	282	256
65–	740	901	726	601	550
75+	3,122	3,526	3,061	2,680	2,456
Persons all ages	411	458	434	392	379

Death rates from "other" accidents are shown in Table III. In 1940 they increased for every group of the civilian population except women aged 15–55. In 1941 further increases occurred for children and young adults, but at ages over 45 the rates declined consistently year by year from 1940 to 1943. As in the case of road accidents, children's mortality in 1943, although below that of the two years preceding, was still above 1939 levels. This was true also of men under 45, but every age group over 45 for each sex registered pronounced improvement in 1942 and further improvement in 1943 on the 1939 rates. Here again, why should the mortality of young children have risen by 5%, and of school-children by 28%, while that of men and women at ages over 45 declined by 20 or 30%?

Table IV.—*Deaths of Civilians from Accidents known not to be due to Industry or Transport, 1940–2 (see Text)*

	Year	Children 0–	Children 5–	Men 15–	Men 65–	Men 75+	Women 15–	Women 65–	Women 75+
Poisoning by coal-gas or carbon monoxide	1940	8	18	96	32	27	56	42	46
	1941	12	11	87	28	24	44	18	46
	1942	12	8	65	22	21	52	21	46
Accidental swallowing of poison or foreign body	1940	32	5	55	15	4	43	12	6
	1941	35	8	63	13	6	60	11	14
	1942	23	16	55	12	4	64	7	3
Conflagration ..	1940	28	16	19	10	9	23	16	9
	1941	30	25	16	10	10	24	5	6
	1942	29	15	38	9	2	32	11	9
Burns by clothing from domestic fire or by falling into fire	1940	23	32	12	17	24	53	31	36
	1941	40	29	9	21	16	57	31	51
	1942	24	15	11	18	20	41	23	24
Burns by clothing from stoves, candles, paraffin, etc.	1940	10	8	3	2	4	19	16	33
	1941	11	6	4	2	5	21	14	27
	1942	13	10	3	2	3	19	13	34
Scalds, and burns from other causes	1940	334	25	37	18	16	26	13	26
	1941	310	27	45	13	10	21	18	27
	1942	243	17	32	5	15	26	13	17
Mechanical suffocation in bed, cot, cradle, etc.	1940	308	—	4	—	—	4	—	1
	1941	379	—	1	1	—	—	—	—
	1942	358	—	2	—	—	—	—	—
Suffocation by food (or rubber teat)	1940	149	4	28	6	7	21	2	3
	1941	153	—	22	7	4	22	6	6
	1942	165	3	22	6	4	8	9	4
Falls downstairs ..	1940	17	7	174	133	175	181	219	377
	1941	8	7	192	148	141	164	186	298
	1942	16	5	139	85	136	138	168	251
Falls from ladder or window	1940	6	2	82	33	21	32	15	20
	1941	14	5	59	27	19	24	25	11
	1942	12	5	64	28	26	27	11	10
Falls "indoors" or from bed or pram	1940	20	3	53	132	243	113	265	754
	1941	26	4	63	92	225	95	210	713
	1942	17	5	45	95	235	64	196	729
Electric currents ..	1940	7	9	37	1	—	4	—	—
	1941	6	12	22	—	—	12	—	1
	1942	1	8	24	—	—	14	—	—
Explosions	1940	3	3	15	1	1	8	1	2
	1941	2	3	18	—	—	2	1	—
	1942	1	3	19	—	—	4	—	—

Table IV throws some light upon the causes of those fatalities which occurred for the most part within people's homes during 1940, 1941, and 1942. From each group in the table have been excluded accidents in mines and quarries, those connected with transport, machinery, and operations of war, and those indicated as occupational, apart from housework. The great majority of the residual deaths must have been due to accidents at home. Considerable numbers of coroners' certificates furnish no clue to the circumstances in which the accident occurred, and an unknown proportion of deaths classified to burns, fall, crushing, and "other" accidents of "unstated cause" must also have occurred at home. The totals in these groups are shown in Table IVa, and need to be considered in conjunction with the better-defined deaths in Table IV.

Table IVa.—*Deaths of Civilians from Certain Accidents in Unknown Circumstances*

	Year	Children 0–	Children 5–	Men 15–	Men 65–	Men 75+	Women 15–	Women 65–	Women 75+
Burns of unstated cause	1940	67	26	26	20	34	63	41	63
	1941	41	26	24	13	23	49	38	40
	1942	47	36	14	13	19	40	24	44
Fall, crushing, other and unspecified*	1940	51	67	602	207	321	142	260	739
	1941	34	56	391	159	292	102	222	666
	1942	40	39	238	129	220	87	143	549

* Including "fracture of leg" at ages 65 and over.

For children and old people the combined tables must represent the totals of home fatalities without much overstatement, and it is safe to conclude that about 1,150 children, between 1,100 and 1,300 people aged 15–65 and between 3,200 and 3,400 people aged 65 and over died from such accidents in 1942. Burns and scalds contributed about 400 to this total for children, compared with about 500 in 1940, and suffocation in bed or by food contributed about 500, compared with about 450 in 1940.

Types of Injury causing Admission to E.M.S. Hospitals

The hospital records of patients admitted to E.M.S. beds are sent after completion of treatment to the Ministry of Pensions registry at Norcross. At the end of 1942 work was begun on these records by a small statistical staff of the E.M.S. organization in order to gather information about the frequency of various diseases and injuries—not merely for historical purposes but also to dispel some of our ignorance about such important matters as the types of injury produced by different forms of violence and the durations of hospital treatment and disablement resulting therefrom. For this purpose every fifth patient was selected by a random process from those admitted to all E.M.S. hospitals, starting from 1942, and the final diagnoses of the principal disease or injury causing admission, and of the chief complications and associated conditions, were coded by means of the Medical Research Council's Provisional Classification of Diseases and Injuries (Special Report No. 248). These codes and the essential details of sex, age, occupation, duration, etc., were entered on cards, and more than 120,000 have been thus dealt with up to the present. Owing to the long stay in hospital of some patients, tabulations of the admissions during a given year cannot be made finally until about 15 months has elapsed from the end of that year, but statistics for the years 1942 and 1943 are now becoming available, and form the basis of the tables which follow. After the war 1940 and 1941 will, it is hoped, be dealt with, but at present nothing can be said about those years.

Civilians injured by enemy action and admitted on that account to E.M.S. beds must have numbered over 7,500 in 1942–3, since the one-fifth sample used in Table V comprises 1,530 patients, 881 being males and 649 females. The table distributes these according to 18 main injury groups, expressing the frequencies in each sex as percentages of the totals. Open wounds without injury to bones, nerves, or internal organs formed 37% of the injuries of males and 40% of those of females, and bruises and contusions formed about 7% for each sex. Fractures were present in 23% of injured males and 20% of females, and head injuries without fracture in about 12 and 13% respectively. Lower-limb and skull fractures, burns, and traumatic amputations were relatively more frequent in males

Table V.—*Types of Injury Sustained in the United Kingdom by Civilians through Enemy Action, and by Men and Women in the Services through Accidents, causing Admission to E.M.S. Hospitals in 1942–3*

M.R.C. Code No.		Civilians: Enemy Action† M	Civilians: Enemy Action† F	Non-civilians: Explosive Missiles M	Non-civilians: Road Accidents M	Non-civilians: Sport M	Non-civilians: Other Accidents M	Non-civilians: All Accidents F
	Total in sample ..	881	649	1,952	3,054	1,346	8,203	712
		Per cent. of all injuries within each group:						
840	Fracture skull ..	4·4	3·4	3·0	6·0	3·3	2·7	2·5
800	Other head injury ..	11·6	13·4	3·4	19·7	5·2	6·7	12·4
841	Fracture spine ..	1·0	0·9	0·6	1·8	0·6	1·4	1·0
842	„ trunk ..	2·3	2·2	1·0	2·4	1·3	1·3	0·7
843	„ upper limb	4·1	5·5	9·0	10·4	11·6	12·8	9·3
844	„ lower limb	7·7	4·9	12·8	17·3	20·2	18·3	14·6
845	„ multiple ..	3·7	3·1	3·8	6·9	0·2	1·5	1·3
846	Dislocation ..	0·6	0·2	0·1	1·9	3·6	2·0	1·7
815–6	Crush injury* ..	1·1	2·6	0·2	0·9	0·4	1·0	0·6
82, 83	Nerve injury ..	0·8	0·3	4·7	0·3	0·1	0·3	0·3
801–7	Open wounds* ..	36·2	40·5	40·4	15·6	2·6	11·8	11·2
810–1	Contusion* ..	6·5	7·2	0·6	10·0	13·7	9·8	11·6
847	Sprain, strain* ..	1·7	0·6	0·1	4·3	36·1	14·0	12·9
93	Burns, scalds ..	4·0	1·9	2·7	0·2	—	5·6	9·8
812–4	Foreign bodies ..	0·8	1·1	1·9	—	—	1·1	1·0
90–92	Poisoning	0·3	0·2	0·2	—	—	1·6	1·4
817–8	Traumatic amputations	1·5	0·3	2·7	0·1	—	1·0	0·6
	Others	10·7	11·7	13·0	2·2	1·1	7·1	7·1
80–90	All injuries ..	100·0	100·0	100·0	100·0	100·0	100·0	100·0

* Without fracture or more serious injury.
† M.R.C. prefix code VV, with exclusion of injuries of Home Guards and N.F.S. personnel received during practices.

than in females, while upper-limb fractures and crush injuries occurred more often in females.

Non-civilians injured by accidents of various kinds are dealt with in the same way in Table V. "Accidents" include those occurring during training and manœuvres as well as those happening while off duty, the only injuries excluded being those due to enemy action and those purposely inflicted by self or others. The external causes distinguished in the table for men are explosive missiles (M.R.C. suffix codes 4V to 6Y), road accidents (suffix 1 to 7), sport (suffix 4X), and all other accidents. About one-third of the last-mentioned group of accidents were said to have been falls or blows, and considerable numbers are included here concerning which the hospital records gave insufficient information about the accident to allow classification to the specific external cause.

Table VI.—*Types of Injury Sustained in the United Kingdom by Men in the Services through Accidents on Roads causing Admission to E.M.S. Hospitals during 1942–3*

M.R.C. Code No.		Driver of Motor-cycle	Driver of Other Motor Vehicle	Passenger in Motor Vehicle	Pedestrian Injured by Motor Vehicle	Pedal-cyclist (not Motor Accident)	Other Road Transport Accident	All Road Accidents
	Total in sample ..	1,427	85	553	291	203	495	3,054
	% of all road accidents	46·7	2·8	18·1	9·5	6·7	16·2	100 0
		Per cent. of all injuries within each group:						
840	Fracture skull ..	4·6	9·4	7·2	6·5	5·4	8·1	6·0
800	Other head injury ..	13·7	34·1	24·1	26·8	26·6	22·8	19·7
841	Fracture spine ..	1·2	2·4	3·4	1·4	1·0	2·0	1·8
842	„ trunk ..	1·2	3·5	5·1	2·4	1·0	3·2	2·4
843	„ upper limb	11·4	12·9	10·7	5·9	15·7	7·5	10·4
844	„ lower limb	25·2	5·9	7·2	17·2	8·4	11·3	17·3
845	„ multiple ..	9·5	3·5	5·1	5·5	3·4	4·7	6·9
846	Dislocation ..	2·0	—	1·8	0·3	3·0	2·2	1·9
815–6	Crush injury* ..	0·6	—	0·5	2·4	0·5	1·8	0·9
82, 83	Nerve injury ..	0·4	—	0·2	—	—	0·4	0·3
801–7	Open wounds* ..	17·8	14·1	11·6	13·4	19·7	19·6	15·6
810–1	Contusion* ..	7·1	11·8	16·6	12·0	8·9	9·7	10·0
847	Sprain, strain* ..	4·7	2·4	4·2	3·8	5·4	3·4	4·3
	Other injuries† ..	2·6	—	2·3	2·4	1·0	3·3	2·5
80–96	All injuries ..	100·0	100·0	100·0	100·0	100·0	100·0	100·0

* Without fracture or more serious injury.

† Includes burns, foreign bodies, poisoning, traumatic amputations, and "others" in Table V.

Of the injuries accidentally caused by explosive missiles during exercises or otherwise 6½% were head injuries, 13% lower-limb fractures, 9% upper-limb fractures, 5½% other or multiple fractures, 2½% traumatic amputations, and about 5% involved large nerves. Of the injuries received during sport 8½% were head injuries, 20% lower-limb fractures, 11½% upper-limb fractures, 2% other or multiple fractures, 3½% dislocations, and 50% were nothing more than sprains, strains, or contusions.

Road accidents produced higher proportions of head injuries and of spine and trunk fractures, no less than 6% having a skull and 2% a spinal fracture. In Table VI this sample of 3,054 road accidents to men is analysed according to whether the patient was on a motor-cycle, driving or riding in a motor vehicle, riding a bicycle, or involved as a pedestrian. Motor-cyclists' injuries consisted of skull fractures in 4½%, other head injuries in 13½%, lower-limb fractures in 25%, and other fractures in 23%. Both drivers and passengers of other motor vehicles show higher percentages of skull fractures (9½ and 7), of other head injuries (34 and 24), and of spine and trunk fractures, than do the motor-cyclists, but their liability to lower-limb fractures is much less (6 and 7). Pedal-cyclists show high proportions of upper-limb fractures and minor head injuries compared with motor-cyclists.

The types of injury sustained by women in the Services are shown in the final column of Table V, based on a sample of 712. The distribution differs from the "other accidents" group of men by an excess of burns and minor head injuries and a corresponding deficiency of limb fractures.

I. L. Applebaum (*Ann. intern. Med.*, 1944, **21**, 35) records his observations on serum amylase in 65 controls and 60 cases in which mumps was diagnosed. He found high amylase levels in 95% during the acute stage, but in exceptional cases the results may be capricious and the clinical symptoms must be relied on.

EDUCATIONAL TREATMENT OF HANDICAPPED CHILDREN

Special educational treatment for handicapped children, including arrangements for boarding out with foster parents, and the school medical and dental services, are among the subjects dealt with in new draft Regulations published by the Ministry of Education (H.M. Stationery Office; 4d.).

Provision for Handicapped Children

Where it is necessary to board out handicapped children with foster parents local education authorities must arrange for the inspection of the home before the admission of the first pupil, during the first month of residence of each pupil, and at least once a term afterwards. Authorities are advised to employ if possible a trained social worker or a school nurse with the qualifications of a health visitor for this purpose.

In a circular for the guidance of authorities (Circular No. 41, H.M. Stationery Office; 2d.), the Ministry of Education points out that the boarding of children under good conditions away from their homes often constitutes an important element in special educational treatment, particularly in the case of maladjusted children.

All blind, deaf, epileptic, physically handicapped, and aphasic children will normally be educated in special schools. Blind and those epileptic children who need special educational treatment must be educated in boarding schools. Other handicapped children, including the partially sighted, the partially deaf, the educationally subnormal, and those suffering from other physical handicaps, may be educated in ordinary schools if suitable special educational treatment can be provided, and if this would not be detrimental to the other children. Otherwise they too will go to special schools.

Methods of Treatment

The methods of treatment to be provided for various types of pupil in ordinary schools will include the following:

(i) For the partially sighted, a favourable position in the classroom and the provision of special furniture, apparatus, and equipment.

(ii) For the partially deaf, a favourable position in the classroom, the provision of individual hearing aids if necessary, and tuition in lip reading.

(iii) For a delicate child, education under favourable hygienic conditions, with special provisions for nutrition and rest.

(iv) For a diabetic child, residence in a hostel under medical and nursing supervision.

(v) For educationally subnormal children, tuition adapted to their special needs, either individually or in small groups or classes, including adequate facilities for practical work.

(vi) For maladjusted children, such special educational treatment as may be considered appropriate by an educational psychologist or other suitably qualified person employed by the authority, or by a child-guidance centre or clinic.

(vii) For a child suffering from speech defect other than an aphasic child, special training and treatment by a duly qualified speech therapist.

In the past it has not been possible for education authorities to maintain children at special schools after the age of 16, but in the future, if an authority wishes and the parent consents, a child may stay at a special school up to the age of 19.

Pending arrangements to be made by the Ministry of Labour under the Disabled Persons (Employment) Act, 1944, the existing arrangements for vocational training of certain types of seriously disabled persons will continue to be approved by the Ministry of Education.

Medical Inspection

The regulations dealing with the school medical service provide for the medical inspection of children in all schools maintained by education authorities as follows:

(i) Every child admitted to a maintained school for the first time shall be inspected as soon as possible after admission.

(ii) Every child attending a maintained primary school shall be inspected during the last year of his attendance.

(iii) Every child attending a maintained secondary school shall be inspected during the last year of attendance.

The Minister may give directions for additional medical inspection, and it is open to authorities to arrange for this if they have the necessary staff. In the case of all special schools and institutions not maintained by a local education authority all pupils must be medically and dentally inspected on admission and at least once a year—in the case of open-air schools and schools of recovery for delicate children, once a term.

For the first time authorities are required to appoint a senior dental officer. This is to ensure that there shall be one officer on the staff of the school medical service responsible for the organization, development, and technical efficiency of the school dental service.

Provision is also made for encouraging the use of the school medical services for research. Much valuable work in problems of child health has already been done by school medical and dental officers, and the Minister is anxious that such research should be continued on an even wider scale. Authorities are urged to encourage the work and to co-operate with university departments such as those of child health, social medicine, and public health.

Another new requirement is that all school nurses appointed in future must be qualified as health visitors. This is to facilitate interchangeability of staff and the co-ordination of the school medical service with the maternity and child welfare service and the general health services of the future, and to promote efficiency in administration and to secure continuity in the care and supervision of children. This regulation will not apply to specialists such as masseuses and remedial gymnasts.

ALLOWANCES TO INVALIDS AND PERSONS NEEDING SPECIAL DIETS

The following changes in the arrangements for special allowances to invalids and persons needing special diets are announced by the Ministry of Food.

In future children holding the green ration book R.B.2, who qualify for extra milk under Classes I and II of the schedule of conditions set out in the Ministry's booklet MED. 2, will receive a total weekly supply of 14 pints of liquid milk. The certificate will be valid for a period varying according to the category in which the patient is included.

Mothers who are partly breast-feeding their infants under the age of 12 months and who have surrendered the infants' liquid milk allowance in order to obtain National Dried Milk may receive an extra 2½ pints of liquid milk a week for their own consumption on submitting to the local food office a medical certificate requesting this extra allowance. The grant will be for four weeks only and will not be renewable.

Persons suffering from diabetic ketosis will be granted three sugar rations a week on the same lines as diabetics with other intercurrent illnesses. The meat, fats, cheese, and bacon rations will be cancelled during the period when extra sugar is allowed. This arrangement will be for one week upon submission of a medical certificate at the food office and will be renewable on submission of further weekly medical certificates. One extra soap ration a week is to be allowed in cases of ileostomy under Class IIa of the schedule of conditions (MED. 2) qualifying for extra allowances of soap.

NUFFIELD MEDICAL FELLOWSHIPS

The Nuffield Foundation is prepared to award a limited number of fellowships to men and women who wish to qualify for senior teaching and research posts in social medicine, child health, industrial health, and psychiatry in the United Kingdom. Candidates must hold a university degree in medicine registrable in the United Kingdom, and will be expected to have had some general clinical experience since registration. Their talents and personal inclinations should afford good promise of their ability to advance knowledge and education in the branches of medicine named.

Normally the annual value of a fellowship will be between £500 and £800, according to the needs of the recipient. Travelling expenses will be paid to a Fellow who goes abroad for study. A fellowship will be awarded for one or more years, but, save in exceptional cases, will not be tenable for longer than three years. Applications will be received at any time. *Medical officers at present serving with the armed and auxiliary Forces of the Crown may apply now for fellowship tenable on their demobilization from such Forces.* Full particulars and application forms may be obtained from the Secretary of the Nuffield Foundation, 12–13, Mecklenburgh Square, London, W.C.1.

H. J. Bell (*J. R.A.M.C.*, 1945, **84**, 21) describes the unusually severe type of gonorrhoea met with among British troops in Italy. The disease was resistant to sulphonamides to a degree hitherto unknown.

Reports of Societies

EYESIGHT OF INDUSTRIAL WORKERS

Opening a discussion of ophthalmological problems and visual standards in industry at a meeting on March 24 of the Association of Industrial Medical Officers Dr. W. **Jeaffreson Lloyd** said that, in general, industry had not given enough attention to lighting, and legislation had not been bold enough. Even where there was good lighting there was no provision for maintaining its efficiency. He believed that eye protection was largely a matter for the safety officer. But he had noted that eye accidents occurred in batches and not continuously. Mr. **Joseph Minton** said there was no unified accepted system of visual standards in industry and no universal practice of examining new entrants. Compulsory medical examination of all workers could not be instituted at present because it would only create a pool of physically unfit requiring some form of direction. It was hoped that the direction of the workers into jobs for which they were physically best fitted would in future be combined with the training of the physically handicapped. Examining surgeons should be instructed about the visual standards required in the different branches of industry. People with all grades of vision and even the totally blind could be employed to-day. He suggested five visual groups for workers, and explained the type of work suitable for each. Examination of ocular muscle balance and binocular vision was necessary in men and women engaged in close work, which could be done by myopes with good vision in each eye; there was no evidence that such work had any effect on the rate of increase of myopia. One-eyed persons could be employed in most jobs, but the safety of the good eye should always be ensured. Further advances in industrial ophthalmology could be achieved only through close co-operation between the industrial medical service and the ophthalmologist. Mr. T. C. **Summers** said that from the point of view of the ophthalmic surgeon examination must be done under a mydriatic. It was remarkable how many people suffered from astigmatism. Every type of eye disease had been discovered on routine examination of industrial workers. He strongly condemned the use of a spud for the removal of a foreign body from the eye. He had found that hypopyon ulcer sometimes occurred after a foreign body. Penicillin had no effect in this condition, which, however, cleared up quickly on the intravenous administration of 500 units of vitamin C. An invisible intra-ocular foreign body might be missed unless there was an x-ray examination. High myopes should not be put on "heavy" jobs, since there was danger of detachment of the retina. In his view lighting and colour schemes in factories were questions for the physiologist and physicist.

PHARYNGEAL DIVERTICULA

At a meeting of the Manchester Medical Society on April 4 Prof. **John Morley** read a paper on pharyngeal diverticula based on his series of 21 patients with posterior pharyngeal pouches, and two further cases complicated by squamous epithelioma arising in the pouch.

A pouch described by the late Sir Arthur Hurst as an anterior pharyngo-oesophageal pouch was shown to be merely barium lodged in the vallecula between the tongue and the epiglottis. With regard to the predisposing causes, the average age in the series under review was 60 at the time of operation, males outnumbering females by more than 2 to 1. The differential diagnosis from carcinoma of the oesophagus, fibrous stricture, and cardiospasm was discussed and the importance of radiological examination stressed. A case was described in which on x-ray examination a pouch filled with food was mistaken for an intrathoracic goitre.

Discussing the operative treatment Prof. Morley advocated the operation of primary excision of the pouch and suture of its neck in one stage as against the two-stage procedure, which was followed by a fistula in 50% of cases. In his 21 pouches, all treated by one-stage resection, there were no deaths; 16 patients healed by first intention, three developed severe fistulae, one a transient fistula, and two residual abscesses. Preliminary gastrostomy was only employed with large pouches in patients who appeared to be bad surgical risks.

Dr. F. DURAN-JORDA read a paper on some new histological facts concerning the gastro-intestinal mucosa. He described the existence of what appeared to be a flat epithelial layer at the top of the gastric and intestinal mucosae (stomach, intestines, appendix, colon, and also the gall-bladder), and the presence of this layer was supported by the finding of capillaries in it. This layer was also found in foetal stomachs and in several other mammalian stomachs. The layer was studied by the speaker's method of formalin vapour fixation. He touched briefly on the relation between this new layer and the histology of some lesions found in the stomach, intestines, and ulcerative colitis, illustrating each stage with coloured photomicrographs.

Correspondence

Social Study of Hospital Treatment

SIR,—The social study of hospital treatment reported by Dr. Malcolm Brown and Miss Freda Carling (April 7, p. 478) has, I think, yielded facts of great importance. It provides evidence that only about one-quarter of the patients admitted to the medical wards of a general hospial are cured, and only about one-half return to full-time employment. As the authors point out, for the majority of patients the stay in hospital was merely an episode—sometimes a relatively brief episode—in a protracted period of disability and treatment.

A question which naturally arises is, Can we achieve any better results by improving the organization of medical treatment? At present when a patient is admitted to hospital he is uprooted from his environment and displayed among a row of other patients in the ward, where he can be conveniently inspected, examined, and investigated. The chief aim is to discover a known pathological process, and the chief hope to be able to administer a specific remedy. This method has achieved good results, but apparently only in about a quarter of medical cases. Research has dug deeply and produced remarkable remedies, but has the time not come when the field of disease should be cultivated more widely?

The authors of this study have brought forward several reasons why the hospital staff should extend their observations on their patients to the post-hospital period. Seven per cent. of patients still needed hospital treatment one year later and were not getting it. In 9% the period of incapacity after discharge from hospital could have been shortened by closer hospital supervision.

One of the great benefits which I think would result from the universal provision of consultant and specialist services is that the specialist would more often see the patient in his own home in the earlier stages of disease and in the company of the general practitioner. It would also be valuable, I think, for the specialist to make a similar visit after his patient's discharge from hospital. In this way the modern hospital with its highly organized resources for scientific investigation and treatment would be able to extend its influence in two directions: towards overcoming disease nearer its source, and towards the full reinstatement of the patient in useful employment. The patient would benefit from the earlier application of special methods and from a better follow-up after discharge from hospital. The specialist would benefit from being able more readily to study his patients, not simply as cases, but as living people striving to maintain the equilibrium of health in an environment too often overwhelmingly hostile.—I am, etc.,

Sheffield. JOHN PEMBERTON.

Civilian Mass Radiography

SIR,—Your leading article on this subject mentions the important matter of the "fate of the symptomless tuberculous lesion." You will be interested to learn that this is to form the Prophit Tuberculosis Survey of the Royal College of Physicians in a new scheme for research to be undertaken now that the original ten-year plan has come to an end. It is hoped that the new investigation will satisfy your advocacy that the method of mass radiography shall be "used scientifically," and that it will be an "efficient survey" despite your doubts about science and bureaucratic methods, which seem a little irrelevant. It is hoped that the Prophit scholars will work closely with the medical officers of selected mass radiography units as they have in the past ten years with a large number of medical officers of hospitals and other institutions.—We are, etc.,

C. E. NEWMAN,
Chairman,
ALAN MONCRIEFF,
Secretary,
Royal College of Physicians of London. Prophit Research Committee.

SIR,—Your leading article (April 14, p. 521) will help to focus medical opinion upon a new approach to chest diagnosis which has passed the experimental stage but which needs to be wisely applied if civilian requirements are to be satisfactorily met. The recent excellent report by a team working on behalf of the Medical Research Council illustrates the difficulties of a unit working in isolation and unrelated to any existing diagnostic chest centre. As is pointed out in your article, it is impossible as a result of one radiograph and one interview to determine the presence or absence of active disease. The decision to distribute the sets to councils of counties and county boroughs, which, under the general guidance of the Ministry of Health, are responsible for the diagnosis and treatment of tuberculosis, provides them with a permanent basis for future operations. Mass radiography thus becomes a branch of the tuberculosis dispensary activities and a diagnostic outpost. The medical officer in charge of the unit should be a member of the dispensary staff and take an active part in the reading of skiagrams and the assessment of clinical activity. This is so in Lancashire. In a county area it would be impossible for a mass miniature radiography unit to follow up the observation cases it finds—another reason why the unit is interlocked with the existing dispensary system.

It is perhaps not generally realized that the methods appropriate for conducting mass radiography of Service personnel are not necessarily the best for the civilian population. In the one case the following up of suspects is necessarily done by the same medical staff of which the mass radiography team forms part, because the suspects remain in the Services. But in the case of civilians the appropriate method appears to be for the mass radiography team to concentrate on finding the suspects, leaving it to the existing chest clinics to arrange for detailed diagnosis and treatment.—I am, etc.,

G. LISSANT COX,
Preston. Central Tuberculosis Officer, Lancashire County Council.

Rehabilitation and Cutaneous Diseases

SIR,—May I be allowed space in your columns to refer briefly to the rehabilitation of patients suffering from skin diseases. In recent years this matter has been taken up with interest by the Red Cross and St. John War Organization in co-operation with the War Office. A rehabilitation centre for Service patients suffering from these maladies was opened at the Auxiliary Hospital (B.R.C.S. and O.St.J.), Ragley Hall, during April, 1943, and the work done there has been so successful that a similar centre is being organized at the Auxiliary Hospital (B.R.C.S. and O.St.J.) at Greenstead Hall.

Rehabilitation has been defined recently as a "planned method of treatment designed progressively to mobilize all the available resources of the patient with a view to obtaining his most complete adjustment to social and economic needs." If this definition is accepted it follows that this method of therapy should be made available equally for the dermatological patient as for his more fortunate brother, who, either by sustaining a fracture or by some other means, becomes of interest to the orthopaedic surgeon. There is, however, more in the planned and careful rehabilitation of patients suffering from skin diseases than merely assuaging the demands of the social conscience of the community, for proper methods of rehabilitation can save man-power and should be of considerable interest to those concerned with industrial problems.

Our experience has shown that careful selection of the cases sent for rehabilitation is necessary, because this form of treatment is not a panacea and care must always be taken to prevent a dermatological rehabilitation centre from being used as a "dumping ground" for incurable cases. Many patients suffering from eczema, dermatitis medicamentosa, post-scabietic eruptions, dermatitis of the legs after trauma, recurrent impetigo, and seborrhoeic dermatitis do well, but often little benefit accrues in persons suffering from diseases such as psoriasis, who at first sight might have been thought very suitable for rehabilitation. We have, of course, every hope that as our knowledge and experience increase, problems which are now baffling will be solved, and that eventually we shall discover satisfactory methods of handling various diseases which at present defy our endeavours.

Major E. Miller, R.A.M.C., in a long and important paper on the psychiatric aspects of rehabilitation (*J. R.A.M.C.*, 1945, **84**, 54) has emphasized that many of the methods of therapy applied to human diseases are rituals and arouse in patients unconscious enthusiasms or hostilities. Also he has emphasized the importance of obtaining the co-operation of the patients so that they realize that they are being won (or weaned?) from treatment to vocational activity and thence to work and eventually to earning power. Unfortunately a minority of patients are consciously or subconsciously hostile to rehabilitation. Either deliberately or subconsciously they exploit their cutaneous maladies as mechanisms of escape from duties or avocations which they regard as hazardous or unpleasant or uncongenial. Obviously such persons present very great difficulties to those who attempt to rehabilitate them.

Major Miller, who has studied our problems at Ragley Hall, has stated that the psychological factors which influence rehabilitation are: (1) The level of the patient's intelligence and his aptitude for training (this aptitude is necessarily correlated with the intelligence level). (2) The personality of the patient. (3) The patient's ability to adjust himself to any new social and economic setting necessitated by the nature of his disability. (4) The extent to which a patient can build a new edifice of craft skill above the level of the base-line of his former occupation. Many accept this summary, and they agree that psychiatrists may give great assistance not only in helping to decide which cases should be sent for rehabilitation but also during the patient's residence at the centre.

It is hoped that an account of the work at Ragley Hall will soon be published. My present purpose will be served if I have brought to the notice of those interested in this subject the fact that we have accumulated evidence which I believe to be sufficient to indicate that the rehabilitation of patients suffering from skin diseases is a proper field of endeavour, one in which co-operation between the dermatologist and the psychiatrist is essential, and one which those interested in occupational dermatoses and similar industrial problems might profitably consider.—I am, etc.,

War Office, London, S.W.1. R. M. B. MACKENNA.

Nomenclature in Diphtheria

SIR,—In the *Journal* of May 6, 1944 (p. 626), there appeared an annotation under the heading of "Misleading Names," in which the "gravis," "mitis," and "intermedius" types of the diphtheria bacillus first described as such by my colleagues (J. S. Anderson, K. E. Cooper, F. C. Happold, and J. G. Thomson) and myself were considered. Much of the text of this annotation seemed to me to be sound, but I thought it was unfortunate that a heading "Misleading Names" should have been adopted, for there are a considerable number of rather hasty readers who will not go much further than string together the title with the names "gravis," etc., and will, in fact, have been misled.

As you quoted a review on the subject in which I had collected all the relevant evidence that I could find, I did not think that much would be gained by writing to you further on the subject at that time. You also quoted, however, an article by Frobisher (1943) published subsequent to my review, in which the general conception that the "gravis" strains played a predominant role in severe outbreaks of diphtheria was extensively criticized. Any suggested nomenclature based on observations of this kind must ultimately stand or fall by its merits. You will agree, however, that it is necessary to consider all the facts. What Frobisher has failed to realize is that it is not easy for him to appreciate a phenomenon of which he has had no experience. It is clear from his review of the observations on typing of diphtheria strains in the U.S.A. that "gravis-like" strains have only amounted to about 8% of all strains typed, and that what may be described as typical "gravis" to less than 2%. On that background the only epidemic of severe diphtheria which he mentions is a small one at Belair, Maryland, in which there was a mixed "mitis" and streptococcal infection.

In this review Frobisher also refers to the only recent outbreak of severe diphtheria in the Western Hemisphere which at all corresponded to those experienced in Europe in the last two decades—that at Halifax, Nova Scotia. He does not mention, however, that this outbreak was stated to be due to the "gravis" type of diphtheria bacillus, although that had a very close bearing on his general argument. It is true that the bacteriological details in the earlier reports of this outbreak were scanty and he may have considered that this point was in doubt. It seemed to me, therefore, that exact information about it was desirable, but difficulties in obtaining this information due to movements of personnel under war conditions have caused considerable delay.

The actual findings in this outbreak I have obtained partly from publications (Campbell, 1941; Morton, 1941; and Wheeler and Morton, 1942) and partly owing to the kindness of Dr. G. D. W. Cameron, who sent me a collection of strains and put some unpublished figures at my disposal. These strains were classified without any difficulty as "mitis," "intermedius," and "gravis" types and there was complete agreement between the Canadian results of Dr. E. T. Bynoe and my own, showing that in the period 1943–4, after the peak of the epidemic, about 65% of "gravis" infection persisted. Observations on strains put aside in 1940 (Dr. Cameron's information) indicated a higher percentage of "gravis"—i.e., in all respects the bacteriology of this epidemic corresponded to that seen in similar epidemics in this country. In another "gravis" epidemic recorded recently in England, that described by Grant (1945) at Gateshead, 81% of "gravis" strains were found in the investigation of 158 cases in the period 1941–3.

There are some interesting points of contrast and of similarity between these two epidemics. In both cases a very marked rise in the incidence of diphtheria and in the total diphtheria deaths was recorded in association with the presence of *C. diphtheriae gravis* as the predominant strain. In Halifax (Nova Scotia), where the population was about 60% immunized, it was mainly a disease of adolescents and adults, the case mortality remained low—about 3.7%—incidence of paralysis was low, and the immunized were little affected. In Gateshead, where extensive prophylactic inoculation was only adopted after the epidemic had manifested itself, the case mortality was high except among the fully immunized, paralysis was very frequent, and the incidence of diphtheria among the immunized was disappointingly high—not even Schick-negative nurses in the fever hospital were spared.

A third quarter from which additional evidence has come recently is Denmark, where Örskov, Andersen, and Poulsen (1944) draw attention to the appearance of "gravis" infection during the latter years of the war, in contrast to its previous absence (Tarnowski, 1942). The first-named authors mention some epidemics of "gravis" infection of unwonted severity, although no statistics of association of type and severity of disease on a big scale have been published since the appearance of "gravis" in that area. It is interesting to note that the appearance of "gravis" infection in Scandinavia has coincided with a remarkable increase of diphtheria.

I would submit, therefore, that although the suggestion that a patient infected with a "mitis" strain of diphtheria will necessarily have a mild illness is a misleading one, it is not a suggestion that has ever been made from this laboratory. The suggestion originally made was that the type of *C. diphtheriae* which we described as "gravis" would probably be found to be responsible for severe epidemic diphtheria. I believe that this suggestion has been justified by all the evidence that has since accumulated on the subject. That there should be immunological races within the "gravis" group and epidemics of varying severity associated with strains of different grades of virulence is in keeping with all experience of infective bacterial disease. And as is suggested by the observations described in Grant's paper, an epidemic will be followed by a period in which "gravis" will be widespread in the community but much less formidable owing to the presence of a large percentage of naturally immunized persons.—I am, etc.,

J. W. McLeod.

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Infant Deaths

Sir,—Dr. S. H. Waddy's belief (April 14, p. 529) that wrapping babies has accounted for the deaths of thousands in the past few years cannot be allowed to pass without protest, the more so because, on his own allowance, it is not based on proper investigation or valid proof. The worth of his opinion can be assessed by his colleagues, but when it is published under bold headlines, "Wrapping up Baby is Bad," in the *Daily Sketch* the opinion becomes most mischievous.

Swaddling has been a universal custom from time immemorial. Its aim is to ensure the rest which is one of the essential needs of early animal life. Many letters in recent issues have attributed lack of breast milk to some defect or other in the lactiferous apparatus, but in the majority of instances mismanagement in the feeding is at fault. To whom must we assign the blame? Regretfully we must admit that neither nurse nor doctor can always be acquitted.

Let us look at things from the start. The baby born and mother resting, the tired doctor leaves for home and the baby is not put to the breast for probably some hours. I maintain that the infant should be put to the breast *immediately* after it has been washed. A lecture by Dr. Targett, published in the *British Medical Journal* some 42 or 43 years ago, insisted on this, for by it milk production is early encouraged and uterine contraction stimulated. He insisted that the doctor should not leave until the infant had been put to the breast; also that the mother should be allowed to manage her own baby with as little assistance from the nurse as possible. The baby, after its first attempts at sucking (and this applies to every subsequent feed), is comfortably wrapped in a soft shawl, laid in its cradle, and goes to sleep. If at any time during the first few weeks it is left with the arms free it throws the arms aimlessly about and jerks the legs, an expenditure of energy which should only be allowed for short periods for exercise before feeds. That eminent authority, Dr. Hector Cameron, insisted on swaddling, and advised what he aptly called insulation of the baby from a nervous mother by laying a soft pillow across her arms and so preventing her tremor from reaching the infant. Dr. Coldrey rightly observes that breast-feeding is an emotional business, and his succeeding remarks are much to the point, especially those referring to visitors; rest of mind is as important to a nursing mother as rest of body.

Over-tight bindings are, of course, harmful, but swaddling is not tight binding. A light knitted shawl, loosely wrapped around the upper arms and shoulders, restricts the exhausting waving of limbs but allows free respiration. This should remain a universal practice for the first few weeks of life. How, we may ask, did those bruised and shocked babies survive and thrive? Because the working classes always swaddle their babies and usually feed them without difficulty. Dr. Waddy's belief is false and mischievous; an arm-free baby is just as likely to wilt as an overtight one, while a swaddled babe will rest and thrive.—I am, etc.,

Berkhamsted. T. Blanchard Sellors.

Women in Labour

Sir,—In your issue of April 7 (p. 495) Dr. John Elam has inserted a provocative final paragraph in his letter which really cannot be allowed to pass without a mild protest. In spite of the risk of giving him a malicious pleasure in seeing a fish rise to his bait, one must query the number, and perhaps even the existence, of these "young women medical officers of health" who oppose the provision of safe methods of analgesia in labour. One was under the impression that it was an accepted proposition that a gas-and-air apparatus should be provided in all maternity hospitals; if the machines are not kept in working order, Dr. Elam's letter will serve a useful purpose.

But why blame the M.O.H., and the *women* medical officers of health at that? In municipal hospitals surely the medical superintendent is responsible, while in voluntary hospitals the inspection of apparatus by any M.O.H., male or female, would be rightly resented. Incidentally, very few young women, even in wartime, have risen to the position of medical officer of health, and I feel pretty sure that none of them would agree to Dr. Elam's classification of her sentiments.

Perhaps, however, Dr. Elam has misinterpreted the effects of those public health medical officers who endeavour by their teaching to the expectant mothers under their care to minimize the dread of the approaching confinement, and to give them that expectant curiosity and confidence which relax tension and greatly diminish, if they do not altogether remove, the pain of a confinement. The case reports of Dr. Dick Read show that for many women childbirth can be an amazing psychological experience associated with labour but with little pain. Tradition, however, insists on the presence of pain, and a recently delivered mother confided to me that she dared no longer mention that her labour was practically painless, as the reception of her story invariably met with the contempt of her listeners, who classed her either as a liar or as "abnormal."

It is easy to suggest the presence of pain, and the doctor who prepares his patient to "go through hell" will doubtless see a painful labour in a frightened woman, where there will be ample need for analgesics and anaesthetics. It should be maintained, however, that this is not the correct preventive attitude at the pre-natal clinic. This is shown rather by the exercise classes for expectant mothers, carried out to dance music and with a good social atmosphere, which are sponsored by the M.O.H. of Kensington. As the medical officer in charge, I am convinced that they have done a great deal to promote easy and quick confinements by helping relaxation and fostering a healthy attitude of confidence.

Looking back thirty years, I remember insisting that women should have an anaesthetic during delivery, in spite of their feeble pleas that they did not need it. In the light of experience, I think that that was just as reprehensible—or even more so—than denying an analgesic to the woman who asks for it. We must not suggest pain unnecessarily in what is actually a normal and physiological process, though we must certainly be prepared to relieve it when it occurs if it is in our power to do so. Civilization must not remove us too far from the normal. It surprises me, sometimes, that these kindly old gentlemen to whom Dr. Elam refers have not suggested an anaesthetic for the bride on her wedding night. Surely the removal of fears and inhibitions by appropriate educational methods is preferable to anaesthesia?—I am, etc.,

Kensington, W.8. Violet Russell.

Sir,—I fully endorse all that Dr. John Elam says in his letter about the unsatisfactory administration of gas-and-air analgesia in labour. Much to my sorrow I have found his words only too true. I write not to enlarge upon the fact but to suggest what can be done about it. It seems to me that the solution to the problem mainly lies in the improvement in teaching arrangements—e.g.: (1) Throughout the country there should be a standardized curriculum for the special instruction in the essentials of obstetrical analgesia which is received by the midwife. (2) The lecturer-examiners should themselves have intimate knowledge and experience of the subject, and only such should be approved by the Central Midwives Board. (3) The Central Midwives Board, and not the individual hospital, should grant the certificate to the midwife after she is successful in the examination.

By obtaining this reorganization of the regulations under which midwives are trained in the use of gas-and-air analgesia a beginning at least would be made in raising the status and value of the qualification.—I am, etc.,

Liverpool. R. J. Minnitt.

Sir,—The letter from Dr. John Elam is pertinent and timely, but disappointing in that the criticism is mainly destructive. This is easy; so many have thought along these lines for so long. The problem is, How can we *achieve* "triumph over pain" for all women in labour? Not, I feel certain, from the utmost support of the "old and elderly male county councillors" quoted by your correspondent; neither is the cause to be prejudiced by the alleged opposition of "young women medical officers of health." These latter are in no position—by virtue of either specialized training or professional influence—adequately to help or materially to hinder.

While I have much interest in and every sympathy with the theme of Dr. Elam's letter, I cannot refrain from suggesting that the problem should be divorced from everything in the nature of cheap sentiment and submitted to the cold judgment of reason and fair play. It would appear that with advancing civilization and concomitant changes in mode of life, the human threshold of pain is accordingly lowered. While a painless labour is by no means a thing unknown, yet for the average parturient woman of to-day labour, if unrelieved, may be considered to represent hours of sheer agony. Why is it, then, that so many of our women are permitted to remain the defenceless victims of the primeval curse? Not from any so-called religious bias; even the most retrograde dare not use that argument to-day. What, then, are the circumstances responsible for a condition of affairs which, as Dr. Elam in no overstatement says, "must make us utterly ashamed of our national maternity services"?

As I see it, there are two main reasons. First, women, being women, put up with it and go on having babies. If the last supreme act in the propagation of the species had fallen to the lot of man instead of woman the problem in question would not now have arisen; our profession, predominantly male, must have seriously tackled it long ere this. So, in the first instance, women are themselves to blame for not demanding that degree of relief from suffering which can be theirs with perfect safety. Demand ultimately creates supply.

The second and more serious indictment is directly against our profession. How many of our number who undertake the care of an expectant mother have taken the trouble to make themselves thoroughly conversant with all the analgesic techniques at our command to-day? In the absence of this knowledge the unfortunate patient is told: "No, it wouldn't be safe for the baby." And thereafter the mothers, as mothers are made, is prepared to "go down to hell," as a mother of three has said to me. This self-admitted incompetence of the accoucheur—as incompetence only it can be called—is responsible for a large proportion of the needless suffering of women in childbirth. Again, many of our women are confined in voluntary and municipal hospitals. How many of these have an anaesthetist on the resident or consultant staff to direct and control this admittedly important aspect of a hospital's work? For the most part it would appear that the analgesia and anaesthesia in these institutions may be left to the inexperience of a junior resident, or, in the case of the more serious emergency, to the good nature of a skilled outsider who hesitates to refuse an urgent call. This in 1945, a century after Simpson established a place for anaesthesia in labour for all time!

To scatter numerous pieces of even properly functioning apparatus throughout the labour units of our hospitals is no answer to the problem; there is no universal analgesic which will meet every case. Each patient must be considered with regard to her psychological make-up, parity, type of labour to be expected in relation to the obstetrical findings and the surroundings in which she is being confined; only then can the most suitable method of sedation be decided upon. For this to be universally available the present-day number of skilled personnel will require to be considerably augmented, and the best results obtainable can only be achieved by the closest co-operation between enlightened obstetricians and experienced anaesthetists working together, each appreciating the why and wherefore of the other's aims and difficulties. In short, the obstetrician must possess a certain minimal knowledge of pharmacology, and the anaesthetist something more than a smattering of the art of obstetrics.—I am, etc.,

Belfast. Florence M. McClelland.

Sir,—I am in complete agreement with all that is said by Dr. John Elam in his letter on women in labour (April 7, p. 495). I speak as a doctor and a mother, and can only say that it is my most sincere hope that when my baby is older I shall be able to obtain a resident obstetric post and do all in my power to alleviate the sufferings of the women in labour.

One of the difficulties seems to be that the majority of people who attend women in labour—students, nurses, and women doctors—have no personal experience of labour pains and seem to imagine the women are "making a fuss." There is no need to be sentimental, but there is to be humane. Busy obstetricians tend to see their patients early in the first stage and, if things are going well, reappear only when it is almost time to deliver the head. There are many hours of pain between, and the nurse in charge has often neither the knowledge nor the desire to mitigate the suffering.

We are always hearing about the falling birth rate; let us therefore see that everything possible is done to help those who are willing and eager to have children if only they could feel certain that when their time came they would receive efficient analgesia. We do not expect labour to be without suffering, but much can be done to help.—I am, etc.,

"Mother and Doctor."

Treatment of Vaginal Discharge

Sir,—Mr. Oswald Lloyd (April 14, p. 509) does well to stress the eternal vigilance and persistent patience necessary to treat pathological vaginal discharge. But what of the aetiology? On close questioning there can be little doubt that the greatly increased incidence and recurrence of these mixed infections, especially the trichomonas, are due to the regrettable use of occlusive rubber caps, and even tampons, which are commonly well smeared with lingual saliva before introduction by dirty fingers.

Hitherto the treatment has been long and tedious, but bearing the above fact in mind, from the point of view of advice we have of recent years found a cheap, quick, and almost specific way of dealing with these fretful patients—namely, the insertion of a 2-drachm vaginal pessary made up with a glycogelatin base containing 30 gr. each of sulphathiazole and zinc peroxide. In the case of virgins and infants the size and dosage can be halved or quartered. If there is any idiosyncrasy to the sulpha drugs, 1 gr. of proflavine is substituted. These pessaries are inserted on six alternate nights and the patient is douched or douches the following mornings with a normal saline or a 0.5% solution of lactic acid. Where possible the vagina is blued out with a 2% of gentian violet three days before the simple treatment is begun. In the case of adolescents (not menopausal patients) we do not now prescribe stilboestrol, as we have found the disturbance in the menstrual rhythm to cause anxiety and draw unhealthy attention to the pelvis, but if cases are refractory or tiresome we have prescribed menformon vaginal pessaries on the six alternate nights or for ten days after cessation of all treatment. In a follow-up of a very large number of hospital and private patients continuance or recurrence of the discharge has been exceedingly rare, and should either occur we have found that the patients at once reacted to a few days' repetition of the treatment.—I am, etc.,

London, W.1. V. B. Green-Armytage.

Repair of the Oblique Hernia

Sir,—Mr. F. R. Brown, by his recent letter (April 14, p. 532), has stimulated me to comment upon three of his remarks. Two concern extracts quoted by him from an article by myself in the *British Journal of Surgery* (1945, **32**, 381).

In regard to post-operative pain in the thigh following removal of strips of fascia lata, whether by fasciotome or open operation, it is correct that 25% of my series of 128 Gallie repairs experienced this complication. In assessing the pain significance for morbidity statistics I included every single patient who complained of pain in the affected thigh, though frequently it passed away within a few days. In only a few did it persist for longer than a month or six weeks, and there the subjects were either members of the Services and not anxious to return to duty or civilians anticipating compensation. In none was the pain so severe that the patient desired any active treatment, such as operation for repair of muscle hernia.

The risk of penetrating the femoral vein with a Gallie needle may not be great, but the accident has occurred, and did so in the experience of a colleague. It has also been mentioned several times in the literature, and is, in fact, a recognized danger associated with the use of a Gallie needle. Such accidents do happen in the best-regulated circles, and need not be a reflection upon the general competence of the surgeon concerned. Doubtless Mr. Brown has also had his surgical mishaps. If he has not he can hardly have done very much surgery, and so I feel that his last phrase is possibly a little severe on those who have been less fortunate than himself in this respect. I might mention in passing that the case "which came to my notice" where penetration of the femoral vein ended in death did not occur in my own personal practice.

I noticed that Mr. Brown referred as "my method" to the principle of using strips of material cut from the sac as a substitute for fascia in repair of large scrotal herniae, umbilical and ventral. It may be the method he generally uses, but the principle is old, and has been mentioned in papers in American journals on several occasions. I have one reference to hand at the moment published in 1925: Babcock, *Surg. Gynec. Obstet.*, 1925, **40**, 853. I think I have also seen the method described as far back as 1912, but I cannot give the exact reference as I had no need to note it for my own purposes. Possibly some reader may be able to give the earliest report.

I have no personal experience of the operation described by Mr. Brown and Mr. James Riley (March 17, p. 386), but it would appear to offer several advantages over fascia lata strips. It would be interesting to have the recurrence figures for several series of cases.—I am, etc.,

Aberdeen. GEORGE B. MAIR.

Imbalance of Vitamin B Factors

SIR,—Miss Marion Richards's experimental work on rats (March 31, p. 433) shows that excess of one factor of the B vitamin group (aneurin) may easily precipitate a masked deficiency of another (pyridoxine), thus demonstrating the interdependence of the single factors. It is important to realize that latent deficiencies may be made manifest by doses of vitamin B_1 far less than those Miss Richards refers to both in animal experiments and from the literature of clinical cases (e.g., 220,000 i.u. in 3 weeks). This point is illustrated by the following recent case.

A woman of 54 was seen in consultation at a country hospital. She had a large haematemesis some 2 months previously and was kept on a strict ulcer diet mainly consisting of milky foods and glucose water. During the last 2 to 3 weeks she had become jaundiced. On examination: cachexia, smooth-edged enlarged liver reaching the umbilicus, palpable spleen, distended abdomen with considerable ascites, oedema. The tongue was magenta red, smooth, shiny, and atrophied; the mucous membrane of the entire oral cavity was inflamed and showed extensive petechial bleeding. A diagnosis of liver cirrhosis was suggested, and a protein plus carbohydrate-rich diet was advised and in addition daily intravenous injections of 5 mg. aneurin, 10 mg. riboflavin, 100 mg. nicotinic acid and ascorbic acid, and 10 mg. vitamin K. Two days later the anorexia, dysphagia, and general condition were considerably improved, but the patient had developed a very painful angular stomatitis with deep cracks. It was then found that ampoules of riboflavin and nicotinic acid had not been available locally and therefore had not been given. The precipitation of a previously latent riboflavin deficiency caused by the sudden administration of vitamin B_1 was suggested, and the angular stomatitis disappeared completely within a few days as soon as riboflavin and nicotinic acid were procured and given to the patient.—I am, etc.,

London, W.1. Z. A. LEITNER.

The Prisoner-of-War Mentality

SIR,—I wrote to you about a year ago from India, where I was serving, on the question of the future of our men in enemy hands (April 22, 1944, p. 568). I have not been in a position to follow all of the correspondence, but I notice that not once have I been correctly quoted.

I confess to being surprised at the assumption of most of the writers that the problem would be altogether a "psychological" one. The word was never used by me. I wrote of conditions as experienced by the men, and not the officers. The camp at Lamsdorf in the last war, where I was a prisoner with other soldiers, has been recently in the news. Those of us who survived are well aware of what being a prisoner in German hands means. Has he changed for the better? Recent newspaper reports and broadcasts have described the conditions of some of our men. There are still many in Japanese hands. Acrimonious correspondence can serve no good purpose, and my plea was for recognition of what these men have suffered, for care by men skilled in the treatment of malnutrition, amoebic dysentery, and similar disease; the recognition of disability, and, for them, a measure of financial security.

Starvation and disease are not all the story. There is something else, but I am not interested in the term "neurosis" as applied to it. Again—I never used it. Whatever it is, some of us think we know how long the effect of prisoner-of-war experience lasts. I would point out that having served in the ranks of a line regiment in the last war and as an officer in the R.A.M.C. in this, I am well aware of the courage and spirit of our men.—I am, etc.,

Edinburgh. JOHN HARKNESS.

Problems of Industrial Ophthalmology

SIR,—The Institute of Ophthalmology proposes to devote a considerable proportion of its funds to industrial ophthalmology. In view of the absence of any co-ordinated work in this field it is felt that a national survey of workers and of work already accomplished is a necessary preliminary to the undertaking of research on any specific aspect of this very extensive subject. The Institute therefore asks all who have routine experience in any branch of industrial ophthalmology, or who have undertaken original work bearing upon it, to communicate with the Institute stating briefly their experience and defining the aspect of the work with which they are most familiar—medical supervision, safety, lighting, industrial psychology, etc. It is the Institute's policy to promote the investigation of industrial ophthalmic problems in the districts in which they arise. It is hoped that those replying to this request will be willing to co-operate in their own areas and in their special fields of interest and experience as the national scheme develops.

This invitation is extended not only to individual workers but also to research and other organizations concerned. The funds will be distributed on the recommendation of the Scientific Executive Committee in the form of grants for approved work. The committee proposes, initially, to support, co-ordinate, and publish work undertaken throughout the country.—I am, etc.,

P. T. ETHERTON, Colonel,
Secretary, Institute of Ophthalmology.

Royal Eye Hospital,
St. George's Circus, S.E.1.

Shall We Nationalize Medicine?

SIR,—Some socio-psychological aspects of the much-debated question of the nationalization of medical practice may help to clear the air and define the conflicting outlooks. In general, all men are taken up a good deal with the consideration of achieving a greater freedom. Apart from the factual limits to freedom, men are apt to overlook the point that they themselves limit their own freedom in the comparative compulsion and insatiability of their own strongly developed character drives.

In a previous generation personal success was made a somewhat exaggerated god, and men were led to believe that if they worked hard enough and long enough "off their own bats" they could achieve any success. This entailed gaining a freedom of a sort, a rather lonely and shaky freedom, relying for its strength on power, riches, or intellectual attainments, but one which, in the ideals of medical service, a general practitioner could readily strive for, and, in the liking and confidence of his practice, fairly securely gain. To the degree that he was a good judge of human nature and a sound amateur psychotherapist, as well as having a sufficient knowledge of the mechanics of pathology and pharmacology, he achieved his end, but towards that end tended to become an ardent and perhaps over-developed individualist.

A different kind of freedom can be gained by a limiting of individual judgment and responsibility, in acting faithfully and fully in following out prescribed rules and regulations which in a broad estimate are *pro bono publico*. In this direction a man's character tends to harden and over-develop towards a blind and explicit conforming to regulations—"rules for rules' sake"—his end being the safety and security of (presumably) beneficient mass action and mass strength. Up to the introduction of National Health Insurance doctors and civil servants lived and strove in worlds apart, but, in common with all divisions of society, have since become more and more in and of each other's sphere, and afraid of and intolerant of what *can* be each other's destructive (rather than constructive) peculiarities. As medical practice has been, is, and must continue to be, a predominantly psychotherapeutic relationship between doctor and patient, in which much medicine and attention are given or withheld on empiric grounds, an understanding recognition and division of what is the especial function of therapist and regulationist will have to be defined, and each side granted what *can* be the *best* activity in the *total* relationship to the community.

All psychotherapy, amateur or other, depends on the confidence or *rapport* between the parties concerned. This depends on at least a degree of liking and approval between them. This is fundamentally a matter of feeling, of emotion at its sincerest and truest, of warm- and open-heartedness. A doctor who does not like his patient to some extent, and vice versa, will do him little good, except in a purely mechanical way, this comprising, at a guess from ten years of general practice, two-fifths of the process of "curing" the patient. In the, what one might term, over-developed civil-servant view there is no place for feeling, and conduct is entirely right or wrong, just or unjust, what is legally due or not due, as in a court of law. Thus the over-developed (and such over-development is often largely unconscious to the personality of which it is a part) individualist and "ruler for rules' sake" are bound to clash and to be inordinately afraid of surrendering their own particular concept of liberty to the possibly over-insistent demands of the other for his "rights."

It would seem that whatever stand a doctor might wish to take inside or outside a national service, a compromise of attitude *must* be granted by each side of the equation to the other's status and especial utility within the framework of the general advancement of health—a word really meaning "wholth," a wholeness of mind and body, and thus a potentiality for expansion of happiness (a matter and aim practically unknown nowadays) and for a growth to a mutually enlarging service.—I am, etc.,

Morpeth. L. F. Donnan.

Sir,—In his letter concerning a 100% service, I presume that Dr. Thornton (April 14, p. 533) is really advocating a 90% national service and a 10% exclusively private service. He suggests that each should be on its mettle and vie in friendly rivalry with the other. This would be ideal. The only rough test as to the success of such rivalry would be whether one gained in popularity at the expense of the other. But if those patients in the 10% group were precluded, except by the unlikely method of a voluntary reduction of income below an arbitrarily fixed level, from moving into the 90% group, while all those who wished, subject to personal economic restraints, were free to move from the 90% into the 10% group, there could be no fair test. The only fair condition for such a test would be to make the national service available to everyone, and to safeguard the freedom to use or not to use it for everyone.

Two other advantages would accrue. Those doctors—and they are among our best—who now attend almost exclusively the 10% would have, in so far as they are potentially affected, a greater incentive to make certain that the service should be the best possible in its administrative structure and in its medical and financial standards. Those patients among the 10%, proportionately the most influential, who sought to make use of the service would have an added incentive to insist that the service should be the best possible, particularly in regard to its amenities.

I am all for friendly rivalry and essential freedom, but they must be fair.—I am, etc.,

London, N.2. G. W. M. Mackay.

Sir,—Dr. H. Dakin (April 14, p. 535) voices what I believe to be the real opinion of the majority of the profession. "Free choice of doctor," yes, within regular hours. If a patient needs a doctor in the night he needs *a* doctor, and *a* doctor we should see that he gets; but whether that doctor is to have the patient's favourite shade of hair, eyes, etc., is another matter. Now is our chance to make the future conditions of the general practitioner reasonable. We must no longer unnecessarily be on duty for 24 hours every day. If we are to be servants of the State, whether on the lines of a 100% panel system or otherwise, we must insist on a rota of duty, even though a modified one—e.g., one doctor in seven available for evening and night visits once a week.

The representatives of the medical profession must not lead us into a complete slavery based upon an ideal of personal service, which originated as a result of the unavoidable individualism of an earlier age. I am not a Socialist.—Yours, etc.,

London, S.W.2. M. C. Breese.

Sir,—Dr. H. Dakin (April 14, p. 535) endeavours to set out the advantages to the medical profession of a national service, it being his cynical conclusion that if only the profession could be made to believe that it was "on to a good thing" such a service would be immediately acclaimed by all. What is this Utopia that he contemplates? A 9 a.m. to 6 p.m. working day with a rota for emergencies over the rest of the 24 hours; freedom from the tyranny of telephone and door-bell in the home; relief from monetary worries when setting up in practice, during illness, and on retirement.

Let us examine this question of a set-hour working day from the doctor's point of view. (The disadvantages to the patient are only too obvious, and, indeed, are tacitly admitted by Dr. Dakin, though, strangely, he fails to express them as such.) The practice of medicine is an art as well as a science, and for its best performance demands some of the freedom that is accorded to the artist. Most of us prefer to arrange our day so as to do things in our own time and our own way, not working within prescribed hours. Happily few doctors have the "9 a.m. to 6 p.m. and then down tools and leave it to the next shift" mentality. The introduction of a national service is not the only remedy for the tyranny of telephone and door-bell and would merely substitute the tyranny of red tape and "forms"; the tyranny of "control"; the tyranny of being a cog in a Civil Service machine.

As for Dr. Dakin's third point, with remuneration comparable to that of the present-day public health services, the doctor would in truth be in a sorry case if out of his pittance he had to provide for buying his practice, for possible illness, and for his pension. In any event under the present system it is not difficult to borrow capital for the purpose of buying a practice, and it is possible for the provident both to save and also to insure against the results of illness and old age—and this without that sacrifice of personal freedom and liberty which mean so much to those who look on the practice of medicine as something more than just a means of gaining a livelihood.—I am, etc.,

London, N.W.3. Helen Bower Alcock.

Hearing Aids

Sir,—Considerable interest has been aroused as a result of the press reports of the recent discussion in the House of Lords concerning cheaper hearing aids, and I should like to be allowed to record the following facts.

Four committees exist: (1) The National Institute for the Deaf Medical Committee (protection of the deaf public against inefficient aids and unethical suppliers). (2) Medical Research Council Electro-acoustic Research Committee (fundamental research into electro-acoustic problems). (3) British Standards Institution Committee (calibration and standardization of audiometers). This is quiescent at the moment. (4) The Hearing Aid Manufacturers Association Technical Committee, which is in three sections: (*a*) utility aid and general standardization; (*b*) audiometers and hearing tests; (*c*) technical education for the staff.

As president of the Hearing Aid Manufacturers Association I am privileged to attend meetings of the National Institute for the Deaf Medical Committee. The secretary of the National Institute for the Deaf attends most meetings of the Hearing Aid Manufacturers Association. The latter is now represented on the British Standards Institution Committee. There is as yet no official contact between the Medical Research Council Acoustic Committee and the Hearing Aid Manufacturers Association Technical Committee. The former committee is, however, fully informed of the work of the latter and closer co-operation may result.

Any hearing-aid manufacturer whose instruments meet with the approval of the National Institute for the Deaf Medical

Committee, and who agrees to give home trials of at least one week before selling an instrument, to avoid door-to-door touting and other undignified practices, is put on the list of the National Institute for the Deaf. It is a great pity that the general press has not given more publicity to the work of the National Institute for the Deaf, for many deaf persons are quite unaware of the existence of the approved list and its significance.

From 1934 to the outbreak of war the British hearing aid manufacturers, with the help of British valve makers, led the world in the design and production of pocket-valve amplifiers. British valve aids were exported to most foreign countries, and they were smaller and more efficient than anything available elsewhere. Since the war members of our association have had a tremendous struggle to keep their instruments in operation and to supply the users with adequate battery and other replacements. Encouraged by the National Institute for the Deaf we produced the specification of a "pooled" utility three-valve pocket aid, which we were hoping to manufacture during the war to sell at a price around £10. We have been unable to the present time, however, to obtain supplies of valves, components, and batteries over and above our existing very small allocation to make the manufacture of these utility aids possible.

As a result of the returns made to the Board of Trade it can be stated that the number of valve amplifier hearing aids in use in this country is under 50,000. The total figure of deaf people who could be helped by valve aids is undoubtedly higher, but it includes many who obstinately refuse to wear an aid. It is certain that among the potential users there are very few indeed who remain without an instrument because they cannot afford it. Before the war our members supplied robust and reliable valve aids at list prices from eight guineas, which operated on standard batteries with a maintenance cost amounting to only about sixpence per week. Hospital clinics help patients to obtain aids at substantially reduced prices, and many approved societies give grants towards purchase. Deaf ex-Service men are given aids free of charge by the Ministry of Pensions, with whom a number of our members have contracts. Happily this business is negligible: the number of men recommended for hearing aids last year was given officially as 60.

In view of the 100% purchase tax on leather containers for these instruments, the increased cost of labour, and the limited demand, together with the need for a fair margin for the distributor as well as an allowance for hospital discounts, it is doubtful whether an efficient instrument can be made available at a low price.—I am, etc.,

O. C. LEADBITTER,
President, Hearing Aid Manufacturers Association.

Carotinaemia in the Tropics

SIR,—Dr. E. Cochrane, whose note on carotinaemia in the Tropics appeared in the *Journal* of April 7 (p. 483), has possibly overlooked the part played in West African diets by red-palm oil. Most Europeans in W. Africa eat either "palm-oil chop" or "ground-nut chop" every Sunday, and possibly some do not cast out the excess carotene of the palm-oil so readily as others.

Several years ago, while working in a part of the Gold Coast where palatable and nourishing food was scarce, I fell back upon palm-oil soup almost every day. After a few weeks I noticed that although I felt well and vigorous my skin was orange-coloured, especially on the palms and soles; the whites of the eyes were unaffected. Red-palm oil was already known to biochemists as probably the richest source of carotene, and it at once occurred to me that the palm-oil carotene was responsible for the phenomenon. I therefore abstained from palm-oil and found that 2 to 3 weeks' abstinence restored a normal-coloured skin. On resuming the palm-oil diet the yellow colour returned and was again banished by abstinence. I derived some amusement from repeating this several times.—I am, etc.,

Edinburgh M. J. FIELD, B.Sc., Ph.D.

Treatment of Pediculosis Capitis

SIR,—Dr. Elizabeth Scobbie's article on the treatment of pediculosis capitis (March 24, p. 409) was of great interest. I have been trying D.D.T. also and have a small series of cases, with results in agreement with Dr. Scobbie's. D.D.T. powder was first tried in 5 patients with pediculosis capitis. It was found that the powder did not stay on the hair and the method was discarded as unsatisfactory. Similarly in 7 patients with pediculosis corporis dusting the powder on the underclothing had not killed the lice by the following day. The powder was then rubbed into the hairy parts. This was repeated in 2 to 3 days following a bath, and all patients were finally passed as cured after 3 weeks' observation. A 4% solution of D.D.T. powder in liquid paraffin was applied to the scalp with a stiff brush in 12 patients with head lice. Next day no living lice were found. The hair was washed and tooth-combed. Observations for 3 weeks showed all cases were cured. Benzyl benzoate emulsion with similar technique has given as good results in a large number of cases, but I have no doubt that if the tooth-combing cannot be relied upon to be carefully done then the D.D.T. solution, in view of its remaining layer on the scalp, is by far preferable. Whether ascabiol is an "easy method of freeing the scalp from nits" or not, my nurses are unanimous in stating that combing after benzyl benzoate emulsion takes much less time to remove all the nits than after D.D.T. in liquid paraffin.—I am, etc.,

Nottingham. A. D. FRAZER.

Organization of Research

SIR,—"Filching of intellectual work" and deliberate withholding of new ideas is put forward by Dr. G. Arbour Stephens (April 14, p. 535) as a bar to central organization of research. In psychiatry new ideas have always been and still are prolific: but although neurology has contributed so much to physiology that our knowledge of the working of the central nervous system is almost complete, little of physiological importance has emerged from psychiatry. The neglect of a proper physiological basis for psychiatrical research is in itself an indication of the great need for central organization.

Medical research should be ennobled as a profession. The reward for such research should be in doing it and not in the expectancy of later honours or rewards. The type of sporadic research solely for personal advancement or monetary benefit from patents will, I hope, disappear. As in the past, private research will always be attractive and occasionally useful to the community, but in future any real advances in the prevention and cure of disease (including mental disease) are only to be expected from the pooling of ideas and resources; the constitution of active and interested committees; the criticisms of everyone qualified to criticize; the help freely given by those possessing special knowledge and experience; and above all the patient investigation by competent workers of pertinent (though not necessarily minutely specified) problems urgently awaiting solution.

Should results be attained almost simultaneously by other workers, it should be a matter for rejoicing rather than dismay, so long as there are committees sharing the responsibility for the work and the expenditure of public money.—I am, etc.,

Birmingham. F. A. PICKWORTH.

Universities and Colleges

UNIVERSITY PARLIAMENTARY ELECTIONS

The Registration Officer of the University of Oxford has sent the following communication from the University Registry:

> Voting for University constituencies at Parliamentary elections is conducted by post, and voting papers are sent by each University Electoral Registration Officer to the last recorded address of every elector, unless such address has previously proved insufficient. In view of the impending general election I am writing on behalf of all University Registration Officers to urge every voter for a University constituency who has changed his address since registering as an elector and who has not notified the Electoral Registration Officer of his University of such change, to do so as soon as possible. Any elector who has reason to believe that his (or her) name or designation is not correctly recorded in the Register should also communicate with the Electoral Registration Officer of his University. There is little doubt that many electors have changed their addresses within recent years without notifying their University Registration Officers, and a wide response to this appeal would not only save many last-minute applications for voting papers but would help to ensure that those who have a right to receive voting papers receive them in time to record their votes.

UNIVERSITY OF GLASGOW

At a graduation ceremony on April 14 the following higher medical degrees were conferred:

M.D.—J. H. Stirrat (with commendation), A. A. Gilmour.
Bellahouston Medals for eminent merit in theses for the degree of M.D. were awarded to A. W. Kay and J. H. Lawson.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A meeting of Fellows will be held at the College on Tuesday, May 1, at 3 p.m. A report on College affairs will be made and there will be a discussion on the present state of negotiations on the Government White Paper on "A National Health Service."

Obituary

SIR HUBERT BOND, K.B.E., M.D., F.R.C.P.

A long and distinguished career in the service of psychiatry closes with the death on April 18 of Sir Hubert Bond, who became a Commissioner of the Board of Control in 1914, and in 1930 was made a Senior Commissioner, retiring from that post on March 31, 1945.

Charles Hubert Bond was the elder son of the Rev. Alfred Bond, of Powick, Worcestershire, and brother of Surg. Vice-Admiral Sir Reginald Bond, who was Medical Director-General of the Navy and Honorary Physician to the King. He was born at Ogbourne St. George in Wiltshire in 1870, and educated privately and at Edinburgh University (where he was Mackenzie Bursar in 1889–91) and King's College, London. He qualified in medicine in 1892, taking the B.Sc. in public health in the following year, the M.D. of Edinburgh in 1895, and the D.Sc. in 1898. Choosing to specialize in mental diseases, a subject in which he was Gaskell gold medallist in 1897, he worked in turn on the medical staffs of Morningside (Edinburgh), Wakefield, and Banstead Mental Hospitals. In 1898 he was appointed deputy superintendent of Bexley Mental Hospital (London County Council), in 1903 first medical superintendent of the Ewell Colony for Epileptics, and in 1907 first medical superintendent of the London County Mental Hospital, Long Grove, where he remained until 1912. In that year he was made Commissioner in Lunacy, and in 1914 he became one of the Commissioners of the Board of Control which was set up under the new Act. In 1930 he was appointed one of the four Senior Commissioners who, with the chairman, constitute the Board.

[Press Portrait Bureau

With his commissionership Bond combined a great deal of lecturing, inspection of examinations, and administrative work. In 1925 he became consultant in neurology and mental diseases to the Royal Navy. He was lecturer in psychiatry at Middlesex Hospital, and in mental disorders at Maudsley Hospital. In 1931 he delivered the Maudsley Lecture to the Royal Medico-Psychological Association, and he was William Withering Lecturer of the University of Birmingham in the same year. He also examined in neurology and psychological medicine for the English Conjoint Board and later for the Universities of London and Leeds. The number of committees on which he served dealing with psychological medicine was very large. He was chairman of the Departmental Committee on Nursing in County and Borough Mental Hospitals, which reported in 1924, and a member of the "Shell Shock" Committee set up by the War Office in 1920–2. In 1934 he was appointed a member of a committee to advise and assist the Medical Research Council in the promotion of research into mental disorders. In many capacities he rendered great service to the Government, official bodies, academies, and medical societies. He was a man of alert and progressive mind, as energetic in decision as he was eager in speech, and he willingly gave of his large and varied experience in the discussions which accompanied and followed the Royal Commission on Lunacy and its sequel in the Mental Treatment Act of 1930.

Hubert Bond's name came prominently before the public in 1925 when, in an action brought against him by a patient, Mr. Harnett, he was mulcted in £5,000 damages. It was alleged that as a Lunacy Commissioner he had improperly detained a patient, and, with another medical man, had committed a tort by returning the patient to a licensed home for the reception of the insane and keeping him there and at other mental institutions for six years. The Court of Appeal, however, reversed the decision of the court below. The case was taken to the House of Lords, where five Law Lords, with the Lord Chancellor presiding, unanimously upheld the decision of the Court of Appeal. The case arose at a time when there was a good deal of public feeling over alleged improper detentions in mental hospitals, and Hubert Bond, as representing, so to speak, central officialdom and the "tyranny" of medicine—for the chairman of the Board of Control was a layman—came in for some very unjust abuse. Those who knew him never doubted his integrity and his extreme conscientiousness, especially in matters involving the liberty of these unfortunate subjects.

In the Royal Medico-Psychological Association Sir Hubert Bond was a prominent figure for many years. It rarely happened that its quarterly meetings passed by without some contribution from him. From 1906 to 1912 he was its honorary general secretary, and in 1921–2 its president. In 1928 the Association made him an honorary member. In 1922–3 he was president of the Section of Psychiatry of the Royal Society of Medicine, and in 1927 he was made an associate member of the Société Médico-Psychologique of Paris. He was vice-president of the Section of Mental Diseases at the Annual Meeting of the British Medical Association in 1927, and again at the Centenary Meeting of 1932. He was probably so much concerned in administration that he found no time to write a book, but he contributed papers to a number of journals on such subjects as mental hospital construction and management and the hospital treatment of the insane, and he paid eloquent tributes when former colleagues died. A noteworthy paper was given by him at the first Public Health Conference in London in 1928 on local organization for the prevention and treatment of mental diseases. He was made C.B.E. in 1920 and knighted in 1929.

F. F. MUECKE, C.B.E., F.R.C.S.

We regret to announce that Mr. Francis Frederick Muecke died on April 13 in the London Hospital, where he had been for many years surgeon to the ear, nose, and throat department. He was born in Queensland in 1879, son of the Hon. H. C. E. Muecke, of Adelaide, went to school at Prince Alfred College, and thereafter studied medicine at Adelaide University, where he won the Davies-Thomas Scholarship and graduated M.B., B.Ch. with first-class honours in 1902. An all-round athlete, he represented his university at cricket, lawn tennis, and lacrosse, and rowed in the boat. After serving as house-surgeon and house-physician at the Adelaide Hospital he came to this country and entered the London Hospital. He obtained the F.R.C.S. in 1909 and became assistant surgeon to the Central London Throat Hospital, aural surgeon to the Maida Vale Hospital for Nervous Diseases, and senior clinical assistant at the Golden Square Throat Hospital; he was elected to the staff of the London Hospital in 1909. On the outbreak of war in 1914 he joined the Army as lieutenant, R.A.M.C., was present at the Suvla landing, and took part in battles on the Somme and the Ancre, at Arras and Passchendaele. Before the end of the war he was transferred to the R.A.F. as lieut.-colonel, and he received the C.B.E. in 1919. Returning to his practice in ear, nose, and throat work Muecke published a number of papers in medical journals and was appointed consulting specialist to the L.C.C. He joined the B.M.A. in 1906, and held office as honorary secretary of the Section of Laryngology at the Glasgow Meeting in 1922, vice-president of the Section of Laryngology and Otology at the Winnipeg Meeting in 1930, and president of the Section of Oto-rhino-laryngology at the Melbourne Meeting in 1935. On his retirement from active work the London Hospital made him consulting surgeon to his department, and he went to live at Charlwood in Surrey.

Mr. H. S. SOUTTAR writes:

Francis Muecke will long be remembered both for his great personality and for his distinction as a surgeon. He came to England from Australia in 1903, and joining the London Hospital took the F.R.C.S. from there and was elected to the staff in 1909. He threw himself with great ardour into the work of the very busy E.N.T. department and rapidly achieved a reputation both for his work and for his teaching. In 1905 he had married Ada Crossley, the great Australian singer, and he acted as her manager in one of her Australian tours. In the last war he was one of the first to join the Army in 1914. In the surgery of the ear, nose, and throat he achieved distinction, and at the Melbourne Meeting of the B.M.A.

he was president of the section. He gained a large private practice, especially among singers, but he will be best remembered for his great social gifts, for his warm-hearted friendship, and for his generous personality. He was an ardent Freemason and rose to great distinction in the craft, devoting unstinted time and energy to its interests. He was a good fellow and he will be sadly missed.

Prof. Major Greenwood writes: The death, at the age of 87, of Ellen, widow of Sir Shirley Murphy, recalls happy memories of a past now becoming distant. Among other admirable qualities, Shirley Murphy's kindness to younger men was conspicuous, and Lady Murphy also had the gift of putting young people at their ease. Some of us still think with pleasure of drinking tea with the Murphys in Bentinck Terrace, of the kindly wisdom of our hosts, who gave good advice genially and could correct an ill-informed opinion without wounding youthful vanity. To Lady Murphy her husband's death in 1923 was a shattering blow borne with quiet heroism. She had shared all his interests and assiduously performed services few literary assistants can undertake. She was a good linguist and seemed to know every book and pamphlet in his library. The void could not be filled, but by giving unobtrusive help to others—first in the Library of the National Institute for Medical Research, later to the Red Cross—she was able to serve the cause in which her husband was a pioneer. Lady Murphy was a generous donor of books and statistical apparatus to the Library and Statistical Department of the London School of Hygiene and Tropical Medicine. When she left Bentinck Terrace she continued her patient work in the target area. A long life of quiet service to learning is over.

Medical Notes in Parliament

Amoebic Dysentery

On April 10 Dr. Morgan asked the Secretary of State for the Colonies whether his medical advisers had any statistics giving the incidence of cases of amoebic dysentery in the East African Colonies from below Egypt to the Cape; whether any modern research had been undertaken in the past decade on this problem, comparing native and European incidence; whether any report or results of any research investigations had been published or had reached his Department; and whether treatment not only by ipecacuanha products but by the more recently discovered sulphonamide drugs had been fully tried out and with what comparative results.

Col. Stanley said that the latest figures available for the East and Central African territories were:

Territory	Year	Number of Cases of Amoebic Dysentery
Kenya	No figures available	
Uganda	1943	754
Tanganyika	1943	1,010
Zanzibar	1943	15
Northern Rhodesia	1939	78
Nyasaland	1939	44

Exploration of methods of treatment of amoebic dysentery was proceeding continuously, and he had no reason to believe that there had been any alarming increase in the incidence of this disease in these territories in recent years, or in the mortality from it. Experiments with the sulphonamides had shown that they had no effect in amoebic dysentery. The main line of treatment was emetine bismuth iodine (an ipecacuanha derivative), combined with the use of oxyquinoline. Recent work had been done with diodoxyquin and had been described in the African journals, and had been and was going to be described in the *Tropical Diseases Bulletin*—the journal of the Bureau of Hygiene and Tropical Diseases. The full study of European and native incidence would require a large investigation staff which was not available at present.

Supply of Nurses

According to a reply made by Mr. Willink on April 12 the total number of additional nursing staff of all grades estimated to be required on Nov. 1, 1944, at civilian hospitals (other than maternity hospitals and mental hospitals) was 12,355. On the same date the number of student nurses in training in these hospitals was 38,343. He said the over-all shortage had not been reduced during the past year, the wastage having slightly exceeded the considerable intake. Every practicable step was being and would be taken by Mr. Bevin, in consultation with him, to induce suitable women to undertake nursing and to redistribute the available nurses to the best advantage. The highest priority was also given to the filling of vacancies for domestic staff in hospitals.

Smallpox in India

On April 17 Mr. Amery informed Mr. Viant that smallpox deaths in British India in 1938 and 1939 totalled 38,844 and 48,104 respectively. He had no complete figures for the subsequent years and was asking the Government of India whether they could supply them. He was also consulting them as to the extent of the statistical information available to their Public Health Commissioner about smallpox in the Indian States.

Antivaccination Literature

On April 17 Sir William Davison asked the Minister of Health whether he would introduce legislation to prevent the circulation of pamphlets implying that vaccination was likely to result in the death of newly born infants, especially in view of the pain caused to mothers of recently born children by pamphlets such as those in the form of a death certificate of a five-months-old baby, the misleading nature of their contents, and the shortage of paper. Miss Horsbrugh: No, Sir. Much as the Minister deplores the activities referred to, and the mischief and pain which they cause, he is not satisfied that they afford ground for interfering with the free expression of opinion in this matter. He thinks that parents are usually wise enough to be guided by the advice of their own doctors.

Wheat Germ for Commercial Products

On April 17 Mr. Mabane, replying to Sir E. Graham-Little, said that the medical products for which wheat-germ was now supplied were: Bemax, Froment, and C.V.B., and preparations made by Allen and Hanburys Ltd., Glaxo Laboratories Ltd., Bickiepegs Ltd., A. C. Whitehead, and J. and M. Glaskie. The amount of germ provided for these products was less than 1% of the total germ contained in the wheat which was milled in this country. The selection of these products was determined by his Department, which obtained the necessary medical advice by consultation with the Ministry of Health. Mr. Mabane also informed Sir Ernest that wheat germ supplied to firms preparing certain medical products was extracted from the wheat in the milling of flour for manufacturing purposes. This wheat might consist of home-grown or imported wheat. Manufacturing flour from which the germ had been extracted was, so far as possible, supplied for purposes where the processes involved would destroy the nutrients in germ.

Local Government Boundaries

The Local Government (Boundary Commission) Bill recently presented to Parliament provides for setting up machinery for a comprehensive review of local government areas in England and Wales, outside London. A Local Government Boundary Commission consisting of a chairman, deputy chairman, and three other members is proposed. This is to be an executive body, with powers embracing the existing powers of county councils and of the Minister of Health in relation to county reviews. The creation and extension of county boroughs and, in proper cases, the reduction of status of a small county borough, and the union of county boroughs and of some of the smaller counties will be within the scope of the Commission; but the exercise of these latter powers will be subject to Parliamentary review. The Commission will function according to general principles and procedure laid down in regulations to be made by the Minister of Health and approved by Parliament.

The decisions of the Commission are to be embodied in Orders, and when once an Order has become effective, no further action is to be taken concerning that area for ten years unless the Commission is satisfied that there are substantial changes in population or other exceptional circumstances.

German Prison Camps: M.P.s' Visit

In the House of Commons on April 19, in reply to a question whether the Allies would retain the captured prison camp of Buchenwald intact as a memorial of German methods, Mr. Churchill said that while no words could express the horror felt at the proofs of these frightful crimes he did not at present wish to commit himself to any special policy such as that suggested. He had that morning received a message from General Eisenhower saying that the new discoveries, particularly at Weimar, far surpassed anything previously exposed, and inviting Members of Parliament at once to his headquarters in order that they might have first-hand proof of these atrocities. The matter was urgent as, of course, it was not possible to arrest the processes of decay in many cases. Eight members of the House of Commons and two of the House of Lords would form a Parliamentary delegation and travel out at once to the Supreme Headquarters, where General Eisenhower would make all the necessary arrangements for their inspection of the scenes, whether in American or British sectors.

Artificial Insemination of Women

On April 19 Mr. DRIBERG asked the Minister of Health if he could make a statement on the experiments in artificial insemination of women, and if any births had resulted or were expected shortly to result therefrom. Mr. WILLINK: So far as my information goes, this operation is being performed with donated semen on a small scale in this country in cases where at the joint request of the husband and wife the responsible medical practitioner has satisfied himself that it is desirable. I do not think that the subject as a whole is one which can be satisfactorily discussed within the limits of a Parliamentary question and answer, but I think it right to say that I am advised that it would be a breach of the law to register as legitimate a birth which occurred as a result of this operation when the husband is not in fact the father of the child. Later Mr. Willink added that he was inquiring into the whole matter.

Examination of Contacts of Tuberculosis.—Mr. PARKER, on April 12, suggested that the Minister of Health should make it compulsory for all persons living in a household where a death from tuberculosis had taken place to be medically examined. Mr. WILLINK refused to do this. He said tuberculosis authorities were well aware of the importance of supervising the home contacts of tuberculous persons, although this work had been hampered by war conditions.

Notes in Brief

Major Lloyd George states that he is aware of the work for the prevention of silicosis being carried out in Canada and the United States of America. This is being considered by the Medical Research Council and his medical advisers.

Sir John Boyd Orr, the newly elected member for the Scottish Universities, took his seat in the House of Commons on April 17.

The Services

Temp. Surg. Lieut. A. J. Whitaker, R.N.V.R., has been mentioned in dispatches for good service while serving in H.M.S. *Frobisher* in the maintenance of the small craft during the invasion of Normandy.

Capts. J. J. Y. Dawson and J. M. Hamilton, R.A.M.C., have been awarded the M.C. in recognition of gallant and distinguished services in Burma.

Capt. C. A. G. Cook, R.A.M.C., has been awarded the George Medal in recognition of conspicuous gallantry in carrying out hazardous work in a very brave manner.

The following appointments and awards have been announced in recognition of gallant and distinguished services in Italy:

O.B.E. (Military Division).—Cols. (Temp.) J. C. Barnetson, P. F. Palmer, and G. A. Walmsley; Lieut.-Cols. (Temp.) F. V. Allen, H. A. Brittain, A. C. Cox, D. M. Lyon, H. O. MacC. Merewether, L. H. Murray, R. V. Phillipson, J. C. Reed, W. H. Valentine, and G. E. W. Wolstenholme; and Lieut.-Col. (Acting) N. G. G. Talbot, R.A.M.C.

M.B.E. (Military Division).—Majors (Temp.) R. J. V. Battle, R. Cox, S. W. J. Harbutt, W. A. Heggie, M.C., R. A. King, C. S. Pope, H. B. Porteous, R. D. Rutherford, Barbara B. Stimson; and Capts. D. H. Jones, D. Macdonald, J. N. U. Russell, and M. G. Sutton, R.A.M.C.; Lieut. H. B. Sen, I.A.M.C.

M.C.—Capts. J. T. A. Essex, J. K. Mackay, and D. C. Watson, R.A.M.C.

The following appointments and award have been announced in recognition of gallant and distinguished services in North-West Europe:

O.B.E. (Military Division).—Col. W. E. Hume; Lieut.-Cols. C. U. Letourneau, G. L. M. Smith, and E. E. Tieman, R.C.A.M.C.

M.B.E. (Military Division).—Majors L. G. Alexander, M.C., G. C. McGarry, W. T. Mustard, and A. E. Thoms, R.C.A.M.C.

M.C.—Capt. J. H. Fraser, R.C.A.M.C.

Repatriated.—Capt. John Borrie, N.Z.M.C.; Capt. H. D. Fleming, R.A.M.C.; Capt. R. M. Solomon, R.A.M.C.

Released from captivity.—Capt. J. H. Mulligan, R.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Killed by enemy action in Burma.—Fl. Lieut. Sydney Wetherell, R.A.F.V.R.

Died.—Lieut.-Col. Hampton Atkinson Dougan, M.C., R.A.M.C.

Reported prisoner of war.—Capt. J. J. W. O'H. Tobin, R.A.M.C.

Medical News

A meeting of the Medical Society for the Study of Venereal Diseases will be held at 11, Chandos Street, W., to-day (Saturday, April 28) at 2.30 p.m., when Dr. A. H. Harkness will give an address on "The Cutaneous Manifestations of Gonorrhoea."

A joint discussion by the Biochemical and the Nutrition Societies will be held at the London School of Hygiene, Keppel Street, London, W.C., to-day (Saturday, April 28), the subject being "The Vitamin B Complex." The sessions will be from 11 a.m. to 1.15 p.m., and from 2.15 p.m. to 4.15 p.m. Speakers will include Drs. L. J. Harris, E. Kodicek, J. H. Quastel, F. A. Robinson, B. C. J. G. Knight, B. S. Platt, R. A. Webb, and L. Wills.

A meeting of the Society of Public Analysts and Other Analytical Chemists will be held at the Chemical Society's Rooms, Burlington House, Piccadilly, W., on Wednesday, May 2, at 5 p.m., when papers will be read and discussed.

The Children's Moral Welfare Committee (Rescue and Preventive) for the boroughs of Holborn, St. Pancras, and Hampstead, will hold its annual meeting in Holborn Town Hall on Wednesday, May 2. The general meeting at 6 p.m., under the chairmanship of the Mayor of Holborn, is open to all. The speakers are Dame Lilian Barker, former Governor of H.M. Borstal Institution for Girls, and Mr. S. H. Wood, C.B., former Assistant Secretary to the Ministry of Education. The chairman of the committee is Dr. Alan Moncrieff, and the honorary secretary Mrs. Christy Clay, 93A, King Henry's Road, N.W.3.

A meeting of the Medical Society of the L.C.C. Service will be held at the County Hall, S.E., on Thursday, May 3, at 4.30 p.m., when there will be a discussion on "Haematemesis," to be opened by Mr. J. R. M. Whigham, Mr. Norman C. Tanner, Dr. B. Gottlieb, and Dr. H. E. S. Pearson.

On Friday, May 4, at 8.30 p.m. at Whipps Cross Hospital, Dr. H. B. May, Acting Director, Clinical Laboratories, London Hospital, will give an address on the uses and limitations of penicillin. All medical practitioners in the district are invited.

The Association for Moral and Social Hygiene announces that the first Alison Neilans Memorial Lecture will be given by Dr. Louisa Martindale, F.R.C.O.G., on Thursday, May 10, at 6 p.m. in the Caxton Hall, Westminster, S.W. The title of the lecture is "Venereal Disease. Its Influence on the Health of the Nation: Its Prevention and Cure." Lord Balfour of Burleigh will take the chair.

An address on "*X*-ray Analysis: Past, Present, and Future" will be given by Sir Lawrence Bragg, D.Sc., F.R.S., before the Royal Institution (21, Albemarle Street, W.), on Friday, May 11, at 5 p.m.

The Birthday Trust Fund has prepared an illustrated lecture called "The Expectant Mother," for use in ante-natal clinics of hospitals, etc. The new synchrophone process has been used, and a preview of the lecture is being given at Queen Charlotte's Hospital this week.

At Liverpool Assizes on April 16 a cable worker named Rogers, of Bootle, was found guilty but insane, on a charge of murdering Dr. Alfred George Stewart, aged 65, of Great Crosby, by hitting him on the head with a pedestal telephone receiver in his surgery. Dr. Stewart died from his injuries on March 19. The medical officer at Walton Prison gave evidence to the effect that Rogers was suffering from schizophrenia. He was ordered to be detained during the King's pleasure.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* during the week the total notifications for infectious diseases fell by the following amounts: dysentery 88, whooping-cough 80, acute pneumonia 53, diphtheria 42, scarlet fever 18; the incidence of measles rose by 416.

There were 54 fewer notifications of whooping-cough in Yorks West Riding, and 23 fewer in both Lancashire and Middlesex. A higher incidence of measles in the south more than balanced the fall in the north; the largest increases over last week's totals were Essex 278, Middlesex 211, Monmouthshire 122, Southampton 151, Sussex 120, Derbyshire 121, Gloucestershire 92; and the largest decreases were Yorks West Riding 404, Staffordshire 340, Warwickshire 182, Yorks East Riding 118.

The only fresh outbreak of dysentery of any size during the week was in Worcestershire 14 (Halesowen M.B. 11). The largest centres of infection were Lancashire 44, London 33, Surrey 23, Suffolk 14, Essex 12, Yorks West Riding 12, Gloucestershire 11, Staffordshire 11, Bedfordshire 10, Hertfordshire 10.

In *Scotland* measles notifications fell by 73, whooping-cough by 34, and diphtheria by 10, but those for acute primary pneumonia rose by 29, and for scarlet fever by 21. Dysentery remained at last week's level; the largest returns were Edinburgh 46, Glasgow 36, Aberdeen Burgh 11, Falkirk 11. Two cases of smallpox were notified during the week—1 in Glasgow, and the other in Motherwell and Wishaw.

In *Eire* the only variations of any size in the notifications were increases in measles 25, and whooping-cough 27, and a fall of 21 for scarlet fever.

Vital Statistics for the First Quarter of 1945

The notifications of infectious diseases during the first quarter of this year show some interesting contrasts with other quarterly returns. As some months will elapse before the official quarterly returns are published, it may be of interest to make a comparison with the returns from the weekly reports. The notifications of measles and dysentery reached new high levels, while diphtheria notifications were the lowest ever recorded; deaths from influenza were fewer than in recent years. The totals for England and Wales during the first quarter of recent years are:

	1940	1941	1942	1943	1944	1945
Scarlet fever	13,399	16,099	14,935	26,759	26,962	19,163
Whooping-cough ..	7,441	44,160	18,325	23,005	26,141	19,780
Diphtheria	9,199	14,533	11,658	10,799	9,005	6,061
Measles	51,377	204,158	26,535	225,056	20,278	247,455
Acute pneumonia ..	23,315	20,190	15,766	18,211	14,977	14,782
Cerebrospinal fever ..	5,093	4,332	2,412	1,287	978	968
Dysentery	531	1,757	1,674	1,319	2,834	4,681
Paratyphoid and typhoid	194	238	235	175	111	140
Influenza deaths in the great towns	4,568	2,217	863	1,149	1,131	692

The experience of the great towns suggests that the high birth rate of the past two years has been maintained, but the general death rate and the infant mortality rate have risen slightly. The case fatality of whooping-cough has increased, while the rate for diphtheria has dropped still further. The rates for scarlet fever and measles are above the 1944 level, but below that for 1943. A comparison of the March quarter is:

	1940	1941	1942	1943	1944	1945
Births	78,902	67,037	72,692	83,801	90,100	87,124
Deaths	106,656	91,039	73,345	68,910	71,925	78,193
Infant mortality ..	82	88	71	67	62	68
Case fatality:						
Scarlet fever ..	4·9	3·0	1·4	1·8	1·2	1·7
Whooping-cough ..	29·6	20·2	14·9	13·7	11·3	16·2
Diphtheria ...	64 0	62·0	50·0	47 0	34·0	29·0
Measles	3·2	3·9	2·4	2·6	1·3	1·9

Quarterly Returns for Eire

During the December quarter of last year the birth rate was 20.2, being 0.1 above the fourth quarter of 1943. The infant mortality was 81, which was 3 less than the rate for the preceding December quarter but 6 above the average of the five preceding fourth quarters. Maternal mortality was 1.4 per 1,000 registered births, compared with 2.2 for the fourth quarter of 1943. The general death rate was 14.2 per 1,000, being 0.6 below the rate for the preceding December quarter but 0.9 above the average of the five preceding fourth quarters. Of the 401 deaths attributed to the principal epidemic diseases, 254 were due to diarrhoea and enteritis under 2 years of age, 81 to diphtheria, 40 to whooping-cough, and 13 to typhoid fever.

The provisional summary for the year shows a birth rate of 22.0 compared with a five-years average of 20.3. The death rate, 15.4 per 1,000, was the highest of recent years; during 1939–43 it fluctuated between 14.1 and 14.7. With the exception of 1943, the number of deaths from the principal epidemic diseases, 1,807, was the greatest of recent years. This group included: diarrhoea and enteritis 1,069, diphtheria 296, whooping-cough 240, measles 133, typhoid fever 59. Deaths from pulmonary tuberculosis and from other forms of tuberculosis numbered 2,884 and 874, being respectively 514 and 34 less than last year's total. A very high infant mortality was recorded in the cities; the largest were Limerick C.B. 136, Dublin C.B. 125, Cork C.B. 115. The blackest spots in Dublin C.B. were North City No. 3, and South City No. 3, with rates of 268 and 200 per 1,000 births.

Week Ending April 14

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,215, whooping-cough 1,234, diphtheria 438, measles 20,342, acute pneumonia 664, cerebrospinal fever 70, dysentery 463, paratyphoid 2, typhoid 8.

No. 14

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended April 7.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	66	6	36	2	1	78	5	17	3	5
Deaths		1	3				2	1		
Diphtheria	453	22	116	93	14	554	38	151	102	45
Deaths	5	—	—	3	—	13	2	2	1	—
Dysentery	306	33	165	3	—	250	48	120	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	—	—	—	1	—	4	—	—	—	—
Deaths		—					—			
Erysipelas			48	12	7			45	7	1
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				17					4	
Deaths	76	5	14	9	1	59	15	16	9	1
Measles*	22,599	1688	217	60	37	2,343	324	269	306	10
Deaths	15	3	—	—	—	2	—	1	7	—
Ophthalmia neonatorum	67	2	10	—	—	92	6	14	—	—
Deaths										
Paratyphoid fever ..	3	—	—	—	—	2	1	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	693	33	4	12	8	1,003	63	8	7	6
Deaths (from influenza)	19	2	4	1	—	21	1	3	1	—
Pneumonia, primary ..			223	29				227	23	
Deaths		34		10	7		51		20	7
Polio-encephalitis, acute	—	—				2	—			
Deaths		—					—			
Poliomyelitis, acute ..	1	—	—	—	—	2	—	2	—	—
Deaths		—					—			
Puerperal fever		4	20		—		2	11		—
Deaths										
Puerperal pyrexia‡ ..	157	13	13	—	1	140	7	9	1	—
Deaths		—					—			
Relapsing fever ..	—	—			—	—	—			—
Deaths										
Scarlet fever	1,343	45	187	21	44	2,089	111	195	22	75
Deaths	1	—	—	—	—	3	1	1	—	—
Smallpox	—	—	2	—	—	1	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	5	—	2	7	1	9	3	—	13	—
Deaths	—	—	—	—	—	1	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough* ..	1,043	42	65	56	15	1,558	204	89	24	15
Deaths	6	—	1	1	—	12	2	1	6	1
Deaths (0–1 year) ..	387	30	62	26	19	413	62	71	44	15
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4,522	604	607	218	147	4,799	748	569	244	164
Annual death rate (per 1,000 persons living)			13·8	14·1	§			13·1	15·9	§
Live births	6,428	664	891	370	275	6,946	870	900	358	293
Annual rate per 1,000 persons living ..			17·8	23·9	§			18·3	23·4	§
Stillbirths	174	10	28			198	28	40		
Rate per 1,000 total births (including stillborn)			30					43		

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* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Sinus Formation

Q.—*What is the exact pathological mechanism involved in sinus formation in the presence of foreign bodies until they are extruded?*

A.—A foreign body which is sterile may become embedded deeply in the body tissues and remain there indefinitely without suppuration or sinus formation. But if a foreign body is present in an infected wound, suppuration must continue until it is removed; the greater part of the wound may heal, leaving the unhealed portion—the sinus—as an exit for pus. It must be added that an old-standing sinus, which is lined by granulation tissue and surrounded by fibrous tissue which thickens and hardens with the passage of time, may not heal even after removal of the foreign body; the track itself must be completely excised as well.

Acute Synovitis

Q.—*In a thin, elderly, female patient a skiagram shows commencing osteo-arthritis of the left shoulder, with a small loose body. There is the usual muscular wasting, but no other disease. (a) What is the explanation of the pain, and why is it always "worse at night"? (b) What is the best treatment for these pains? (diathermy, infra-red, and massage have been tried). (c) In view of the liability of separation of more osteophytes, is massage in such cases contra-indicated?*

A.—Muscular wasting is not the rule in osteo-arthritis, except the slight degree resulting from disuse. It suggests acute synovitis with some effusion into the joint or the subacromial bursa, which may be due to the loose body being nipped between the articular surfaces of the joint. The pain also indicates some inflammatory condition, as it is not usual in simple degenerative osteo-arthritis except on movement; the fact that it is worse at night may in this case be the result of posture. So far as the writer is aware no satisfactory explanation has been given of the pain in rheumatic conditions being worse at night; but the fact that there is nothing then to divert the attention probably has a bearing, and for its relief at such times aspirin or other analgesics are available.

As to treatment, removal of the loose body might reasonably be considered, because nipping is likely to recur and thus keep up the synovitis. Immobilization of the joint by strapping or bandaging it to the side is desirable; in an elderly patient the latter is to be preferred. In these cases moist heat is frequently more effective than dry heat for the relief of pain, and the effect can be kept up afterwards by the use of salicylate liniments. Although ankylosis does not occur in simple osteo-arthritis of the joints of the limbs, adhesions are likely to form between the folds of the capsule if there is any inflammation from synovitis, and therefore the joint should be moved to its full extent once a day passively. It is very unlikely that any osteophytes would be detached by massage, which, however, should be only light unless there is some indication of adhesions, and it should then be local and purposive and not a general "rubbing." Ionization with histamine followed by light effleurage is often useful in relief of pain; and, when the symptoms are less acute, surging faradism to restore the wasted muscles is indicated. When the pain has subsided and immobilization can be given up, it is desirable that for some time the arm should be worn in a sling to relieve the strain on the muscles and ligaments of the shoulder from the weight of the dependent arm.

Opium causing Spasm

Q.—*Why does the giving of opium and its alkaloids cause spasm of the sphincter of Oddi with resulting pain and vomiting in some patients who have previously had cholecystectomy?*

A.—Several of the alkaloids of opium, but not all, have long been known to cause spasm of various sphincters, including the sphincter of Oddi. Actually, the effect on the flow of the bile is due to a spasm of the lower end of the common bile-duct, as was shown by the experiments of Butsch, McGowan, and Walters (*Surg. Gynec. Obstet.*, 1936, **63**, 451), who took *x*-ray pictures and measured the intrabiliary pressure. They found that gr. 1/6 of morphine sulphate raised the pressure from 2 cm. to 20 or even 30 cm. water. Pain was found to follow morphine administration in patients with a "post-cholecystectomy syndrome." In these the pressure rose to 40 or 45 cm. water and remained high sometimes for 2 hours. Both the spasm and the pain were relieved by inhalation of amyl nitrite. Schondube and Lurman (*Münch. med. Wschr.*, 1927, **74**, 1906) found that giving atropine after morphine failed to relieve the spasm. Papaverine is an alkaloid of opium which does not produce spasm, but actually relaxation. To relieve pain in patients who have had a cholecystectomy, pethidine might also be tried. It does not produce spasm, and does not produce vomiting in those in whom morphine causes vomiting.

Quarantine for Chicken-pox

Q.—*As a school medical officer I have been keeping children suffering from chicken-pox in the sanatorium till the last scab has separated. This often prolongs quarantine well into the school holidays, much to the annoyance of staff and patients. An authority recently told me that the safe period of quarantine from chicken-pox was nine days from the appearance of the last spots. He states that as the virus is spread from the nasopharynx the infectivity does not depend on the presence of scabs. What is the correct procedure?*

A.—Although the viruses of smallpox and chicken-pox are probably disseminated mainly by mouth and nasal secretions early in the disease, there is no doubt that elementary bodies are constantly demonstrable in the skin eruption in both diseases. As there is no laboratory method of determining readily how long the virus in the skin lesions actually remains infective, it is still common practice to maintain strict isolation until the last crust has separated. Nobody questions this in smallpox, but many clinicians of wide experience have maintained that chicken-pox is not infective in the late stages even if all crusts have not separated. The writer's practice is to release from isolation after a period of 7 to 10 days provided that a careful search, particularly of the scalp, reveals that *all lesions* have progressed beyond the stage of pustulation to firm crusting. If this standard is adopted strictly, clinical experience indicates that secondary cases of chicken-pox do not result.

Vaso-vagal Attacks

Q.—*A clergyman aged 33 has for two and a half years and about twice weekly suffered from attacks of giddiness, nausea, tachycardia, choking sensations, or tightness round the upper chest. Attacks have occurred in bed. On one occasion—when he was sawing wood—consciousness was completely lost. The attacks last about half an hour and gradually subside. He is active, a non-smoker, and a total abstainer. He invariably has an attack on Sundays when his duties are heavy. His heart is enlarged to the left and his B.P. is 145/110. Urine, blood urea; B.M.R., x-ray of skull—all normal. Petit mal has been excluded. Is this a case of hypertensive pseudo-uraemia? Do the attacks have any relation to carotid sinus syncope? What other possible causes may there be?*

A.—It is difficult to believe that a youngish man could have had hypertensive crises for two and a half years with no more to show for them than this. What is the evidence that the heart is enlarged to the left, and how far is it enlarged? If there is cardiac enlargement, a silent aortic stenosis should be suspected, as this can be the most puzzling of all heart lesions. *X*-ray pictures of the heart and electrocardiographic tracings would help in proving or disproving this suggestion. Retrosternal goitre is another possibility. The attacks do not sound like carotid sinus syncope, which could in any event be demonstrated by manual pressure on the sinus.

Having mentioned these organic possibilities, one must state frankly that it is more likely that the attacks are psychogenic, the so-called vaso-vagal attacks. Blood pressures of this order are quite common in "effort syndrome." The questioner does not tell us what manner of man his patient is, and under what circumstances the attacks first began. Vaso-vagal attacks often seem to be the acting out of death fears, and these again are sometimes the obverse of death wishes. Like girlish faints, they are prone to occur under the strain of religious worship. The possibility that there is an underlying cardiac dysrhythmia akin to epilepsy should nevertheless not be forgotten. This might be revealed by an electro-encephalogram.

Immunization against "Influenza"

Q.—*I have annual "influenzal" illnesses. Can I protect myself against these and so avoid them?*

A.—Influenza is a loosely used term to indicate upper respiratory infections of varied aetiology. If the sufferer from "influenzal" bouts wants to try a protective vaccine, he should consult a bacteriologist during or immediately after an attack, so that the bacterial flora of his upper air passages can be sampled for pathogens. He may, for example, be addicted to recurrent sinusitis which is lit up by some primary virus infection such as the common cold or influenza. If a specific pathogen like the pneumococcus, haemolytic streptococcus, *Staph. aureus*, or Friedländer's bacillus is found, an autogenous vaccine is often beneficial. Some patients seem to benefit from a mixed stock vaccine taken in the autumn. It is unlikely that these annual attacks are due to specific infection with the influenza virus, but an influenza virus A vaccine is now available, and could be used if there were evidence of epidemic influenza in the country. Any sufferer from recurrent "influenza" should have an *x*-ray examination of his chest.

Neuralgia in Mandible

Q.—*A man of 56, edentulous for 10 years, has had slight neuralgia in the left mandible for 6 weeks. The denture has been altered where it is pressing. X-ray examination suggests a residual infection, and dental advice is incision and cautery if discomfort continues. What is the prognosis if untreated; and is there any alternative treatment, such as penicillin?*

A.—The history of 6 weeks' slight pain after being edentulous for 10 years does not suggest a simple residual infection. Presuming that there is no radiographical evidence of any retained portion of root, dead bone, or foreign body such as a small piece of amalgam filling, it is more than likely that the lower denture is at fault and pressing somewhere too hard in spite of the previous adjustment, especially if there has been considerable absorption of alveolar bone. Vague pains most often occur in patients who are below par, overworked, or in a state of anxiety, and attention must be paid to their physical and mental health before embarking on any surgical intervention. The possibility of early malignant disease of the tongue or pharynx should be kept in mind. An incision stripping the mucoperiosteum from the bone, and gentle curettage, is often tried, but the use of the cautery is not without danger. It is difficult to see how chemotherapy could help in a case of this nature. Most of these cases of slight neuralgia recover in spite of rather than because of treatment.

Sulphonamides and Otitis Media

Q.—*What is the present position with regard to the treatment of (a) acute, and (b) chronic otitis media with sulphonamide drugs—as, for example, sulphathiazole applied locally? Can it be used in the treatment of a chronic discharging ear?*

A.—(*a*) Local treatment by sulphonamides is irrational, because it is not feasible to get the drug in contact with the infection, and because it is inactivated by pus. Indiscriminate administration by mouth is condemned, because it tends to mask symptoms, and may lead to permanent impairment of hearing. Sulphonamides should never be given in inadequate dosage or in the presence of undrained pus. Therefore it is wise to employ conservative treatment, including myringotomy, if indicated, withholding sulphonamides until it appears that the infection is not likely to resolve otherwise. In that event the patient should be kept in bed, and given the full doses under the usual precautions, and watched until clinically, and if necessary radiologically, complete resolution has occurred.

(*b*) Various sulphonamides have been applied locally in chronic otitis media, either in solution or in powder form. Obviously they are contraindicated in the presence of cholesteatoma, and of widespread bony necrosis with granulations, and they cannot be expected to succeed with insensitive organisms such as *B. proteus* and the coliform group. But there is no reason why they should not be employed empirically in other cases, provided the powder is not allowed to accumulate as a cement-like deposit, and a fair number of dry ears may be thus obtained.

Doctors Attending their Own Families

Q.—*What is the attitude of the medical and legal professions on the practice of attending one's own wife and family, particularly with reference to performing surgical operations, managing confinements, and administering anaesthetics? In the "outposts of Empire" there may be no option, but in this country some people look on the practice with some surprise and disfavour.*

A.—A doctor who treats a member of his own family is required by law to use the same degree of skill and care and to behave in all respects as though he were treating a stranger for a fee. No particular legal question arises from the doubling of the relationship. This is the legal view The writer knows of a case in which a doctor operated on his son for appendicitis, and the son died on the table. What would have been a regrettable professional experience became a personal tragedy. If a medical man has exceptional skill in the surgical treatment of a rare condition, it is understandable that he would be reluctant to have a member of his family treated by anyone else. But for the treatment of conditions within the competence of the average general surgeon, most medical men, we believe, would prefer to place the responsibility for treatment in the hands of a trusted colleague.

Sensitivity to Liver Extract

Q.—*A patient of 65 years with pernicious anaemia is on liver extract, and recently had a typical attack of angioneurotic oedema affecting tongue and lips, treated with ephedrine. There have been no further such attacks, but about ten minutes after the last two injections of liver extract the patient fainted; the body was in a tremor, and the face purple-black, with frothing at the mouth. The pulse was rapid and very weak. The faint lasted five minutes, but tremor of the limbs continued for some hours. There is no previous history of fits. Is this a case of immediate reaction of anaphylaxis? Can it be avoided?*

A.—This is clearly an example of the development of sensitivity to liver extract and the reaction is of an anaphylactic or allergic nature. The phenomenon is unfortunately not uncommon; several answers to questions on this subject have been given in this column (1943, **1**, 370 and 528; 1943, **2**, 29) and an article by McSorley and Davidson appeared in the *Journal* of May 27, 1944. Sensitivity to liver is more likely to develop if the interval between injections is extended beyond four weeks, and long intervals should therefore be avoided even though the patient seems to be enjoying a remission. It occurs with all brands of liver extract and is unrelated to the species of animal from which the liver is derived. It is dangerous and may be fatal, and it should therefore be treated by desensitization or by changing over to oral treatment with liver or desiccated stomach. In severe sensitization, such as the present patient shows, a skin test should be carried out with 0.05 c.cm. of liver extract. If this causes no generalized reaction, treatment is begun with 0.05 c.cm. intradermally. With this and all subsequent injections 0.2 c.cm. of adrenaline hydrochloride, 1 in 1,000, is given. The dose of liver extract is doubled every half hour, and the route of the injection is changed from the intradermal to the subcutaneous when 0.4 c.cm. is reached and to the intramuscular route at 1.0 c.cm. When a dose of 2.0 c.cm. has been reached, treatment is continued without adrenaline and one injection is given daily for a few days. The interval is then gradually increased till the patient is back to an interval of three to four weeks. Further details should be sought in the article mentioned.

Tinnitus Aurium

Q.—*Can you suggest treatment for cure or alleviation of persistent "tinnitus aurium"? The patient, a woman aged 68, for many years has been subject to an almost continuous high-pitched noise, sometimes in one ear, usually in both. Occasionally, for no ascertainable reason, the noise ceases, but recurs after the patient falls asleep. Hearing is normal, and examinations have discovered no physical cause for this distressing symptom.*

A.—Vascular changes in the cochlear and auditory nerve are responsible for tinnitus of the type described. Unfortunately, in a large proportion of cases the changes are permanent. This does not mean that such patients do not require help. They are often tortured by fears of cerebral tumours, of insanity, or of impending cerebral haemorrhage. A complete examination has not only the advantage that it may reveal a cause for the tinnitus, but it also forms the only sound basis for dispelling fears of a serious disease. Rarely, the routine examination of the function of the Eustachian tubes reveals unsuspected middle-ear and tubal catarrh as the cause of the altered blood supply of the labyrinth. Recently a number of favourable reports have been published on the use of vasomotor drugs in the treatment of tinnitus. For full details, the paper "Tinnitus Aurium," by Miles Atkinson, in the *Annals of Otology, Rhinology and Laryngology* (December, 1944, 53) should be consulted.

Blood-sugar Colorimeter

Q.—*While serving with the B.L.A. I came across a "blood-sugar colorimeter" which seems to be a simplification of the elaborate methods of MacLean or Folin and Wu. It was made by Zeiss, and on the lid of the case is described, "Blutzucker-Kolorimeter nach Crecelius-Seifert." It consists of a comparison colorimeter (transmitted light) with a focusing eyepiece; a square tube to contain the fluid for colour-matching and which fits into the colorimeter; a measuring pipette graduated at 0.1 c.cm. and 0.2 c.cm.; a filter funnel, stirring rod, and a container (bakelite), with filter papers and stamped "Made in Germany." I am interested to know more about this method of blood-sugar estimation.*

A.—This method and apparatus were introduced in 1928 by Crecelius and Seifert. It relies on the well-known reduction of picric acid to picramic acid, and the dark-brown colour is compared in the special colorimeter, which is graduated in mg. per 100 c.cm. This instrument and method have been criticized by Thiel on the ground that the wedge used is not fast to light and so gives high results. In general, only an approximate answer can be obtained, and it is not sufficiently accurate to supersede the usual analytical methods. The reagents are 1.2% picric acid and 10% sodium hydroxide. To 1.8 c.cm. of the picric acid solution add 0.2 c.cm. of blood; mix well, and filter through a very small filter paper. Take 1.5 c.cm. of filtrate, add 10 c.cm. of sodium hydroxide solution, and boil over a flame for exactly one minute. Cool, place in a colorimeter, and read off the result in mg. per 100 c.cm.. If the colorimeter is of any age it is advisable to check the calibration by means of a standard glucose solution.

Malaria and Syphilis

Q.—*If a person with syphilis contracts malaria does the latter infection have any "damping" effect on the former? May malaria mask syphilis altogether if the two occur together? There seem to be numerous cases of these "twin" infections (not necessarily simultaneous) in the Navy, yet I have seen no mention of this in the literature.*

A.—There is no evidence that malarial infection has any therapeutic effect on a *Treponema pallidum* infection. If the two occur together there might well be confusion in the diagnosis of either clinically. Blood examination should reveal the presence of the malarial infection, and the spirochaetal infection would be unaffected by treatment of this.

Contact Glasses for Corneal Scar

Q.—*A patient has a nebulous corneal scar which is now two years old and therefore probably cleared to its maximum. It is 4-5 mm. in diameter, and slightly eccentric toward the infero-lateral quadrant. Slit-lamp examination shows the full thickness of the cornea to be involved. For precision work the proposal is to use a contact lens, with a part or the whole of its extent painted over to mask the scar and at the same time to serve as a cosmetic improvement. Should the mask be complete or can peripheral vision be retained? How would such a lesion affect the prognosis of moderate myopia in the other eye?*

A.—Contact glasses with part painted over to mask a corneal scar have been tried. Whereas the cosmetic result has been satisfactory, the optical result has been disappointing. If the affected eye interferes with the work of the sound eye, it could be occluded by a painted contact glass, though there are other more simple and less expensive methods. Provided any correction necessary is worn before the sound eye, the prognosis of the myopia will not be affected.

Gynaecomastia after Testosterone

Q.—*A hypogonadal male aged 40 has been treated with testosterone propionate 25 mg. three times weekly, without noticeable improvement. He has, however, developed great enlargement of both breasts with darkening of the areola and enlargement of the nipples, accompanied by a constant burning sensation in them. Treatment has now been stopped for nearly three months, and while the burning sensation in the nipples has passed off the breasts are still enlarged and show no signs of regression. What treatment is indicated?*

A.—The symptoms described are to the best of my knowledge and experience unique, and are precisely those which develop if an oestrogen is administered. Though such complaints do not as a rule arise during androgenic treatment, there is experimental evidence that androgens have some effect on the male mammary glands. Folley, Guthkelch, and Zuckerman (*Proc. roy. Soc.*, B, 1939, **126,** 469) found that testosterone propionate stimulated stunted duct development and alveolar formation in male rhesus monkeys. Castration can prevent the normal increase which occurs in the mammary glands of male rats at puberty (McEwen, Selye, and Collip, *Proc. Soc. exp. Biol.*, N.Y., **35,** 56). In human males gynaecomastia associated with tumours of the testicles has usually been explained by assuming an increase in the oestrogenic secretion of the testicles. Gynaecomastia is commonly associated with testicular atrophy and consequent reduction in androgenic activity. The question of gynaecomastia was discussed in these columns on Nov. 6, 1943 (p. 597). It seems very improbable that the enlargement is permanent, and at present it would seem best to do nothing. Oestrogens would probably make the condition worse. Desoxycorticosterone can itself produce gynaecomastia (*B.M.J.*, 1943, **1,** 12) and is therefore contraindicated. If after a year the enlargement still persists, surgery should be considered.

INCOME TAX

Cost of Medical Books: Assistant

B. M. is employed as an assistant and has been refused a deduction for the cost of keeping up his personal set of medical books.

*** The rules applicable to the deduction of expenses in the case of salary of earners assessable under Schedule E are more stringent than those applicable to persons carrying on a profession or trade who are assessed under Schedule D. Schedule E requires that the expenses shall be incurred "necessarily" in the performance of the duties of the appointment. If B. M. can prove that his principals require him to maintain a set of medical books, then the expense is "necessary", and he is entitled to deduct it for income-tax purposes—in the absence of such a requirement his claim is not valid. (In the case to which B. M. referred the Schedule D rules were applicable.)

LETTERS, NOTES, ETC.

Memorial to Fl. Lieut. A. J. Sinclair, R.A.F.

The following letter, with six signatures, has been received for publication from the Dental Department of University College Hospital: We are anxious to perpetuate the memory of the late Mr. A. J. Sinclair, who was attached to the National Dental Hospital both as medical superintendent and sub-dean for many years. We are therefore, at the suggestion of a number of his late colleagues, proposing to establish a trust fund, the interest of which will be devoted to granting an annual prize, to be called the "Alfred Sinclair Prize." We are sure that many old students who have gained so much over many years by the help given by this inspiring teacher would wish to support this memorial, and are asking them to forward their donations, made payable to the "Alfred Sinclair Fund" and addressed to Mr. Alan Shefford, University College Hospital Dental School, University Street, W.C.1.

Artificial Respiration

Capt. **Alwyn E. Biscoe** (chief secretary, Royal Life Saving Society) writes: The letter from Dr. Frank C. Eve (April 7, p. 495) has been read with interest by my committee, and they entirely agree with his last paragraph that the time is ripe when a small expert subcommittee should be set up to investigate all methods of artificial respiration. But we should be interested to know upon what authority Dr. Eve states, that since the rocking method was introduced in the Navy the number of successful cases has increased, because we are given to understand on good authority that rocking methods are not being used in the Navy.

The Swallow

Dr. S. W. **Swindells** (Grimsby) writes: Your footnote (March 31, p. 470) interested me because when I used to climb the Pyrenees I got quite expert with the gourd and could hit the gullet without spilling a drop. You might perhaps have mentioned a reason for this extraordinary method of drinking. I think it was Belloc who said it was to avoid tasting the wine. Anyhow, it's a good reason; it's rather crude.

*** Especially on the Spanish side of the range.—Ed., *B.M.J.*

Scorpion Sting

Dr. **Frank Marsh** writes from Matlock: In the *Journal* of April 7 (p. 504) there is a note from Dr. E. G. Cohen on a case of scorpion bite. Scorpions *sting*, of course, with a hollow spine on the last abdominal segment. I have seen many hundreds of cases of scorpion sting. The severity of the sting varies with the age of the patient, the site of the sting, and the age and species of the scorpion. Bayer's (before the war) made a very good antiscorpion serum which was put up in glass pressure ampoules ready fitted with a hypodermic needle. This serum injected locally round the lesion was very beneficial. In the absence of serum 1 in 1,000 solution of potassium permanganate injected round the sting was effective. We did not use local analgesics or adrenaline. Children aged 2 to 5 years sometimes die after a scorpion sting—untreated. Bayer's serum saved many of their lives; none died after timely serum treatment. In adults the stings are often multiple; the first shows a circular area of necrosis, the second violent inflammation with a small necrotic spot at the centre, the third a mild inflammatory reaction, and the fourth just a puncture mark with a slight circumscribed reaction. One night I was wakened by—as I thought—a needle left by someone in the mattress. I turned on the light and investigated; a young yellowish-white scorpion 50 mm. from head to telson was lurking at the foot of the bed between the sheets. I had been stung three times: No. 1 the size of a bisected hen's egg; No. 2 the size of a pigeon's egg; and No. 3, just palpable. I adopted—from scientific interest—a "no-treatment" line; the pain vanished in 3/4 hour and I went to sleep. Next morning the affected buttock was a little stiff; 36 hours after the stings I woke very giddy, nauseated, with occasional vomiting, hot and cold by turns, and sweating. Symptoms passed off in two days leaving me rather weak. No other effects were observed except muscular cramps in the affected leg.

Sodium Sulphate Applications

Dr. F. **Gordon Cawston** (Durban) writes: Ready response to the application of strong sodium sulphate solution for aural discharge and even of magnesium sulphate solution for conjunctivitis confirms some reports in the *Extra Pharmacopoeia* and more extensive experience of these remedies for surface wounds and local swellings. I agree with those practitioners who do not favour the addition of glycerin, and consider that sodium sulphate solution loses much of its value if covered with jaconet.

Medical Aphorisms

F. C. writes with reference to Dr. Crawhall's inquiry (March 31, p. 470): Geoffrey Keynes, F.R.C.S., gives some aphorisms which appear in *St. Bartholomew's Hospital Journal* (July and Sept., 1933).

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SOME APPLICATIONS OF THE SURGICAL LESSONS OF WAR TO CIVIL PRACTICE

BY

W. H. OGILVIE, M.Ch., F.R.C.S.

Major-General

Now that the European phase of the second world war appears to be entering its final stages, it may be well to consider briefly what war has taught surgery and what it has taught surgeons, and how the lessons learned in the field can be applied to the teaching and practice of surgery in civil life.

The surgery of wounds in this war has passed through three phases. In the first, treatment by the closed plaster method was the rule; in the second, which was a period of long communications and poor supplies, wounds were excised and drained, the limb was immobilized in a padded plaster case or some form of plaster box splint, and closure by secondary suture or skin grafting was attempted about the third week, or as soon as the surface was covered with healthy granulations; in the third phase, which has been helped by the advent of penicillin, the wounds are excised by the forward groups and closed by delayed primary suture at the base between the fourth and the sixth day.

These successive steps should be regarded as a gradual evolution to meet changing circumstances rather than as an advance in method due to surgical enterprise. Each step was the right one at the time. The closed plaster method is safe and gives excellent results under desperate conditions, when the wounded arrive in numbers too great to allow frequent supervision after operation. Free drainage, immobilization without constriction, chemotherapy, and the provision of skin cover at a later date are the only possible line of treatment in a swiftly moving campaign where all supplies are poor and many days of rough travel separate the forward operating units from the base hospitals. Such conditions are liable to recur, and where they do three-hourly penicillin, wound dressing under theatre conditions, and all the ritual of war surgery in the British armies of 1945 would be out of the question. When, however, conditions become good in a surgical sense—that is, when advance is steady and retreat unthinkable, when air cover ensures good hospital facilities and uninterrupted supplies, when advanced surgical centres are well placed and well administered and base hospitals are within easy reach by a good evacuation route—early closure, by delayed primary suture or by skin graft, becomes the rule. Even better conditions prevail in civil traumatic surgery, for the injured usually receive their first-aid and definitive treatment at the same hospital, and we can expect that the same methods will prove their value.

Two-stage Closure

The policy of delayed primary suture is a return to that which prevailed in the closing years of the war of 1914–18, but there is one important difference. In the last war delayed primary suture led, in many centres, to the practice of primary suture. In this war primary suture has been condemned for all wounds except those of the head, face, and trunk, partly because it has been tried repeatedly and found more than wanting, still more because it transgresses those basic principles which each war teaches us afresh. Recent wounds freshly excised look so like clean operation wounds that inexperienced surgeons, and also experienced surgeons new to a theatre of war, are tempted to suture them; unfortunately, they sometimes succeed, and persist in spite of warning, till the loss of a limb or a life teaches them their lesson. Except in the case of purely surface injuries, war wounds can never be rendered entirely healthy and entirely sterile by surgical toilet. The limits of tissue damage cannot be decided with any accuracy, and bacteria, blasted in by the cushion of air that precedes the projectile or displaced along tissue planes by movements of the limb, may lie well outside the visible confines of the wound track. Where the bacteria are few and the remaining damaged tissues small in amount, the defences of the body will soon turn out the invaders unless they are hindered by tension. In a sutured wound the hyperaemia which should give protection is limited by the unyielding surroundings and finally replaced by ischaemia, and the outpouring of defensive fluids is brought to a standstill when the interstices of the wound are filled; the bacteria, on the other hand, find in the trapped discharges an ideal pabulum and in the anoxic tissues an easy prey.

The wounds of road and industrial accidents are, like those of war, lacerated and contaminated, though they never show the extreme devitalization that is a fundamental factor in the pathology of wounds caused by modern weapons, nor are they often contaminated to the same extent. Nevertheless the same problems are present in each, and methods which have been found to confer safety and give good results in war wounds should be safer and better in the traumatic surgery of peacetime. The wisdom of unrestricted drainage during the first few days after an open laceration, when an unprepared body is summoning its defences against an unexpected invasion by pathogenic bacteria, the value of closure by suture or skin graft as soon as the defences are established and before the changes of repair have come to leave their train of deformity, pain, scar tissue, and limited movement—these are principles that we cannot well afford to ignore.

The methods in use to-day are simple, as all methods in the field must be, and the tests applied are clinical ones. At the primary operation the wound is carefully excised. Foreign bodies and dirt are removed and all damaged tissues are cut away. The skin is freely incised to allow access to every pocket, but only the barest edges are trimmed off. A simple dressing, usually vaselined gauze, is applied to the surfaces of the open wound, and the limb is immobilized in plaster.

As soon as the patient reaches hospital the possibilities of suture are assessed by the study of his general condition and of the notes of the first operation. He is rested for one day, during which any deficiency in his blood count is made up by transfusion. The wound is not inspected. The dressing is removed in the operating theatre under full aseptic ritual as the first step in the operation of closure, which is usually on the fourth to sixth day. Experience has shown that if the wound appears clinically healthy at this stage it can be sutured safely, even though it may prove on culture to harbour pathogenic bacteria. The wound surfaces are disturbed as little as possible, though some tags or pieces of exposed tendon left at the primary excision may be trimmed away before closure. The skin is brought into apposition by interrupted sutures of some unabsorbable material, which may also take up deeper layers, but no buried sutures are used. The limb is again immobilized in a plaster case, and the stitches are removed on the tenth to twelfth day.

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Skin Cover

It has been found that at this interval after the primary operation a certain amount of tension may be used to approximate the skin without danger. A covering of normal skin with subcutaneous fat gives a result so much better than the best graft that every effort is made to approximate the edges, and this is generally possible over the greater part of the wound. Where the skin edges cannot be made to meet, many surgeons prefer to mobilize them as swinging flaps to cover the wound of the deeper parts, and to cover the gap thus produced, whose base is undamaged muscle, with a graft. Normal skin over scarred muscles or an epithelial graft over normal muscle is functionally more satisfactory than a skin graft over an underlying scar.

The need to provide skin cover at the earliest possible date is now an article of surgical faith that will remain. Not till a wound is epithelized does the formation of granulation tissue stop and the scar left by previous granulations become absorbed or moulded along lines of stress in response to the call of function; not till then does the fight against infection cease to be a constant struggle to keep away or kill pathogenic bacteria. The technique of skin grafting has been perfected to a remarkable extent and, for the simpler procedures, brought within the scope of the non-expert. For covering unhealthy granulations to provide temporary epithelial cover, split-skin grafts cut into small pieces—so-called "postage stamp" grafts—have proved more satisfactory to the recipient and donor areas than pinch grafts. For large areas the Padgett dermatome has made it possible to cut split-skin grafts of any chosen thickness up to an area of 40 sq. in., for smaller areas to cut them to any desired shape, and to take skin from places, such as the abdominal wall, that could not formerly be used. The method of glueing grafts to their bed by a living adhesive made from mixed plasma and leucocyte extract, as described by Sano of Philadelphia, has proved an outstanding advance, permitting the provision of skin cover to surfaces that cannot be immobilized and to deep and irregular holes.

I would suggest that the principle of two-stage closure may prove applicable to the treatment of infections other than those caused by wounds or accidents. For more than 20 years drainage in abdominal emergencies has been unfashionable. It has had a poor press. Phrases such as "The peritoneum can look after itself" and "A tube in the belly drains only its own track" are freely used by young surgeons who never drain if they can help it, and the dangers of adhesions, of faecal fistulae, of erosion of vessels are quoted in further support. I would challenge most of these statements. A healthy peritoneum can deal with a considerable amount of infection recently introduced, but the peritoneum in the neighbourhood of a chronic abscess has lost much of its phagocytic power. A tube introduced into the normal peritoneum of an experimental animal may seal itself off, but one put into the infected belly of a man goes on draining while there is anything to come out and allows egress to infected fluid in the whole region from which it emerges. Faecal fistulae or haemorrhages may have been caused in the past by rigid tubes of glass or hard rubber left for long periods, but they do not follow the use of soft tubing or corrugated rubber. As to adhesions: which will cause the more—a tube-track or a collection of fibrin or pus slowly absorbed? In three years of service in Africa I observed many hundreds of patients with abdominal wounds, operated on by surgeons of varying outlook under many different conditions. I found that those who drained most got the best results. Not to drain, when in doubt, is needless bravado at the patient's expense.

But if the peritoneum can look after itself in the presence of a recent infection the tissues of the abdominal wall are less able to do so. It is a common experience after an operation for appendicitis or duodenal perforation to find that the peritoneal cavity recovers but the abdominal incision becomes infected and breaks down. The lesson of the surgery of soft-tissue wounds in war may well be applied to those cases in which the layers of the abdominal wall have been bathed in infected fluid during an emergency operation. After the intra-abdominal mischief has been dealt with the peritoneum alone is sutured, and the remaining layers dressed with gauze soaked in flavine or one of the newer acridine antiseptics, but left entirely open, or at most protected from evisceration by a few stout sutures through all layers. In four days' time, preferably after the bowels have been opened, layer closure is done under local or pentothal anaesthesia.

General Health of the Injured

But the surgical care of a wounded man to-day implies, besides the treatment of his wound, the restoration or maintenance of the general health, on which the health of the wound depends, and an attack on the bacteria that invade it. We seek to help his general powers of resistance by restoring lost blood early and in full amount and making good any later deficiency as it occurs, by keeping fluid reserves fully charged at a time when synthesis, elimination, and temperature regulation are calling for water, and by maintaining that positive nitrogen balance which is essential to the processes of immunity and repair. We can, for the first time in history, attack bacteria in the wound itself without harming healthy tissues. These things are now so much a matter of everyday routine that it is hard to realize that at the outbreak of war continuous intravenous therapy was by no means universally practised, transfusion was seldom given in greater quantities than two pints a day, stored blood was a curiosity and stored plasma unknown, and the use of sulphonamides was being tentatively explored. Penicillin and accurate methods for bedside estimation of haemoglobin and plasma protein have been available only within the last two years. These methods will remain an essential part of the care not alone of our injured but of our sick in civil life.

Blood and Protein

That tissues require a supply of blood fully charged with cells and proteins to carry out their processes of repair, that the most effective antiseptic against anaerobic invaders is oxygen and the most effective applicator of oxygen is the erythrocyte—these are truisms when set down on paper; yet their truth has been realized only slowly, as the result of the clinical observations that men with a haemoglobin of less than 70% show little evidence of repair in their wounds but start to do so after a transfusion of two pints, that men whose blood loss has been fully restored within a few hours of wounding seldom get gas gangrene. Anaemia must be constantly watched for and suspected in any patient whose progress is unsatisfactory; for it tends to appear insidiously, quite apart from any recognizable blood loss, in the wounded, the burnt, the sick, the victims of any infection, not alone those by organisms known to be haemolytic, and to reappear after correction.

The greatest surgical advance of this war, more important even than penicillin, is the development of the transfusion service. This advance we owe entirely to two British officers —Brig. Sir Lionel Whitby, who designed the instrument, and Lieut.-Col. G. A. Buttle, who taught us how to use it. It was in the Middle East, during the thrust of the Eighth Army across Africa from Alamein to Tunis, that the provision of whole blood to the forward operating units was first organized on a satisfactory scale, and that the life-saving importance of early, rapid, and adequate restoration of blood volume in haemorrhage and shock was first learnt. To-day we know no limits, in amount or rate of administration, other than the needs of the patient. I need hardly remind you that plasma loss is the chief feature in burns shock, and that fat embolism and the absorption of products of muscle breakdown are occasional factors in the shock syndrome of injury. But for practical purposes—and the stretcher-side outlook of the field surgical unit and the accident reception ward must be practical —shock is due to loss of circulating volume, and wound shock is due to loss of blood. The treatment of wound shock is the replacement of lost blood by blood: early, before irreparable damage is done; rapidly—that is, at the rate of a pint in 10 to 15 minutes—till the systolic blood pressure has reached 100 mm.; and adequately, till the restoration is within 90% of normal. A wounded man insufficiently resuscitated, or one resuscitated with plasma alone, may have a reasonable pulse and blood pressure, but he is not fitted to stand operation or anaesthetic, to be sent on a journey, or to repel the invasion of bacteria. Fit men recently wounded can take any amount of O (IV) blood from a reliable blood bank;

reactions are seen only where the source of blood is unreliable, or in men who have, after repeated transfusions, developed antibodies against almost any blood but their own.

A transfusion service, with blood banks sufficient to meet any needs, must be available for the resuscitation of the injured and the restoration of the sick in civil life. It will hardly be possible to retain in its entirety that spirit of willing service for others that has bound us together during the war, and many who now attend four or five times a year to give their blood for the wounded will not volunteer with the same readiness in peacetime. Nevertheless if the importance of the service in any scheme of national health is broadcast in the right way, and if the collecting centres are managed with due regard to the time and comfort of those who attend, we need have no fear that the supply of donors will be insufficient for any genuine need. We, on our part, should see to it that transfusion is used freely when needed, but that it is never allowed to become a stunt or an automatic gesture. Since my return to England I have been distressed to see how many surgeons start a blood drip going at the beginning of such straightforward operations as gastrectomy or resection of the rectum. If the value of blood is in replacing lost blood, it should not be wanted during an operation unless severe haemorrhage is expected during its course, as when the patient has a bleeding ulcer or a vascular tumour. The surgeon who expects to lose two pints of blood during a gastrectomy (and a smaller loss does not demand immediate transfusion) should confine himself to circumcision. If the patient is anaemic on admission to hospital the blood deficiency should be fully made up before the operation starts; if during its course he loses more than usual, replacement should, in most cases, be deferred till his reaction to the anaesthetic and operative handling is over and his circulatory requirements can be assessed, calmly and accurately, in the ward.

The need to maintain a positive nitrogen balance during sickness has long been known, but it was not till the publication by van Slyke of a simple copper sulphate method for bedside estimation of plasma proteins that the importance of the study of protein metabolism in clinical medicine received full recognition. The circulating proteins include the antibodies, and they furnish the building material needed for tissue replacement. They are constantly being used, and constantly renewed from proteins in the food. Normal wastage is added to by actual loss in wounds and burns, and when in addition the intake is low, as it is in starvation or during a diet low in proteins as the average invalid diet is wont to be, the protein content of the plasma may sink from its normal 6.7% to not more than half that figure. At this level the whole metabolic machinery is out of gear.

Proteins may be replaced in many ways, of which the simplest is a diet rich in eggs, cheese, and other easily absorbed proteins. In the ill, transfusions of plasma furnish an easy means of replacement. When the need is extreme the intravenous administration of amino-acids can maintain a positive nitrogen balance even in the presence of excessive loss or destruction. By such means some of the victims of the Coconut Grove fire at Boston, who had suffered burns involving more than 50% of their body surface, were kept alive till their skin loss could be made good. More recently the value of intravenous amino-acids in combating liver damage has been shown. At the present time pyrogen-free preparations suitable for intravenous use are scarce and are therefore kept for research purposes, but they will soon be obtainable by all who need them.

Chemotherapy

The value of war as a large-scale experiment in which new methods can be tried and improved is seen particularly in the field of chemotherapy. From a tentative beginning, when we had only sulphanilamide and sulphapyridine and knew little of either, we have progressed by the observation of hundreds of thousands of experiments to a reasoned estimate of the value of both the sulphonamide group and their newer and better-publicized rival, penicillin. No more than a few general observations are possible on this occasion.

Both the sulphonamides and penicillin are bacteriostatic rather than bactericidal. When distributed by the blood stream they reach only those parts which have a blood supply; when applied locally they are effective only in areas they can reach. Neither can therefore be expected to eradicate bacteria lying out of reach of the blood stream and of local attack, as they are in abscess cavities, round foreign bodies, and in the depths of a wound containing dead tissues. Meleney's very careful investigation of 1,700 accidental injuries treated in American hospitals has shown that the sulphonamides, however given, are unable to prevent local infection in a contaminated wound, but that when given by mouth they appear to reduce the incidence of systemic infection. The same may be found to be true to a lesser degree of penicillin. Applied locally, it appears to exert a definite bacteriostatic effect when injected into simple spaces like the meninges, the joints, and the pleura, but its power to sterilize lacerated wounds is by no means proved. In general it may be stated, as Burns has recently pointed out with regard to penicillin, that chemotherapy keeps a local infection local, and will therefore reduce the danger of spreading infection in war wounds and of a systemic flare-up after an operation on infected areas.

Both groups at present have their own sphere. The sulphonamides are cheap, stable, and compact. They can be kept indefinitely and used in any climate, and simple clinical controls alone are needed during treatment. Their disadvantages are the malaise and nausea to which they occasionally give rise, and the dangers of agranulocytosis and renal suppression, which, however, should not occur when the danger is known and guarded against.

Penicillin is a more efficient bacteriostatic than any of the sulphonamides over a wider range. Staphylococci and spirochaetes, against which sulphonamides are ineffective, are particularly sensitive to its action. It appears to bring no dangers, and to be entirely innocuous to human tissues, even in concentrations much higher than any used in clinical work The disadvantages of penicillin are its instability and the elaborate control that is necessary in its use.

At the present moment the sulphonamides are preferred for infections by the *B. coli* group, which are sulphonamide-sensitive but penicillin-resistant; they will therefore usually be chosen for the post-operative treatment of peritonitis and for the pre-operative prophylaxis in such procedures as closure of a colostomy and resection of the colon or rectum. They are the drugs for treatment in the home and in the wilds, and for lesser infections when it is not considered necessary to mobilize the heavy artillery of the bacteriological laboratory. As soon as penicillin can be produced cheaply and in a stable form that can be given by mouth, the sphere of sulphonamides will almost disappear, unless fresh compounds are found which will cover blind spots in the penicillin range.

Penicillin has already written a new chapter in certain infections. In gonorrhoea it has been able, in a 24-hour course, to give a higher percentage of cures than any method of treatment previously known. In syphilis it appears to do the same, but a much longer period must elapse before it can be said that the disease has been cured and not merely suppressed. In the acute osteomyelitis of children it is able, when given early, to eradicate the infection and allow the involved bone to reconstitute its normal architecture. In the surgery of damaged and infected bone it has given what is perhaps the most striking proof of its value. Gunshot fractures have, under the protection conferred by penicillin, been closed by delayed primary suture with a high proportion of success. Gaps following compound fractures have been grafted as soon as, or even before, the wound was healed. Compound fractures have been fixed by plates, and reamputations have been performed while the provisional stump was still discharging. These procedures had been attempted before, but the attempt had usually led to failure or even disaster. That they now succeed is an index of the debt we owe to penicillin.

Old Methods on Trial

If war is a trial ground for new methods it is also able to throw a new light on many old ones. In the last five years the problem of the infected hand has once more come to the fore. A soldier with a wrecked hand can no longer serve as a soldier, and the months of physical and vocational training that have gone to make him one are wasted. When the hand has been wrecked through faulty incisions for the drainage of sepsis the tragedy is one that emphasizes the supreme importance of this branch of surgery in the training of students.

I feel most strongly that the inculcation of correct methods for dealing with infections of the hand is one of the chief tasks of teachers on the surgical side of any hospital. The curriculum is already overloaded. Important subjects such as psychology and radiology are skimped, and new subjects are constantly clamouring for admission. To make room for these I, for one, would gladly remove the whole teaching of operative surgery, including attendance at operations, from the pre-graduate course. The student cannot learn enough in such attendances to be of any value to him; on the other hand, he is present as an unskilled assistant or an unsterile spectator at a performance which should be relegated to a team of skilled experts. He gets a superficial acquaintance with a few operations and does not learn enough to do them himself, but, thinking he has, he may be tempted to try them before he is properly trained.

The ritual of the theatre, and the gradual apprenticeship of undertaking operations of increasing difficulty, should be left to the postgraduate training of those who intend to pass to higher qualifications and to adopt surgery as a career. The student, thus freed, should spend the time at his books or by the bedside, or should watch occasional standard operations from the safe seclusion of an observation floor. But the operative treatment of the infected hand is an exception. The correct operations should be taught to every future doctor; they should be practised on the cadaver and demonstrated in the casualty department. Only so can the hand wrecked by incompetent treatment, by drainage left too late or done through midline incisions for pulp or tendon infections, or by dorsal incisions for infections of the tissue spaces, be avoided. Here I would plead for the final abolition of two methods of drainage still advocated in some books but proved by the extensive experience of war to be disabling. I refer, first, to the horseshoe incision round the pulp of the finger, which after healing leaves a hideous and disabling "frog-mouth" deformity: two lateral incisions meeting across the front of the bone and separated by an intact bridge of skin at the tip give just as effective drainage and leave no disability. Secondly, I refer to incisions into the tendon sheath of the fingers, which, though placed in the correct lateral plane, transgress the joint level: incisions may be made into the sheath for the whole length of each phalanx, but the thin portion which holds the tendon in place at the joint should be left.

Varicose veins provide another common and disturbing problem in the Army. I have come to feel—and most other consultants who see these cases in large numbers agree with me—that the injection treatment has no place in the Services; indeed, I would go further and say the time has come to consider seriously whether the injection treatment of veins has any place in legitimate therapy. For those who would dally on the slippery slopes of cosmetic surgery it has its attractions, for it is a cosmetic procedure and no more. The injection of a prominent vein will cause that vein to disappear, but it does nothing to relieve the back-pressure that made it appear in the first place. The same back-pressure will soon dilate another collateral vein, which will in turn be attacked by the injecter, till finally all veins in the leg, including many of the deep ones, are destroyed and the patient is left with a heavy, aching, and oedematous limb. To-day many of the victims of the injection craze of the 'twenties are coming to the out-patient departments of hospitals seeking in vain for relief.

The only successful treatment for true varicose veins which are causing symptoms is Trendelenburg's operation, properly done. Unfortunately the very simplicity of the operation tempts the cosmetically minded to perform inadequate ligatures through small incisions, and the hangover from injection days tempts him to obliterate the veins in the calf by sclerosing fluids. Unless every collateral in the upper two inches of the saphenous vein is tied—and these may be up to 20—and unless the vein is tied flush with the femoral, recurrence is only too likely. Injection of the calf varices, particularly retrograde injection down the saphenous channel, is a frequent cause of failure, for either the sclerosing fluid is diluted in the varices to a concentration at which it is ineffective or it spreads through the communicating veins and damages those under the deep fascia. Surgical extirpation is tedious, but is the safest and most satisfactory way of destroying these calf varicosities without harming the deeper channels.

Surgeons and Surgical Organization

What of the war surgeon himself—the man we shall know by the British warm, dyed blue, in which he drives around, and by the battle dress he dons for fishing and digging in the garden? What has he learned from his years in the Army, the Navy, the Air Force?

The war has taken men to so many parts of the world, from the frozen mud of Iceland to the scorching sands of Somaliland, and thrown them into campaigns of so many kinds—the shattering horror of Crete or the soul-destroying idleness of the Sudan hinterland—that generalization is impossible. The surgeon who is reasonably fortunate will have served a spell in the forward areas, with a field surgical unit or a casualty clearing station, and he will also have worked at a general hospital at the base or on the lines of communication.

In the forward areas he learns the importance of decision, the need to decide not merely the right procedure but the right time to do it, the realization that there is only one best time for any operation and that, once past, it will never come again. He learns that while a decision may be the right one on the facts as they present themselves when it is made, in the seriously ill or wounded facts are never static but are changing in either direction, so that a course of action that is right at one moment may have to be reversed an hour later. He acquires manual skill, anatomical knowledge far transcending the surgical approaches of textbooks, speed without haste, courage, and physical endurance. He learns to look on the operation as part of a plan of restoration of which it is by no means the most important one, to make allowances for the difficulties of those who have gone before him, and to plan his steps to make the work of those who will follow him easier and more satisfactory. He learns, in the comradeship of the battlefield, to love and respect the patient, Thomas Atkins, who has given all and suffered all, and to resolve all doubts and difficulties by reference to one standard alone—"What is best for this particular man?" He learns, by long periods of work to this high standard, self-respect and self-confidence, without which no surgeon can carry on through the dark days when everything seems to go wrong.

At the base he learns to work as part of a team in his own hospital, as part of a system in the Service of which his hospital forms a part. He finds that he is encouraged to work individually and to put forward his own ideas, but he soon realizes the justice of the control which forbids him to use methods that have been tried and proved dangerous, which discourages him from asking for drugs or instruments as his fancy dictates when the supplies of an army in the field can be made efficient only by some degree of standardization, which gives him every opportunity to study the work of specialist teams so that he shall be able to undertake surgery of every kind should he be put in charge of a unit isolated by time and distance from any help, but debars him from doing intricate operations when others with greater skill and experience and better equipment and assistance are available.

Much that is good in this training and this organization can be applied with advantage to the problems of peace. The chief difference between civil surgery and Service surgery is that the former is based on a loose association of individuals all of whom are free and, in theory at any rate, equal, while surgery in the Services is organized on the principle of the pyramid of responsibilities—a number of experienced surgeons being each responsible for observing, guiding, and encouraging a group of surgeons at a junior level, for co-ordinating their work, and for bringing the lessons they have learned to the notice of those at a higher level. The civil system has the great merit of allowing men of energy and ability to reach the top even though they enter surgery from unorthodox and perhaps despised channels, but it does little to curb or eliminate the incompetent. In the struggle for existence in Nature failures pay for their inefficiency by extinction; but in the free-for-all fight of civil surgery the incompetent and second-rate are unhonoured but are not debarred from practice, in which, if they have a good sales personality, they may be financially successful.

With the advance of technical surgery to the undertaking of feats of greater and greater difficulty, needing not merely the highest technical skill and anatomical knowledge but the design of a plan embracing the whole pre- and post-operative period to eliminate risks that have brought disaster in the past, the difference between the results of the expert and the would-be expert is increasingly apparent. To-day there is nothing to prevent any surgeon on the staff of a hospital—indeed, any man who has secured a legal qualification to practise—from attempting to pin the neck of a femur, resect a carcinoma of the oesophagus, remove a tumour of the brain, or tie a patent ductus arteriosus, without any more valid qualification for the task than boundless self-confidence and a cursory perusal of an article in one of the journals. The system has in the past produced some brilliant surgical freelances; it has also filled innumerable graveyards.

It seems inevitable, in a world where the rights of the individual will be acclaimed in a universal charter, that the individual who is sick must be assured of a service that is, at any rate, above a datum line of adequate competency. It would be folly in the extreme to attempt to limit surgical enterprise by setting certain standards of orthodoxy which must be followed by all. But it would be less than justice to the patients for whom we stand responsible to allow free rein to the enterprise of the type of surgeon known as courageous—courage in this context meaning willingness to face any risk so long as it is borne by the patient. We must insist that no man shall undertake any of the more hazardous operations till he has been trained for it by apprenticeship in simple tasks, till he has studied its steps in the clinics of acknowledged masters, and till he has practised it under supervision.

The pyramid of responsibility must be the key to our surgical organizations—not the hard and static Pyramid that stands on the Nile as a monument to past oppression, but the human pyramid that forms the finale at the circus, where the man at the top, who is usually the father, is hoisted up and supported by a willing phalanx below, where he feels the stresses of each member transmitted to him and encourages or chides as the performance of the night demands, but where, at the end, he brings all forward to take the bow.

AN OUTBREAK OF HEPATITIS IN A DIABETIC CLINIC

BY

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From Jan., 1943, until Jan., 1945, 63 diabetic patients attending the clinic at the Royal Hospital, Sheffield, have been diagnosed as suffering from hepatitis. The clinic supervises approximately 450 patients of all ages; elderly females preponderate.

Prodromal Symptoms

Anorexia, loss of weight, and vomiting were often encountered. Vague abdominal pains set a diagnostic problem until the full clinical picture developed. Tingling of fingers and neck rigidity may have been early neurological manifestations (Lescher, 1944). Enlargement of the liver, with tenderness, was noted in 30 patients. The organ was firm, the edge blunted and tender. Splenic enlargement was evident in three patients. In one the spleen was felt 2 in. below the costal margin; in the other two the tip could be felt. Two patients showed macular skin rashes 24 hours before the jaundice appeared and 11 had stiffness of joints.

TABLE I.—*Duration of Prodromal Symptoms before Appearance of Jaundice*

No figures available	8 patients
1–3 days	4 „
4–6 „	7 „
7–9 „	18 „
10–12 „	9 „
13–15 „	8 „
16 days and over	9 „

TABLE II.—*Clinical Features in 63 Patients*

Enlargement of liver	30
Enlargement of spleen	3
Anorexia	53
Loss of weight	47
Vomiting	38
General malaise	14
Stiffness of joints	11
Fever	6
Diarrhoea	6
Pruritus	3
Macular rash	2
Tingling in fingers and neck rigidity	2
No symptoms	2

Course and Complications

Immediate complications occurred in a number of cases owing to the sudden disturbance of carbohydrate metabolism. The disturbance was akin to that seen in diabetics suffering from any infectious disease. The lowering of carbohydrate tolerance and ketosis occurred mainly in younger people, and were temporary. Insulin had to be increased and the diets altered to suit patients who had no desire for food.

Another complication was acute atrophy of the liver. Two patients died from this. One patient showed acute shrinkage of the liver one day after the jaundice became manifest. She recovered, but the severity of the diabetic state has permanently increased, and instead of 60 units of insulin she now requires 120 units. Apart from this she has kept well for the last 18 months.

Delayed complications occurred in 8 cases. They were associated with the persistence of the jaundice for some time and the transition from acute to chronic hepatitis. Two patients died. The 6 who are alive are in various stages of ill-health.

TABLE III.—*Deaths and Cases of Chronic Hepatitis*

Case	Age	Duration of Jaundice	State of Health
1	27	7 days	Died. Acute yellow atrophy (confirmed at P.M.)
2	56	16 „	Died. Subacute atrophy (confirmed at P.M.)
3	73	240 „	Died 300 days after onset of jaundice. Cirrhosis of liver. No P.M.
4	64	90 „	Died 110 days after onset. Cirrhosis of liver (confirmed at P.M.)
5	62	180 „	Severe ascites; 190 pints removed so far
6	67	90 „	Liver no longer palpable. Anorexia. No free fluid
7	65	300 „	Liver 1 in. below costal margin. Anorexia
8	65	105 „	Liver no longer palpable. Liver function tests remain abnormal. Feels quite well
9	67	120 „	Liver 2 in. below costal margin. Anorexia
10	58	110 „	Anorexia; backache. Liver small and nodular (confirmed at laparotomy). Ascites and oedema of legs absorbed

Patients suffering from chronic hepatitis showed little disturbance of carbohydrate metabolism. They all required small doses of insulin before the onset of hepatitis, and continued with them afterwards. There was neither ketosis nor excessive glycosuria.

There appears to be a relation between duration of jaundice and failing liver function. There is also a direct relation between the age groups and the duration of jaundice.

TABLE IV.—*Age and Duration of Jaundice*

Age	Duration in Days									
	10	20	30	40	50	60	70	80	90	100+
–9	1									
10–19		1	1							
20–29	1		1	1	1	1				
30–39		1	2	2						
40–49			4		1	2				
50–59		4	3	3	2		1	1		
60–69		1	2	3	5	2	1	1	2	6
70+			2	2			1			1

In 49 cases jaundice cleared in under 2 months, with an average duration of 33 days. Six patients in whom the jaundice lasted for 3 to 8 months have apparently recovered completely, 6 are still ill, and 2 died after 300 and 110 days' illness respectively.

It is noteworthy that all the chronic hepatitis cases and all but one of the deaths occurred in persons over 55 years of age. The age and sex incidence of cases (Table V) shows a preponderance of older patients, and it is possible that age as well as diabetes played a part in producing the high incidence of fatalities and chronic hepatitis.

Table V.—*Age and Sex Incidence*

Age in Years:	0–	10–	20–	30–	40–	50–	60–	70–	80+	All Ages
Male ..	1	—	4	3	2	—	6	1	—	17
Female	1	2	3	3	4	13	16	3	1	46
Total ..	2	2	7	6	6	13	22	4	1	63

Method and Spread of Infection

The cases of hepatitis might have been due to infective hepatitis spreading by contact among patients attending the clinic or to homologous serum hepatitis (Ministry of Health Memo, 1943) spread by syringes used for collecting blood. Certain data are presented and analysed in order to investigate these possibilities.

Organization of the Clinic.—It has been the practice of this clinic to let the patients attend periodically. They arrive in the fasting state in a large out-patient hall, and sit on benches, which are usually overcrowded on clinic mornings (60 to 70 patients may attend). They queue slowly to have their weights recorded and then have venous blood drawn for blood-sugar estimations. The sister in charge of the collection of blood draws it, using a fresh needle on each patient. The needles are boiled for 20 minutes. The syringes are never boiled, but are kept in spirit and rinsed in sterile water before use. The patient returns to the out-patient hall, perhaps getting some tea from the buffet, has his breakfast, and awaits the medical interview. Thus there were opportunities in the clinic for spread either by contact or by syringes.

Monthly Incidence of Cases.—Table VI shows the number of cases occurring in each month from Feb., 1943, to Dec., 1944. The incidence increased in June, July, and Aug., 1943, decreased during the next three months, and rose to a sharp peak in Dec., 1943.

Table VI.—*Monthly Incidence of Cases*

	J.	F.	M.	A.	M.	J.	J.	A.	S.	O.	N.	D.	Total
1943 ..	—	2	1	1	3	5	6	6	4	4	3	11	46
1944 ..	2	—	1	1	2	2	1	3	3	—	—	2	17

Owing to the irregularity of attendance, and consequently of contacts between cases, no conclusions as to the method of spread of infection can be drawn from the monthly incidence.

Contact Between Successive Cases.—The possibilities of contact between cases were studied on a chart of attendances at the clinic. It was assumed that cases were infectious during a fortnight before and a fortnight after the onset of illness. In 7 cases the incubation period might have been 20 to 40 days, and in 23 others it might have been 41 to 120 days. In 4 cases the incubation period might have been either 20 to 40 or 41 to 120 days. Thus 11 cases could be accounted for on the basis of the 20–40-day period found in infective hepatitis, and 23 cases on the 41–120-day period found in homologous serum hepatitis. The latter number might have been increased by assuming a longer period of infectivity in the infecting case. Thus, in just over a third of the cases there was a possibility that the incubation period was that which usually follows parenteral administration of icterogenic serum (Havens, Paul, and van Rooyen, 1945). On the other hand, there were 7 cases in which the incubation period might have been 20 to 40 days, and it is impossible to dismiss completely the idea that some of the cases may have been due to contact-spread of infective hepatitis.

Similar conclusions are suggested by two instances of apparent spread to contacts who did not attend the diabetic clinic.

1. Girl aged 17, admitted in pre-coma. Jaundice appeared next day. A nurse in charge of this patient came down with a sharp attack of hepatitis 30 days later; it lasted three weeks. The nurse had a bad relapse lasting several months.
2. Man aged 26, admitted with hepatitis and ketosis. His wife developed jaundice 51 days later.

The incubation period in the first case suggests that the disease was infective hepatitis, while the second is perhaps another instance of the long incubation period occasionally observed in the contacts of cases of homologous serum hepatitis (Propert, 1938; Beeson, Chesney, and McFarlan, 1944; Neefe *et al.*, 1944).

Two patients were possibly infected at home.

1. Mrs. A., aged 66; lives with her married daughter. Her son-in-law had jaundice in mid-June, her daughter in early August, she herself 27 days later.
2. Mrs. B., aged 63; nursed her daughter, who had jaundice. She developed it 56 days later.

Mrs. A.'s was almost certainly a case of infective hepatitis, while Mrs. B. might have been infected by a missed case at home or by contact or syringes in the clinic.

The epidemiological picture of this outbreak was complex, and it appears that both contact and syringe transmission occurred. There were no instances of second attacks to suggest the activity in this epidemic of two immunologically distinct icterogenic agents, and the data available suggest an identity rather than a difference between the agents of infective hepatitis and homologous serum hepatitis. This may, however, apply only to the present epidemic, because other workers have recorded data suggesting differences between the agents (Witts, 1944; Beeson, Chesney, and McFarlan, 1944).

Discussion

Graham (1938) published the first account of an epidemic of jaundice in a diabetic clinic. He saw 28 cases in two and a half years. Overcrowding, considered one of the important contributing factors, was abolished and the epidemic quickly subsided. Cameron (1943) and MacCallum and Bradley (1944) showed that the virus of infective hepatitis could be transmitted by intravenous injection of icterogenic serum taken from a case during the pre-icteric stage and the early days of the jaundice. The present epidemic occurred at the time of a high incidence of the disease among the general population. There was also some overcrowding, which was intensified by the queueing for weighing and bleeding. As the blood was collected in syringes which were not boiled, it is possible that small amounts of infective material might contaminate the needles (MacCallum and Bauer, 1944; Cameron, 1943; Salaman *et al.*, 1944). The sister in charge of bleeding also gave injections at the V.D. clinic. There was no transfer or exchange of syringes between the two clinics, which are in different parts of the hospital.

In view of the possibility that infected syringes were the cause of the epidemic, all routine blood-collecting was stopped after Sept. 1, 1944, and only special cases were bled. The number of blood samples was thereby reduced from 50–70 to 5–8. The technique of drawing blood has not been changed. Since then only one case has appeared after an interval of 93 days. With the abolition of routine blood-collecting, overcrowding also diminished and, one supposes, the coincident droplet infection with it. There was less waiting and queueing, and the patients did not stay quite as long, because they took their breakfast at home.

The unusually high death rate and incidence of chronic cases compared with other outbreaks compels one to consider whether dietary factors came into play (Cullinan, 1939; Snapper, 1941; György and Goldblatt, 1942; McLean, Ridout, and Best, 1937; Aylward and Holt, 1937).

Since the advent of the slow-acting insulins the diabetic diets have been steadily increased. The diets used at this clinic are not high-carbohydrate diets in the strict sense. According to severity, age, and occupation, 120 to 200 g. of carbohydrate is taken each day. The diabetics who contracted jaundice had made use of their special meat and fat rations. They received 70 to 100 g. of protein and 100 to 150 g. of fat. Family rations were encroached upon by all the patients questioned. There is, in fact, no evidence to show that in these diabetics liver damage could be caused by dietary restriction or excess alone. On the other hand, there seems to be no doubt that insufficient diets may protract and aggravate liver damage caused by hepatitis. In the elderly diabetics who developed chronic hepatitis food intake had been poor and nutrition had suffered accordingly.

Summary

An outbreak of hepatitis in a diabetic clinic extending over two years and involving 62 patients is described. There were 4 deaths, and 6 patients were left with evidence of residual liver damage.

My thanks are due to Dr. C. G. Imrie, under whose care the patients were at the diabetic clinic, for permission to publish this paper; to Prof. L. J. Witts for much helpful criticism; to Dr. H. J. Barrie for permission to quote from his post-mortem reports; and to Dr. A. M. McFarlan for his help with the section on the method of spread of infection.

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TRANSMISSION OF INFECTION DURING WITHDRAWAL OF BLOOD

BY

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It is now generally realized that jaundice may be transmitted by syringes used for intravenous therapy if the syringes are merely rinsed with sterile water between cases and not sterilized by heat. Bigger (1943) showed that it is extremely difficult to sterilize a syringe by rinsing it even with antiseptics, and Salaman and co-workers (1944) reduced the incidence of jaundice in a V.D. clinic to vanishing-point by using properly sterilized apparatus for each individual patient. It is not so generally appreciated that there is almost equal risk of transmitting disease by syringes used for venepuncture. Sheehan (1944) attributed a long-drawn-out epidemic of jaundice in a sanatorium to transmission by the syringes used for taking blood for erythrocyte sedimentation rates, and in the present number of the *Journal* (p. 623) Droller records an outbreak of jaundice in a diabetic clinic which appears to have been in large part due to transmission by the syringes used for obtaining venous blood for estimation of blood sugar.

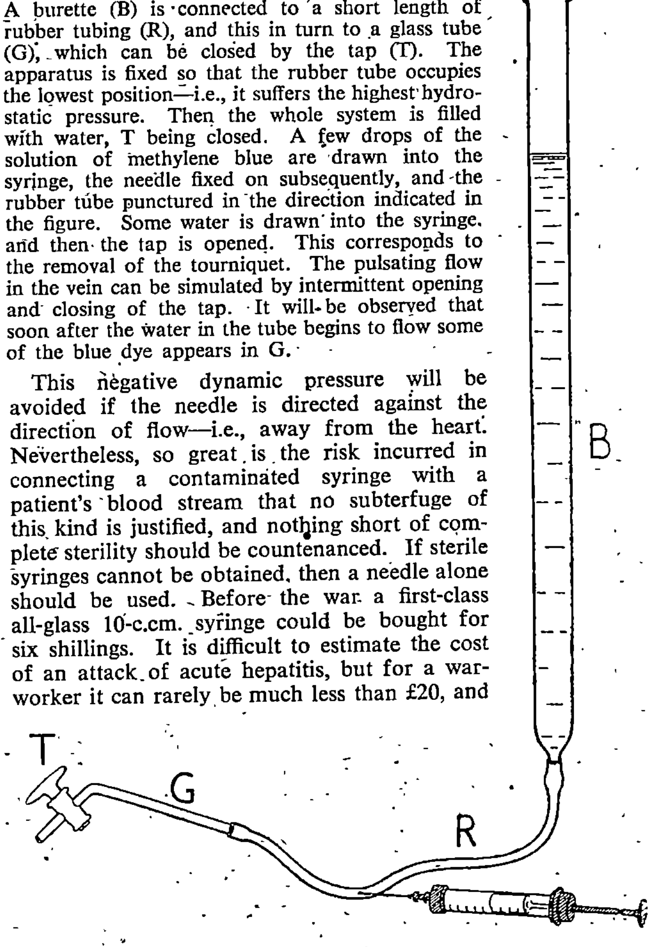
The orthodox method of taking a venous blood sample with a syringe consists in first placing a tourniquet on the upper arm to produce venous distension and then puncturing a vein at the bend of the elbow, inserting the needle in the direction of the heart. Blood enters the syringe under pressure from the vein, and a sample is taken by gently withdrawing the plunger. When the desired amount is collected the tourniquet is released and the needle withdrawn from the vein. Throughout the procedure direct contact with the vein is established by means of the sterile needle only, and since during the whole operation the pressure in the vein has been higher than that in the syringe it is assumed that no flow of blood can have taken place from the syringe into the vein.

In Droller's clinic the same syringe was used for all the patients bled on any one morning. It was washed out between cases and the needle was changed. It may appear strange that infection should have occurred through the syringe, though there is obviously a possibility that, unless great care is taken in changing needles, some of the contents of the wet syringe may be forced up the lumen of the needle and contaminate the point. But even if every precaution is taken in fitting the needle, some of the contents of the syringe not only can but *must* be discharged into the patient's vein during the venepuncture, and therefore material must inevitably be transmitted from one patient to another if the syringe is communal and unsterilized. This can very easily be proved by deduction or experiment.

The hydrostatic pressure of a fluid is equal to the actual pressure only if the fluid is at rest. Apart from its hydrostatic pressure, a fluid in motion exerts also a *dynamic* pressure, which depends on the speed and the direction of flow and which can have positive and negative values. In venepuncture the tourniquet must be released before the needle is withdrawn, to avoid the formation of a haematoma, and this is the determining factor in the transmission of infection. The operator ceases to exert traction on the piston of the syringe at this point, particularly if he is working single-handed. A flow of blood takes place in the vein when the tourniquet has been released, and this flow occurs in the direction in which the injection needle points—i.e., it causes a *negative* dynamic pressure in the opposite direction. As soon as this negative dynamic pressure attains a higher value than the static-pressure difference between vein and syringe, blood must flow from the syringe into the vein. In other words, the flow of blood in the vein sucks some of the contents of the syringe into the vein against the static-pressure head, very much as the contents of a throat spray are drawn up into a passing stream of air. It is clear that if the syringe was contaminated the contaminant will be drawn into the vein together with blood from the syringe.

The effect of the negative dynamic pressure can be demonstrated by substituting for the vein a tube filled with water, and for the contaminant a concentrated solution of methylene blue (see Fig.) A burette (B) is connected to a short length of rubber tubing (R), and this in turn to a glass tube (G), which can be closed by the tap (T). The apparatus is fixed so that the rubber tube occupies the lowest position—i.e., it suffers the highest hydrostatic pressure. Then the whole system is filled with water, T being closed. A few drops of the solution of methylene blue are drawn into the syringe, the needle fixed on subsequently, and the rubber tube punctured in the direction indicated in the figure. Some water is drawn into the syringe, and then the tap is opened. This corresponds to the removal of the tourniquet. The pulsating flow in the vein can be simulated by intermittent opening and closing of the tap. It will be observed that soon after the water in the tube begins to flow some of the blue dye appears in G.

This negative dynamic pressure will be avoided if the needle is directed against the direction of flow—i.e., away from the heart. Nevertheless, so great is the risk incurred in connecting a contaminated syringe with a patient's blood stream that no subterfuge of this kind is justified, and nothing short of complete sterility should be countenanced. If sterile syringes cannot be obtained, then a needle alone should be used. Before the war a first-class all-glass 10-c.cm. syringe could be bought for six shillings. It is difficult to estimate the cost of an attack of acute hepatitis, but for a war-worker it can rarely be much less than £20, and for a trained soldier it must be much more. It is therefore penny wise and pound foolish to economize in sterile syringes; but false economy of this kind is still much too prevalent in civil and military clinics and hospitals. The infecting dose of the virus of infective hepatitis is probably of the same order of size as some of the larger protein molecules, and a little contamination with this virus can go a very long way. A venepuncture, whether for taking blood or injecting drugs, is a minor operation, and there is no excuse for any lapse from the classical principles of sterility.



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Summary

When blood is taken from a vein with a syringe by the orthodox technique some of the blood is sucked back into the vein when the tourniquet is released. If, therefore, the syringe is not sterile the patient is exposed to infection.

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IRON-DEFICIENCY ANAEMIA IN NORTH-WEST INDIAN SOLDIERS

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Little work has been done on iron-deficiency anaemia in India, and that entirely on the rice-eating labourer. Although anaemia is universal in this class (Macdonald, 1939; Napier and Das Gupta, 1942), it is scarcely improved by iron (Napier and Das Gupta, 1936; Bhave and Bopaiya, 1942). Even heavy hookworm infestation does not always increase anaemia in these people, although labourers with severe anaemia, whether macrocytic or microcytic, are more commonly heavily infested than their fellows (Napier and Billimoria, 1937; Napier and Das Gupta, 1937; Napier and Majumdar, 1938; Hare, 1940). The discovery, reported in this paper, of widespread mild iron-deficiency anaemia in North-West Indian soldiers is therefore of some interest.

Material and Methods

This work was carried out in the district of Peshawar (North-West Frontier Province) from Feb. to June, 1944. Some 1,400 men from six regiments were examined. All were natives of North-West India, and included Sikhs and Mohammedans from Patiala; Mohammedans, Jats, and Hindus from Rajputana; Mohammedans, Sikhs, Jats, and Gujars from the Punjab; and Pathans. The men were unselected, and all were regarded by their units as fit for active service. All had served more than one year, and two-thirds were in their second or third year of service.

Only the capillary blood haemoglobin of most of the men was estimated, but full haematocrit determinations were done on venous blood from 341 men. These latter were selected according to their (capillary blood) haemoglobin values, with weighting of the higher and lower haemoglobin classes; but they were in all other respects representative of the whole group.

Blood, whether from finger or vein, was drawn without stasis; Wintrobe's dry oxalate mixture was used for venous blood. Haemoglobin was estimated as acid haematin; the Zeiss haemometer, which has a glass wedge standard, was used, recalibrated to a maturation time of 20 minutes. (This instrument was calibrated against van Slyke blood-oxygen-capacity determinations in London in 1939. The only comparison available in India in 1943 was with various Adams and Hellige haemoglobinometers; there was good agreement.) Adams haemoglobin pipettes were used. For red cell counts, two Zeiss-Thoma chambers were charged from the same pipette, and about 500 cells counted on each; if the totals for the two chambers differed by more than 10% a new pipette was filled and the count was repeated. Adams and Zeiss red-cell-counting pipettes were used. The packed cell determinations were done in Wintrobe haematocrits; 45 minutes' spinning at about 3,000 revolutions a minute gave a constant reading.

Stools were examined for hookworm ova by the usual gravity flotation technique, in which about 1 g. of faeces is suspended in 10 ml. saturated saline. The number of ova per microscope field (1/3-in. objective, × 6 ocular) was counted, and the infestation roughly classified as very light (1 egg per 6 or more fields), light (1 egg per 2–5 fields), moderate (1–4 ova per field), or heavy (more than 5 ova per field).

Results

Table I.—*The Distribution of Hb Values (Capillary Blood) among North-West Indian Soldiers*

	Haemoglobin (g. per 100 ml.)											Total	Mean	σ
	6–	7–	8–	9–	10–	11–	12–	13–	14–	15–	16–			
No. of cases ..	1	2	5	13	43	131	256	417	361	113	14	1,356	13·42	1·371
Per cent. ..	0·5			1	3	9·5	19	31	27	8	1			

The capillary blood haemoglobin distribution is shown in Table I. No significant difference was found between units, religions, or castes. Only one-third of the men had over 14 g. haemoglobin per 100 ml.; 14% had less than 12 g., and 5% less than 11 g.

Table II.—*Blood Counts of North-West Indian Soldiers (Venous Blood), Grouped according to the Hb Level*

Hb Class	No. of Cases	Hb (g.) Mean	R.B.C. (M./c.mm.)		Haematocrit		M.C.V. (c.μ)		M.C.H.C. (%)	
			Mean	σ	Mean	σ	Mean	σ	Mean	σ
7–	5	7·5	3·9		31		82		24·5	
8–	4	8·3	4·5		34		80		24·5	
9–	9	9·3	4·7		36		78		25·7	
10–	17	10·6	4·9	0·67	39	2·30	82	10·5	27·2	1·57
11–	31	11·4	5·0	0·73	41	2·07	82	9·75	28·2	1·37
12–	48	12·4	4·9	0·62	43	2·45	88	8·27	29·1	1·69
13–	77	13·5	4·9	0·38	45	2·20	91	6·53	30·2	1·49
14–	82	14·4	5·2	0·32	47	2·35	90	5·46	31·0	1·47
15–	51	15·4	5·4	0·31	49	2·01	91	5·51	31·3	1·35
16–	17	16·4	5·5	0·19	51	1·90	93	4·03	32·0	1·33

The results of the blood counts and haematocrits on venous blood are summarized in Table II. All the anaemia was hypochromic, and usually normocytic. Of bloods with less than 11 g. haemoglobin about one-third were microcytic [mean corpuscular volume (M.C.V.) less than 75 c.μ]; of those with 11–11.9 g. about one-sixth were microcytic; and all but three of the remaining bloods were normocytic. No case of macrocytic or dimorphic anaemia was found. Table II shows how little the red cell count fell with decreasing haemoglobin until values under 10 g. were reached. The disproportion between the red cell count and the haemoglobin was sometimes extreme: 5 men with haemoglobins of between 9 and 11.9 g. had red cell counts of 6 millions per c.mm. or more; their M.C.V.s were 60–70 c.μ. (Such bizarre counts were of course repeated.)

The steady fall in the haemoglobin concentration or M.C.H.C. (= mean corpuscular Hb concentration) (see Whitby and Britton's *Disorders of the Blood*, Chapter III) as anaemia increased is evident in Table II. (The correlation coefficient between haemoglobin and M.C.H.C. is 0.73, about 14 times its standard error.) The differences between the mean M.C.H.C.s in different haemoglobin classes are statistically significant, except between the 14- and 15-g. classes. The mean M.C.H.C. of the 16-g. class is, however, significantly higher than that of the 15-g. class ($D/\sigma_D=2.0$) and the 14-g. class ($D/\sigma_D=2.9$).

These findings suggested a widespread iron deficiency, possibly extending even to some of those with 14 and 15 g. haemoglobin per 100 ml.

The mean values in the 14–16 g. haemoglobin classes are reasonably close to those obtained by Napier and Das Gupta (1936) for 30 young well-to-do Indian males in Calcutta. (Their means and standard deviations were:—Hb, g./100 ml.: 15.7, 0.91; R.B.C., M./c.mm.: 5.53, 0.49; M.C.V., c.μ: 90.5, 7.9; M.C.H.C., %: 31.1, 1.2.)

Response to Iron Therapy

The only unequivocal proof of iron deficiency is an increase in the haemoglobin following iron therapy. A group of these soldiers was therefore given 20 gr. of ferri sulphas exsiccatus daily—58 for 21 days, and 17 for 14 days. (The object was not completely to cure anaemic men, but to observe what proportion responded to a massive dose of iron.) The powder was suspended in distilled water (10 gr. to 1/2 oz.) immediately before use, and a member of the team gave each man a dose of the mixture morning and evening, and watched him swallow it.

Nearly all the men complained of diarrhoea (up to six motions daily) for the first two or three days of medication, but this symptom soon disappeared without any change of dosage. By the third week complaints of mild digestive upsets and constipation were faily common, but no man felt unwell enough to suggest discontinuing his medicine. The majority of the men felt better after the course, but, to some, stomach troubles outweighed any possible improvement in their general health.

The blood investigations were repeated the day after the iron course ended; the blood pictures before and after treatment are summarized in Tables III and IV. Most of the anaemic men had improved greatly: the best haemoglobin rise was from 9.6 to 15.5 g. after 21 days' treatment. An increase of over 0.5 g. haemoglobin per 100 ml. was outside the experimental error of the haemoglobinometer used, and was regarded as significant. By this criterion two-thirds of the 14-g. class and one-half of the 15-g. class responded to iron therapy (Table V).

TABLE III.—*Showing the Average Response of Different Hb Classes to 21 Days' Iron Therapy. (I=Before Treatment; II=After Treatment)*

Hb Class	No. of Cases	Hb (g.)		R.B.C. (M./c.mm.)		Haematocrit		M.C.V. (c.μ)		M.C.H.C. (%)	
		I	II	I	II	I	II	I	II	I	II
<11	5	9·9	13·4	4·9	5·9	36	45	73	76	27·6	30·1
11–	4	11·6	13·4	5·1	5·1	41	44	81	88	28·2	30·4
12–	7	12·3	14·2	4·7	5·3	41	44	88	83	30·3	32·6
13–	19	13·5	14·2	5·0	5·0	43	44	88	89	30·8	32·1
14–	15	14·5	15·1	5·3	5·3	46	48	87	89	31·5	31·8
15–	6	15·3	15·8	5·4	5·7	48	49	87	87	32·3	32·3
16–	2	16·3	16·2	5·2	5·8	49	50	93	86	33·6	32·6

TABLE IV.—*Showing the Response of Different Hb Classes to 14 Days' Iron Therapy: (I=Before Treatment; II=After Treatment)*

Hb Class	No. of Cases	Hb (g.)		R.B.C. (M./c.mm.)		Haematocrit		M.C.V. (c.μ)		M.C.H.C. (%)	
		I	II	I	II	I	II	I	II	I	II
<11	4	9·6	12·2	4·9	5·4	36	43	73	81	27·1	28·5
11–	3	11·3	13·4	5·2	4·7	41	44	80	92	27·4	30·3
12–	2	12·5	13·5	4·9	5·2	45	45	92	86	27·8	30·2
13–	1	13·8	14·0	5·1	5·8	46	48	90	83	30·0	29·2
14–	3	14·2	14·6	5·5	5·8	46	47	84	81	30·7	31·4
15–	2	15·5	15·9	5·3	5·7	49	49	93	86	32·0	33·0
16–	2	16·3	16·5	5·6	5·4	50	49	90	91	32·6	34·1

TABLE V.—*The Number of Men in Each Hb Class treated with Iron, and the Number showing a Hb Increase of Over 0.5 g. per 100 ml.*

Haemoglobin Class (g. per 100 ml.)	<11	11–	12–	13–	14–	15–	16–
Number of cases ..	9	7	9	20	18	8	4
Number responding	9	6	8	8	10	4	0

If the proportion of responses in each haemoglobin class be fitted to the population distribution (Table I), we may conclude that about 60% of the population were iron-deficient.

Hookworm infestation had no unfavourable influence on the response to iron; indeed, three-quarters of the infested men responded, compared with one-half of the uninfested. The difference was not entirely due to the greater proportion of more anaemic men among the infested, but it was not statistically significant. Three anaemic men did not respond to iron. Of these, two were normal to clinical examination and had no hookworm infestation; the third had had recurrent diarrhoea and sore tongue for 18 months. (These men are included in Table III, and somewhat reduce the average improvement.)

Hookworm Infestation and Anaemia

The most common cause of iron deficiency in the Tropics is hookworm infestation. The infestation rates in different units in this series varied from 6 to 53%. Of the whole series, 12% had very light infestation, 8% light, 8% moderate, and 1% heavy. Table VI shows the haemoglobin distribution in men with the different degrees of infestation. The mean haemoglobin level of men with even very light infestation was significantly lower than that of those with none; and the mean fell still further as the weight of the infestation increased. Of the men with no infestation, one-half had over 14 g. haemoglobin per 100 ml., and only 13% had less than 12 g.; whereas of the men with moderate infestation, one-half had less than 12 g. haemoglobin, and only 15% had over 14 g.

TABLE VI.—*Showing the Relation between the Hb (Venous Blood) Distribution and Hookworm Infestation in North-West Indian Soldiers*

Hookworm Load	Haemoglobin (g. per 100 ml.)										Total	Mean	σ	
	7–	8–	9–	10–	11–	12–	13–	14–	15–	16–				
None*	2	2	3	3	22	29	64	67	42	16	250	13·83	1·632	a
Very light	1	—	—	5	5	12	12	5	7	2	49	13·13	1·793	b
Light ..	1	1	1	4	7	6	2	5	3	—	30	12·30	2·042	c
Moderate	1	2	3	6	1	7	2	4	—	—	26	11·54	2·029	d

D/σd:—ab 2·5; bc 1·8; cd 1·4; bd 3·4.

The above figures show that hookworm infestation was an important cause of this anaemia, but it was not the sole cause. Nearly one-third of the men with less than 11 g. haemoglobin per 100 ml. and over one-half of those with 11–12.9 g. had no demonstrable infestation.

The Iron Intake

The ration diet of these soldiers is nearly vegetarian, with a very small daily allowance of meat. The staples of the diet are ata and dal, and the important iron sources are:

Ata (coarse wheat flour)	50 mg. iron daily
Dal (pulses)	10 mg. „ „
Greens (in season)	5 mg. „ „
Meat	1 mg. „ „

It will be seen that there is theoretically a liberal amount of iron in the diet, but only 1 mg. of this is derived from the meat.

Discussion

A survey of an adequate number of North-West Indian soldiers revealed widespread mild anaemia—two-thirds had less than 14 g. haemoglobin per 100 ml. This anaemia was all hypochromic, and either normocytic or, less commonly, microcytic. The response to iron therapy showed that nearly all the anaemia was due to iron deficiency, and suggested that over half the men with 14–15.9 g. haemoglobin were not saturated with iron. Cases of moderate and severe anaemia were usually (but not invariably) associated with hookworm infestation, and milder cases usually were not. Even the men with the lightest infestation had a mean haemoglobin level significantly lower than that of non-infested men.

There was no other source of blood loss, so that those cases of iron-deficiency anaemia not due to hookworm infestation must be ascribed to an inadequate iron intake. The daily iron-intake was at least 60 mg., but all except 1 mg. of this was derived from vegetable sources. It would appear that the greater part of this dietary iron was not assimilated, for the response to iron therapy proved that the men were definitely iron-deficient in spite of the high iron content of the diet. (Little work has yet been done on the effect of phytic acid and mineral imbalance on the absorption of iron from cereal diets such as these men ate.)

These men, living on the threshold of dietary iron deficiency, are naturally very readily made anaemic by even the lightest hookworm infestations—infestations which would scarcely affect men with adequate iron reserves and intakes.

Summary

Widespread mild anaemia was found among North-West Indian soldiers.

The blood findings suggested that this was iron-deficiency anaemia, which was proved by showing that it responded to iron. By the same test, many men with normal haemoglobin levels were not saturated with iron.

Most of this mild anaemia was not associated with hookworm infestation.

Men with even very light hookworm infestation had a lower mean haemoglobin level than non-infested men, and most men with a moderate degree of infestation were anaemic.

In the absence of any cause of chronic blood loss in most of the men, it is concluded that the major cause of this anaemia is a deficient iron intake.

The daily food ration of the Indian soldier contains over 60 mg. iron, but of this all except 1 mg. is derived from vegetable sources. It is concluded that the greater part of this iron is not assimilated.

These men, who may develop iron-deficiency anaemia due simply to dietary deficiency, are unduly susceptible to hookworm anaemia.

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"ECZEMA AUTOLYTICA"

BY

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The term I use can be defined as a skin reaction culminating in an acute eruption of scattered vesicles: breaking out rapidly on forearms, neck, face, and trunk from above downwards, in that order; following in point of time late after a persisting dermatitis or ulceration or patch of varicose eczema in the leg or ankle region, more often than elsewhere; standing as secondary in relation to the one or the other, and as the outcome and sequel. Of a sudden, the primary eruption becomes tender, dry, red, and sharply inflamed, from neglect by the patient or from unsuccessful treatment, so exciting at a distance by way of the blood stream a secondary, autolytic eczema of constant character and uninfective kind, usually beginning on exposed parts, then spreading to covered parts.

The Lesion and Distribution

The vesicle characterizes this autolytic eruption, arising as an erythema about the papillary vessel-loop in the skin, speedily becoming a papule, then a vesicle. Some degree of oedema of the adjacent skin accompanies the vesiculation; there is no urticarial reaction.

At first the vesicles break out on the flexor forearms, sparingly on the sides of the neck and face, and on the trunk in its upper parts—not in patches, but, when fully developed, as a uniform eruption of discrete, scattered pink vesicles deep-seated in the skin, in area unmarginated, without figured pattern but with an uneven bilateral symmetry. Coincident with this outbreak, vesicles erupt about the primary patch; which patch, in its behaviour, offers the clue to the pathogenesis, and points the ready remedy for the secondary eczema. Owing to the limb being dependent, the vesicles in leg or ankle are of venous tint; in disease of the right side of the heart the whole secondary eruption is of a constant cyanotic hue, not pink.

The Cause

To what can this eruption be ascribed? The starting-point lies in a long-standing ulceration or circumscribed dermatitis of the leg or arm that has refused to heal in weeks or months, or after a year or two; the actual cause turns upon this delayed healing. The patient usually has for long laboured in vain with treatment by unsuitable applications, loose bandaging, and without necessary rest in bed. The original patch, vitiated by time and mixed infection, is usually found to have been treated by the mistimed use of a dry non-absorbent tissue dressing secured by one or two turns of a bandage; an aniline dye or silver nitrate paint; a too strong impermeable ointment; or a dusting powder. Any one or sequence of these, used prematurely in the course of the primary dermatitis, has the power to excite dermolysis by occlusion. A dermolysin is thereby formed locally: a foreign protein of bacterial origin or, more likely, a tissue-breakdown product—one or other, or both acting in concert—that sensitizes the patient to his own exudate and is the trigger that fires the systemic outbreak. This, in its changed form, is absorbed into the blood stream, circulating to the terminal capillaries of the skin, there to be slowed down and subjected to quick, sensitive variations in local temperature and exposed to other physical influences. Perhaps this is a sufficient explanation of the nature and distribution of the eruption. At all events, the lysin is of toxic origin, blood-borne; that much seems certain.

It is generally accepted that autolytic eczema has a constitutional cause to dispose to it, with a closer exciting cause in an auto-intoxication, rather than a micro-organismal toxaemia, arising locally in the patch. Clearly, the oedemato-vesicular eruption is a superficial non-microbic affection of the skin in areas guided and determined by the vessel route taken by the causal agent mentioned, always in the direction first of the uncovered parts. The constant aspect and locality of the autolytic eruption gives the denial to any suggestion of contagion carried by fingers or fomites; spread can happen only by absorption of autotoxin, and to a chosen site in the circulation. The autotoxic agent cannot be identified by present-day tests; it is certainly not lethal. An analogous case is the trichophytide—a generalized eruption found in the occasional patient with ringworm of the glabrous skin; a truer analogy is with the tuberculides; another perhaps, though less true, with the eczematides. Autolytic eczema has, however, an origin, character, and independence of its own and, taken in time, is readily curable by eliminating the cause.

The Main Features

In any skin disease it is advisable to examine the whole cutaneous surface, never to omit examining legs and feet, for it sometimes happens that the patient thinks the doctor unlikely to be interested in her "old leg." An incomplete or missed diagnosis will miscarry only to increase the patient's suffering, threatening greater severity and a continuance of the disease, with added difficulty in its control.

In autolytic eczema the signs are those of a systemic affection The patient is usually ambulant, a woman, the average age of occurrence 50 years; and the lesions may erupt to reach their peak even in so short a time as seven days. The course of the eruption is this: a primary dermatosis in a lower limb from an infected confined dermatitis, ulcerative or other, below the knee; this had begun with an overlooked or neglected trauma, however small, such as a scratch, a burn, or the pulling out of a hair, to breach the surface; and, being still unhealed, is followed in an average of nine months by a secondary eczema erupting in the positions described, the earliest crop of vesicles occurring on the forearms. Autolytic eczema is not seen in extensive acute dermatitis in the leg, but only where the area affected is comparatively small and lasting; in so-called "eczema rubrum" and the moist-surfaced "eczema madidans," both more or less acute or subacute in their behaviour, the disease is not seen.

Subjective symptoms are much complained of: hot tense skin, almost intolerable itching, loss of appetite with furred tongue, malaise, distress of mind, insomnia. The patient is apyrexic, and shows no characteristic changes in the blood that can be discovered by tests at present known. Perhaps these facts can be taken to mean failure of immunity response as is believed to happen in protracted disease that is localized. In this case the autolytic eczema develops unchecked. The patient feels ill, depressed, and miserable, chiefly from the subjective discomfort and unhappy self-consciousness created by the disfigurement of face and neck by oedema and vesicles, as well as the fear of infecting others. Itching precedes the outbreak of the autolytic eruption to give warning of its coming, usually worst in the areas about to erupt, but by and by becoming widespread and paroxsymal in attack. The visible eruption begins in an acute phase superimposed locally on the primary focus of inflammation; the secondary eczema follows on, passing through an initial stage of pruritus to papulation, then full efflorescence in an oedemato-vesicular eczema, far distant from its source. Clinically, this progression can be observed in its orderly sequence.

The secondary autolytic eruption bears no resemblance to the original leg or ankle inflammation out of which it arises. The primary patch becomes red and painful, pervaded by a mixed pyogenic infection, and has come to a standstill in the healing. Is it this changed excited dry state of the patch which determines the formation and absorption of a transmuted and toxic agent there, which calls out the autolytic eczema in its acuteness, sometimes to come and go afterwards in a subacute way?

Treatment: The Plan

Treatment, preventive and curative, must first be directed towards the primary source of the disease: here is the key to success. Once established, the autolytic eczema will refuse to go until this is healed. To prevent the secondary eczema, the use of moist permeable absorbent dressings, changed often till the surface has skinned over, is advisable, with the avoidance of all imporous dressings that stifle discharge. This, early in the autolytic outbreak, will prevent or abort the eruption.

The patient ought to be confined to bed, with six-inch bed-blocks under the foot of the bed to hasten the return circulation. The leg congestion being gravitational, this elevation will quickly help to control itching and heat and tightness of the skin, and will go a long way to expedite healing, shortening the time taken measurably.

Treatment of the local patch is best done by applying boric fomentations or wet compresses of hypertonic saline solution, replaced every four hours for three days, to be followed by acriflavine emulsion soaks on gauze, renewed twice daily, for a further ten days. In the case of an open ulcer, the cleansing foment is, after the first three days, followed by carefully adjusted "red lotion" moist dressings morning and night; later, iodine-and-starch paste is applied as a thick spread, changed once a day, then, with improvement, once in two or more days. Bandaging should be firm and supporting, extending from the toes to below the knee, to counter the passive venous congestion of the leg, which only delays repair. This paste, with a tight bandage in the daytime and bed-blocks at night, is far and away better than the Unna-paste-impregnated bandage, which only holds up and confines any discharge, to become potentially, sometimes actually, harmful.

With the conversion of the hot dry surface of the primary patch into a moist freely discharging area, the patient is relieved of much discomfort; and the autolytic eczema begins to fade spontaneously, having itself needed little actual attention beyond the direct application of zinc cream morning and night, or the painting on of a weak ichthyol-in-calamine liniment (ʒi to ℥viii), as being protective and antipruritic. As covering for the arms cotton sleeves are cool and more acceptable to the patient than lint and bandages. When the scaling stage is reached, which is the end-process, a simple cold cream at nights is all that is required, any dressings being discarded

With the appearance of autolytic eczema, to secure relief for the itching, with peace of mind and enough sleep, nothing is so effective as fractional doses of phenobarbitone with bromide at spaced intervals for as long as is necessary. Autohaemotherapy is of some service at the start, so is non-specific protein therapy, though neither need be overdone or its value overestimated.

The diet should be lacto-vegetarian and salt-free, with an ample daily allowance of fluids (five or six pints, all told); condiments and spices are to be forbidden and over-flushing of the skin avoided. Two drugs are of real use, if indicated: acid. hydrochlor. dil. *B.P.*, given in full dosage soon after meals; and a one-drachm morning dose of magnesium sulphate in hot water, for a time, daily.

Summary

Autolytic eczema is not uncommonly met with in medical practice: the malady has increased in incidence during the war years. Much standing at work while suffering from a patch of open dermatitis in the leg is a predisposing cause, if an indirect one; thus far can autolytic eczema be accounted "occupational." The condition could not exist without the stubborn primary focus to begin it, and refuses to fade before this itself has healed. As a rule, the primary disease persists for long before the secondary outbreak appears; there is a wide, though varying and indeterminate, interval between the starting-point of the one and the other. Peculiarly, the trouble most often originates in a patch about the lower half of the leg or about the ankle; but not always; the primary mischief may occur in a localized dermatitis in the arm or elsewhere following injury. The typical expansive eczema autolytica follows a primary source in the leg; a milder, less extensive eruption when the local source is elsewhere. It is the rule that the eruption breaks out unexpectedly. What actually times and detonates the outbreak has yet to be determined.

The secondary eczema does not behave like a septic toxaemia, to show massive invasion by way of venous or lymph channels: the course taken, and the ready control by early treatment before secondary characters add themselves to the vesicular eruption, suggest a non-virulent auto-intoxication with sensitization. Sepsis alone does not afford so satisfying an explanation as does the theory of causation by autotoxic dermolysin, the constitution of which is not made manifest by present-day test methods.

It is not to be forgotten that "the skin faces both ways," having an internal surface coextensive with the external and of more importance to the bodily economy. Clearly, the mode of conveyance is vascular, the lysin reaching and acting upon the skin itself from within by way of the capillary loops of the papillary body, likely enough erupting at points of slowing in the circulation there subject to the play of physical influences.

The condition is well and truly named "eczema," qualified by the descriptive term "autolytic." Knowledge of the whole subject is fragmentary still; yet we know that all true eczema is in its proper form vesicular and reactional: that the correct treatment should not be symptomatic merely, but, to be radical enough, ought in the absence of a specific cure to aim at removing the cause. If the remedy is suspended or is unsuitable the disease may take a firmer hold, to become aggravated and in its course lengthy and perverse.

SEGMENTAL MOVEMENT OF THE PUPIL

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In 1911 C. H. Sattler described a pathological movement of the pupil which he called "Wurmförmige Contractionen der Sphincter Pupillae." It is a segmental movement, or twitch of the iris margin. It may be seen in a pupil which has no normal reaction to light, or in some cases in which the light response is present but much diminished. At any one moment during the examination of such a pupil only a single twitch may be apparent; or another similar twitch may appear at the same time further along the pupil margin. Loewenstein described some further cases in 1917 and 1919. He called the phenomenon "Harmonica Contractionen der Sphincter Pupillae." The worm contraction, or undulate contraction, of the pupil border is much less commonly seen than a single segmental movement or double synchronous segmental movement of the pupil in the field examined. The synchronous twitch giving the concertina-like movement would seem to be due to feeble impulses arriving at the same time, while the undulate movement occurred when these feeble impulses arrived at contiguous parts of the pupil border at slightly different times. The amplitude of the movement varies in different cases. Sometimes it can be seen with the naked eye, as in the patient quoted below blinded by quinine. The monocular loupe (× 10) or the low power of the corneal microscope (F/55 mm.) suffices for the recognition of most cases. Only the large inactive pupils of blind or near-blind cases of luetic optic atrophy required the higher powers of the corneal microscope for the recognition of the tiny abnormal movements which were present. They were best seen in the beam reflected from the lens surface. We have been able to observe a progress in amplitude of this segmental movement in a man who had paralysis of the pupil as a result of head injury. At first the movement was tiny, gradually increasing in extent with recovery until there was an entire contraction of the pupil.

The phenomenon has not stimulated much curiosity. In order to determine whether or not the sign had any localizing value a series of cases were examined. Of three cases of luetic optic atrophy with no light projection and large inactive pupils, examined under high magnification, two showed segmental contraction of small amplitude and one an undulate or travelling contraction of the pupil border. Two cases of post-traumatic optic atrophy having no light projection in the affected eye showed segmental contractions. Patients with partial field loss after head injury and patients with partial field loss in glaucoma showed no segmental movement. One man with Leber's disease having a visual acuity of 3/60 Snellen, right and left, had a marked segmental movement. A middle-aged healthy man blinded by quinine showed active segmental movement from the outset of the observed period, which extended over two months. The movement gradually acquired greater amplitude, merging into a total pupillary response to light. Even when the total response to light was established the segmental quality was evident in relaxation until it finally disappeared. Two cases of retrobulbar neuritis had those abnormal movements, and in these the pupils were markedly dilated. In the following cases the motor side of the pupillary arc was presumably affected. A middle-aged man sustained a basal fracture of the skull in falling off a bus. He had good vision in both eyes, but had a complete third-nerve palsy on one side, and was Wassermann-negative. There was an undulate movement of the pupil border. A similar case observed over some months gradually recovered and the segmental movement merged into the normal total response. An elderly woman, having good vision in both eyes and Wassermann-negative, developed an internal ophthalmoplegia of vascular origin, and in a pupil which was immobile directly and consensually to light segmental movement was seen. A young married woman —Wassermann-positive, myopic-astigmatic, with good corrected distance vision—complained that she could not read. Both pupils were dilated and responded poorly to light, and there was bilateral paresis of accommodation. Both segmental and undulate contraction of the pupil were seen, and occasionally there was a feeble total movement of the pupils. This woman has been observed over 18 months and the signs are unchanged; there has been no recovery with establishment of the normal contraction. Her antisyphilitic treatment has been erratic. Two cases of unilateral Adie's pupil showed the abnormal movement. Squinting amblyopes never showed the abnormality.

To watch the behaviour of the pupil in this respect under the influence of factors acting peripherally, routine mydriasis with homatropine 1% was studied. After about 10 minutes the lessening total contraction gave place to segmental contraction before immobility. On the other hand, no abnormal movement was seen after mydriasis from subconjunctival injection of cocaine 2% with adrenaline.

Discussion

This pupillary unrest may occur, then, in sufficiently severe disorder of the afferent or efferent nervous paths to the sphincter of the pupil. Further, it may be induced by the peripheral action of mydriatics which inhibit the choline flux, but not by those mydriatics which stimulate the sympathetic. It is not seen in the contracted pupil. It would seem to be due, first, to diminished conduction in the nerve paths to the sphincter pupillae, for the movement is seen only in pupils of diminished response; and, secondly, there must be a pathological variation or inequality of flux within the nerve plexus. Some vestigial impulses get through and produce a local twitch, and in the immediate neighbourhood these impulses fail, or arrive after an interval to produce an undulate reaction. The chronaxie of the nerve paths to the sphincter is unequal throughout its distribution in these cases. Wolfrum (1926), when examining the minute histology of the pupil, was struck by the radial distribution of the nerve fibres entering the sphincter pupillae, and he speaks of the Sattler phenomenon. If the distribution of the third nerve to the sphincter of the pupil were a fine uniform plexus it would be difficult to understand a local emergence of movement, but as it is supplied by twigs running into the muscle fibres and at right angles to them the explanation of the origin of the movement becomes acceptable.

Finally, the sign, so far as this short investigation will allow us to conclude, would not appear to have any localizing value; it is a fibrillation of the pupil resulting from impaired integrity of the nervous arc of the sphincter pupillae occurring at any part of the arc.

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A. M. Harvey and F. T. Billings (*Amer. Heart J.*, 1945, **29**, 205) report three cases of coronary occlusion after the institution of therapeutic hyperpyrexia for sulphonamide-resistant gonococcal urethritis. All the patients were young adults with no previous cardiovascular disease. In no instance was the patient critically ill. Electrocardiograms in each case showed progressive changes similar to those observed in patients with occlusion of the anterior ascending branch of the left coronary artery.

Medical Memoranda

Fistula between the Small Intestine and One Horn of a Uterus Bicornis

The following notes of an unusual case of fistula may be found of interest.

CASE HISTORY

A single woman of low-grade mentality, 28 years of age, was first seen in March, 1944, at the obstetrical department, where she was found to be pregnant. The pregnancy was complicated by hydramnios and confirmed by radiography. On May 29 she was prematurely delivered of a stillborn exomphalic male foetus. The puerperium was characterized by an irregular temperature with rather offensive lochia, but she soon settled down and was discharged on the 14th day.

On July 6 she was readmitted complaining of an offensive vaginal discharge and severe perivulval irritation. The vulva was grossly excoriated and profuse discharge was coming from the vagina. On vaginal examination, among other debris several undigested cooked green peas were seen coming through the cervix uteri. The patient had eaten peas four hours earlier. The discharge continued while she was under observation, and consisted of undigested food giving bile-pigment reactions. It was obvious that a fistula existed between a high part of the intestinal tract and the uterus.

On July 26 the abdomen was explored and on the left side of the pelvis a curious pyriform uterus was seen. At the fundus there was an adherent matted mass of small-intestine coils. The coils were gradually separated, and one was found welded on to the fundus. On separation this coil had an opening the size of a sixpence continuous with the uterine lumen. Both openings were closed.

Further examination of the uterus revealed the fact that the pyriform uterine swelling was an enlarged horn of a uterus bicornis. Separate Fallopian tubes opened into the apex of each horn. It is probable that the fistula had resulted from an attempt to end the pregnancy.

I am indebted to my colleague Mr. Barnie-Adshead for the opportunity to operate on this case, and to Dr. J. C. Miller for help with the case notes.

Birmingham. B. T. ROSE, Ch.M., F.R.C.S.

Melaena due to Peptic Ulceration of a Meckel's Diverticulum

The case recorded below seems of sufficient interest and rarity to merit description. The occurrence of peptic ulceration in a Meckel's diverticulum is rare in any country, but seems particularly rare in England. In a review of the literature up to 1934 (Johnston and Renner, 1934) 60 cases of the condition had been described, of which only seven had come from English journals.

Meckel's diverticulum, a remnant of the vitelline duct, is present in 2% of the population, and is one of the sites of heterotopic gastric mucosa formation. It is prone to the same diseases—of which peptic ulceration with haemorrhage is one —as the stomach and the first part of the duodenum. The majority of cases occur in children and young adults of the male sex, although two of the four cases reported by Chesterman (1935) occurred in the female. The presenting symptom is rectal haemorrhage. The bleeding is often recurrent and may produce a severe degree of anaemia. Pain is not always present, but when it occurs is colicky in type and umbilical in situation. In the absence of perforation there is usually no clinical abnormality detectable on abdominal or rectal examination. It is impossible to demonstrate the diverticulum on radiological examination.

CASE REPORT

A boy aged 16 was admitted on June 24, 1944, with abdominal pain and the passage of blood per rectum for the previous 13 hours. The onset was sudden, and occurred while he was at work as a railway porter. The pain was colicky, and was situated in the region of the umbilicus; the attacks of colic lasted a few minutes and recurred every few minutes. The passage of blood coincided with the onset of the colic. While in the ward he passed several ounces of dark-red blood. There was no vomiting. He gave a history of three previous vague attacks of "stomach-ache" associated with constipation during the past year. Each attack lasted about one week. He had no previous melaena.

On examination the tongue was furred. The abdomen showed slight generalized tenderness and rigidity, but no mass could be felt. Rectal examination revealed the presence of blood, without any other abnormality. A pre-operative diagnosis of intussusception was made, and operation was proceeded with immediately.

Operation.—A right mid-abdominal split-rectus incision was made under open ether anaesthesia. There was no evidence of intussusception. The whole of the large bowel and some coils of the small bowel were distended with blood. On further search a Meckel's diverticulum was found on the antimesenteric border of the small bowel, 2¼ ft. from the ileo-caecal valve. The diverticulum and the whole of the bowel distal to it were full of blood, while the proximal bowel was collapsed and normal in colour. The diverticulum itself did not show any external evidence of inflammation, but there was a well-defined indurated area near the base. The diverticulum was excised and the bowel repaired transversely. The abdomen was closed without drainage.

He made an uneventful recovery, and was discharged 20 days after operation.

Examination of Specimen.—On section the absence of generalized inflammation was confirmed. Near the base was an indurated area half an inch in diameter, in the middle of which was a shallow ulcer a quarter of an inch in diameter, involving the mucosa only. In the centre of the ulcer was the open lumen of a small blood vessel from which blood could be expressed. Microscopical sections taken through the middle of the ulcer showed the presence of gastric mucosa with oxyntic cells.

I wish to thank Dr. H. H. MacWilliam, medical superintendent of Walton Hospital, for permission to publish this case; and to Dr. R. Y. Dawbarn for the preparation and examination of the microscopical sections.

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Large Foreign Body in Stomach, with Complete Absence of Usual Symptoms

The following case may be considered interesting enough to merit publication.

CASE HISTORY

The patient, an African woman aged 29, mother of four healthy children, was admitted from the out-patient department with a diagnosis of "abdominal tumour"; she was a well-developed and well-nourished woman of medium height, and weighed 8½ st. She gave a history of "a lump in the belly," which had been present for about five years, was getting larger, and now interfered with her when weeding, as she found it difficult to stoop. She had no pain, vomiting, or other disturbance, and there were no signs of wasting or lack of nourishment.

On examination a large swelling was visible, extending from the left costal margin into the pelvis. It was smooth and firm to the touch, not tender, and was easily movable in any direction. This movement caused no discomfort of any kind. The patient had a very good appetite, and could eat a large meal of rice, fish, and vegetables without any discomfort. She was a very cheerful person, and looked upon her condition as a joke.

Owing to the size of the tumour I was forced to make a rather large incision in the stomach. The cardiac end was delivered without trouble, but the pyloric end was firmly gripped, and I had some little difficulty in releasing it. The mass when removed was a complete cast of the stomach with prolongations into the oesophagus and the duodenum. It was very firm in consistence, it could be dented with the finger, but the finger could not be forced into the mass. On section it had the usual appearance of a "hair-ball," consisting of fibres, mainly mango, rice grains, and other food debris. The patient made an uneventful recovery.

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A Fibroma weighing 320 Grammes growing from the Posterior Vaginal Wall

Owing to the rarity of its nature, the following case may be of interest to others:

The patient—a married nullipara of 40—came up complaining of a blood-stained vaginal discharge for two months. She had very little control of micturition but was otherwise well. Her periods were regular and lasted 5 days in every 28. On examination a hard mass 3 in. in diameter was felt completely filling the vagina. It was dark red in colour but not friable, and was thought to be a cervical fibroma.

At operation, performed by Mr. Clifford White on Oct. 28, 1944, it was possible to pass a finger above the tumour and a normal cervix could be felt. The tumour was then found to be arising from the posterior vaginal wall 2 in. below the cervix. A left-sided Schuchardt's incision was made, but, owing to the size of the tumour, removal had to be by the process of morcellement. When about one-third had been removed in this way the capsule was stripped and the remainder of the tumour shelled out. The bed was obliterated with catgut sutures and the vagina and perineum repaired. The tumour was hard and not very vascular. It weighed 320 grammes and was histologically a fibroma.

Secondary haemorrhage from the perineal incision occurred on the ninth day. The bleeding-point, which was in the region of the internal pudendal artery, was ligated; the wound was packed and sulphanilamide powder insufflated round the edges. Four pints of Group O (IV) blood were given. Recovery thereafter was good. The vagina healed well, and when seen three months after operation the patient's condition was quite satisfactory.

I am indebted to Mr. Clifford White for permission to publish the above details.

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Reviews

BONE-GRAFTING FOR FRACTURES

Bone-Grafting in the Treatment of Fractures. By J. R. Armstrong, M.D., M.Ch., F.R.C.S. Foreword by R. Watson-Jones, M.Ch.Orth., F.R.C.S. (Pp. 175; illustrated. 25s.) Edinburgh: E. and S. Livingstone. 1945.

This may be regarded as a supplement to Mr. Watson-Jones's book on fractures. The amount of work the author has put into it, considering his Service commitments, is truly commendable, even allowing for the aid of his enterprising publishers. As it seems likely that this is but the first edition of a work which will rapidly be added to, we venture to make some suggestions.

The descriptive operative surgery of the past has often been rendered valueless by the lack of analytical assessment. When Mr. Armstrong is in a position to quote statistics upon results his work will be more valuable. The justifiable enthusiasm for the onlay graft (and he was less enthusiastic only two years ago—see *Lancet*, Aug. 14, 1943) should be tempered by acknowledgment of the pioneer work of M. S. Henderson and of Willis C. Campbell. The latter has admirably described and illustrated the technique, to which little has been added since. The meaning of the term "creeping substitution," applied to the replacement of dead graft by living bone, may be well enough known, but it would be worth while drawing attention to Phemister's contribution to the subject. The question of the osteogenetic properties of the tibia is badly stated and should be clarified. In spine grafting the idea of roughening the neural arches with a chisel or file would be scorned by those surgeons who count their spine grafts in hundreds. Mr. Armstrong should realize that the operative treatment of adduction fractures of the femoral neck did not start with Smith-Petersen, whose nail, after all, is merely a mechanical derivative of the fibular graft previously in common use in Holland. Our own Hey Groves contributed something to that problem at least 30 years ago.

It is interesting to see how Mr. Armstrong differs from his sponsor (*Fractures and Joint Injuries*, 3rd edition) in some important respects. For the Monteggia fracture the former does not hesitate to excise the head of the radius at the same time as the ulna is grafted; the latter condemns the procedure. Neither gives us statistics to indicate which is right. Armstrong uses an Esmarch's tourniquet; Watson-Jones does not like it. The former is even prepared to leave a tourniquet on the leg for two or three hours, and not remove it until plaster has been applied. This is bad. The liability to ischaemic lesions of nerves, the reduced vitality of exsanguinated tissues, reactive hyperaemia, and the constrictive effects of plaster, form a serious combination of danger factors. Mr. Armstrong, no doubt, is a gifted technician, and even if his results are impeccable his teaching should be safe for the not-so-gifted. It is all very well for Watson-Jones to write in his foreword hyperbolically about the infection of a closed fracture being a "disaster worthy of a court of inquiry." Devitalization of tissues is well known to be an excellent breeding-ground for infection, and a book which condones it should equally be criticized.

We do not think that Mr. Armstrong has altogether been helped by Mr. Hennell's coloured photographs, in which so often a very dark blue background obscures the detail of the instruments being used. The lavish scale upon which this book has been produced should be noted at a time of paper scarcity. If printed in uniformity with its bigger companion by Mr. Watson-Jones, and if blank spaces were filled, it could have occupied a quarter less paper. One has a feeling that it is premature and has added little of real value at a time when the practice of bone-grafting is still in a state of flux.

RADIOLOGY IN 1944

The 1944 Year Book of Radiology. Diagnosis, edited by Charles A. Waters, M.D.; Associate Editor: Whitmer B. Firor, M.D. Therapeutics, edited by Ira I. Kaplan, B.Sc., M.D. (Pp. 448; illustrated. 31s.) Chicago: The Year Book Publishers; London: H. K. Lewis and Co.

In spite of five years of war the *1944 Year Book of Radiology* well maintains the high standard of former years. Because of the restrictions of the war the papers reviewed come, in the main, from North and South America and the British Empire.

The diagnostic section, occupying some 232 pages—rather more than half the book—contains many references of great interest. In the skeletal section are accounts of x-ray appearances in yaws and leprosy and a description of a case of the Morgagni-Stewart-Morel syndrome (hyperostosis of the calvarium associated with endocrine and mental disturbances). In the chest section L. L. Robins's paper on fifteen cases of bronchiogenic cysts is summarized, and also Kerley's work on the aetiology of erythema nodosum and the x-ray signs in the chest. Notes are included on the pulmonary changes in strongyloidiasis, tularaemia, and coccidioidomycosis.

Articles of interest on the heart are those on calcification of the valves and pericardium, angiocardiography in patent ductus and rheumatic carditis, the technique of angiocardiography, and on the x-ray signs of patent ductus. Clayton and Schatzki's account of the changes in the gastro-intestinal tract in sclerodermia of the oesophagus, small intestine, and colon is noted, and also a paper on the same subject by Lindsay, Templeton, and Rothman. There is an interesting description of Schatzki's technique for the small-intestine enema given through a duodenal tube, and in the obstetric section there is reported Chassar Moir's investigation into the soft-tissue shadows of the pregnant uterus, with special reference to placentography.

Again, the section on radiotherapy, without revealing any startling new developments, contains a comprehensive survey of the year's work in this field. The *1944 Year Book* is, as before, a most welcome compendium of radiological information.

EFFECTS OF CLIMATE ON MAN

Climate Makes the Man. By Clarence A. Mills, M.D., Ph.D. (Pp. 186. 7s. 6d.) London: Victor Gollancz. 1944.

This chatty little book is written in a style unlikely to appeal to the medical reader. The first person singular is mentioned with an unfashionable frequency; experimental animals are given Christian names such as Ivan and Hilda; the dog is called "man's closest companion"; and man himself when not "I" is "homo sapiens." There is an arch facetiousness about the book, as when the author finds it necessary to assure the reader that a scientific colleague's interest in brothels was "purely platonic." As it is difficult to believe that the mind of a professor of experimental medicine really works at this level, we must assume that the book is a bad example of "writing down to" the lay public and that the more intelligent section of the laity will feel appropriately affronted.

This is a pity, because the book contains a lot of most interesting information not readily available elsewhere about the effects of climate on the life and health of men. Such diverse subjects are mentioned as the effects of climate on vitamin needs, longevity, the onset of puberty, psychological reactions, the incidence of disease, the outbreak of war, and the pageant of history. The information given is accurate, though often so superficial that the reader longs for a reference list.

Perhaps Prof. Mills will now write a bigger book on the same subject for doctors or for the intelligent laity.

THE HAIR AND SCALP

The Hair and Scalp. A Clinical Study. (With a Chapter on Hirsuties.) By Agnes Savill, M.D., F.R.C.P.I. Third edition. (Pp. 304; illustrated. 16s.) London: Edward Arnold.

Not the least of Dr. Savill's achievements has been her success in getting a new edition of this excellent work published in the sixth year of the greatest war known to history. The story of her struggles forms one subject of the interesting preface to the new volume. The strong point of this book remains the account of the physical properties of the human hair and their relations to the problems of cosmetics and the minor capillary disorders which form so large a subject of exploitation to the hairdresser and beauty specialist and in which the ordinary medical man is commonly so ill informed when called upon for advice by anxious patients. He need not remain so if he takes the trouble to read and digest Dr. Savill's discussion of these problems. She has again had the advantage of Dr. Astbury's help. He contributes the chapter on the molecular structure and elastic properties of hair, and in this edition has had to modify his views in some matters, notably in his discussion of the methods of permanent-wave production. It will probably be news to many that permanent waving can now be achieved at a comparatively low temperature. This discovery we owe to Prof. Speakman of the Department of Textile Industries, Leeds University. It depends on the use of chemicals, first to relax the hair to make it take the shape of the curler more easily and then to harden it again and fix it in the curled condition. It seems that this method of permanent waving, though it cannot be said that it does no harm to the hair, is less dangerous than the other methods, which need exposure of the hair to very high temperatures over some two and a half hours. This British discovery has been widely exploited and is very popular in America, but in this country its development has been hampered by the necessity for concentration on war effort, and it is still far from being generally known on our side of the Atlantic, though practised by some London trichological artists.

Another very interesting section of this book is the chapter on hirsuties, one of the most serious cosmetic disasters to which the female sex is exposed. Dr. Savill has now been the leading woman dermatologist in this country for a good many years and has probably had more experience in treating this condition than any of her male colleagues. She has embodied the results in this chapter, which should be studied carefully. Every dermatologist knows that hirsuties is a difficult condition to treat, but many will feel after reading Dr. Savill's discussion that it is far more amenable than they have been accustomed to consider it. We once more commend this work to all who are concerned in the care of the hair and scalp, whether they are members of the medical profession or not.

The *Dentists Register* for 1945 has now been published for the Dental Board of the United Kingdom by Constable and Co., Orange Street, Leicester Square, W.C.2, price 15s. The total number of names appearing at the end of last year was 15,438, being 34 more than the figure for 1943. All but two of the new entries were of persons registered as graduates or licentiates.

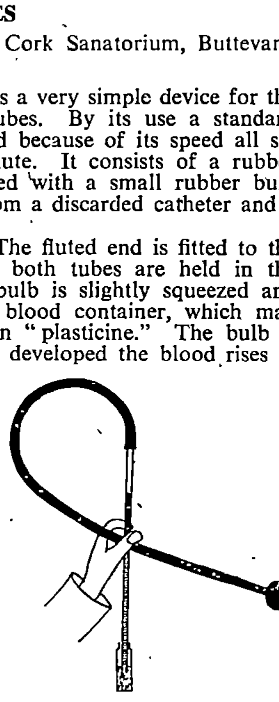
Preparations and Appliances

DEVICE FOR FILLING BLOOD SEDIMENTATION TUBES

Dr. M. M. CONRAN writes from Cork Sanatorium, Buttevant, Co. Cork:

The accompanying sketch shows a very simple device for the filling of blood sedimentation tubes. By its use a standard technique can be maintained, and because of its speed all six tubes can be filled within a minute. It consists of a rubber tube, fluted at one end and fitted with a small rubber bulb at the other. It can be made from a discarded catheter and a medicine dropper.

The procedure is as follows: The fluted end is fitted to the top of the glass tube and then both tubes are held in the middle by the left hand. The bulb is slightly squeezed and the glass tube inserted into the blood container, which may be steadied by an assistant or in "plasticine." The bulb is then released and by the suction developed the blood rises in the tube. By alternately squeezing and releasing the bulb five times standard mixing of the citrated blood is obtained. The blood is then brought up slightly above the 200-mm. mark, and the rubber tube squeezed against the glass one by the left thumb. The final adjustment is made by rolling the glass tube on the rubber one with the left forefinger, which causes a slight rise or fall of the blood, depending on the direction of the roll. Keeping the finger and thumb steady the tube is placed in the rack and pressed firmly down while the tubber tube is removed by a steady pull with the right hand.



With a little practice speed and accuracy are soon attained. I have found that the time taken to set six tubes is far shorter when using this method. I hope also that this simple device may be useful to those interested in avoiding the periodic mouthful of blood which is the distasteful experience of many.

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UNDERFED CHILDREN

At the end of the war of 1914–18 the majority of scientists on the Continent attached most importance to calories, while the interest of British workers was focused on the recently discovered accessory food factors. The British team in Vienna made their classical investigation on rickets and found cases of scurvy; but it was felt that, besides the widespread rickets and occasional scurvy, many more evidences of vitamin deficiency might have been found. Apart from the celebrated study on keratomalacia in Denmark we have little satisfactory information about the frequency of vitamin A deficiency. Scurvy and, still more, beriberi and pellagra were diseases of soldiers rather than of civilians, whose diet was made up of high-extraction flour and vegetables. But the studies made during the siege of Madrid have shown that under even worse conditions the specific deficiency diseases attack only those who are particularly susceptible. The majority suffer from general malnutrition or from secondary diseases, particularly tuberculosis. And in Madrid the specific deficiency diseases—pellagra, optic neuritis, paraesthesiae, and famine oedema—were rare among children under the age of 15.[1] It is probable that, rickets apart, the great majority of children in Central and Eastern Europe showed no definite signs of any specific deficiency disease, and suffered from general malnutrition or from secondary diseases, particularly tuberculosis. We have records of this general malnutrition as detected by clinical examination and by the pelidisi system. This particular system of treating anthropometric data has been criticized; but it has the merit that it gives measurements in figures, free from personal bias, of some deviation from normal, and this is reduced as the nutrition improves. These data could be used for comparison of the state of children to-day with that of children in 1919–21. The tuberculosis death rates in age groups 1–4 and 5–14 in Germany and in age groups 6–10 and 11–15 years in Vienna in 1920 were twice as high as in 1914.

It is impossible to form a correct estimate of the food supply in occupied countries before or after liberation. We know the rations: in most countries they covered over 90% of the possible foodstuffs, and were wholly insufficient to maintain even a moderate degree of health during the years of occupation. In country districts it has not been possible to enforce food control; in towns rations have been supplemented from all sorts of sources, ranging from the genuine black market to the workman who rides a bicycle into the country to buy food and sells some and keeps the rest for his family. A little is added to the legal price at every stage of these transactions. Those who could not themselves buy in the country or afford high prices have found it difficult even to get food to supply sufficient calories. In any case fats and animal protein have been scarce because imports of vegetable oils have been cut off, livestock have been killed off, cattle are lean, and milk yields poor. The increase in the knowledge of food requirements has, however, reduced the risk of deficiency diseases. It is said that owing to the wide use of vitamin D rickets became less common in Belgium than before the war. Special allowances have been made for children. Whole milk has been reserved for them, usually up to the age of 14 (but in Belgium and Holland the fat content has been reduced to 2.5%). The younger children have, on paper at all events, fared comparatively well; it is only above the age of 8 that the requirements according to the League of Nations standard have not been covered by the rations. In France and Belgium adolescents have had little more than half their requirements unless their food was increased from some irregular source.

Before D day there was evidence in the industrial districts of general malnutrition, in the failure, particularly of the older children, to put on weight, and a rise in the tuberculosis death rate. With the invasion traffic has been disorganized: it has become more difficult to transport food to the towns, and the distribution has become more unequal. The import of food to Paris was at its lowest in August of last year. Convoys were rushed in within a week of liberation, but with 4,000 bridges destroyed, four-fifths of the locomotives gone or out of order, and half the transport capacity taken up by the military, it has been impossible to keep up an adequate supply of food to the towns. Even now, with 1,250 bridges repaired and 10,000 lorries supplied, Parisians have still to depend on forays into the country to get food enough to live on; meat rations are irregular; milk arrives sour owing to the slowness of the trains; and only the youngest children can get a wholesome supply. There is more malnutrition now than before liberation. Conditions in Holland, Norway, Greece, and Yugoslavia are far worse than in France. Even if food could be distributed evenly there would still be a serious shortage. While fighting continues both in Europe and in the East it is difficult to spare the ships to bring over food from the great producing countries overseas. The easiest way to supply Europe would be to draw on stocks that have accumulated in Britain. When malnutrition was debated in the House of Commons on March 28 and 29 it was stated that the Minister of Food had sent, or agreed to release, to the liberated regions, which include some Mediterranean areas, 900,000 tons of food from our stock of 6 million tons. When we recall that in 1917, at the height of the U-boat campaign, our stocks were reduced to 1 million tons of grain and sugar for four days[2] we may well feel that we could now safely spare considerably more to meet this emergency. With the destruction of farms, the lack of fertilizers and implements, the interruption of spring sowing, and the flooding of large areas in Holland, this year's harvest will certainly be scanty. Further relief will be needed during 1945–6 to provide sufficient calories. Animal products will be short for several years, and supplies can be obtained only by keeping down consumption in the more fortunate countries..

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[1] Grande-Covian, F., and Jimenez-Garcia, F., *Rev. clin. Esp.*, 1940, **1**, 323.

[2] Beveridge, W., *British Food Control*, Oxford University Press, 1928, pp. 91, 124.

According to a recent report in the *Journal*[3] Dutch children, aged 7 to 15 years, brought over to England in February had been living for a long time mainly on bread, potatoes, and cabbage. They did not appear seriously wasted, but were generally undersized; they must have been much under weight for their size, as they gained up to 6 lb. 6 oz. in three weeks after arrival. Feeding these children presented no serious difficulty; the only precaution taken was to limit the amount of fat and the total calories during the first week. When the initial difficulties are over nutrition will improve on almost any diet that will provide calories. The typical dinners supplied to children in canteens run by relief organizations for malnourished children in 1919–21 provided daily an average of only 5 grammes of animal protein, the vitamins A and D of 70 ml. of milk, and almost no vitamin C. The children probably got some carotene and C from vegetables at home, but precious little animal protein; yet their condition improved steadily. Children from the areas of Holland where rations have fallen to 300 calories a day will be in a far worse condition. Experience among the International Brigade and Spaniards in concentration camps in Southern France showed that no state of starvation, except the final coma, is beyond hope.[4] In the Bengal famine the more severe cases were divided into (1) collapsed cases, likely to die without parenteral feeding; (2) the less collapsed cases, who were capable of recovery when fed by mouth; and (3) those capable of taking a simple milk diet.[5] For the first group intravenous injections of protein hydrolysates, containing glucose, riboflavin, niacine, and thiamin, were recommended. It was claimed that this treatment saved patients who otherwise would certainly have died. The second group needed to be fed with small amounts at short intervals; it might be necessary to feed by nasal tube. This group and the third group were given liquid mixtures supplying 800 to 1,200 calories per day; about half the calories were provided by sugar (4 oz.); the remainder were made up with flour or milk. Recent studies on the efficacy of various nutrients in maintaining life have shown the special importance of aneurine; it would therefore be advisable to give one international unit of aneurine for every gramme of sugar.

TREATMENT OF SEVERE STARVATION

In 1939 Elman and Weiner[6] reported the use of an acid hydrolysate of casein fortified by the addition of tryptophan and by supplementation with cystine or methionine for intravenous alimentation of human subjects; evidence was obtained of satisfactory utilization of the amino-acids, and favourable therapeutic effects were observed. The work of Elman and Weiner constituted a practical application of the observation of Henriques and Andersen[7] in 1913 that nitrogen equilibrium could be maintained in the goat when the sole source of nitrogen was provided by the intravenous administration of amino-acids. During the last few years numerous papers have appeared dealing with the clinical use of hydrolysates of protein for alimentation either by the intravenous or oral routes (for reviews see Gaunt[8] and Cuthbertson[9] and this *Journal*[10]); most of these referred to the use of the American product "amigen," a pancreatic hydrolysate of casein, and it has been stated by Allbright[11] that complete maintenance can be effected with "amigen" and glucose alone for as long as forty days. Some attention has also been paid to acid hydrolysates and to digests of meat prepared with papain. The ideal preparation is yet to be found; pancreatic digests are highly susceptible to bacterial contamination during their production and are therefore liable to be pyrogenic; papain digests, while relatively free from this disadvantage, may contain partial breakdown products of protein which are harmful, and the acid hydrolysates require fortification with tryptophan, which is not a very easily accessible substance. The only report so far published on the use of protein hydrolysates in the treatment of starvation has come from India (Narayanan and Krishnan[12] and Krishnan, Narayanan, and Sankaran[13]); a considerable measure of success was claimed as the result of intravenous administration of papain digests of meat together with glucose to patients who were so far weakened by starvation that they were unable to take anything by mouth. The Indian work was undertaken in conditions of such difficulty that a carefully controlled investigation was not possible, and the evidence for the favourable effect of intravenous alimentation rests on clinical observation only.

The food situation in the Netherlands is exceedingly grave. This applies particularly to the large towns of North-West Holland, where there is good reason to believe that few people have been getting more than 800 calories and where they may now be getting only about 400 calories daily. After considering the data available the Netherlands authorities and the military authorities concerned agreed that the food situation in N.W. Holland was so serious that special measures would be required if a large proportion of the population were to be resuscitated; being impressed by the evidence in favour of the use of protein hydrolysates, they invited the Medical Research Council to advise on the provision of suitable preparations in adequate quantity. At the same time a scheme for the application of the emergency treatment was agreed upon with the Netherlands authorities; this scheme included not only the formation of relief teams but also full provision for clinical and laboratory study of the cases of extreme starvation, so that the best method of treatment might be determined without delay. As the result of work carried out during the last eighteen months the Medical Research Council was in a position to give the necessary technical advice, and in view of the urgency of the need the Ministry of Food and the Ministry of Supply took immediate steps to increase production; with the whole-hearted co-operation of the firms concerned the amount of material which was asked for was produced in less than the specified time. Since it also seemed desirable to test the efficacy of plasma and serum in the treatment of extreme starvation, large supplies of these materials were requested and were furnished by the Lister Institute. The work in Holland is now in progress. Representatives of the Medical Research Council and of the Ministry of Food, together with American experts, are acting, at the invitation of the Netherlands Government, as scientific advisers.

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[3] Tauber, J., *British Medical Journal*, 1945, **2**, 488.

[4] Zimmer, R., Weill, J., and Dubois, M., *New Engl. J. Med.*, 1944, **230**, 303.

[5] Committee of Inquiry into Effects of Starvation, India Research Fund Association, *Treatment and Management of Starving Sick Destitutes*, All India Institute of Hygiene and Public Health, Calcutta, 1943.

[6] *J. Amer. med. Ass.*, 1939, **112**, 796.

[7] *Hoppe-Seyl. Z.*, 1913, **88**, 357.

[8] *Nutr. Abstr. Rev.*, 1944, **13**, 501.

[9] *Brit. med. Bull.*, 1944, **2**, 207.

[10] Leading article on "Intraveneous Alimentation," *British Medical Journal*, 1943, **1** 416.

[11] Bi-monthly Progress Report No. 10, Dec. 31, 1944, to Committee on Medical Research of the Office of Scientific Research and Development.

[12] *Indian med. Gaz.*, 1944, **79**, 158.

[13] Ibid., 1944, **79**, 160.

It is now depressingly apparent that the problem of treatment for extreme starvation is of wide extent; it concerns a proportion of British prisoners of war and large numbers of occupants of enemy concentration and labour camps. Quite recently the Medical Research Council, at the request of the military authorities, has nominated a further team of three experts to proceed to the Continent to study the value of protein hydrolysates in treatment of starvation; this team is already at work with full equipment for the investigation required. Provision has also been made, at the request of the Ministry of Health, for material to be available for repatriated prisoners of war who may reach E.M.S. hospitals in urgent need of treatment. All these demands have increased the need for medical personnel, and use has been made of Belgian and English medical students who were enrolled, trained, and organized in anticipation of such a need. Two methods of treatment were considered. In the first a solution of protein hydrolysate, which may be prepared by complete enzymic digestion ("amigen") or by acid hydrolysis and subsequent fortification with tryptophan, is given by intravenous infusion. The second method consists in administration of the hydrolysate by slow intragastric drip, and in this case the material is an enzymic digest of casein or meat in which the digestion has not been carried so far. In both cases glucose is given in large amount to provide energy and thus to spare the amino-acids for purposes of repair. Vitamins are also given to enable the glucose to be utilized and to prevent the development of acute deficiency states. It is anticipated that successful treatment should lead within three days to resuscitation to the point at which ordinary food may be taken.

It is impossible at the present stage to predict the ultimate value of the protein hydrolysate treatment in extreme starvation, although there is already evidence that the intractable diarrhoea which is a prominent feature of the condition responds well to the intravenous method. It is much to be hoped that the intragastric drip will prove to be a satisfactory alternative form of administration; if so it will become the method of choice, not only because suitable material is so much more easily accessible but also because its use will be free from the risks which, at present at least, seem inseparable from the intravenous administration of hydrolysed proteins. Apart altogether from the prospect that the availability of protein hydrolysates may provide a valuable therapeutic measure in the present medical emergency, the studies which will be carried out offer the promise of useful information for the future; the observations which are made may be expected to have a bearing not only on the immediate problem but also on the treatment of all conditions of malnutrition associated with impaired absorption from the alimentary tract.

CONGENITAL DEFECTS AND RUBELLA

A curious association between maternal infection in pregnancy and congenital malformations in the infant seems to be a new manifestation of rubella. It is unlikely that such a dramatic sequence could have been overlooked in the past. In fact Gregg,[1] who first drew attention to it, traced examples back only until late 1939. Moreover, the defect which first attracted his attention was a congenital cataract which did not conform exactly to any of the clinical types previously encountered. This observation naturally aroused great interest. In a preliminary survey in South Australia Swan and his associates[2] examined 61 infants and found 36 with these congenital defects—cataract, deaf-mutism, heart disease, and mental retardation. The history of these 36 revealed that in 31 of the mothers there had been an illness during pregnancy (usually in the first three months) which was thought to be rubella. In 4 infants there was no maternal history of an exanthem. The mother of the remaining infant, who had a congenital corneal opacity, had had mumps during pregnancy. Viewed in another way, the survey showed that 49 mothers who suffered presumed rubella gave birth to 31 infants with congenital defects; 9 mothers who had had measles in pregnancy all produced normal infants; 1 of 2 mothers who had had mumps bore a child with a corneal opacity. Continuing their observations the same team later reported[3] 10 further examples of congenital defects in association with maternal rubella. Adding these to their 31 previous cases and to the 68 cases reported by Gregg, they find an impressive total of 109 such associations in Australia alone. Further examples have been recorded in America by Reese[4] (3 cases) and Erickson[5] (11 cases), and by Hope Simpson[6] (2 cases) in this country. The main points of agreement in the published data appear to be: (*a*) that the association is with rubella and not with other transmissible diseases (though not without exception); (*b*) that the risk of congenital defect is greatest if the rubella occurs in early pregnancy (i.e., within the first three months); and (*c*) that there are infants with congenital defects in which no link with a maternal transmissible disease can be traced.

Any explanation of the possible sequence of events is to some extent bound to be speculative. The general inference is that the unknown virus of rubella (with virulence possibly enhanced in the war years) is showing the preference of certain viruses for developing embryonic tissue. This it does by attacking the foetus via the placental circulation just at a time when important developmental changes are taking place in the foetal heart and eye. The high incidence of congenital heart disease suggests to these observers that the rubella virus has a primary affinity for vascular tissue, the lens damage being explained by possible indirect action through the hyaloid artery. Swan[7] later demonstrated in 3 infants who died of their defects a disproportionate vascular damage in the kidneys, the principal lesion being a glomerular sclerosis. While this view of pathogenesis is supported by recorded examples of intra-uterine transmission of other virus infections,[8] certain questions remain unanswered. Is the association between presumed rubella and congenital defects a significant one, or does it arise from pure chance? Swan and his associates[9] admit that a survey of the kind they undertook is likely to attract reports of the positive event; hence their material must necessarily be selective, perhaps highly so. Secondly, was the maternal disease rubella? Gregg was doubtful about this, but the other workers appear satisfied that it was so in most instances. In some cases the diagnosis was in retrospect unsatisfactory, and in others hardly justifiable. We cannot exclude the possibility of a chance association between congenital defects and true maternal rubella. A systematic investigation of rubella in pregnant women is called for.

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[1] *Trans. ophthal. Soc. Austral.*, 1941, **3**, 35.
[2] *Med. J. Austral.*, 1943, **2**, 201.
[3] Ibid., 1944, **1**, 409.
[4] *Amer. J. Ophthal.*, 1944, **27**, 483.
[5] *J. Pediat.*, 1944, **25**, 281.
[6] *Lancet*, 1944, **1**, 483.
[7] *J. Path. Bact.*, 1944, **56**, 289.
[8] *Johns-Hopk. Hosp. Bull.*, 1944, **64**, 240.
[9] *Lancet*, 1944, **1**, 615.

CARBACHOL AND ITS ANTIDOTE

Recently two deaths have been recorded resulting from an overdose of carbachol. This is the pharmacopoeial name for the carbaminoyl ester of choline, which is sold in this country under the proprietary name of "moryl." Carbachol is used for these purposes: it is used by injection in a dose of 0.25 mg. for retention of urine or intestinal stasis, it is given as eye-drops to lower intra-ocular pressure, and it is also applied by electrophoresis in rheumatic infections. The first death occurred in an Oxford hospital due to a mistake by which the material intended for external application contained in an ampoule was injected under the skin, with the result that the patient received 400 times the dose intended. The second has now occurred due to precisely a similar mistake. In the comments which have been made concerning these fatal accidents no one has so far called attention to the fact that a completely effective antidote to carbachol is generally available. Carbachol acts in the same way as, though for a longer time than, the substance acetylcholine, which is known to be liberated in the body at the vagal nerve-endings. In excessive dose it causes violent intestinal contraction, vasodilatation, severe cardiac slowing, and secretion of mucus in the bronchioles. All these effects are promptly inhibited by the injection of atropine sulphate in the ordinary dose. Many antidotes are suggested for poisons of one sort or another, and these antidotes are effective in varying degree. Some are found in practice to have very little action at all. So far as it can be assumed that the human being behaves like the dog or the cat, it is safe to say that atropine is a perfect antidote for an excessive dose of carbachol, and that if it were given very large doses of carbachol would be immediately neutralized.

THE HEART IN RHEUMATOID ARTHRITIS

How far rheumatism and rheumatoid arthritis may be regarded as manifestations of the same disease, having a common aetiology, has been much discussed for many years. There are certainly points of similarity in the cardiac lesions, and they appear to occur more frequently than coincidence would allow. The report by Dennison Young and John Schwedel[1] of post-mortem findings in 48 cases of rheumatoid arthritis is therefore of interest. In only 6 of these cases were the patients under the age of 45 at death, and, of these, 1 appears to have died of acute rheumatism. In 24 cases the lesions were thought to have some resemblance to those of acute rheumatic carditis. Except in 2 cases all these lesions were old and healed, which is not surprising, as many of the patients were old. In several the valves were calcified. In 10 cases there was pericarditis. The incidence of disease on the several valves was similar to that of acute rheumatism; but the description of the valvular lesions is hardly detailed enough, and the incidence of mitral stenosis is not given. Microscopical examination of the myocardium showed Aschoff bodies only once, in a young patient; but again this is not surprising, as the majority of the patients were old at death. Scarring in the myocardium was found in only 2 instances, which seems an unduly low incidence for acute rheumatism. In one instance acute pericarditis was present at the age of 75, and in several bodies there was an obliterated pericardial sac without valvular lesions, which is a curious observation. In rather a large proportion of cases clinical examination had given negative results, perhaps because the lesions did not give rise to conspicuous physical signs.

From a cardiological point of view these cases were not typical of rheumatism. There was little cardiac disability; but it must be noted that the patients were for the most part unable to get about. Although the age incidence is different, we may recall the rheumatoid arthritis of children (Still's disease), in which pericarditis is not uncommon but endocarditis is rare. Young and Schwedel are inclined to think that rheumatoid arthritis and acute rheumatism are fundamentally the same. The question will remain undecided until the aetiology of both is known. While there is much to support the view that they have a common cause, there are considerable differences in morbid anatomy, clinical course, and response to salicylates. Further studies of the cardiac lesions of rheumatoid arthritis will be of interest.

ADRENALINE AS AN ANALGESIC

Adrenaline has been used to reduce the pain of leprosy since the observations of Muir[1] in 1927 and of Wheatley[2] in the same year: they recommended the intramuscular injection of 0.25 mg. adrenaline—that is, 0.25 c.cm. of the pharmacopoeial solution—because of the striking relief it gave. In 1928 Muir and Chatterji[3] recommended ephedrine by mouth for the same purpose: 30 mg. ephedrine sulphate relieved pain in 15 to 30 minutes, and the effect lasted for 12 hours or longer. The most reasonable hypothesis to explain this action is that the pain is due to leakage of fluid from the capillaries at the site of the leprous reaction, leading to swelling and tension. Adrenaline would make the capillaries less permeable, arrest the leakage, and diminish the tension. Ephedrine would raise the concentration of the patient's own adrenaline by lessening its rate of destruction.

Ivy and his colleagues at the Northwestern University in Chicago[4] have recently investigated the statement that adrenaline has an analgesic action. There is the clinical evidence of its use in leprosy, and experimental evidence obtained by Kiessig and Orzechowski.[5] These authors observed a rise in the pain threshold after intravenous or subcutaneous injection of ephedrine and other sympathomimetic substances such as amphetamine and desoxyephedrine. Ivy and his co-workers injected 0.1 mg. adrenaline into the carotid arteries of dogs and into their veins. They measured the pain threshold by preparing the dogs with two metal fillings in the cuspid teeth, so that a current of measured voltage could be applied through the fillings. They determined the peak voltage necessary to produce the slightest reaction. After intravenous injection the threshold rose so that the dog's sense of pain was least after 45 minutes, and the diminished pain sense was still obvious after 2 hours. This diminished sensation was peculiar to pain, for the dogs' scratching and attempts to catch fleas continued after the adrenaline injection, when they were analgesic, as before. Similar observations were made on human subjects. The authors consider that there is a specific action of adrenaline on the pain-perceiving mechanism, and prefer this view to the possibility that the cortical stimulation, which the injection of so large a dose of adrenaline evokes during the next ten minutes, results in some reflex inhibition of the thalamic pain centres. They think the analgesic effect lasts too long to be explained thus.

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[1] *Amer. Heart J.*, 1944, **28**, 1.

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[1] *Proc. roy. Soc. Med.*, 1927, **20**, 997.

[2] *Ann. Rep. med. Dept. Straits Settlements*, 1927, **18**, 71.

[3] *Indian med. Gaz.*, 1928, **63**, 198.

[4] *Quart. Bull. Northwest. Univ. Med. Sch.*, 1944, **18**, 298.

[5] *Arch. exp. Path. Pharmakol.*, 1941, **197**, 391.

A RAPID METHOD OF LOCATING SHELL FRAGMENTS, USING X RAYS

BY

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The following method of locating foreign bodies (metallic), with the assistance of *x* rays, is thought worthy of description by reason of its extreme simplicity and the rapidity with which it enables shell fragments to be removed when deeply embedded in muscle.

The method was developed in the County Hospital, Dover, where from time to time numbers of badly wounded patients were admitted as a result of naval actions in the Channel and hostile cross-channel shelling. The majority of these patients were severely shocked and had large pieces of shell fragments in their limbs.

It is difficult and time-taking to find and remove these F.B.s, particularly in the thigh. This task was aggravated when the F.B. eventually came to rest, deep in the limb muscle, some 10 to 12 in. from the entrance wound. The method has also been of use in removing F.B.s in the forearm and vertebral muscles. When the F.B. is palpable under the skin no accurate location is of course required.

The problem is to correlate accurately and quickly the radiographic appearance with the limb as it lies on the operating table. If anatomical landmarks are available the problem is to some extent solved, but with this apparatus no landmarks are necessary.

The Apparatus

(1) Camel-hair brush.

(2) Solution of gentian violet in ether.

(3) Strip of adhesive tape 30 in. long, containing symmetrically spaced lead shot (gauge 6 from a twelve-bore cartridge). This is made by placing a piece of tape, 1 in. wide by 30 in. long, on a table with the sticky side up. The shot is placed firmly on the sticky surface at intervals of 1 in. (See Fig. 1.) Cardinal points are marked by three pellets—i.e., at every 12 in. The pellets are enclosed by a second strip of adhesive tape placed over the first, adhesive sides together. (See Fig. 2.)

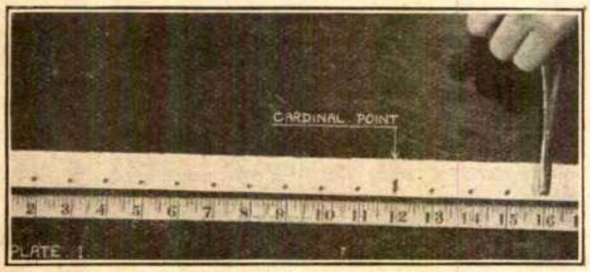

FIG. 1

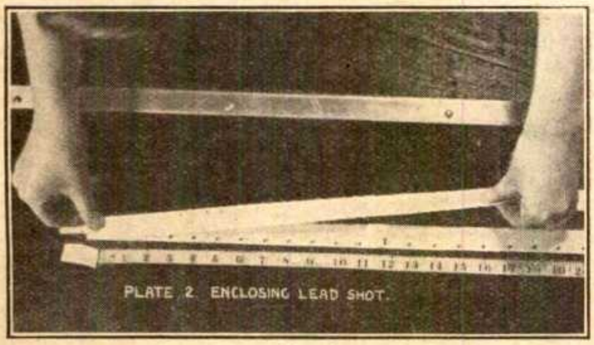

FIG. 2

Technique

The injured limb is stripped of clothing preparatory to examination and radiography. The tape is laid along the length of the limb and the gentian violet solution is applied in small dots to correspond with the lead shot in the tape, particular attention being paid to the cardinal points. (See Fig. 3.) A cardinal point is laid in the same transverse plane as the entrance wound where possible. The ether evaporates rapidly, leaving the aniline dye strikingly marking the skin. (See Fig. 4.) The whole technique takes but a few seconds, and every patient with a suspected F.B. can be marked as a routine. Thus at operation the gentian violet dots on the limb correspond to the opaque lead shot on the *x*-ray film. The transverse plane of the F.B. is at once evident. A lateral skiagram of the limb will show whether the F.B. lies anterior or posterior to or level with, say, the femur. The technique is not used on the lateral views as this is unnecessary and raises difficulties in the shot-F.B.-film distances to overcome distortion.

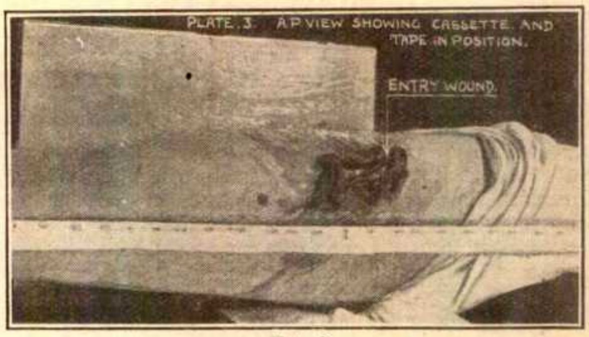

FIG. 3

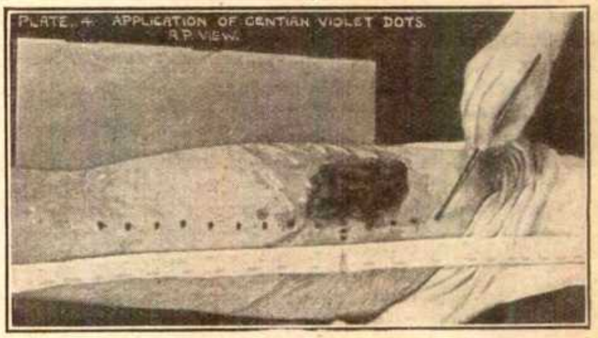

FIG. 4

In no way is this method intended to compete with the more elaborate methods of F.B. location, which no doubt are of first-class use in more leisurely circumstances.

I am indebted to the Medical Director-General, Royal Navy, and to Mr. A. R. Jordan, F.R.C.S., medical superintendent of the hospital, for permission to publish. Acknowledgment is made to Mr. J. Sutherland, M.S.R., for his enthusiastic co-operation.

IMPERIAL CANCER RESEARCH FUND

The annual general meeting of the governors of the Imperial Cancer Research Fund was held at the Royal College of Surgeons on April 18, when the 42nd annual report was presented by Prof. H. R. Dean, the chairman of council. Appropriate mention was made of severe personal losses which the Fund has suffered in the death of Sir Humphry Rolleston, who was chairman for 16 years; Sir John Ledingham, who was a visiting research worker in the laboratories of the Fund; and Viscount Dawson of Penn, Sir Cuthbert Wallace, and Sir Thomas Barlow, all of whom had been closely connected with the Fund for a long period. The Fund during last year received in legacies over £48,000, a larger sum than in any previous year in its history. Subscriptions also increased by £827. Viscount Halifax was re-elected president and Sir Holburt Waring treasurer.

Scientific Work

A report was made on the work done by the seven members of the scientific staff and the four visiting research workers. Further study has been made of the retarding effect of sulphur inhibitors on carcinogenesis. Mr. H. G. Crabtree, working on the induction of tumours with pure chemical substances, has produced evidence that aldehydes and a number of other substances which specifically lower sulphur metabolism in cells cause not only a retardation but in certain conditions a reversal of the carcinogenic action of benzpyrene and dibenzanthracene.

Extensions of these observations are in progress, grouped around the central idea that chemical carcinogens, or their products, exert their influence through sulphur linkages in the cell.

Work has also been continued on the stimulating effect of wound healing on tumour development in mice. When papillomas and cancers appear in the scars of skin wounds it is rather natural to regard them as a consequence of the stimulus of healing, but there is no measure of the extent to which they may be ascribed to chance and to such stimulating action respectively. When tested it was found that more than half the tumours which appeared on scars did so entirely by chance, and the difference is insufficient to enable the remainder to be ascribed to stimulation. But the possibility that wound healing can in fact overcome refractoriness towards tumour development when this is due to latency of neoplasia is not ruled out. Some work suggests that multiple injuries are more effective than a single injury in overcoming this refractoriness, and that repeated excision at the same site may result in a number of localized tumours significantly greater than that due to chance alone.

The factors concerned in sarcomatous transformation during the transplantation of mammary cancers in inbred strains of mice have been investigated. So far as the work has gone the results emphasize the significance of the stimulation of fibroblastic growth by the carcinoma cells and the survival of the stromal cells owing to their being of the same genetic constitution as the cells of their new hosts. Another subject of investigation is the action of stilboestrol on induced prostate tumours in mice. When stilboestrol is applied at the time of tumour transplantation the growth of the tumour is retarded, or even completely inhibited, but when it is given after a palpable tumour growth has appeared it has been found to have no effect.

Hormonal Stimulation

Prolonged oestrogen treatment has been found to produce in the rat a tumour-like enlargement of the anterior lobe of the pituitary gland, but in the guinea-pig and the rabbit it has not this effect, while in the hamster the reaction takes place in other parts of the gland. It was thought possible to combine the stimulus provided by excess of oestrogen with some other hormonal change affecting the gland, the objective being to overload the physiological reactions of the gland in order to alter the purely hyperplastic character of the resulting growth and perhaps to reach a reaction of true malignant and invasive nature. Thiourea offered an easy method of physiological stimulation of the pituitary body, and by combined treatment with oestrogens and thiourea it is possible to submit the anterior lobe of the pituitary to two different stimuli of a physiological character—namely, absence of thyroxine and continuous presence of oestrogenic hormone.

Accordingly experiments, which are still in progress, have been tried out on rats. Thiourea (in the drinking-water) has been administered to animals in which stilboestrol pellets had been implanted, and it has been found that the character of the pituitary growths differs essentially from those treated with oestrogens alone. The results so far have been partial, but in at least one of the rats growth was able to invade the brain extensively. The cytological character of such tumours differs also from those produced only by oestrogens. In oestrogen-produced enlargements the hyperplasia consists only of chromophobe cells; in these experiments a remarkable abundance of acidophil cells is produced in the growth. It is considered that this effect may help in clearing up the doubt as to which cells are responsible for the production of thyrotropic hormone, but at present all that can be said is that the growths differ essentially from those produced by oestrogens.

R. A. Nelson and L. Duncan (*Bull. Johns Hopk. Hosp.*, 1945, **75**, 327) record their observations on 10 cases of acute syphilitic meningitis treated with penicillin. The immediate results were excellent from both the clinical and the laboratory aspects. Though penicillin did not appear in the cerebrospinal fluid even after repeated intramuscular injections, the drug was effective when given intramuscularly. No clinical relapse occurred. The treatment varied from 600,000 to 4,000,000 units in any one patient and the duration of treatment from 7½ to 11 days.

Reports of Societies

SCRUB TYPHUS

In a lecture at the Royal Institution entitled "Natural History of Scrub Typhus: A Problem on the Asiatic Front," Prof. P. A. BUXTON, F.R.S., said that the work of the last ten years on diseases of the typhus group had permitted us to understand certain sides of them much more clearly. It was now known that there was one disease of this group widely spread in Eastern Asia, transmitted from rodents to man by what we should call harvest mites. It should be known as scrub typhus or alternatively as mite-borne typhus. No good general account of it, particularly from the entomological side, was available in print. The disease was of considerable imperial importance.

The natural history of the disease was complex, and it might be best to approach it by indicating what was known about the so-called "harvesters" of Britain and Northern Europe. They were the larvae of *Trombicula autumnalis*; the so-called "chiggers" of North America were closely related. These larvae, a fraction of a millimetre long, attached themselves to the skin of rodents, man, birds, etc., and held on for several days. They dropped into the soil, moulted to become a nymph, moulted again to become an adult, and the female then laid eggs. Knowledge of the life history in the soil was fragmentary, but it seemed to be established that the nymph and adult were vegetarian or that they fed on decomposing organic material. It seemed that there was only one species in Britain, and there was probably only one generation in the year. The rabbit and the bank vole were important hosts of the larva. Larvae were common on the bank vole in late summer and autumn and after that diminished through the winter, to fall to a minimum in June. The species occurring in Britain seemed to be localized to light soils, particularly those which were chalky, and the distribution was often extremely patchy. It seemed probable that by applying methods worked out for problems of soil entomology much might be learned about the biology of this creature. In attaching itself to the mammal, the larval *Trombicula* ejected a digestive juice which caused an area of hyaline degeneration: this often took the form of a sharply defined column, vertical to the skin. Nothing was felt at the time when the larval mite was puncturing the skin, but some hours later irritation developed in some, but not all, human beings. The irritation might be quite serious, particularly to troops living in the field.

In South-East Asia there were many genera and species of trombiculid mites, and the larvae of a considerable number of them attacked man. Rodents were certainly important hosts, and the natural history of scrub typhus was very complex because of the variety of rodents in that part of the world. The larvae were important because they transmitted the infectious agent producing the disease called scrub typhus. The earlier work was mostly Japanese and showed that the larva of *Trombicula akamushi* fed normally on voles (*Microtus*), on alluvial soils. It transmitted infection from vole to vole or vole to man. As the mite fed on a mammal only once in its life history, the infection must be hereditary, and the virus had actually been recovered from wild adult mites. A similar or identical infection, always transmitted by larvae of *Trombicula*, was known or believed to occur in the great triangle bounded by Japan, New Guinea and Northern Queensland, Ceylon, and the Maldives. Within this great area the disease might occur under exceedingly different environmental conditions—e.g., in equatorial forest, or in grassland, or on barren islets and atolls.

In man the disease was generally serious. There was a small ulcer at the site of attachment of the larval mite, accompanied by high fever. The disease was widely distributed over the area of South-East Asia, and as men were living and fighting in jungle it had proved much more common than generally expected. It tended to be highly localized and to produce occasional outbreaks with a very variable but serious death rate.

Correspondence

Institutional Maternity Service

SIR,—The letters on women in labour by Dr. John Elam (April 7, p. 495) and on infant deaths by Dr. S. H. Waddy (April 14, p. 529) to my mind both point in one direction—namely, to the need for encouraging a home maternity service, and to discouraging institutional maternity provision. At present, particularly since the wartime establishment of maternity homes for the wives of Service men, the tendency has been towards more institutional maternity provision with, I believe, the following unhappy results.

(1) Owing to the shortage of nursing staffs in maternity as in other hospitals the woman in labour is only too often left alone "to get on with it," with or without an analgesic apparatus. This is a great cruelty to a young woman undergoing the tremendous experience and ordeal of her first confinement. She is a stranger in a strange place, attended through her many hours of labour by a series of nurses, who, however kindly intentioned, can only regard her as a number—bed or ward. At home she would undergo her great experience in the care of one nurse, probably the district nurse, to whom she is already known, and as Mrs. X. of Z. Street. It is sometimes stated that the presence of the patient's family, anxious as they inevitably are, intensifies the patient's own anxiety and consequently the difficulty of her labour. But is it not more likely that the patient draws comfort and reassurance from the nearness of interested people?

(2) Dr. Waddy refers to the harmful, even under certain conditions fatal, results of the institutional custom of rolling new-born babies into tight little mummies with arms pinioned. The justification for this is said to be that it induces sleep by the sense of security it gives by reproducing as closely as possible the non-stimulating intra-uterine environment. Even where physical damage is not done, may not the subsequent sleep represent not so much a reaction to a feeling of security as a withdrawal from life in the face of frustration of normal impulses to muscular activity and self-defence—a first withdrawal from a too difficult reality, setting a pattern for later regressions and withdrawals in the face of difficulty, and producing an inhibited and introverted personality.

(3) Another characteristic of institutional maternity not referred to by Drs. Elam and Waddy is that the baby spends most of the first ten days (or more) of its life away from its mother, who is allowed to hold it only at feeding times, and then frequently in the presence of a third person, the well-intentioned but officious nurse directing the whole process and often producing thereby an anxious mother and an agitated, lethargic (=withdrawn), or even shocked baby. (See *The Nursing Couple*, by Dr. Merrill Middlemore.) The late Dr. Ian Suttie (*Origins of Love and Hate*) postulated an inherent social instinct, and believed that the first personal relationship is spontaneously sought by the suckling with its mother. The development of this—all-important for the subject's future happy adjustment in life—is suppressed and crippled at its very beginning by maternity-home methods.

When the baby is not a first one a confinement at home is also far less upsetting to the "dowager baby." It is upsetting enough to have mother upstairs in bed and absorbed in a newcomer, but at least she has not disappeared, apparently for good. One little girl refused to accept her mother on her return with the new baby as the same one who went away. She said, for instance, "My other Mummy used to have a blouse like that." One can surmise what a shattering disturbance of her sense of security this acceptance of a complete loss must have meant.

Hygiene and asepsis have been allowed to outweigh all else in the modern development of maternity techniques, with the result that the profound significance of the personal experience and emotional development of the human beings involved has tended to be overlooked. And even as regards hygiene and asepsis, are the good results commensurate with the provisions made and the precautions taken? Is it not the case that more cases "go septic" in maternity homes than in patients' own homes where the mother has gained a fair immunity to her local germs? Personally, I know I have been happier conducting a confinement and puerperium in the patient's home than in hospital or maternity home, in spite of the fuller provision of facilities and the smaller demand on one's time in the latter. Why? Because the *psychological* atmosphere is more normal, more friendly and easy, and much more stimulating. All of us were happier, I believe—patient, nurse, and doctor—and if that was the case, then it was surely happier and healthier for the newcomer as well.—I am, etc.,

Peppard, Oxon. LAURA HUTTON.

Civilian Mass Radiography

SIR,—I would like to compliment you on the critical but fair review in your leading article on civilian mass radiography (April 14, p. 521). It seems to me that the criticisms which you raised against civilian mass radiography in general do not apply to the Nottingham Corporation Mass Radiography Unit, as this unit is run on slightly different lines from those laid down by the Ministry of Health in the Advisory Report on Mass Radiography.

The City of Nottingham's unit has the Chest Radiography Centre as its home base. The ground floor at this centre is devoted entirely to mass radiography. This does not mean that the *x*-ray unit is completely static, because the unit is transportable and is taken to factories of sufficient size to justify this step. The first floor at the centre is equipped as a modern chest diagnostic out-patient clinic, and deals with the abnormal cases discovered by mass radiography. Equal attention is paid to all diseases of the chest, whether tuberculous, non-tuberculous, or cardiac. All abnormal cases are seen at this centre and are fully investigated here both clinically and bacteriologically, and those that require in-patient investigation are referred for admission to the sanatorium or general hospital, as the case may be.

I would like to draw attention particularly to the special out-patient clinic which is held at the centre for the symptomless minimal tuberculous cases. These cases are under the personal supervision of the medical director, and are referred to the tuberculosis officer only if the lesion should spread or there are definite indications for sanatorium treatment. In this way the symptomless minimal case is kept under the supervision of one observer and renders "follow-up" investigation an easy matter. Further, this method lends itself to the application of research work in these cases. I find from experience that the patients in this city are most co-operative; that many are willing to attend our chest radiography clinic, without being labelled tuberculous, who would refuse to attend the tuberculosis dispensary for this very same reason.

In Nottingham close co-operation exists between all the branches of chest work for the rapid disposal of those cases detected by mass radiography. It is useless detecting early cases of pulmonary tuberculosis unless something is done for them, and with a minimum of delay. As a rule cases referred from the mass radiography unit are seen by the tuberculosis officer at the dispensary within *one* week of their clinical examination at the Chest Radiography Centre. Early cases of pulmonary tuberculosis which need priority admission to sanatorium have been admitted to sanatorium within *two* weeks of their being seen by the tuberculosis officer. It is no exception for a patient to be admitted into the sanatorium within three to four weeks of the first clinical examination after mass radiography. Detection of early cases requires early disposal.

It is my intention, as medical director of the Chest Radiography Centre, to visit the sanatorium at regular intervals in order to "follow up" the cases diagnosed through our mass radiography unit. Already we have held such a session, which included the medical superintendent of the sanatorium, his assistant medical officer, and myself. Cases were fully discussed, with profitable results to all concerned. Only in this way can we hope to learn the most about these symptomless tuberculous lesions. The organization for the disposal and treatment of the non-tuberculous case is just as comprehensive.—I am, etc.,

Chest Radiography Centre,
Nottingham.

A. E. BEYNON,
Medical Director and Physician.

Sulphonamides in Measles

Sir,—I was very interested in the observations recorded (April 21, p. 567) by Dr. J. Frankland West. He writes that he would be interested to know whether similar results have been experienced.

I have just experienced a similar successful result by treatment with sulphadiazine. This was given to a boy aged 5 years when I found him to have a temperature of 100.5° F., with no physical signs, and it was given in the hope that, should some serious condition develop that would later need such treatment, a good start would have already been made. I did not then have reason to suspect developing measles, which did come on after three days. The attack was surprisingly mild, with very slight cough and no inflammation or any soreness of the eyes; there was a very sparse rash, and the whole condition cleared up within 48 hours.

This child's sister, a year older, developed measles. She was first seen by me when the rash and other symptoms made the diagnosis obvious. At that time it did not occur to me that the chance giving of sulphadiazine to her brother had any beneficial effect on the attack of measles, and she was not given this drug; she had a most severe attack, with a higher temperature, very sore discharging eyes, a very profuse rash, and a marked lengthening of the attack.

More extensive statistics on the effect of this drug on measles would, I consider, be most useful.—I am, etc.,

London, N.W.1. M. D. Ripka.

Sir,—I should like to testify to the highly beneficial effects of sulphathiazole in measles. In the recent epidemic, in which I saw some 106 cases, I gave it at first to the more severe cases, and its effect was so striking that I began giving it to nearly all cases, with equally almost astonishing results. The epidemic though heavy was only mild, in that spring measles is generally milder than the winter type.

I am convinced that, pneumonitis or no pneumonitis, sulphathiazole is also a "specific" for measles. The usual complications, particularly otitis media and pneumonia, thanks to sulphathiazole, worked out at less than 6% with no deaths, while the duration of the illness was curtailed by half. I wish to emphasize that, while the majority of cases were mild, there were many severe cases too.—I am, etc.,

Kennington. H. J. Powell.

Sir,—I treated nearly all my cases during the recent epidemic with sulphanilamide and got excellent results. I gave sulphadiazine to one patient, whom I suspected was developing measles, merely because a friend who was with me (we were stopped on the road on Easter Monday while on our way to see a patient of my friend) had some sulphadiazine in his car. The child did develop measles, and I switched over to sulphanilamide with the usual good results. This may interest Dr. J. Frankland West, whose letter has prompted this.—I am, etc.,

London, W.11. Ralph Jones.

Sir,—Dr. Frankland West's experience with sulphadiazine in measles prompts me to send in mine. A couple of years back I had fourteen cases in a girls' residential school. It was a severe epidemic of measles, to judge only from the temperature, which ranged between 103.5° F. and 105° F. at the peak of the illness, and there were no complications, due undoubtedly to the same sulphadiazine. The ages of the patients were from 5 to 15; all of them were given 1 g. of the drug as an initial dose, followed by 0.5 g. four-hourly till the temperature was normal. In no case was treatment begun before the diagnosis of measles was established before the appearance of the rash. In every case except the 5-year-old patient the rash had faded and the temperature dropped to normal in 48 hours. In the only resistant case this took 96 hours. The patients, moreover, suffered little "illness" once under the influence of the drug, and returned to a normal diet more quickly; in fact their worst phase was while waiting for the rash to appear.

This does raise the question of the period of isolation in such cases, and also of the immunity they developed. There was no question of their well-being. A factor strongly brought out was the good effect on their skins. Those who had previously suffered from acne seemed to have procured a new skin!

A child of 6 months, seen last month with a temperature of 102° F., a persistent cough, and a rash, and also diagnosed as suffering from measles by another medical man, lost rash, temperature, and cough on 0.15 g. sulphaguanidine twice a day for a period of 3 days. This latter drug I have found extraordinarily effective in this dose 2-hourly for the influenza which seems to correspond clinically with the "genuine" disease and which responded poorly to both sulphathiazole and sulphamezathine.—I am, etc.,

Hereford. T. Pires.

Sulphonamide Therapy in Otitis Media

Sir,—I have read with great interest as a country practitioner your correspondence on sulphonamide therapy in otitis media following the letter of Mr. A. R. Dingley (March 24, p. 422). Does he yet realize that the vast majority of cases we general practitioners see are at an early stage, which he, as a consultant, will rarely be called to see? I find that the pain is almost invariably relieved after the second dose of the drug, but the drum must be inspected frequently and carefully if the occasional case which proceeds to suppuration and requires timely paracentesis is to be detected. If this routine is carried out competently with an adequate auriscope, and some means of testing hearing, I regard the treatment as absolutely safe.

Parents are beginning to realize now that we can do more than give anodynes if called to treat their children in the early stages. Furthermore I find that if an attack can be aborted early there is no longer that increased liability to subsequent attacks in the presence of nasopharyngeal infection, which invariably follows a first attack when suppuration and discharge have taken place.—I am, etc.,

Bakewell. Sinclair M. Evans.

"Predisposition" to War Neuroses

Sir,—Dr. Frederick Dillon in his letter (April 21, p. 570) says that in my article (March 31, p. 444) it is suggested that "predisposition to breakdown under war conditions can be correctly estimated from the occurrence of nervous and mental illness in the family and personal history of the patient and from a poor work record." I would not dare to suggest that it is possible to estimate *correctly* when a patient is likely to break down even under stress of war. Many patients fulfil these factors as to predisposition and are able to withstand the shocks and stresses of war. On the other hand, if these factors are to be ignored why do the great majority (I cannot give the exact figure) of the admissions to this neurosis centre satisfy these conditions?

Surely the control group can be supplied by those patients who are admitted to the surgical side and who show no evidence of neurosis and no predisposition in the form mentioned. Even some of those with *no* predisposition break down if the stresses are severe enough.

I agree with Dr. Dillon that a number of neurotics have made excellent soldiers, but these are the exception rather than the rule. I also agree that mildly obsessional persons often have excellent work records, but when they develop obsessional neuroses the work does suffer as a result. Abnormal personality traits alone of whatever type do not constitute predisposition, but when added to the other factors mentioned, surely the risks of a neurosis developing in such an individual are considerably increased when exposed to the stresses of war.—I am, etc.,

Sutton Emergency Hospital. Louis Minski.

Malaria in West Africa

Sir,—I was most interested in the article by Squad. Ldr. D. G. Ferriman on the diagnosis of malaria in West Africa (March 10, p. 328), and especially the section on subclinical malaria. This condition and that of clinical malaria—i.e., cases in which positive blood films are not found—are forming the majority of the cases seen out there to-day.

Although no reference is made to the period during which the data were obtained, it appears that it would be before 1944, because during that year the suppressive dosage of mepacrine was increased from 0.2 g. twice weekly to 0.1 g. daily. With this change of dosage there has been a very definite change in the relative incidence of the three types—M.T. malaria, clinical malaria, and subclinical malaria—as reported in the article, and it is this fact that has led me to write this letter, which is not intended as a criticism of a very excellent article.

In the early period of 1944 I was fortunate enough to conduct an experiment with the increased suppression dose. The station was divided into two equal groups, each barrack block being divided equally, both numerically and, so far as possible, by trades, as night workers (e.g., wireless operators) were found to have a greater incidence than other trades. One half were then given the old dose of 0.2 g. mepacrine twice weekly, and the others were given 0.1 g. for six days a week. Unfortunately the experiment was terminated some two months later, before really reliable statistics could be obtained, by the introduction of a suppressive dose of 0.1 g. daily to all personnel, but there were definite indications that the increased dosage reduced both the primary and secondary attacks of malaria considerably. More marked, however, was the reduction in the number of positive slides obtained. These indications were more than confirmed with the introduction of the daily suppressive dose of 0.1 g. mepacrine. Positive blood films became much less frequent, and in fact furnished some indication of the state of antimalaria discipline on the station. If more than 50% of cases were found to have positive slides, it could be assumed that discipline was lax. I also found the examination of blood films of value in assessing whether or not a patient had been taking his suppressive mepacrine. In most positive slides parasites were relatively scanty, and the rings usually poor, woe-begotten affairs. If a textbook appearance was found it was almost certain that suppressive mepacrine was not being taken regularly, and in most cases a direct challenge to the patient would substantiate this fact. To obtain 90 positive slides out of 136 consecutive low-fever cases, as reported in the article, would be most exceptional to-day.

Regarding clinical features, temperatures of more than 102° F. are rarely seen in my experience. Splenomegaly was not found to be anything like as high as the 25% quoted in the article; it occurred in less than 10% of the cases I saw, but tenderness over the spleen and under the left costal margin was very frequent. The description of the anomalous behaviour of malaria resembling other diseases, and also that of subclinical malaria, was greatly appreciated, as these are the types of malaria most commonly presenting themselves to a Service medical officer. In this connexion I found that a careful history of the two days before reporting sick was of great value, especially in those cases where the temperature was between 99 and 100° F. In nearly all cases of clinical and subclinical malaria the following history could be obtained, in most cases without the use of leading questions.

There would be the development of lassitude, and a feeling of over-tiredness during the afternoon, and by evening there would be a definite anorexia associated with varying degrees of headache. Usually the headache was occipital and slight. This would be followed by a poor night's rest, but on rising the following morning the headache would have disappeared and the appetite returned; there would still be a disinclination for work. Work would be begun, however, and during the forenoon the headache would recur and increase in intensity throughout the afternoon. The anorexia would return, and if the man did not report sick at this time he would usually retire early without his evening meal. He would have a good night's sleep—often described as "a very heavy sleep"—but when he awoke the headache and anorexia would be marked, and he then usually reported to the medical officer. The remission of headache and anorexia on the first morning with a return of the symptoms later in the day was not found in cases of upper respiratory tract infections, between which and clinical malaria a differential diagnosis has most frequently to be made.

A good case history was found to be of increasing importance in the diagnosis of malaria as found in the Service to-day, as the classical signs and symptoms of high temperature, rigor, enlarged spleen, and positive blood films are rarely seen. It is more than likely that these will be even less often found with the introduction of this new scheme whereby all personnel shall have had 1.75 g. of mepacrine before landing in Africa, or shall be given additional doses of 5 gr. quinine daily until they have had this amount of mepacrine. I personally had had only 0.4 g. prior to landing and this appeared to be about the average amount of mepacrine taken before landing in 1943 and early 1944. As a result the malaria incidence was relatively high in personnel during the first two months on the coast, because there was not a sufficient concentration of mepacrine in the tissues to afford protection, and it was in these cases that I found the highest percentage of positive slides.—I am, etc.,

J. C. HUTCHINSON,
Flight Lieut., R.A.F.V.R.

Treatment of Cerebral Malaria

SIR,—In the *Journal* of April 21 (p. 560) the leading article on pathogenesis of cerebral malaria, and on page 567 the letter on adrenaline in the treatment of malaria by Lieut.-Col. D. C. Macdonald, claim attention. In spite of statements to the contrary, cerebral malaria is nearly always due to *Plasmodium falciparum* infections, neglected, unrecognized, masked, ineffectively treated, or misdiagnosed. Special strains of *Plasmodium falciparum* are particularly liable to produce this complication —e.g., the variety current in the region of Kermanshah. The absence of demonstrable malaria parasites in the peripheral blood not infrequently makes diagnosis a bit harder. Blood films of venous blood, or liver, spleen, or sternal puncture, are of value occasionally, but often are disappointing. The erythrocyte sedimentation rate can be helpful. Intravenous saline, which can be used as a vehicle for quinine bihydrochloride or for adrenaline, is usually a necessity: these drugs may be injected with a hypodermic needle into the rubber tubing of the saline infusion set. It is necessary to warn against the injection of quinine bihydrochloride solutions into the rubber tubing of a set giving citrated blood, since troublesome clotting will ensue. Even after intravenous quinine it is advisable to test for quinine any sample of urine that can be obtained.

Patients who remain obstinately unconscious after repeated intravenous injections of quinine are encountered from time to time among the cases brought in too late for effective therapy (as reported by Col. A. W. D. Leishman and Capt. A. R. Kelsall, *Lancet*, Aug. 19, 1944, p. 231) and confusion with the prolonged coma of hyperthermia is a possibility which nearly always has to be considered. The modern Army system of prophylaxis (one tablet of mepacrine a day) will prevent blackwater and cerebral malaria, not completely perhaps, but very nearly. Idiosyncrasy to this drug may be rare, but does occur. Prophylactic quinine may not be absorbed, and urine tests for quinine—or the mixture of methylene blue with the preparation used—are advisable. Inspection of the urine of a patient taking mepacrine or "blued" quinine is often enough, but is a wise precaution. In the "shock-like" condition of malarial coma, intravenous adrenaline may release adrenocortical hormones (Voge), perhaps an explanation of the undoubted benefit which follows.

Spleen contraction for convalescents taking anti-relapse courses may be encouraged by two-mile walks, cold baths, sunbathing, swimming, hill-climbing, aeroplane trips, and breathing carbon dioxide from a mask as well as by injections of adrenaline, effective as this procedure may be. The spleen is not the whole story: capillaries in other abdominal viscera, the lungs, muscles, glands, and skin all may harbour the parasites of relapse in closed sections opened by exercise, etc.—I am, etc.,

FRANK MARSH,
Pathologist, A.I.O.C.

Intestinal Obstruction by Gall-stones

SIR,—I have read the article by Mr. Maurice Lee on intestinal obstruction by gall-stones (April 21, p. 555) with interest, because in December, 1944, within a few days of each other I encountered and operated upon two cases which occurred in my own general practice. Both cases were in elderly females. Case 1 was a typical case of acute intestinal obstruction. The gall-stone was lodged near the end of the ileum. Case 2 was unusual. The patient was fat and florid and suffered from myocardial degeneration, and as a result of clinical and radiological investigation I diagnosed a probable "ring" stricture in the pelvic colon. With the intention of performing a colostomy I opened the abdomen through a left grid-iron incision, and was agreeably surprised to find a large gall-stone (rather less than the size of a golf-ball) lodged at the pelvi-rectal junction and easily "milked" upwards into the pelvic colon and removed through an incision in the bowel wall. The patient made a good recovery and returned home much improved by her enforced rest and reduced diet.—I am, etc.,

Dunfermline. A. Campbell MacEwen.

Gonorrhoeal Arthritis

Sir,—In September, 1935, while in India, I published in the *Lancet* the results of my work on fresh and chronic cases of gonorrhoea treated by pyretotherapy, using T.A.B. vaccine. I have since mentioned those findings in the *Journal* of Oct. 21, 1944.

I should now be glad if you would afford me space to publish the results of a chronic case of gonorrhoeal arthritis of two years' duration, in which the patient had persistent pain and could not move without a stick but is now able to do so without any pain after a period of treatment of only a fortnight. In this case I used a *B. coli* vaccine.

History.—Fresh infection 1927. Treated at a V.D. clinic for six months, then discharged as cured. In March, 1943, suddenly developed arthritis in both ankles, which became very tender, painful, and swollen. Was in bed for 5 weeks and has had to use a stick since. He is still attending a V.D. clinic. Since that time he has developed pain and stiffness in both shoulders and in the spine. His feet are flat, his toes over-ride each other in their deformity. This man was once an athlete and runner, with well-formed feet.

Present Condition.—He is unable to walk without a stick. Severe pain on movement in both ankles. Flat-footed and toes pointing laterally and over-riding each other. Pain and stiffness in shoulders, and similarly in spine, dorsal and lumbar regions. He is unable to bend down and pick up objects from the floor without going down on his haunches. Knees slightly swollen and painful.

Treatment began on *April 4, 1945, 1st injection.* 50 million organisms per c.cm. given intravenously. Within two hours he developed a rigor, felt cold, then hot, and within four hours his temperature rose to 103° F. Later he sweated profusely, and by next morning he had a normal temperature. He stated his pains felt easier.

April 6, 2nd injection. 100 million organisms in 1 c.cm. intravenously. Similar type of reaction. Temperature, 104°. Normal next morning. Pains only slight on movement.

April 8, 3rd injection. 200 million organisms in 1 c.cm. Similar reaction. Temperature, 105°; normal next day. Only slight pain in the left ankle on movement; none in right. Stated the left was always the worse of the two. Shoulders and back were free from pain and stiffness. Slight headache next morning. States he feels very fit and better than he has been for a long time—ever since he was crippled.

April 10, 4th injection. 400 million organisms in 1 c.cm. Similar reaction and temperature. No pains felt in ankles on active or passive movements. Able to bend down and pick up objects from the floor, and able to walk without the aid of a stick. Very slight pain in left ankle.

April 12, 5th injection. 1,000 million organisms in 1 c.cm. Severe reaction and headache persisted next morning. No pains felt in knees, ankles, shoulders, or spine. No pain in ankles on walking. Crêpe bandages applied during the day.

April 14, 6th injection. 2,000 million organisms in 1 c.cm. Very severe reaction, and persistent headache next morning. No pains whatever in any joints. All stiffness of shoulders and back gone. States he feels like a new man. Has lost the drawn and haggared look that comes with persistent pain over a long period. Advised to use elastic ankle socks or crêpe bandages, and to "go easy" for a while. Also advised to use his stick when walking any distance. No swelling of knees.

April 18, 1945. Came to see me to-day, looking very happy and contented. Said he had walked two miles to-day, and felt none the worse.

In view of the long period of pain with its crippling effect and the rapidity with which this was relieved, the case is considered of special interest, with the hope that similar cases may be given the opportunity of this treatment, which can be carried out at the patient's home or in a hospital. The patient's gratitude and buoyancy on being relieved of his agonies are a reward.—I am, etc.,

London, S.W.16. A. H. Bartley.

Inguinal Hernia

Sir,—The *Journal* of March 3 containing Mr. Percival Cole's article (p. 296) on inguinal hernia in the Merchant Navy has just reached me. I would like to offer, unfortunately belated, comment.

Mr. Coles appears to advocate a return to the generally discarded filigree operation as an alternative to other forms of herniorrhaphy. The arguments are based on these figures: 4 recurrences out of 130 filigree operations (3%) and 12 "met with" out of another series of 448 filigree operations (2.8%), which are compared with a recurrence rate of over 12% as representative of British surgery as a whole. The figure of 12% is probably a fair one and substantiated by a series of cases carefully followed up, such as that of Max Page and McPherson on policemen operated upon at St. Thomas's Hospital.

I would submit that the comparison is an unsound one on two grounds: (1) Institutional figures for a large number of surgeons are not comparable with those of an individual. The latter, if sufficiently enthusiastic to publish his results, is probably a virtuoso in his technique and unrepresentative of the "average" surgeon. (2) There is no mention of a systematic follow-up in which a number of patients were traced and examined at a definite interval after operation. Only recurrences "met with" are mentioned. It seems unlikely that anything like an adequate "follow-up" could have been exercised on clinical material consisting of men in such a nomadic and hazardous occupation. Even under optimum conditions the failures, the dissatisfied patients, are always the harder to trace. The more complete a follow-up and the nearer to 100% it becomes the more difficult it is to trace defaulters and the more sharply rises the recurrence rate.

Mr. Coles's conclusion that "the figures cited clearly suggest that the recurrence rate attached to this operation is remarkably low" appears unsubstantiated and does not show that a return to the filigree operation is the answer to this still unsolved problem.—I am, etc.,

Takoradi. J. B. Kinmonth,
Squad. Ldr., R.A.F.V.R.; Surgical Specialist.

Intravenous Pentothal in Placenta Praevia

Sir,—I note that Prof. S. J. Cameron (April 14, p. 532) places intravenous pentothal first on his list of suitable anaesthetics "in cases of placenta praevia where the patient's condition is critical." This is very interesting in view of the fact that most surgeons and anaesthetists have come to the conclusion that pentothal is a dangerous anaesthetic for severely shocked cases unless given very carefully by an experienced anaesthetist. This conclusion has been completely confirmed by those engaged in the treatment of war casualties, and especially by the Pearl Harbour "pentothal disaster."

If pentothal has any real advantages in Prof. Cameron's cases may I suggest that they are as follows: (1) The quick induction given by pentothal gets the patient ready for the surgeon in a shorter time, when relaxation of the abdominal muscles is not required, than can be obtained with any other anaesthetic. This time factor may be of great importance when the haemorrhage can be stopped only by surgical intervention. (2) When anaesthetizing badly shocked cases with pentothal it is usual to administer pure oxygen throughout the operation. This would obviously be of benefit to such exsanguinated cases as women who have suffered severe bleeding from a placenta praevia.

Finally, I should like to point out that most anaesthetists believe that, chloroform apart, safety lies in the skill of the administrator rather than in the agent.—I am, etc.,

Harrogate. James Campbell.

Immunization against Tuberculosis

Sir,—I wish to draw attention to a matter that should be of the utmost interest to the Medical Research Council.

So far as is known it seems that any attack of an infectious disease is followed by either death or recovery. When recovery takes place, antibodies can be demonstrated in the blood. This fact has been taken advantage of in various ways—for example, animals can be infected with certain germs and made to produce antibodies in their blood. These antibodies have been used in the treatment of the particular disease in a human being. Bacterial poisons or even bacteria themselves having had their virulence demonstrated have been injected into human beings and thus produced immunity to the disease in question.

Why cannot we do this in the case of tuberculosis? Why is tuberculosis an exception to the rules governing all other infections? This is probably the most important question before modern medicine in this country. The amount of suffering and the economic loss due to tuberculosis in any one year are enormous. It seems to me essential that work should be started on the question of immunity to tuberculosis. Very little has been done in this country or indeed anywhere else on the subject, yet the problem cannot be insoluble; it only requires sufficient work to elucidate it. Think what it would mean if tuberculosis could be prevented as easily as, say, diphtheria. But for some reason the profession all over the world seems to have accepted the position that tuberculosis is unique, and is content to spend its energies in repairing its ravages rather than in scientific, biological prevention.

I feel that this is a subject eminently demanding the attention of the Medical Research Council, and although the problem may seem insoluble, I am convinced that it is not so, and I can conceive of no greater benefit which the medical profession could confer on mankind than that it should succeed in solving it.—I am, etc.,

Crowthorne, Berks. SYDNEY GORDON TIPPETT.

⁂ A leading article in the *Journal* for Dec. 4, 1943 (p. 716), reviewed the history and progress of immunization against tuberculosis in man and animals.—ED., *B.M.J.*

Artificial Respiration

SIR,—Many articles on artificial respiration have appeared from time to time in British medical journals recently, concerned chiefly with the relative merits of the well-established manual method of Schäfer and a comparatively new mechanical method introduced by Eve.

Considerable research in this subject was conducted some years ago in the department of physiology, University of Toronto, under the late Prof. J. J. R. Macleod, by Urquhart and Noble,[1, 2] and for the Hydro-electric Power Commission, Province of Ontario, by Mr. Wills Maclachlan.[3, 4] A definite relationship between the application of artificial respiration in cases of asphyxia and ultimate recovery was established, the essence of which was *time*. This relationship was so striking that it formed the basis of all instruction in artificial respiration in hydro-electric first-aid crews, life-saving societies, Red Cross and St. John Ambulance Brigade units, etc.; this consisted of the application *on the spot, with a minimum of time loss, of some form of manual artificial respiration,* the optimum of which was considered to be Schäfer's. All teaching was directed towards dispelling from the mind of laymen the illusion that any machine, such as a pulmotor (or now a "rocker"), was a panacea for which one only had to wait, usually beyond the time interval in which life may be restored, and all would be well, and to establish firmly in their minds that any person by his own efforts is capable of performing artificial respiration, the success of which depends entirely on its immediate application.

It cannot be too strongly stressed that the introduction of any new mechanical method, irrespective of its merits, tends to create in the public mind a dangerous impression and one which would appear to have been entirely disregarded in recent communications. The interval that must of necessity elapse before the commencement of any mechanical device may jeopardize the life of the victim. Once the critical interval has been exceeded (and this has been determined experimentally on animals and by case reports of human beings: *J. industr. Hyg.*, 1928, **10**, 117) it should be superfluous here to point out that no method whatsoever can be successful.

Certain statements in the letter by Eve (April 7, p. 495), such as "there are many instances of failure of the Schäfer method," and "it fails much oftener than it succeeds," are, in my experience and that of competent authorities, entirely without foundation and actually misleading. One cannot deny that there are failures, but failure should only be encountered when the victim is already dead or moribund and where artificial respiration by any means has not been instituted within the critical time interval (up to six minutes, depending upon the patient's condition and other circumstances).

Eve refers to the toneless diaphragm, which so far, it is admitted, has not been demonstrable radiologically but which is assumed by analogy to exist. It would be of interest to obtain the experimental evidence upon which this assumption is based. He states further that in the rocking method the weight of the abdominal contents pushes and pulls the diaphragm up and down like a piston. He assumes that all air intake into the lungs is governed by the rise and fall of the diaphragm; presumably the expansion and contraction of the chest wall has no effect. He ignores entirely that in Schäfer's method, when the pressure is properly applied over the lower ribs, the thoracic cage is compressed and at the same time the visceral contents press upwards against the diaphragm and venous blood from the splanchnic reservoir is returned to the heart. To state that when the pressure is released these contents remain pressed up into the thoracic cage behind a toneless diaphragm is as ridiculous as it is physiologically unsound.

In all fairness, one must admit that the rocking method may contribute something toward a return blood flow to the heart and lungs, but unless adequate circulation is still being maintained any method is predestined to failure.

No evidence has been adduced so far to warrant altering the teaching of Schäfer's method as the most satisfactory method of artificial respiration.—I am, etc.,

E. CLARK NOBLE.

REFERENCES

[1] Urquhart, R. W. I., "Experimental Electric Shock," *J. industr. Hyg.*, 1927, **9**, 140.

[2] —— and Noble, E. C., "Experimental Electric Shock," II, ibid., 1929, **11**, 154.

[3] Maclachlan, Wills, "Electric Shock": Interpretation of Field Notes, ibid., 1930, **12**, 291.

[4] —— "Electrical Injuries": Interpretation of Field Notes, II, ibid., 1934, **16**, 52.

Smallpox Vaccination: Multiple-pressure Method

SIR,—I read with much interest and approval the account of smallpox vaccination by the multiple-pressure method given by Dr. H. J. Parish (Dec. 16, 1944, p. 781). He states, however, that this method has never been adopted in England. This way of performing vaccination was taught to me during my course for the Diploma in Tropical Medicine in 1936 at the London School of Tropical Medicine and Hygiene, and I have used it ever since with most satisfactory results. Unfortunately I cannot remember which member of the staff at the school demonstrated the method, but I feel it should be known that it was being taught there over eight years ago.—I am, etc.,

J. F. JARVIS,
Medical Officer, Colonial Medical Service,
Morogoro. Tanganyika Territory.

Shall We Nationalize Medicine?

SIR,—Lord Horder's suggestion (April 7, p. 497) of sabotage in connexion with the movement in which Prof. Ryle is interested, and, secondly, his suggestion of Prof. Ryle's doubtful ability to stand firmly on what he believes to be a sound principle, are not complimentary to those of us who agree with Prof. Ryle.

As Lord Horder knows, the medical student hitherto has been taught in the most dogmatic manner to be conservative, and any attempt to put forward any new idea is followed by a shout of "heterodoxy" and a refusal to face facts. The great improvements in medical work are all intimately associated with improvements in the social life of the whole community, and unless medical men are prepared to fall into step with that progress there will inevitably be trouble. As medical men in a country interested in the conditions of India we are made to realize the seriously unhealthy conditions under which the huge population of India is existing, not living, and no improvement in medical work can be hoped for unless there is a complete revolution in regard to the vested interests—such as those of landlords, priests, and financiers—together with a complete rearrangement of medical services. The two rise or fall together, Lord Horder notwithstanding.

Medical men who do their work properly are entitled to adequate remuneration, but unless incomes are so stabilized as to remove anxiety by removal of insane professional competition, we cannot hope that the work will be done as it ought to be done.—I am, etc.,

Swansea. G. ARBOUR STEPHENS.

Prophylaxis of Dysentery

SIR,—A brief note on the use of sulphonamides in preventing the incidence and spread of dysentery in a small community may be of general interest. It is based on the experience of the last 17 years in a mental hospital, and all cases referred to were proved positive bacteriologically.

During the first four years of this period, an average of five new cases of Flexner dysentery occurred each year. Thereafter, in spite of all that could be done by way of cleanliness, isolation, decontamination, and treatment by inoculation, the number of cases continued to increase until the peak year of 1941, during which 52 cases occurred. Various sources of infection were considered and sought for, but by this time I was convinced that the disease was being kept alive and was being spread from patient to patient in the wards by "carriers" of the disease; for though new carriers were constantly being discovered there must always have been a number who were not known. Also, I had by now reluctantly come to the conclusion that dysentery was endemic in the hospital. I admit that this was a confession of failure and almost of despair.

During 1942 sulphaguanidine came into use in the hospital in the treatment of dysentery, and immediately a striking improvement occurred. During that year there were 39 fresh cases, but of these no fewer than 37 occurred *before* July, when treatment was begun, and only 2 occurred thereafter, and, what is more, these 2 are the last on record.

During 1943 it occurred to me to use sulphaguanidine prophylactically, and it was given twice in the year to every patient in the hospital and to all members of the nursing staff who were willing to take it. It was also given to all new patients on admission as a routine procedure. During 1944 the whole hospital was again treated, ward by ward, twice at six-monthly intervals, although there had been no fresh cases. The result is that there has been not a single case of Flexner dysentery in the hospital for more than two years.

Recently an epidemic of Sonne dysentery occurred. It broke out simultaneously in three widely separated parts of the hospital, indicating some common source of infection. A member of the kitchen staff, who lives outside the hospital, came under grave suspicion of having introduced it, but it could not be proved. This epidemic covered a period of twenty-one days, during which the stools of 63 persons reported as passing loose motions were examined. Of these, 30 were proved positive bacteriologically. Every patient suffering from the disease was immediately treated with succinyl sulphathiazole, which is more effective than sulphaguanidine for Sonne dysentery; but it took a week to carry out prophylactic treatment of over a thousand mental patients ward by ward. After this treatment only two fresh cases occurred out of this large number protected, and the two wards concerned were treated again. Since then there has been no fresh case of dysentery and all loose motions have ceased.

To summarize, I think it can be reasonably claimed that Flexner dysentery has been stamped out and that an epidemic of Sonne dysentery severe enough to cause at least 30 cases of infection in 3 weeks and which threatened to spread like wildfire was cut short very quickly. It only remains to protect the hospital from reinfection by the routine administration of sulphonamides to all patients on admission and the old-fashioned "asylum dysentery" will disappear.—I am, etc.,

Herrison, Dorchester. P. W. BEDFORD.

The National Loaf

SIR,—*Humphrey Clinker,* Smollett's last novel, published in 1771, contains the following remarks (Everyman's Library, 1943, p. 114):

> "The bread I eat in London is a deleterious paste, mixed up with chalk, alum, and bone-ashes; insipid to the taste and destructive to the constitution. The good people are not ignorant of this adulteration; but they prefer it to wholesome bread, because it is whiter than the meal of corn: thus they sacrifice their taste and their health, and the lives of their tender infants, to a most absurd gratification of a mis-judging eye; and the miller, or the baker, is obliged to poison them and their families in order to live by his profession."

—I am, etc.,

London, E.3. ELI DAVIS.

Flour in the Loaf

SIR,—Having read Sir Ernest Graham-Little's letter (April 14, p. 530), I think your readers should be correctly informed on the technical points mentioned. I refer to his statement that home-grown wheat is the only source of wheat germ, since, he says, the germ is removed from imported wheat in the country of its origin. The main argument of the letter is indeed based on this supposition.

As one who analyses practically every boat-load of wheat arriving in this country, I must point out that the statement made in Sir Ernest Graham-Little's letter is completely incorrect. The germ is not removed in the country of origin but arrives here as a constituent part of whole wheat.

Secondly, Dr. Frewen Moor (p. 531) asks what goods are made from flour in the milling of which it is permissible to extract germ—i.e., flour destined for manufacturing purposes. Such flour (known officially as "M" flour) is mainly used for self-raising flour or for making biscuits and confectionery goods. These goods are usually more alkaline than yeast-made bread, and in consequence of the *p*H being 7.0 or over the B_1 present is largely destroyed in the baking process. Hence the decision of the Ministry of Food to allow germ to be extracted in such cases, which represent only a small percentage of the total flour used.—I am, etc.,

Ealing, W.5. D. W. KENT-JONES.

SIR,—Some of us are not quite clear on this problem of flour and "extraction." It is a very important one indeed; can you not give us some unprejudiced information?

The term "extraction" is very popular; but is it correct? An 80% extraction means that 20% is taken out—*ex tractum.* What is implicated in altering the extraction from, say, 80 to 85%? If 5% more is left in, what is it—flour, bran, or what?

It is not clear why anything need be taken out, except to make extra profit on the bran, etc. But it is far less clear why millers should receive a special payment for doing so, for those who sell genuine wholemeal bread do not get the subsidy. One reason given for "extraction" being necessary is that the use of rollers requires it; but why not use a more modern and cheaper way of grinding, as by disintegrators?

Few statements take into account the proportion of flour which is imported as such, or the bran or vitamins that remain in the country of origin. Can we get data on this—the proportion of flour imported against what is grown here?

As one letter points out, it would be interesting to know for what purposes wheat is "destined" other than for human food. If for biscuits chiefly, then, surely, whatever arguments there are for leaving vitamins in bread hold more strongly for biscuits, for they are not raised to so high a temperature nor kept there so long. Also, they are much used by the working classes.

Incidentally, this problem illustrates how impossible it is to separate medicine from politics, unless one separates all that has to do with the health of the public from medicine; though so many other instances make it equally obvious, as tuberculosis, about which so many questions are asked in Parliament.—I am, etc.,

Kingston-on-Thames. W. F. COOPER.

SIR,—Lord Portsmouth stated in the House of Lords (*Hansard,* Feb. 28, 1945) that "Bemax is very largely the result of removing the most valuable constituents from the wheat berry before it is made into white bread." As a plain matter of fact this statement is incorrect.

Sir Ernest Graham-Little (April 14, p. 530) cites in defence of Lord Portsmouth only one real piece of evidence—namely, the answer given to him in the House of Commons on Sept. 8, 1942, to the effect that 99% of the germ "not retained in flour" (the quotation is verbatim from *Hansard*) was allocated for the use of proprietary products, either foods or medicines.

He overlooks the fact that just one month earlier Mr. Mabane, speaking on behalf of the Minister of Food had informed him that "no flour from which a proportion of the germ has been extracted is sold for any other than manufacturing purposes" (*Hansard,* Aug. 6, 1942). Nor was this an isolated reply. Similar information, variously phrased, was conveyed to Sir Ernest Graham-Little on June 9, June 30 July 16, July 23, 1942, and again in September, 1943.

It is quite clear that both Sir Ernest Graham-Little and Lord Portsmouth have fallen into the error of regarding Bemax a something abstracted from bread, whereas the truth is that th materials abstracted from bread—or flour used for bread making—are used exclusively for stock-feeding purposes and are permitted to be used for no other purpose.

It is thus clear that my assertion that not one flake or particle of Bemax is derived from flour either intended to be or actually used for bread-making is supported in the plainest and most unequivocal terms by the official record of the Proceedings of Parliament. It is also clear that the supply of raw materials for Bemax would be completely unaffected even if the rate of extraction were 100%. Suggestions to the contrary are inaccurate and merely confuse the main issue.

My comment on Dr. Frewen Moor's letter (p. 531) is brief. When Dr. Moor consults S.R.&O. No. 11 of 1943, to which I referred (now embodied in S.R.&O. No. 1, 1945, which I am sending him direct) he will find the information he seeks and will regret his accusation against me of contributing a half-truth to your pages.—I am, etc.,

H. C. H. GRAVES,
Chairman and Managing Director, Vitamins Limited.

Hammersmith, W.6.

U.C.H. and Sir William Gowers

SIR,—I have read with the greatest interest your leading article on Sir William Gowers (March 31, p. 452), and I appreciate every word of it, being one of the few survivors of a rapidly disappearing generation of University College men who still have a vivid recollection of Gowers, of his marvellous diagnostic skill, and the wide scope of his knowledge not only of the nervous system but of every branch of medicine, and of the manner in which he conveyed that knowledge to the students.

I entered University College in 1880 after having passed the preliminary scientific examination at the same time as Rose Bradford, Bayliss, and Raymond Johnson, who were all friends of mine. At that time University College had a very remarkable teaching staff, particularly the younger members, such as Marcus Beck and Godlee on the surgical side, and Victor Horsley, who rapidly established a world-wide reputation in surgery of the brain and spinal cord, and for research work on cerebral physiology, in some of which I was able to assist. Other outstanding men on the staff were Sydney Ringer, the physician, who was the greatest authority at that time on therapeutics, and known also for his research work on the influence of saline fluids on the development of tadpoles and the maintenance of regular pulsation of the excised heart of a rog for many months. (Of course Ringer's fluid is still as useful as ever.) There were also the physiologists, Burdon Sanderson, Sharpey-Schafer, and Ray Lankester, at that time the greatest living authority on comparative anatomy, who fterwards migrated to Oxford as professor.

Lister, the founder of antiseptic surgery, started his professional career at University College a good many years before then, but if it had not been for the conservative obstinacy of some of the older members of the staff would have developed his antiseptic system at U.C.H. instead of at Glasgow and Edinburgh. Lister's work was accepted with enthusiasm on the Continent of Europe, but in London, at the time my hospital training began, antiseptic surgery existed in only two hospitals —University College and King's. Sir Joseph Lister had come to King's College with his former house-surgeon, Watson Cheyne, and visited U.C.H. on several occasions and gave us lectures and demonstrations, which we greatly appreciated. U.C.H. was *facile princeps* of all the teaching hospitals in ngland, and the great majority of the honours and distinctions in the medical examinations of London University were won y its students.

Among the members of a brilliant staff Gowers was outstanding in versatility and diagnostic skill in all branches of inical medicine. His clinical lectures were profoundly interesting and original, and not only in the physiology of the nervous system, in which he was pre-eminent. He had a ungent humour, which was greatly appreciated by his audience. One of the best instances of his outstanding diagnostic skill, one which had, I feel sure, never been equalled before and of which Gowers himself was justifiably very proud, was as follows. The son of the chief hall porter at the hospital was seriously ill with paralytic symptoms, the details of which, if I ever knew them, I have forgotten. This was in 1881, when I was house-physician to Sydney Ringer, and I have a vivid recollection of the case, for I had the privilege of giving the anaesthetic (chloroform). Gowers's diagnosis was an abscess in the temporo-sphenoidal lobe of, I think, the left cerebral hemisphere. Gowers diagnosed its exact location, and pointed out to the surgeon—Rickman Godlee—the exact spot in which to introduce a trocar; as the stylet was withdrawn, pus was evacuated, and a small drainage tube was introduced. The patient made a rapid and complete recovery.—I am, etc.,

HERBERT H. BROWN.

Worthing.

Understating the Case

SIR,—The *Journal* of Feb. 10 has just reached me here and I have been interested to read the short symposium on Russian war surgery and your own editorial on that subject. While I consider it only right and proper that we should be able to read, in our journals, something of how our Russian colleagues are tackling the same problems of military surgery, I yet feel that you too, Sir, have fallen prey to what is a ubiquitous tendency in the popular lay press—the tendency to overrate all Russian results just *because* they are Russian, while at the same time neglecting to notice the even greater achievements of our own nation. It is a tendency not restricted to Russian affairs, but applies also to those of our other great ally. As a race we have a genius for understatement, perhaps especially when our own talents are the subject. This may have deceived Herr Ribbentrop, but it also gives our closest friends cause for surprise when they have occasion to see of what we are really capable.

To have staffed the medical services of a Force of the size of the Red Army 30 years after having had only 13 medical schools is certainly no small feat, but, bearing in mind the relative size of our own country, is no greater than what we have done. It is not only in the U.S.S.R. that "specialist treatment is provided . . . in forward zones," nor that "within a few miles of the front line there is segregation of cerebral, facio-maxillary, thoracic, and orthopaedic cases." And yet the editor of that daily paper which delights in regaling its Saturday morning readers with extracts from the latest *British Medical Journal* might have been forgiven if, after reading your leading article, he had penned a demand for mobile neurosurgical units in the British Army! I am not suggesting that you should cater for such a reader, but even a British civilian doctor might have wondered whether, perhaps, the Russians had "got something there." The Russian medical services have never had to evacuate, on D-day itself, casualties from a huge assault force across the English Channel, nor did our medical services break down during the dash across Belgium. I have not seen any Russian surgery, but experience in both European theatres has shown me no results that I have felt could be improved upon by either the Russian or American Army Medical Corps. This we have done using only the advice and suggestions of our consulting surgeons without any recourse to "central dictation of technique. . . ." Indeed, there is a friendly rivalry in surgical results between, for instance, B.L.A. and C.M.F., and it is difficult to imagine a British surgeon applying skeletal traction to a humerus merely because he was ordered to do so from London.

I hope I shall not be thought to be "making a mountain out of a molehill" and occupying valuable printing space, but I should not like to see our *Journal* taking the all-too-popular line of writing up the occasionally more spectacular work of others at the expense of our own, sometimes less colourful, achievements.—I am, etc.,

DONALD V. BATEMAN,
Capt., R.A.M.C.

C.M.F.

Histological Specimens Wanted

SIR,—Two months ago this medical school suffered severe damage. Among other very serious losses almost the entire stock of histological material, both blocks and pots of specimens, has been destroyed. We should be most grateful for any human material suitable for the second M.B., B.S. histology course. The material, as fresh as possible, should be put into 7% formol-saline. We will gladly refund any expenses incurred and also return receptacles: we can collect material in London on receipt of a postcard sent to me at the London (Royal Free Hospital) School of Medicine for Women, 8, Hunter Street, W.C.1.—I am, etc.,

EVELYN E. HEWER.

Final M.B. of London University

SIR,—As a member of H.M. Forces I would like to contribute an opinion, not yet voiced, on the new London M.B. regulation. I suspect and hope that the reason the new regulation applies to those beginning finals is that in further carving up the examination the standard of the whole will fall unless the pass mark of each part is correspondingly raised.

For the many in the Forces and elsewhere who struggled with this respected monster in its old form, of which I am one, many more than of the kin of Surg. Lieut. Trevor Davies (April 21, p. 571), it would be unfair if in its now more segmented form the M.B. should fall in standard.—I am, etc.,

JOHN C. L. ADAMS,
Surg. Lieut., R.N.V.R.

Revised Syllabuses of the General Nursing Council

SIR,—I think many must have read with considerable apprehension the revised syllabuses for both the preliminary and final State examinations, especially as on the front page appears the statement "As Approved by the General Nursing Council for England and Wales." I can hardly believe that they are approved by either the medical and nursing professions or the hospitals who will have to administer them.

In my opinion many of the subjects have nothing whatever to do with the training of a practical nurse; for instance, on page 7 of the subjects for the final State examination appears a paragraph, "Structural defects of houses unfavourable to good domestic management." It would be interesting to know exactly what this means. In both syllabuses appears the word "lighting," but nowhere has any provision been made for some instruction in electricity. Although many and varied electrical appliances are used in hospitals, few, if any, student nurses know the difference between alternating and direct current, why an earth is necessary, the meaning of voltage, nor, as a rule, is any instruction given in the proper use of electrical heating pads, surgical diathermy machines, electric cradles, etc. Surely some simple instruction could be given on these matters, and on the simple precautions which must be taken when using electrical appliances. Unfortunately, there have of late been several accidents in hospitals caused entirely by this lack of knowledge.

In conclusion, I feel that the time has now come when a firm stand should be made against the arbitrary manner in which the General Nursing Council treats both the nursing profession and the hospitals. Almost daily in the press there are paragraphs complaining of the shortage of nurses, but instead of making matters easier the General Nursing Council seems intent on making it more difficult for a girl to train as a nurse.—I am, etc.,

Royal Hospital, Richmond, Surrey.
AUCKLAND.

The Services

Capts. J. P. J. Burns, W. F. Caldwell, J. B. Jayne, J. W. L. Kemp, and L. M. Reid, R.A.M.C., and Capt. C. L. Kashyap, I.A.M.C., have been awarded the M.C. in recognition of gallant and distinguished services in Italy.

The following appointments, awards, and mentions have been announced in recognition of gallant and distinguished services in Burma:

M.B.E. (Military Division).—Major (Temp.) J. J. Elbert and Capt. M. M. Campbell, R.A.M.C.

M.C.—Capts. J. S. I'A. Chesshire, R. A. B. Kinloch (attached Indian Army), O. P. Llewellyn, and T. C. Thorne, R.A.M.C.; Capt. G. V. Faulkner, I.M.S.

Mentioned in Dispatches.—Major P. Baker; Majors (Temp.) G. A. S. Akeroyd, J. Donaldson, J. W. N. Duerden, C. R. Houghton, M.B.E., and J. S. McCrae; Capts. O. C. Colt, D. W. Evans, P. Firstenberg, H. A. Gibb, L. C. L. Gonet, E. J. Harrison, D. C. Langwell, F. Luckett, J. R. McGregor, P. M. M. Pritchard, T. B. L. Roberts (attached 9th Gurka Rifles), and J. R. D. Williams; Capt. (Temp.) T. A. Taylor, R.A.M.C. Major (Temp.) E. A. Tarleton and Capt. K. L. Chitwal, I.M.S. Capt. E. P. O'Neill, I.A.M.C.

Obituary

GILBERT ORME, M.B.

The death of Dr. Gilbert Edward Orme on April 7 removes one of the best known as well as one of the most popular and best beloved of West End London practitioners —one who had more friends and fewer enemies than almost any man in the medical profession. Educated at Caius College, Cambridge, and St. George's Hospital, he became M.R.C.S., L.R.C.P. in 1899 and M.B. in 1901; at both places he was prominent as an oarsman and a footballer, and rowed in many winning crews in first-class company. After house appointments at his own hospital and at the Victoria Hospital for Children, he went into practice for some years at Clitheroe, in Lancashire, and was president of the Lancs and Cheshire Branch of the B.M.A. After moving to London a good many years ago he occupied a similar position in the Westminster and Holborn Division, and in addition did good service as member of council of the King's Hospital Fund, the Queen's Institute for District Nursing, the League of Mercy, and on the Interdepartmental Committee on Nursing Services. Gilbert Orme, who was born and brought up in Australia, was a man of fine physique, courteous manners, pleasing voice, and good address generally; his success in London practice was as assured as it had been in Lancashire, for in addition to these advantages he had also a thorough knowledge of his profession and a conscientious sense of duty. He travelled to Melbourne with the B.M.A. party for the Annual Meeting there in 1935, and as usual, made firm friends of all who were privileged to mee him.

Dr. ANDREW J. SHINNIE, medical officer of health, City o Westminster, and Dr. J. A. STRUTHERS, medical officer of health Borough of Holborn, send the following appreciation:

We feel we should like to pay a special tribute to the lat Dr. Gilbert Orme. Shortly before the war, as the recently electe chairman of the Westminster and Holborn Division it naturally fe to him to be appointed to the chair of the Local Medical War Committee. We are not likely to forget the immense amount of wor put in by him and the hon. secretary, Dr. Wood Smith (later D Maxwell Chance) in compiling a census of the practitioners in th Division. The needs of the war had to be assessed and likewis the claims of practice, while the selection and nomination of thos best fitted for the work then looming ahead proceeded. This process might well have been fraught with some heartburning had i not been pursued with so much good will and understanding. A a result when war came all the medical staffing for Civil Defenc services which came under our control was complete and ready fc action.

Many problems of varying magnitude came before the local committee. Still many more were dealt with by him by that sur conciliatory touch which made contending parties feel they had ha a square deal. He was unsparing of himself in visiting by day an by night depots and posts in the area where he himself was a par time volunteer and played an active part in dealing with casualtie When the medical service in public air-raid shelters was institute his advice again proved invaluable, and he himself shared in th service. It is no exaggeration to say that largely by his efforts sense of common responsibility and co-operation between the docto practising in the Division and the health services of the two loc authorities has been fostered which it is hoped will grow an prosper to the future benefit of all concerned. Tolerance and goc temper always characterized his conduct in the chair, and we sha miss his genial and urbane presence. There is no doubt that h spent himself in war service and denied himself the leisure to whi a long and honourable career in medical practice had fully entitl him.

R. LAWFORD KNAGGS, M.CH., F.R.C.S.

Mr. Robert Lawford Knaggs, who died in retirement at For Park, Newton Abbot, Devon, on April 16, was one of the be known surgeons in Leeds until he left that city about 25 yea ago. He was consulting surgeon to the General Infirmary a from 1910 to 1919 professor of surgery in the University Leeds.

He began the study of medicine at Cambridge and continu it at Guy's Hospital, qualifying in 1883, and taking the F.R.C a year later. At Cambridge he graduated M.B., B.Ch. in 18 M.D. in 1888, and M.Ch. in 1890. After house appointme at Guy's he settled in surgical practice at Leeds and was appointed to the staff of the General Infirmary. Lawford Knaggs was a member of the Court of Examiners of the Royal College of Surgeons of England for ten years (1911–21), a Hunterian professor in 1923–5, and in 1930 received the rare distinction of the Honorary Gold Medal of the College at the hands of his Leeds contemporary Lord Moynihan, then President, in recognition of his great services to the Hunterian Museum. Among many labours of love at Lincoln's Inn Fields he catalogued and revised the Strangeways collection of specimens illustrating arthritis.

Lawford Knaggs published in 1926 a book, *Inflammatory and Toxic Diseases of Bone,* which reflected his experience both as a practical surgeon and as one who had made an intimate study of the subject from the pathological side. This country has a wealth of specimens in its museums exemplifying various diseases of bone, and to illustrate his theme he made use of that material not only from the extensive collection in his own university of Leeds, but also from the abundant material in the Museum of the Royal College of Surgeons and in the London and Provincial medical schools. The writing of this book was undertaken as a congenial task after Knaggs had retired from active surgical duties. He kept the clinical aspect in the foreground and duly emphasized the practical bearing of the pathology of the subject.

G. T. BIRDWOOD, M.D.

Gordon Travers Birdwood died suddenly at Deal on April 14 at the age of 78; he had practised there for 25 years after his retirement from the Indian Medical Service with the rank of lieut.-colonel. His father was H. M. Birdwood, a distinguished member of the Indian Civil Service, and he was educated at Clifton College, at Peterhouse, Cambridge, and at Guy's Hospital. He qualified in 1892, took his M.A. and M.D. degrees at Cambridge in 1895, and the D.P.H. in 1896. Four years earlier he had gained second place in the entrance to the I.M.S., and he served with distinction in India in the Abor Expedition and in the Waziristan and Chitral campaigns. As principal of the Agra Medical School 1903–10 he completely remodelled the curriculum and enlarged the buildings. His next appointment, which he held for eight years, was to the new chair of midwifery at Lucknow Medical College, and he organized the teaching on the model of the Rotunda Hospital at Dublin. He also had charge of the Babrampur Hospital, and was responsible for many improvements there. He was made a Fellow of Allahabad University and a member of the Child Welfare Committee of the Province. While serving in India Birdwood wrote two books, *Clinical Methods in Tropical Diseases* and *Practical Bazaar Medicines,* which have been much in demand.

On his retirement in 1920 from the I.M.S. he began practice in Deal and Walmer; he was at once appointed surgeon to the newly built Deal and District War Memorial Hospital and until 1937 was its keen and active senior surgeon. He became president of the East Kent Association of Surgeons in 1934 and was for ten years medical officer of the Deal Child Welfare Centre, a work to which he devoted himself whole-heartedly. He gave much attention to the Deal Hospital and its development, inaugurating in 1935 an ophthalmic department, and for seven years was a vigorous member of the committee of management. He had joined the B.M.A. in 1896, was honorary secretary of the Dover and Folkestone Division 1926–9, chairman of the Dover Division 1929–33, and from 1938 till his death emergency officer for East Kent.

Birdwood took a prominent part in the affairs of the town of Deal, where his elder brother, Field-Marshal Lord Birdwood, holds the ancient office of Captain of Deal Castle. He served for six years on the Borough Council, was twice deputy mayor, and had been president of the local Chamber of Trade.

The following well-known medical men have died abroad: Dr. **David Wolfstein**, professor of psychiatry in the University of Cincinnati, aged 86; Dr. **Louis B. Wilson**, formerly professor of pathology at Minnesota University, aged 70; and Dr. **Gustav Aschaffenburg**, for 30 years professor of psychiatry at Cologne, who died at the age of 78 at Baltimore, where he had been living in exile since 1938.

Universities and Colleges

UNIVERSITY OF OXFORD

An election of two members of the Board of the Faculty of Medicine will be held on June 6. The members elected will come into office on the first day of Michaelmas Term, 1945, and will hold office, the senior for two years and the junior for one year, from that day.

The general medical electorate consists of all Oxford graduates in medicine who are members of Convocation. The Board of the Faculty of Medicine includes two members elected by the general medical electorate who must be members of that body and of whom one at least must be a person engaged in teaching one or more of the clinical subjects of the Faculty.

Nominations of duly qualified candidates for election will be received by the Secretary of Faculties at the University Registry up to 10 a.m. on May 16. Each nomination must be signed by six members of the general medical electorate, and no candidate will be eligible whose nomination has not been received by that date.

UNIVERSITY OF CAMBRIDGE

The Linacre Lecture will be delivered by Prof. E. D. Adrian, O.M., M.D., F.R.S., on Monday, May 7, at 5 p.m., in the lecture-room of the Physiological Laboratory. The title of the lecture is "The Pulsation of the Brain."

The Professor of Anatomy gives notice that applications for the Marmaduke Shield Scholarship in human anatomy are to be sent to the Registrary on or before May 20. The persons eligible are undergraduates of not more than three years' standing from matriculation, and B.A.s of not more than four years' standing from matriculation, who have completed the First M.B. Examination, are qualified in anatomy and in physiology to proceed to the Final M.B., and have also obtained honours in Part I of the Natural Sciences Tripos with anatomy as one of their subjects. Women also are eligible.

Candidates for the Michael Foster Studentship in physiology should send their applications, with a statement of the course of research they propose to undertake, to Prof. Adrian, Physiological Laboratory, on or before June 30.

During the month of March the title of the degree of M.D. was conferred by diploma on Mrs. M. H. D. Gunther, of Newnham College.

UNIVERSITY OF EDINBURGH

At the last meeting of the University Court intimation was made of the receipt of a sum of £3,024 subscribed by patients and other friends of the late Dr. Andrew Graham Ritchie, F.R.C.P.Ed. The sum is to commemorate the high esteem and affection in which he was for many years held by all sections of the community in Edinburgh, by founding a bursary to be awarded annually to an undergraduate in the Faculty of Medicine. The Court gratefully accepted the donation.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

Election of Fellows

At a quarterly Comitia of the College held on April 26, with the President, Lord Moran, in the chair, the following were elected Fellows:

S. P. Bedson, M.D., F.R.S. (London); Major-Gen. S. R. Burston, C.B., C.B.E., D.S.O., F.R.C.P.Ed., F.R.A.C.P. (Melbourne, Australia); Sir Ernest Rock Carling, M.B., F.R.C.S. (London); Brig.-Gen. P. R. Hawley, M.D. (U.S.A.); C. H. Whittle, M.D. (Cambridge); S. H. Cookson, M.D. (Bournemouth); J. A. Birrell, M.D. (Bristol); W. A. Robb, M.D. (Exeter); George Fletcher, M.D. (Manchester); C. S. Hallpike, M.B., F.R.C.S. (London); Maurice Mitman, M.D. (Dartford); Arthur Burrows, M.D. (London); R. G. Cochrane, M.D. (Madras); G. W. Bamber, M.D. (London); Ewen Downie, M.D., F.R.A.C.P. (Melbourne, Australia); A. Margaret C. Macpherson, M.D. (London); A. G. Ogilvie, M.D. (Newcastle-upon-Tyne); Philip Ellman, M.D. (London); C. Allan Birch, M.D. (London); Benjamin Barling, M.D. (London); Eliot T. O. Slater, M.D. (Oxford); T. E. Gumpert, M.B. (Sheffield); W. C. Smallwood, M.B. (Birmingham); H. C. Trowell, M.D. (Uganda); C. H. Rogerson, M.D. (Stoke-on-Trent); Stanley Alstead, M.D. (Glasgow); P. R. Evans, M.D. (London); L. J. Davis, M.D. (Edinburgh); Mahmoud Erfan (Cairo); W. H. Kauntze, C.M.G., M.B.E., M.D. (London); W. R. M. Drew, O.B.E., M.B. (London); S. A. Henry, M.D. (London).

Dr. L. G. Parsons and Dr. Donald Paterson were appointed representatives of the College to attend the Conference of the National Association of Maternity and Child Welfare Centres. Lord Moran was elected a representative of the College on the Governing Body of the British Postgraduate Medical School and Sir Arthur Hall a representative on the Board of Governors of Sheffield University. Dr. G. E. S. Ward was appointed an External

Examiner in Medicine for the Fellowship examination of the Faculty of Radiologists. Members were nominated to serve on a dermatology committee. Reports were received from the Consultant Services Committee and from the Paediatric Committee.

New Members

The following candidates, having satisfied the Censors' Board, were elected Members:

T. J. Agius-Ferrante, M.D., Patience E. Barclay, M.B., O. W. Chapman, M.B., J. D. Craig, M.B., Fl. Lieut., R.A.F.V.R., Joyce A. Davies, M.B., Capt., R.A.M.C., H. J. W. Fisher, M.B., G. Garmany, M.B., Surg. Lieut.-Cdr., R.N.V.R., C. C. Houghton, M.B., A. H. Isaacson, M.B., A. E. Jones, M.B., Capt., R.A.M.C., H. B. Kelly, M.B., Monica K. McAllen, M.B., O. Magidson, M.D., G. R. B. Newns, M.B., K. N. V. Palmer, M.B., D. A. R. Pond, M.B., Cynthia M. Redhead, M.B., R. V. Stone, M.B., J. M. Stowers, M.B., R. McL. Todd, M.B.

Licences and Diplomas

Licences to practise were conferred upon the following 139 candidates (including 29 women) who had passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board and who have complied with the necessary by-laws:

E. M. Allen, C. F. Allfrey, E. A. J. Alment, W. McC. Anderson, E. T. Anderton, R. J. Aspinal, D. J. Atherton, C. M. Attwood, D. A. Bailey, R. W. Barr-Brown, H. F. McG. Bassett, A. J. T. Bateson, A. M. H. Bennett, J. P. M. Bensted, A. Bernstein, Diana M. Beyts, M. Binnie, G. L. Bourne, C. W. Bowen, J. H. Boydell, Margaret Bywaters, F. E. V. Cant, Mary N. A. Carlile, H. F. Chapman, Irene M. S. Chappel, H. C. Churchill-Davidson, I. F. J. Churchill-Davidson, Iris B. F. Collinson, J. S. Conway, J. N. C. Cooke, S. Copp, Vera M. Dalley, H. T. Davenport, D. G. Davidson, D. F. Davies, J. A. Dew, A. McK. Dorey, E. L. Dutta, J. C. Edwards, F. T. Falkner, Eve G. Field, S. G. A. Forsyth, S. Galeswski, G. G. Garlick, B. Geoghegan, B. George, W. P. D. Green, Brigit M. Griffiths, Ruth A. Haes, A. E. Hall, N. Harrison, R. A. C. Hart, Joan Haythorne, N. M. O'C. Hewett, Ruth Jackson, D. D. E. Jewitt, P. H. A. Jonason, C. J. M. T. Jones, E. R. Jones, R. S. Jones, M. C. Joseph, C. R. Kirkpatrick, M. Kirwan, M. R. Kohli, Jean V. Lang, R. McK. Laslett, Pamela Laws, A. O. Laymond, Constance G. Lee, P. G. Leese, J. A. Litchfield, A. H. M. Littlewood, Jessie B. Macaulay, H. B. Maliphant, I. G. Manning, P. M. C. Mark, Margaret M. Mason, G. G. Mathew, J. C. Matthews, J. B. Metcalfe, J. N. Micklem, Mary H. Moller, R. E. Moore, J. A. B. Mounsey, Margaret C. Myddelton, R. F. Naunton, Moragh J. Noakes, C. Ormston, Jannette D. Ap-H. Owen, T. E. Owen, Frances I. Panton, Cynthia M. Parrott, R. F. Payne, Noel J. Pease, Thelma M. Phelps, B. Ll. C. Phillips, J. R. H. Pinkerton, J. L. Pring, C. W. A. Pullan, D. A. Pyke, R. J. Rabett, R. Randell, D. Richter, E. G. G. Roberts, R. Ll. B. Roberts, D. J. Rudman, P. I. Rutherford, A. H. B. Rydon, Betty J. Schofield, J. C. Seymour, D. S. Sharpe, Joan M. Sheehan, G. W. Shepherd, N. I. A. Shohet, Betty E. Shortland, P. H. S. Silver, R. B. Sloane, J. Stevenson, H. J. C. Swan, Margaret M. Sweeney, M. T. Sweetnam, J. C. Talbot, B. O. T. Taylor, W. D. G. Tellam, J. M. Thomas, Mary E. I. Upsdell, D. F. van Zwanenberg, C. C. Vidot, O. L. Wade, R. V. Walley, E. McP. Watts, W. Waugh, N. T. Welford, P. W. Wells D. Whitehouse, M. Wigram, D. J. K. Wilkie, G. V. S. Wright, F. J. Yeardsley

Diplomas in Ophthalmic Medicine and Surgery were granted, jointly with the Royal College of Surgeons of England, to the 14 persons whose names were published in the *Journal* of March 31 (p. 460), as were the names of the 14 persons who were granted Diplomas in Medical Radiology. Diplomas in Child Health were granted to the 18 persons whose names were published in the report of the meeting of the Royal College of Surgeons of England in the *Journal* of April 21 (p. 573).

A Diploma in Medical Radiotherapy was granted to L. M. Shorvon and a Diploma in Medical Radiodiagnosis to J. A. Ireland, both jointly with the Royal College of Surgeons of England.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The following lectures will be delivered at the College (Lincoln's Inn Fields, W.C.) at 4 p.m. each day: May 4, Hunterian Lecture by Prof. A. S. Aldis, Injuries of the Pancreas and their Surgical Treatment. May 7, Arris and Gale Lecture by Prof. F. Davies, Early Development of the Human Embryo. May 9, Arris and Gale Lecture by Dr. D. V. Davies, Synovial Membrane and the Synovial Fluid of Joints. May 10, Hunterian Lecture by Prof. R. Watson-Jones, Limb and Spine Injuries due to Flying Accidents. May 11, Arris and Gale Lecture by Mr. Judson T. Chesterman, Some Alterations of the Neuromuscular Balance of the Intestine and their Clinical Significance. May 25, Prof. Arnold Sorsby, Blindness in Great Britain: the Structure of the Blind Population and the Causes of Blindness. May 29, Prof. Sorsby, Penicillin and Gramicidin S in Ophthalmology. May 31, Prof. James Patrick, A Study of Supination and Pronation, with Special Reference to the Treatment of Forearm Fractures. The lectures are open to medical practitioners and advanced students.

CONJOINT BOARD IN SCOTLAND

The following candidates, having passed the requisite examinations, have been admitted L.R.C.P.Ed., L.R.C.S.Ed., L.R.F.P.&S.Glas.:

R. J. G. Aitken, O. E. A. Antia-Obong, H. Baytch, I. J. Bernstein, A. E. R. Campbell, I. G. Campbell, J. D. C. Campbell, H. Camrass, B. Chromow, D. Craig, G. C. Fletcher, A. Gerber, Adrien A. Holder, A. Ingram, J. M. Leith, T. Leven, W. E. Lotfy, Alison M. Matheson, A. A. A. Mazen, J. M. Moore, R. E. Morgan, M. N. Padayachee, F. L. Paterson, T. W. Poole, W. E. Robinson, J. C. Rohan, A. L. Rose, D. H. Rosenberg, I. J. Selikoff, H. J. Shapiro, P. Shenkin, M. Silver, D. H. Sinclair, P. Steinlauf, J. Waddell, R. R. Wilson, J. Wotherspoon, M. Zimnowitz.

The following graduates of recognized foreign universities were also admitted licentiates: J. Weiss and W. C. S. von Reybekiel.

Medical Notes in Parliament

National Health Service

Dr. SUMMERSKILL on April 26 said the answers given to her by Ministers on the White Paper on health services had been so unsatisfactory that she felt she must raise the matter again. Last year the House had very carefully debated the White Paper. If it was intended to change the fundamental principles of that White Paper she suggested that the Government should produce another one and that the House should discuss it. Some months after the introduction of the White Paper rumours asserted that the Minister of Health was having further talks with interested bodies which had already discussed the subject. Finally the rumours were substantiated, and a document, which was circulated to over 70,000 doctors in this country, was published. The document was marked "Not for publication." She felt it was so marked because it could not stand the glare of publicity. But it was no longer secret. Newspapers, medical publications, and leaflets of all kinds had given details and had been distributed among doctors and the public.

In the proposals which the Minister had put to the B.M.A. there was a complete change in the attitude of the Government towards the new health services. A progressive medical opinion in this country had pictured the health centres as places where doctors would co-operate rather than compete, and where the preventive approach to medicine would be emphasized. In the new proposals which Mr. Willink had put to the B.M.A. it was suggested that there should be a few experimental health centres, but that local authorities should have no clinical supervision; that doctors would come and work there but their work would not be supervised; and that the only contract between the doctor and the local authority would be that of landlord and tenant. The proposal was that the doctor could conduct his private practice in the health centre as it was conducted outside. She and her friends had looked forward to the day when doctors would be employed in the health centres on a full salaried basis. That had all gone.

Mr. WILLINK intervened to say that Dr. Summerskill had given the impression that she referred to a document issued by the Ministry of Health. If she was referring to a document she had received from the B.M.A. as a member of that Association she should make this clear.

Dr. SUMMERSKILL said the document had been published by the B.M.A. and she was going to quote from it.

Mr. WILLINK declared that no document had been published by the B.M.A. One had been sent to members and marked "Not for publication." He gathered this was the document to which Dr. Summerskill referred.

Dr. SUMMERSKILL said the document had been mentioned in the House on many occasions and questions had been put about it. It had been circulated to doctors and its contents were no longer secret. Lay persons throughout the country had seen it, and a leaflet had been issued by another organization. She asserted that this document contained proposals made by Mr. Willink which were to be put to a representative meeting of doctors in the week beginning April 29, and that the time might come to reveal this matter which concerned every man, woman, and child. She had asserted in questions that the Minister had made these proposals to the B.M.A. This he had denied time after time. She claimed that she had shown that the change in the health services was a complete change in principle. The full-time salaried medical service which the House approved last year was to be dropped. There was a suggestion of some part-time service. Otherwise doctors were to be paid on a *per caput* basis. The Minister was proposing to the B.M.A. an extension of the panel system. The Minister in that House had thrown doubts on her veracity and the House must know whether he or she had departed from the truth. She wished to expose a piece of calculated dishonesty. Dr. Summerskill then cited questions which she had put to the Minister and answers given to her, to Mr. Lipson, and to Mr. A. Bevan. She read what she said was the first paragraph of the document, which ended: "They are proposals which the Minister will be willing to put to his colleagues as soon as he knows whether they commend themselves to the medical profession." If Mr. Willink denied again that these were his proposals and that the B.M.A. had any mandate on May 3 when the doctors would meet to consider them he should tell the House now.

Mr. LINSTEAD said the mystery which the House had anticipated had not been disclosed. He put a completely differen interpretation upon the statements made by the Minister from that which had been given them by Dr. Summerskill. He thought Mr. Willink had said: " I have had discussions with the B.M.A. which cannot commit my colleagues in the Government and cannot commit the members of the B.M.A. Let the Negotiating Committee talk to the doctors and see if they agree. If they do I will talk to my colleagues in the Government and see if I can persuade them to agree. Until I have talked with my colleagues I cannot be certain that these proposals will commend themselves to the Government." The debate in the House on March 17, 1944, had shown that the proposals came under considerable criticism. Members on the Conservative side of the House regarded the civil-servant doctor as one of the big flaws in the original proposal. They did not wish to see the doctor in the Civil Service or the patient in the " pigeonhole." The House was in no way committed to the White Paper by the resolution which it had passed. He added that a year was a long time for consideration of such proposals by the B.M.A., and when that body had finished its discussions next week members ought to be put in full possession of the fact so that the House could turn its attention to the final form which the health service was to take.

Mr. STOREY asserted that Dr. Summerskill had put a mischievous view before the House. Mr. Willink had taken a common-sense course. He discussed the proposals with the three bodies likely to offer constructive criticism—the B.M.A., the British Hospitals Association, and the local authorities. Mr. Storey said he himself had seen certain of the alternative proposals which had been put before one of these bodies. In his opinion they went a long way to improve the White Paper proposals.

Mr. MESSER asked whether Mr. Storey agreed that the B.M.A. should have done what the British Hospitals Association and the local authorities had done and not made public the negotiations.

The Minister Replies

Mr. WILLINK said he was not surprised at the violence of Dr. Summerskill's language nor that she appeared to show ignorance of the steps to be taken in working out a service of this comprehensive nature. What surprised him was her ignorance of the White Paper itself. The proposal of a comprehensive health service had been initiated by the Government in a speech by Sir John Anderson in Feb., 1943. In the following twelve months there were discussions which the White Paper did not purport to sum up. Nor did the White Paper purport to reflect any agreement or represent any view reached in those discussions, which would be inconsistent with the terms on which the discussions were undertaken. Parliament had understood that, as soon as the White Paper was published and debated, detailed discussions would follow. The White Paper said on page 77 that it would serve as a focus for detailed discussion. That discussion had since been going on and was going on still. Mr. Willink added that no member of the medical profession had disclosed to him the document to which Dr. Summerskill had referred. Was it wrong to obtain general agreement to a scheme? Was Parliament or the public being treated unfairly? The Government had been greatly helped by the discussion of the White Paper by the Commons and the Lords. They were now discussing it more widely. They had reached no finality. The proper course was to come to a stage where the discussion had gone far enough and the Government could consider where those discussions had led them. Legislation would then be introduced. The whole medical profession, those interested in voluntary hospitals, and those interested in the work of local authorities could not discuss these matters with Mr. Johnston and himself. They sent their spokesmen, and these spokesmen desired to report on the progress of the negotiations. In four sections of interested opinion—the local authorities, the voluntary hospitals, the medical profession, and the dental profession—this was going on at the moment. But there were no proposals. Mr. Johnston and he had not reached a stage when they could put the whole thing together to place it before their colleagues.

Dr. SUMMERSKILL asked whether the doctors should not have been called to the meeting of the following week believing that Mr. Willink was willing to put these proposals [in the document] if they commended themselves to the medical profession.

Mr. WILLINK said he could take no responsibility for the contents of the document, which he had not seen, which was not intended for his eyes, and had not been published. It was a document which was perfectly proper to have come into existence, but its publication was unfortunate and regrettable. That publication had nothing to do with the negotiating body of the medical profession. Nothing similar had occurred in the other bodies with whom he had discussed these matters.

Dr. MORGAN said the right thing had been done.

The debate then concluded.

Committee on Medical and Nutritional Problems

Replying on April 17 to Sir E. GRAHAM-LITTLE, Mr. Mabane said the following were at present members of the standing committee of the Ministry of Health on Medical and Nutritional Problems. This committee was set up in the early part of 1941 and had since that date been consulted by the Ministry of Food on many questions connected with food and health.

Ministry of Health.—Sir Wilson Jameson (Chairman), Mr. P. N. R. Butcher, Dr. W. A. Lethem, Dr. H. E. Magee, and Dr. D. M. Taylor.

Ministry of Food.—Sir Jack Drummond and Lord Horder.

Board of Education.—Dr. J. Alison Glover.

Medical Research Council.—Sir Edward Mellanby, Prof. S. J. Cowell, and Dr. B. S. Platt.

Department of Health for Scotland.—Dr. A. Davidson.

Ministry of Agriculture and Fisheries.—Mr. R. G. R. Wall.

Department of Scientific and Industrial Research.—Dr. C. S. Hanes.

Ministry of Supply.—Dr. A. J. Amor.

Ministry of Fuel and Power.—Dr. S. W. Fisher.

Adult Population of Great Britain

In reply to Sir E. Graham-Little, Mr. WILLINK stated that the total adult population of England and Wales at June 30, 1944, the date of last ascertainment, inclusive of the armed Forces of the country temporarily abroad and exclusive of the armed Forces of Dominions, Colonies, and foreign countries temporarily present in the country, is estimated at approximately 30,104,000. The corresponding figure for Scotland is approximately 3,490,000. The adult civilian population in Northern Ireland at that date is estimated at approximately 820,000.

Medical News

A memorial service for Sir Hubert Bond will be held in the chapel at Long Grove Hospital, Epsom, to-day (Saturday, May 5) at 12 noon.

The Czechoslovak Medical Association and the Association of Austrian Doctors in Great Britain are holding a medical film show to-morrow (Sunday, May 6), at 3 p.m., in the Hastings Hall, B.M.A. House, Tavistock Square, W.C. Programme: (1) Surgery in Chest Diseases, (2) A Rare Operation, (3) Red Army Hospital. Guests will be welcome.

On Tuesday, May 8, at 2.30 p.m., at the Royal Society of Tropical Medicine and Hygiene, 26, Portland Place, W., Mr. Eardley Holland, F.R.C.O.G., will give a Chadwick Lecture on the importance of a maternity service in the life of the nation. Admission is free; tickets are not required.

A paper on " Infantile Paralysis " will be read by Dr. F. M. R. Walshe before the Royal Society of Arts (John Adam Street, Adelphi, W.C.), on Wednesday, May 9, at 1.45 p.m.

A general meeting of the Tuberculosis Association will be held at 26, Portland Place, W., on Friday, May 11, at 3.30 p.m., when there will be a discussion on " Pregnancy and Tuberculosis," to be opened by Dr. M. H. Logg and Miss Josephine Barnes, F.R.C.S. The date of this meeting has been changed from May 18.

A week-end industrial course, for industrial medical officers of health, will be held at the London School of Hygiene and Tropical Medicine (Keppel Street, W.C.) on Saturday and Sunday, May 12 and 13. The programme is as follows: May 12, discussion on " The Value of Early Diagnosis," with contributions, at 2 p.m. by Dr. A. J. Amor on " The Clinical Approach to Industrial Medicine," and at 3.30 p.m. on " The Early Investigation of the Industrial Environment " by Mr. R. F. Milton. On May 13, at 10.30 a.m., Dr. Donald Hunter will speak on " The Early Diagnosis of Industrial Diseases "; at 11.45 a.m., Prof. Ida Mann, on " The Early Diagnosis of Diseases and Injuries of the Eye "; and at 2.15 p.m., Lieut.-Col. G. R. Hargreaves will discuss " Personnel Selection and its Relationship to Mental Health." The fee of £1 1s. for the course and 2s. 6d. if lunch is required on the Sunday should be sent to the secretary, London School of Hygiene and Tropical Medicine, Keppel Street, W.C.1, by May 7.

A meeting of the South Wales Branch of the Institute of Physics will be held on Saturday, May 12, at 2.30 p.m. in the Physics Department of the University College, Cathays Park, Cardiff, when Prof. W. V. Mayneord will lecture on " The Use of Infra-red Radiation in Medicine.". The meeting will be open to visitors.

Dr. H. D. Kay, F.R.S., will give an address on " The Secretion of Milk " before the Royal Institution (21, Albemarle Street, W.) on Friday, May 18, at 5 p.m.

The Industrial Welfare Society (14, Hobart Place, Westminster, S.W.1) has issued a pamphlet, *Plan for Reinstatement*, at the price of 1s. post free. It has been planned to cover a number of points in the Government's publication *Release and Resettlement*, which is issued to Service men and women to inform them of the official arrangements being made for their resettlement after discharge. An appendix offers suggestions for a " Reinstatement Record Form "—indispensable for all firms' reinstatement schemes.

A meeting of St. Marylebone practitioners, arranged by the St. Marylebone Medical Committee under the chairmanship of Dr. Geoffrey Marshall, will be held at the Royal Society of Tropical Medicine and Hygiene, 26, Portland Place, W., on Wednesday, May 16, at 8.30 p.m., to discuss important matters arising out of the Special Representative Meeting of the B.M.A. and to make recommendations.

Ninety-five English medical students have gone to Europe to help in the relief of starvation. Fifty Scottish students are standing by for the same purpose.

Major-Gen. Sir Ernest Cowell was last week admitted to the freedom of the borough of Croydon, being the first medical man among the nineteen upon whom this honour has been conferred.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* measles notifications fell during the week by 22,574 cases, and those for scarlet fever by 128; whooping-cough was more prevalent by 191 cases, and dysentery by 157.

Lancashire had 36 fewer cases of scarlet fever than last week. The largest local variations in the returns of diphtheria were increases of 12 in Staffordshire and 10 in Warwickshire, and a fall of 14 in Cheshire. Two local outbreaks of diphtheria, one in the village of Abergynolwyn, Merionethshire, and the other in Northumberland, Amble U.D., persist, and the local authorities are taking measures in an attempt to control the outbreaks. A small rise in whooping-cough occurred in all regions except the south-western. The notifications of measles fell by over 100 in fifteen counties, notifications being lower than last week by the following numbers: Yorks West Riding 520, Leicestershire 318, Middlesex 206. A rise of 170 occurred in Monmouthshire, of 133 in Kent, and of 111 in Glamorganshire.

Notifications of dysentery were high. In Middlesex cases rose from 4 to 50, and in Kent from 3 to 36. The other large returns were Lancashire 64, London 32, Warwickshire 22, Gloucestershire 19, Staffordshire 18, Essex 18, Surrey 17, Yorks West Riding 16, Suffolk 15, Derbyshire 13, Devonshire 13, Cornwall 13, Hertfordshire 10, Oxfordshire 10, Northumberland 10.

In *Scotland* there were 177 more notifications of measles than last week, 127 more of whooping-cough, 20 more of scarlet fever, and 15 more of dysentery. The first three of these diseases were especially prevalent in Glasgow. The largest returns for dysentery were Glasgow 48, Edinburgh 39, Renfrew County 24, Aberdeen 14.

In *Eire* there were 26 more cases of measles than last week, and 7 more of diphtheria, but 23 fewer of whooping-cough. There was an outbreak of 24 cases of measles in Tipperary, Thurles U.D. An outbreak of diphtheria has occurred among the turf workers on the Lullymore Bog in Kildare.

In *Northern Ireland* the notifications of diphtheria were 8 higher than last week, and of scarlet fever 18 higher. The increase in scarlet fever was confined to Belfast C.B. The 22 cases of diphtheria involved fourteen registration areas.

Quarterly Returns for England and Wales

The birth rate during the December quarter of 1944 was 17.1 per thousand, the highest fourth-quarter rate since 1924; the average for this quarter for the five years 1938–42 was 13.9. Infant mortality was 44 per thousand live births—9 below the average of the ten preceding December quarters. The general death rate was 11.8 per thousand, compared with 14.6 for the fourth quarter of 1943, and the same as the average for the December quarters of 1938–42. The natural increase, excess of births over deaths, was 54,958.

The provisional returns for the whole year give the birth rate as 18.0 per thousand, which was 1.5 above that for 1943, and the highest recorded since 1925. Infant mortality was 46 per thousand live births—the lowest rate recorded—and was 3 below the rate of 1943, the previous lowest level. A further small increase in deaths from diarrhoea and enteritis under 2 years of age was recorded; the totals for 1940–4 are 2,891, 2,985, 3,415, 3,517, 3,600. The general death rate was 11.9 per thousand, being 0.2 below the rate for 1943, but 0.3 above that for 1942. The excess of live births over deaths was 253,040; the excess for 1943 was 181,801, and the average natural increase for the five preceding years was 102,620.

Week Ending April 21

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,356, whooping-cough 1,212, diphtheria 565, measles 15,901, acute pneumonia 573, cerebrospinal fever 73, dysentery 523, paratyphoid 3, typhoid 5.

No. 15

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended April 14.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	70	4	28	3	5	96	5	35	1	2
Deaths		2	3				1	2		
Diphtheria	438	14	111	100	22	616	27	201	100	26
Deaths	6	—	1	5	—	9	1	2	4	—
Dysentery	463	32	180	—	—	179	21	114	—	6
Deaths				—	—				—	—
Encephalitis lethargica, acute	2	—	—	—	—	2	—	3	—	—
Deaths		—					—			
Erysipelas			44	13	3			49	12	6
Deaths		1					—			
Infective enteritis or diarrhoea under 2 years				7					8	
Deaths	49	7	3	9	4	63	12	21	13	2
Measles*	20,342	1651	394	86	35	2,578	273	239	382	3
Deaths	12	1	4	1	1	3	—	—	4	1
Ophthalmia neonatorum	63	5	15	1	—	67	3	25	—	—
Deaths										
Paratyphoid fever ..	2	—	—	1 (B)	—	2	—	1 (B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	664	46	4	2	5	983	62	10	2	4
Deaths (from influenza)	13	—	1	—	—	27	4	1	2	—
Pneumonia, primary ..			172	30				273	36	
Deaths		33		7	6		68		6	15
Polio-encephalitis, acute	—	—				1	—			
Deaths		—					—			
Poliomyelitis, acute ..	5	1	1	—	—	4	—	—	—	—
Deaths		—					—			
Puerperal fever		4	13		—		3	15		—
Deaths										
Puerperal pyrexia‡ ..	131	9	11	—	—	163	5	12	3	1
Deaths		—					1			
Relapsing fever ..	—	—			—	—	—			—
Deaths										
Scarlet fever	1,215	57	207	20	62	1,870	89	236	24	75
Deaths	1	—	—	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	1	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	8	—	1	11	—	5	1	1	13	1
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough* ..	1,234	56	192	33	26	1,865	176	56	73	16
Deaths	3	—	3	1	—	13	3	—	3	2
Deaths (0–1 year) ..	367	45	52	42	27	392	53	87	33	25
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4,480	648	632	226	132	4,699	728	665	248	139
Annual death rate (per 1,000 persons living)			14·3	14·6	§			15.3	16·2	§
Live births	6,643	740	830	441	269	7,353	861	975	470	287
Annual rate per 1,000 persons living ..			16·6	28·5	§			19·8	30·7	§
Stillbirths	211	20	21			256	19	37		
Rate per 1,000 total births (including stillborn)			25					37		

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* Measles and whooping-cough are not notifiable in Scotland, and the return are therefore an approximation only.

† Includes primary form for England and Wales, London (administrativ county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birt and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Post-herpetic Symptoms

Q.—*A patient had a severe attack of orbital shingles, not involving the cornea, last October, and is still troubled with intolerable pricking and tingling along the distribution of the supra-orbital branch of the fifth nerve. Various treatments have failed to give relief. What further measures can be tried?*

A.—Irradiation of the skin with ultra-violet light is worth a trial. *X*-ray irradiation can also be tried, but is often disappointing. If the skin is hypersensitive, alcohol injection of the supra-orbital nerve would probably give relief. A preliminary injection of procaine would show whether anaesthetization would be likely to help.

Sterilizing Needles in Oil

Q.—*What are the details for sterilizing needles by immersion in boiling oil?*

A.—The following are the instructions for sterilizing syringes and needles in hot oil given in M.R.C. War Memorandum No. 6, 1942:

"The apparatus necessary consists of a metal cup holding 2–3 oz., held fixed in a rigid stand above a small adjustable gas flame; a thermometer reading to 200° C. clamped to the stand and dipping into the oil (liquid paraffin or olive oil) in the cup. To sterilize a Record type of syringe for use, the needle is taken off and oil at a temperature between 120° C. and 130° C. is rapidly drawn into the syringe. When the plunger is drawn up to the full extent the syringe should be removed from the oil and inverted, so that the hot oil reaches every part of the inside of the syringe. The oil is then expelled, and the process repeated two or three times. Then the needle is affixed, wholly immersed in the oil, and oil is drawn in and out a few times. The syringe is now ready for use. The whole process is complete in 30 seconds or less. When sterilized the syringe can be kept ready for use by wrapping the needle in a small piece of sterile lint. Care is necessary in adjusting the gas flame so that the temperature does not exceed 160° C., otherwise there is an unpleasant smell of burning oil. After some weeks the oil becomes seriously discoloured, and it should then be renewed. This method differs from the other methods of sterilization in that only the needle and the *inside* of the syringe are sterilized. To sterilize needles alone, the cleaned needle is held in the oil for half to one minute. It is then removed with forceps and fixed to the syringe or stored in a suitable container. By this procedure an ordinary steel needle may be in daily use for months with occasional sharpenings on a needle stone."

Posture and Heart Disease

Q.—*Why are heart cases invariably sat up when it is more restful to the heart to lie down?*

A.—Presumably by "heart cases" is meant patients with heart failure. The sitting posture is best because to some extent it relieves any tendency to increase in venous pressure, and also the congestion in the pulmonary circulation. Patients with any degree of severity of heart failure instinctively sit up in order to breathe to the best advantage. There is also less upward pressure from the abdomen on the diaphragm. Plenty of patients with heart lesions who have no failure can lie flat quite comfortably.

Cholecystitis and Coronary Sclerosis

Q.—*The association of cholecystitis with toxic myocarditis is frequent. Is toxic myocarditis with or without coronary sclerosis a contraindication to cholecystectomy? Alternatively, will cholecystectomy arrest or reverse the toxic changes in the myocardium?*

A.—The first sentence rather begs the question. The association of toxic myocarditis with cholecystitis is *not* frequent, and there is no proof that disease of the biliary tract has any influence on the production of heart disease. What *is* frequent is the association of cholecystitis with coronary sclerosis. There is considerable evidence that the diseased gall-bladder increases the liability to attacks of angina, presumably by acting as a reflex trigger mechanism; and, other things being equal, it is for this reason wise to remove a diseased gall-bladder in angina pectoris. There is no proof that patients live longer as a result of the operation, but they certainly live more comfortably.

Mooren's Ulcer

Q.—*What is the most up-to-date and/or successful treatment for rodent ulcer (Mooren's ulcer) of the cornea?*

A.—True Mooren's ulcer is so resistant to treatment that any success makes one doubt whether the diagnosis is correct. Two recent successes have been obtained—the first by the use of sulphathiazole ointment, 5%, with bandaging of both eyes, and the second (where the other eye had been enucleated for the same condition) by carbolization, conjunctival slide, and tarsorrhaphy all at the same time. Application of radium has been suggested, but should be used with extreme care owing to the vulnerability of the ocular tissues to radium. Short-wave and ultra-violet-light therapy have not met with success.

Catgut and Wound Infection

Q.—*What is the pathological mechanism involved in the predisposition to wound infection by the use of catgut? Is it merely that catgut may not be sterile?*

A.—Is it true to say that there is predisposition to wound infection by the use of catgut? The process of absorption of catgut is one of inflammation, with exudation, round-cell infiltration, and the appearance of foreign-body giant cells, but this does not signify infection. Nor is it correct to assume that catgut cannot be sterilized. When prepared for surgical use under the conditions laid down by the Ministry of Health, catgut is sterile, and there is now no excuse for the surgeon who uses catgut which is unreliable in this respect.

Mervyn Gordon Test for Smallpox

Q.—*What is the Mervyn Gordon test for smallpox, and to what extent is it reliable?*

A.—This is a flocculation or precipitation test. The one usually employed is Craigie and Tulloch's modification of the Mervyn Gordon test. A series of saline extracts of dried crusts from a suspect case are added to various dilutions of serum obtained from a rabbit immunized against vaccinia. If flocculation occurs in the mixture after incubation it indicates the presence of the smallpox or vaccinia virus. No flocculation occurs with a suspension obtained from chicken-pox crust. The test is thus of practical value in distinguishing chicken-pox from smallpox in the crusting stage of the disease.

Prognosis in Otosclerosis

Q.—*What advice should be given to a patient regarding the prospects of relief from deafness due to otosclerosis?*

A.—The general opinion is that no operation yet devised has given worth-while results in more than a minute proportion of cases. It is possible that improved technique will in the next few years give results which justify the small but definite operative risk—but that time has not yet arrived.

Polyneuritis in Pregnancy

Q.—*Sometimes pregnant women—usually the hard-working poor, but not necessarily under-nourished—suffer from a type of neuritis affecting the hands and occasionally extending up the arms. There is a numbness and sometimes "deadness" in the fingers, accompanied perhaps by either swelling or pain. What are the cause and treatment of this condition?*

A.—The patients described in this question are undoubtedly suffering from polyneuritis, a condition which is very common in pregnancy. The most severe examples are seen in cases of hyperemesis gravidarum, and the neuritis may come on after apparent recovery. Severe cases have also been reported in patients not suffering from hyperemesis. Deaths from this condition have been reported, and in other cases the nerve lesions have become irreversible and have led to permanent paralysis. These serious cases are fortunately *very uncommon*, but milder types of the disease are common and lead to a good deal of suffering and disability.

Polyneuritis of pregnancy has now been established as being due to deficiency of vitamin B_1. It has been shown by Helen S. Lockwood, S. Kirkwood, and R. S. Harris (*Amer. J. Obstet. Gynec.*, 1943, **46**, 358) that the requirement of thiamine (vitamin B_1) is increased threefold in pregnancy and the puerperium. In addition, a high intake of carbohydrate such as is likely in a wartime dietary will further increase the thiamine requirements. Another possible factor is deficiency of hydrochloric acid in the gastric juice, and it was shown by M. B. Strauss and W. J. Macdonald (*J. Amer. med. Ass.*, 1933, **100**, 1320) that achlorhydria is commonly found in association with polyneuritis of pregnancy. It is suggested that the questioner should treat his patients with large doses of vitamin B_1. L. S. McGoogan (*Amer. J. Obstet. Gynec.*, 1942, **43**, 308) recommends administration of 50 to 100 mg. of thiamine hydrochloride daily. In addition hydrochloric acid (one fluid drachm of acid. hydrochlor. dil.) may be given with meals. This should be taken well diluted in water or lemonade.

Pregnancy after Perineal Operations

Q.—*A woman of 30, healthy and strong, who was confined a year ago, has just been operated on for cystocele, rectocele, and perineorrhaphy. What advice does one give on future confinements? How soon may she safely conceive, and are there any special precautions? Her only confinement, which took place a year ago as above mentioned, was a non-instrumental delivery, but she had seven stitches. Before the operation she was fitted with a ring, but even a No. 12 dropped out when she stood up.*

A.—She should wait at least six months, and preferably one year, from the time of the operation before embarking on another pregnancy. If the cervix was not amputated there is no reason to expect any special complications during another pregnancy, but during the second stage of labour the vagina and perineum may not distend easily, because of the scars. The chief concern should be to avoid a recurrence of prolapse, and to this end episiotomy should be carried out as soon as the head is beginning to distend the perineum. The incision should be a liberal one, beginning at the fourchette just to the side of the perineal scar and extending backwards and slightly outwards to the side of the anus. It will, of course, need to be carefully sutured, layer by layer.

Radio-active Hair Tonic

Q.—*A patient has been using a proprietary hair tonic for which it is stated that: "The preparation is activated by actual radium element to a radio-activity of 2,000 Macbe units = 555,60 milli-micro-curies ($\pm$20%) per gallon." I should be glad to know what this means, and whether any injurious effect is likely to result from the use of the "tonic." Is there any Act operating which prevents the sale of radio-active substances to the general public?*

A.—The stated radium content of the preparation is about 10^{-4} mg. per litre, and no local injurious effect is therefore likely to be observed unless the preparation was continuously used for several years. The gamma-ray activity, however, approaches the tolerance dose of 10^{-5} r/sec. recommended as the safety limit by the British *X*-ray and Radium Protection Committee, so that some general effect, such as a leucopenia, might be observed after prolonged use. So far as I know, there is no Act prohibiting the sale of radio-active substances to the general public.

A Case of Arthritis

Q.—*A woman, aged 74, two years ago had a serious illness, which started with severe facial neuralgia. Teeth were x-rayed and 6 were extracted. The neuralgia became worse, the temperature began to rise, never higher than 102° at night, but continuing for 2 to 3 months. This was diagnosed as a subacute septicaemia following tooth extraction. After sulphonamide therapy the fever subsided and the neuralgia disappeared. About a year ago pain and stiffness in the right thigh began, especially after walking a short distance and uphill. The pain is located on the outer side of the thigh, to a lesser extent on the inner side and back. Some years ago the ankle on the same side was sprained, and the plantaris has been ruptured twice. Flexing the thigh causes pain, so that going upstairs means one step at a time using only the left leg. There is a thickened plaque to be felt on the outer side and middle of the thigh, about 2½ in. in diameter—this can be dispersed by fairly heavy massage. It is very tender to the touch. There are other tender spots, one near the great trochanter, sometimes one in front near the patellar attachments, but no obvious lumps at these places. The general health is good.*

A.—The details of the case are interesting though difficult to link up into a complete and uniform picture. I think there is little doubt that there is arthritis of the right hip, possibly infective at the outset; but now the active phase has died down and there is a chronic osteo-arthritis which, as is so often the case, gives rise to pain referred to other parts of the thigh rather than to the joint itself, comparable with the referred pains which characterize tuberculous arthritis of the hip in childhood. *X*-ray examination is, I think, essential to the formation of a definite diagnosis, but in its absence, and without the opportunity of making a clinical examination, I feel that this view of the case is correct.

The thickened plaque on the outer side of the thigh is not easily explained; it would appear to be associated with the ilio-tibial band and possibly due to the bursa which often lies between it and the femur. If there is effusion into this bursa it might be dispersed by heavy massage. The congested fatty layer described by Copeman and Ackerman as occurring in the back might also give rise to the same symptoms, but anything like a formed fibrositic nodule could not be got rid of so easily. Its tenderness and tendency to recur would be readily explained by a bursitis or tenosynovitis. Flexing the thigh would cause pain in arthritis of the hip, but grating is unlikely at this stage, and in any case is not commonly felt in osteo-arthritis of the hip. As I have frequently to emphasize to students, trouble in the hip causes pain going uphill, whereas if it is in the knee the pain is felt when going downhill; referred pain in the knee is usually at the inner side and is due to being referred along the obturator nerve which supplies both joints. Fibrositis is a common accompaniment of osteo-arthritis, usually peri-arthric in site but not invariably so, and is certainly affected by climatic conditions, so there is some prospect of relief in a dry climate. A walking calliper seems to be the most likely method of relieving the pain and allowing the joint to settle down, but some degree of permanent lameness is, I think, inevitable. Some patients regard a calliper, however, as worse than the trouble it is designed to treat. The less walking the better, but daily movement of the joints to their full extent is necessary to prevent their becoming limited in range.

Drugs, except aspirin, are not likely to help, but heat and massage will be useful, and the best form of heat will be hot hip baths with washing soda—a small handful to the gallon would be strong enough. If the soda irritates the skin mag. sulph. might be a good alternative. The history of previous damage to that leg will account for its being attacked now. It is usually the damaged joint that becomes the seat of further trouble and not the sound ones. At the age of 74 the possibilities of relief are limited.

LETTERS, NOTES, ETC.

Old Books in the Market

The library of the late Sir Buckston Browne, F.R.C.S., which is to be sold at Messrs. Sothebys on May 8, contains a few surgica and anatomical treatises of the seventeenth and eighteenth centuries; three of these are of bibliological interest, two of them of specia appeal to a urologist such as Sir Buckston. These three are the first French translation of Sir Thomas Browne's *Religio Medici*, published in 1668 under the title of *La Religion du Medecin;* the anonymous tract published from Wyllyam Myddyton's press (in 1544), "Here begynneth the seynge of Urynes of all coloures that Urynes be of with the Medycines annexed to every Uryne and every Uryne his Urynal much profitable for every man to knowe"; and Rober Record's "Urinal of Physick, whereunto is added an ingenious treatise concerning Physicians, Apothecaries and Chyrurgians' published by Gartrude Dawson in 1651. A number of the eighteent century books are connected with the Plague.

A Seminological Laboratory

Practitioners who deal with sterile couples may be interested t know of a new laboratory which offers facilities for seminal examinations and for post-coital examination of the cervical mucus Increasing numbers of women who attend Family Planning Association centres are seeking advice on the treatment of involuntar sterility. Whilst this type of case has been welcomed at the clinics in most cases advice given has inevitably been curtailed by the lac of facilities for getting competent seminal investigations at fees suitable for such patients. The Sub-Fertility Committee of the Famil Planning Association has therefore been working to establish pathological laboratory, which has now been opened under th charge of Dr. H. A. Davidson, at 33, Wimpole Street, London, W.1 There have, up to the present, been very few laboratories in thi country which include in their technique measurements of th viability of the spermatozoa, both *in vitro* and in the cervical canal This factor may be of the utmost importance in certain cases o sterility. Studies in seminology have been carried on in connexio with the Exeter Clinic by Mrs. Clare Hervey, and work at the Londo laboratory is expected to develop along similar lines. Workers o sterility have always been hampered by differences in methods o examining semen, which make it impossible to compare results fro different laboratories. Mrs. Hervey's aim has been to evolve standard technique which should overcome this difficulty. If, a the Association intends, it becomes possible to open laboratories i other parts of the country, a large amount of comparable dat should soon be collected for study. The London laboratory wi undertake investigations for clinic patients at especially low rates Its services are also available for private practitioners who wish t have cases investigated.

Calcification of Supraspinatus Tendon

Dr. P. W. **Hampton** (I.O.M.) writes: I was interested in th answer on calcification in supraspinatus tendon in the *Journal* o March 31 (p. 468). During the last war I was consulted by a elderly officer who complained of pain in the shoulder which wok him at night if he happened to turn over on that side. *X*-ra examination showed what looked like a bony spur growing fro the greater tuberosity of the humerus. At operation the spur wa found to be somewhat pultaceous and was easily scraped out with Volkmann spoon. I took it to be a tophaceous deposit, and, c later asking the patient if he had ever suffered from gout, he to me that some years previously he had had a gouty testicle remove

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WAR NEUROSES AFTER PSYCHOLOGICAL TRAUMA

BY

R. D. GILLESPIE, M.D., F.R.C.P.

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The argument falls under two heads: (1) That a psychoneurosis, or, more correctly, a mental or a combined mental and physical disturbance, may be produced by a sudden frightening experience, and that this neurosis may be of a type which ultimately presents no symptoms except those produced episodically by associative arousal by some reminder of the original traumatic experience. These episodic symptoms may, however, be disabling while they last. (2) A traumatic psychoneurosis, either in this special sense or with persistent and not mainly episodic symptoms, may depend on either (*a*) a disturbance nearer the physiological level, depending on properties common to all organisms; or (*b*) a disturbance mainly at the psychological level, depending on the particular type of personality, especially the ego-organization, whether anxious, hysterical, or what-not.

"Traumatic neurosis," in the sense of a mental or a combined mental and functional-physical disturbance of some kind following a psychological stimulus from without, usually implies two things: that the event impinges suddenly, and that the subsequent disturbance persists for some time. In a war the provocative stimulus is usually one of fear, less often one of horror, or both combined.

The present study was prompted by a doubt whether in the case of flying personnel we know all we should know about psychiatric disabilities after flying accidents and terrifying experiences in combat, and whether we may do less than justice from the medical aspect in some cases in which disciplinary problems arise. The individuals studied presented no history suggesting head injury, or at most a very transient impairment of consciousness after the accident.

Three main kinds of speculation have been invoked to help in the understanding of the traumatic neuroses: (*a*) hypotheses based on biological analogies, especially the comparison of stupor following fright with the immobility reactions of animals; (*b*) speculations based on neurophysiological considerations, mainly Pavlov's (1928) formulations; (*c*) psychopathological and especially psycho-analytic speculations.

The first does not help us much except perhaps with regard to such transient stupors as those described by Hubert (1941). They might be regarded from this standpoint as regressive phenomena. Rivers (1920), in the last war, extended this analogy of sham-death to partial reactions, such as the immobility of a hysterically paralysed limb.

Pavlov's (1928) physiology offers a more seductive kind of analogy. The observation that reminders of a shattering experience may still produce mental reactions is of course very old. For example, Sir John Fortescue mentions that a lady who had been in the siege of Lucknow, in which her husband had been killed, and who had since remarried, would still, years afterwards, turn pale and tremble at the very mention of the place. This phenomenon of the "conditioned reflex" in its various elaborations can be applied in an interesting way to a description of war neurosis in general in Pavlov's and, to a lesser extent, in Sherrington's terms. Thus Love (1942) speaks of fear as a reflex, and increasing susceptibility to fear as due to facilitation of this reflex. He also suggests that the prolonged inhibition of fear may itself lead to a neurosis, just as delayed inhibition leads to an experimental "neurosis" in Pavlov's dog. This has been extended by Symonds (1943) to sudden traumatic experiences, when the individual seems to have been unaware of fear at the time but develops psychoneurotic symptoms some time (perhaps a day or two) afterwards. Pavlov's (1928) observation that ultramaximal stimuli, instead of producing excitation, produce the paradoxical result of inhibition, might be invoked to explain the phenomenon of stupor resulting from terrifying experiences.

The psycho-analytic view as propounded originally by Freud (1922) appeared to be concerned primarily with accidents in which some sudden physical stimulus impinged on the body surface. He says: "I think one may venture, tentatively, to regard the ordinary traumatic neurosis as the result of an extensive rupture of the barrier against stimuli." In this way the old doctrine of shock would come into its own again, apparently in opposition to a later and more psychologically pretentious view, which ascribes aetiological significance not to the effect of the mechanical force but to the fright and the menace to life. He pictures the stimulus which has broken through the barrier as having to be "bound" by charges of energy drafted from elsewhere in the organism. What conditions fright is the failure of the "mechanism of apprehension" to make the proper preparation, including the overcharging of the system first receiving the stimulus. The dreams of patients suffering from traumatic neuroses are attempts at restoring control of the stimuli by developing apprehension, "the pretermission of which caused the traumatic neurosis." This suggests the paradox that the greater the apprehension the less the likelihood of developing a traumatic "neurosis." There may be some truth in this in that it appears, according to my observations, that anyone, no matter how stable he may be, may develop a traumatic neurosis in the sense of recapitulatory dreams and "conditioned" responses if the traumatic experience is terrifying enough, while individuals of more anxious temperament are more apt to develop increased apprehension and the ordinary symptoms of anxiety. Freud (1922), however, adds that the traumatic neuroses of war may arise more easily as the result of ego-conflict. Following this hypothesis, Kardiner (1941) believes that a psychic trauma may leave the ego handicapped or restricted in its adaptation to the external world.

I suggest that there is some truth in all these theories and that there are at least two types of psychoneurotic response to a terrifying stimulus—one depending more on the physiological properties common to the nervous systems of all individuals, and another depending on the psychological aspects of the personality. There is no "unnecessary dualism" here; it is simply that one type of response is at present describable more in physiological terms and the other in psychological. They can be regarded as occurring at different levels of personality-integration.

"Simple Traumatic Neurosis"

The central feature of the classical traumatic neurosis has been the recurrent dream which recapitulates the traumatic event. Freud (1922) made it the point of departure for his observations on the repetition-compulsion phenomena. It

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would not invalidate his speculations on repetition-compulsion if this kind of dream were to be found to depend not on disturbance of the organization of the ego but on more primitive properties. It would not be the first time in the history of medicine that a correct conclusion had been reached from a mistaken premise.

This type of dream may be regarded instead as a perseverative phenomenon at the physiological level. It can occur in mature personalities and it gradually dies out, like the fading of any other memory. That such experiences can persist in an engrammatic fashion is suggested by an observation of Penfield and Ericson's (1941). An epileptic girl aged 17 had had a fright at the age of 4 when a man came up behind her; she ran from him across a meadow to rejoin her brothers. Afterwards she had nightmares in which the scene was re-acted. Some time later she began to have attacks in which she showed fright, screamed, and clung to people, and these were followed by a major seizure. During the fright she saw the same scene, and was filled with terror lest she be struck or smothered from behind. This hallucination could be exactly reproduced by electric stimulus of the middle temporal gyrus.

The recurrence of a dream of a traumatic experience could be attributed to a similar automatic activity of a neural engram at a time when, as in sleep or in epilepsy, the inhibitory effect of the cortical activities is in abeyance. The occurrence of dream-like experiences, depending on a release of the cortical control, has been noted by Lhermitte and Tournay (1927) and others in mesencephalitic lesions.

In traumatic neuroses in stable individuals I would place alongside the recapitulatory dream at this lower physiological level a conditioned response to anything nearly recalling the original trauma. What presumably produces them both in the first place is the arousal of the fear apparatus of the organism. There is evidence that this is stimulated even in the absence of conscious fear. Anyone who has been through a sudden frightening experience knows that immediately the crisis is over a variety of bodily sensations, such as palpitation, tingling, tremor, etc., make themselves felt. These occur so immediately as not to be produced by rumination. They occur automatically in response to the perception of danger. The other kind of evidence for the arousal of automatic fear reactions is the observation that bodily disturbance can be produced by some reminder of the original trauma in the absence of conscious mental disturbance. For example: An R.A.F. pilot, walking in the country, was suddenly aware of palpitation and uneasiness. He could not understand this until he realized that a certain smell that he had just whiffed was associated in his mind with the smell of burning flesh in an accident in which he had been involved (Lees, personal communication). It is to be supposed, therefore, that the immediate stimulation of the emergency physiological processes may influence, by "stamping-in," the visual perceptions at the time, even in those cases in which the individual is not consciously afraid.

This last instance is an example of the other traumatic effect in Freud's discussion which is not taken account of, but which is more upsetting because more persistent than the recapitulatory dream—namely, the conditioned response to any reminder of the traumatic event. We are accustomed to think of "conditioned responses" in the Pavlovian experiments as being established only by repeated training; but it is a commonplace observation that they may be founded on a single experience, if it be intense enough. Horsley Gantt (1943) confirms that the same effect can be produced in an experimental animal. The phenomenon is not identical with the "startle" response to a loud noise; it is specific to associations with the original stimulus.

The following instance, I suggest, is typical of a "traumatic neurosis" or psychoneurosis produced in the way described.

An air gunner, aged 32, on the first occasion on which he flew in a rear turret (where one is entirely enclosed and separated from the rest of the crew) panicked and emerged from the turret into the body of the machine "blowing like a grampus"—as the others described it. He had been seized with panic at being shut in, but could not at first account for this. He was a well-built man of apparently stable temperament. His history, however, revealed that at the age of 15, just after he had started work in a large stores, he had an unusual and terrifying experience. His duty every Saturday afternoon was to place the books in the strong-room. On this particular occasion the door of the strong-room locked behind him and he found himself inside, with no apparent prospect of release till the following Monday. He began to feel that the atmosphere was getting more and more suffocating, and he became more and more frightened, until at last he realized that if he smashed a small red electric bulb he could sound the alarm and bring attention to himself. After he had been confined for about two and a half hours the door was opened by a watchman and guard armed with carbines, who naturally thought a burglar was inside.

He slept badly for some time after this episode and had nightmares recapitulating the experience. These gradually ceased, and the only symptom he could recall in the ensuing years was some uneasiness in confined spaces; for example, in buying a car of his own he had always chosen a roadster, as he was uncomfortable in a sedan.

The episode in the air was evidently an attack of panic depending on a "conditioned" associative arousal of the old experience. His heavy breathing was presumably related to the original fear of suffocation.

The deduction that suggests itself is that a condition which is otherwise symptomless may be disabling in specific situations. The reaction is automatic and independent of motive. It is important to note that the reaction which was produced included not only visceral components but conscious fear, of disabling intensity, as part of the reactive traumatic pattern. The similarity to Penfield and Ericson's (1941) case is suggestive, although there the releasing factor was the epileptic process.

Injustice would be done in such a case if the man were returned as fit because he complained of no symptoms in the ordinary sense. Someone may object that it is impossible to be certain that he was not motivated by a desire to avoid flying. One could only reply that evidence for this was lacking.

There are parallel instances where it seems possible to exclude motive, conscious or unconscious. A merely anecdotal example is Fortescue's story, already recounted; but documented examples are available from war experience. A W.A.A.F. officer, aged 39, who had been bombed out, had recapitulatory nightmares and retched a good deal. Long after the 1940–1 air raids had ceased she would retch again if she saw a chimney-pot damaged or a slate dislodged. She found it impossible to attain voluntary control of this symptom.

It seems justifiable, therefore, to suggest that an automatic, unmotivated, conditioned responsiveness may be produced by any sudden terrifying experience, such as an aircraft crash. The following is an example:

Sgt. A., an air gunner with 200 hours' flying to his credit, of which 40 had been spent in night flying, complained of loss of confidence and fear of night flying; he said he never got the feeling by day. Nine months previously he had been in his first night flight of any duration. The aircraft crashed on landing; he was trapped in the back of the machine and had to wait for people to cut him out. He wondered whether there would be a fire, but does not remember feeling particularly scared at the time. He dreamed of the crash afterwards, but otherwise showed no symptoms on the ground. In the air, however, he found himself in a state of acute apprehension, which increased with each attempt to fly. There was no evidence of timidity or any special tendency to anxiety in his previous history.

The argument, so far, is as follows: (1) There is a specific response to terrifying experience, not dependent on psychological attributes, but occurring more nearly on a physiological level. (2) This response consists principally of a recurring nightmare reduplicating the experience more or less exactly, and of a conditioned or associative response to stimuli resembling or in some way recalling the original experience. (3) Such a condition can exist independently of motive or volition. (4) The dream usually dies out, but the conditioned response is apt to persist indefinitely, without any other symptoms. (5) The response when re-aroused may involve only visceral reactions, or it may disturb consciousness as well by producing difficulty in concentration, together with conscious fear. (6) The result may be a condition specifically disabling for certain tasks—e.g., flying an aeroplane. (7) This theory may explain the good performance of such individuals in other circumstances—e.g., in the Army—afterwards.

As accessory symptoms there may exist a loss of emotional control, resulting in a form of irritability, but probably more often in some degree more generalized. Thus one man described his whole attitude as "excitable" and "fussy."

Anxiety and Other Psychoneuroses after Trauma

In individuals whose ego-organization is not stable, who are either anxious or narcissistic, the response to a traumatic experience may include the above characteristics, but it is usually shown either in persistent anxiety symptoms or in hysterical ones. In fact, in some apparent contradiction to Freud's (1922) original notion, those who are "prepared" with anxiety for any threat to existence are more apt to develop a psychoneurosis afterwards.

The following is an example of psychoneurosis after psychological trauma in which symptoms of anxiety and apprehension predominate. In such instances the traumatic experience probably simply accentuates a pre-existing state of anxious anticipation:

Sgt. B., aged 34, an air gunner under training with 30 flying hours in his log-book, was involved in an aircraft crash. He does not remember the machine actually hitting the ground; the first thing he remembers was that the aircraft was on fire and that he was being pulled out. Then "something blew up" and he was for a brief period unconscious. The next thing he remembers is being in an ambulance. He said: "When I came to and found the aircraft was on fire I looked round for a hatchet and was very calm. I still couldn't get out, and was reconciled to being burned. I was not worried. Then when I heard someone trying to get in I began to want to get out. Then he ran away, and this worried me; but he came back. I remember screaming 'Come back,' but up till then I didn't seem to worry what happened—I was more or less contented."

His symptoms now consisted of a "confined feeling" in the head, insomnia, pain in the back of the head, nervousness in any closed space, whether a bus or a building, and difficulty in concentrating and in remembering. He was obsessively preoccupied, not with the accident but with the idea of flying again. He felt relief in contemplating a newspaper photograph of a peaceful rural scene. "I look at the photograph and I feel more confident; it's peace and quiet." In temperament he was timid, anxious, a poor mixer, emotional, and meticulous in his habits.

The main points are: his timid and anxious temperament, his vivid recollection of the crash, the preliminary moments in which he felt no fear, followed by panic; and the subsequent persistent anxiety reactions coupled with a conditioned response to closed spaces.

Both types of reaction may occur in the same individual, as in the following instance, combining the pure traumatic effect of dream and conditioned responses plus anxiety symptoms arising out of an insecure and dependent personality in whom there is evidence presumptive of unresolved infantile conflict.

An officer, aged 36, complained of insomnia with nightmares and drenching sweats, inability to concentrate, dislike of meeting people, and a tendency to worry about everything. He had become worse since he had received notice of a posting away from his present unit, which is stationed near enough to his home to enable him to live out. His personal history was that he grew up with the feeling that he was not wanted by his mother. Her entire affection was bound up in his sister, who is now, as he says, a complete contrast to himself—"a care-free strapping girl." For the first six years of his life he was brought up by his grandmother. His father realized the mother's attitude and tried in some ways to atone for it, but, on the other hand, he was a severe disciplinarian who often beat the boy.

As a child he was nervous of being left alone. He was exposed to air raids in London during the last war and was extremely afraid of them. He walked in his sleep a great deal; on one occasion he lit a bonfire in the grounds of the house, and on another occasion he wandered down the road and was brought home by a policeman. His mother used to lock him in his room to stop this, and he experienced great terror when he woke up during his sleep-walking in his attempt to get out of his room.

At school, in his younger days, he was the butt of the others, as he was always dressed differently. He made friends readily enough and played the usual games, except for a period between 14 and 16, when he had to wear a truss. He was a good swimmer.

He has, to this day, disliked the limelight; he likes to work "behind the scenes," as he put it. In spite of this he had a successful business life, became a very hard worker and conscientious in an obsessional way, although he is not severely obsessional in his mental habits; he dislikes dirt extremely and has a distaste for untidiness. He has always been capable of self-discipline, even to a punishing extent. For example, in his boyhood he would go to early morning service at church, without breakfast, and while kneeling in church in these circumstances he fainted several times. This ardent church attendance was connected with his admiration for a prominent preacher of the time, with whom he became close friends. When the war started he became an A.R.P. warden; he experienced a considerable number of air raids without being disturbed in his efficiency and in spite of loss of sleep.

He enjoyed his work in a non-flying branch of the R.A.F., remaining fit until Jan., 1943, when he had an attack of influenza, followed by jaundice. He still felt unwell on his return to his unit, which was raided on March 9, 1943. There was a "near miss" on the hut in which he was. He remembers no fear at the time; in fact, he remembers realizing that the bomb was going to land very close and reconciling himself to what he thought was the inevitable end. He was bruised by falling debris, and remembers that he had the very greatest difficulty in preventing himself from running instead of walking to an adjacent shelter, but he slept perfectly well that night. At breakfast in the morning, however, he felt disinclined for food, and in the afternoon of the day after the bomb fell, when a siren went again, he found himself, to his surprise, very much affected, feeling extremely afraid and experiencing great difficulty in controlling himself so as not to show signs of fear in front of his brother officers. Since then he has suffered from the symptoms of which he now complains. His nightmares are not usually about bombs, but about drowning or being strangled, and he wakes up in such a profuse sweat that his pyjamas are soaked.

After this condition developed he succeeded in getting a post to a station where he could live out, at home with his wife. Previously it had not been an ordeal to be away from her, but now he found himself very dependent on her support and comfort. There were no air raids in the vicinity of his unit, but an air-raid siren went off every Sunday morning as a practice. He observed that he inevitably reacted with feelings of tension and anxiety until he reminded himself that it was not a sign of an actual air raid, and his commotion subsided to the level which is now habitual, as he described it in his symptoms.

NOTABLE POINTS IN THE ABOVE CASE

1. The patient was a good example of a child suffering from rejection by his mother, with anxiety symptoms in his childhood which were probably closely related to this situation, and with a chronic sense of inferiority, also originating in all probability in the same way. His marriage to an older woman was probably determined a good deal by lack of the maternal type of affection in his boyhood, but it should be noted that his dependence was not so extreme that he was unable to live with reasonable happiness apart from her until after the air-raid experience of March, 1943. No doubt the anxiety reactivated by this traumatic experience could be construed as separation anxiety, revived.

2. There is no question of lack of courage, since he had endured many previous air raids with success and taken an active part in the work of defence.

3. His sense of duty has some of its roots in his obsessional characteristics, which may again be related in some degree to his upbringing by an unaffectionate mother and an affectionate but severe father. His excessive conscientiousness shows itself in his reaction to his present symptoms; he says: "I am thoroughly ashamed of this—I am yellow."

4. The air raid which upset him occurred at a time when his general health was impaired and therefore his resistance, both physical and mental, lowered.

5. During that episode he had no awareness of fear of the bombs approaching, although immediately afterwards he noticed that he had difficulty in controlling the impulse of flight. It is notable, also, that he slept quite well on the following night and that there was a latent interval between the experience and the development of symptoms. Furthermore, the symptoms appeared not to develop to any disturbing extent until another stimulus occurred—namely, an air-raid warning recalling the previous experience. It is virtually certain that this air-raid warning signified to his mind, at the time, another air raid, and that, unlike the practice warnings at his new unit afterwards, it had a definite meaning of danger for him. It is to be observed also that subsequent air-raid warnings, although rapidly recognized as innocuous, continued to produce exacerbations of his now chronic emotional tension. Moreover, his symptoms of chronic tension have persisted in spite of his being away altogether from reminders in the shape of actual raids or danger of any kind.

Additional Points on Cases

1. It is notable that most R.A.F. crew members who have been involved in a flying accident seem to remember the traumatic experience vividly and in detail. This is contrary to Kardiner's observation; but his cases were of much longer standing—years, instead of weeks or months, having elapsed since the event. It is probable that hysterical processes entered far more often into the psychodynamics of his group.

2. There is, in a considerable proportion of the cases coming under my observation, retrospective evidence that there was conscious fear at the time of the occurrence. "Delayed inhibition" in the Pavlovian sense does not seem to have been the process responsible in them for the subsequent psychoneurosis.

3. It is possible that some stupors are essentially states of extreme preoccupation with the frightening experiences (cf. Hoch's (1921) *Benign Stupors* and the preoccupation with death).

4. Other stupors are presumably hysterical (avoidance) methods of dealing with the same kind of experience.

5. The long persistence of conditioned responses after trauma, up to two years in some R.A.F. cases, and probably indefinitely longer, has its parallel (Anderson and Parmenter, 1941) in sheep with experimental neuroses.

6. Some phobias, not of war origin, have probably the same kind of basis, extended to other situations recalling the original traumatic one in some way.

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GAS GANGRENE

WITH SPECIAL REFERENCE TO VASCULARIZATION OF MUSCLES

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The various factors in the pathogenesis of gas gangrene have still to be assessed. Of these, muscle ischaemia, while generally recognized as playing a part, has not received the attention it deserves. The present paper attempts to elucidate some of the problems of surgical treatment, with particular reference to the possible effects of vascular injury in promoting gas gangrene in war wounds.

Out of a series of 6,000 wounded 20 cases of gas gangrene were encountered in this general hospital during the first two months of the fighting in Normandy. It is seldom that the surgeons of a large general hospital have had the opportunity provided in this beach-head of seeing their patients within six to eight hours of wounding, of undertaking the primary surgery, and of observing the sequence of events at first hand from day to day. Adequate notes are available in 16 of the 20 cases encountered, and in only one of these had the initial operation been undertaken at a forward C.C.S.

Three factors are essential for the establishment of gas gangrene—the presence of pathogenic clostridia, an adequate mass of ischaemic or necrotic muscle, and delayed or faulty surgery. The first two are unavoidable, and can be effectively countered only by early adequate surgery. When casualties are heavy it is impossible to operate on all cases within the optimum period, but if those likely to develop gas gangrene are given priority it would go a long way towards eradicating this disease. Apart from gross destruction of a limb, gas gangrene is most lethal in the thigh and buttocks, and all cases of shell wounds in these areas should be given operative priority.

Muscles are supplied by one or more arteries. Should one of these be injured, then that part of the muscle supplied by the injured vessel becomes ischaemic. When this occurs the re-establishment of the collateral circulation within the muscle appears to be extremely slow, and in open wounds invariably results in necrosis. This not only is borne out by my own operative experience, but has recently been proved experimentally in rabbits by Le Gros Clark (1945). He states: "After ligature of the lower vessel of supply to the tibialis anticus . . . the normal vascularization of the lower half of the muscle is not restored for about a week. If both of the main vessels supplying the tibialis anticus are ligatured revascularization is delayed for a fortnight." And again: "In spite of anastomotic connexions, the interruption of one vessel of supply to a muscle (or one of its branches) may lead to a relatively extensive and well-defined area of ischaemia lasting for several days. This is important in relation to the infection of muscles in war wounds." I would go further and state that, combined with the presence of clostridia, it invariably results in gas gangrene.

I have stated that sufficient ischaemic or necrotic muscle is essential for the establishment of gas gangrene, and the following examples illustrate this. In the first, a small ragged piece of shell passes through the thigh, causing no arterial damage; it leaves in its wake a tract thinly lined with avascular muscle. Such cases, whether operated upon or not, will not develop gas gangrene: natural resources can cope with such damage. Now, if a similar piece of shell passing through the thigh should strike an artery—say the profunda femoris—we have a very different picture. Two groups of muscles are rendered ischaemic and form a suitable pabulum for micro-organisms. If clostridia are present in such a wound gas gangrene will be extensive and rapidly fatal; only early adequate surgery can be life-saving. On the other hand, should a smaller artery be lacerated—say one of the perforating branches of the profunda femoris—then a more limited area of muscle is rendered bloodless. In such a case gas gangrene, if it develops, will be less extensive and not so rapidly fatal. Such examples are often met with in war surgery, and they illustrate the paramount importance of the total exploration of all shell wounds, however small.

A surgeon who fails to remove significant quantities of ischaemic muscle is guilty of faulty surgery, for gas gangrene is very likely to develop. The thigh is more sinned against in this respect than any other part of the body, and failure to carry out adequate surgery in this region has been responsible for most of the recorded cases of gas gangrene in this war. Muscle deprived of its blood supply for six to eight hours dies. If operation has not been undertaken within this period all bloodless muscle must be excised. If one group of muscles is avascular it should be removed; if two groups are involved the limb should be amputated.

Of the 16 cases under review 14 occurred in the lower lim and 2 in the upper. The disparity is accounted for by the more abundant arterial anastomosis of the arm and by the relative vulnerability of the leg owing to its greater mass. I will be found that the cases come under two distinct categorie —namely, massive gas gangrene resulting from damage to the main artery of a limb, and localized gas gangrene (in the early stages) resulting from laceration of muscular branches. Seve of each type occurred in the lower limb and one of each i the upper, as tabulated below. There were two deaths, bot resulting from gas gangrene following injury to the poplitea artery.

	Main Arterial Damage	Injury to Muscular Branc
Upper limb	1	1
Lower limb	7 (two deaths)	7

Upper Limb

1. *Case of Main Arterial Damage.*—Cpl. A. was wounded in th abdomen and right elbow on June 29, 1944. He was in a forwar position, and was not rescued till the morning of July 2—60 hour after being wounded. On admission to hospital the same day h condition was fair. He had an intestinal fistula and did not com plain of abdominal discomfort. There was a foul-smelling woun on the anterior aspect of the elbow, the skin was mottled, and t arm above and below the elbow was greatly swollen. Rigor mort

had set in in the hand; it was impossible to move any of the fingers. Amputation above the elbow was carried out the same day; the abdomen was not disturbed. On exploration of the amputated limb the radial and ulnar arteries were found to have been severed just below the bifurcation of the brachial artery; anaerobic myositis was found in the muscles of the upper forearm.

If the radial and ulnar arteries are severed below the recurrent branches the forearm is cut off from all blood supply and early amputation should be performed: two similar cases were encountered in which both arteries had been ligatured and amputation was carried out later. Ligature of the brachial artery, on the other hand, does not necessarily endanger the life of the limb: in three cases the artery was ligatured in the region of the elbow, and in all of them the limb survived.

2. *Injuries to Muscular Branch.*—L/Cpl. B. sustained a shell wound on the outer aspect of the arm on July 18, 1944. The entry wound was small; there was no exit wound. When seen, 20 hours later, gas gangrene was well established. On opening up the arm the long head of the biceps was completely gangrenous and was the only muscle involved; it was removed *in toto*. The upper tendinous part was first cut through and the muscle dissected out towards the elbow. On reaching a point about the middle of the arm, where the shell fragment had pierced the muscle, an artery was encountered. It was a branch of the brachial, which, having passed through the short head of the biceps, was entering the substance of the long head. It had been severed by the missile, thereby depriving the muscle of its blood supply. No other artery entered the muscle.

This case is a good example of the complete death of a single muscle followed by early gas gangrene. I saw a similar case in the biceps in the North African campaign; but it is the only single muscle in which I have encountered complete destruction, and this is accounted for by the fact that it is supplied by a single artery.

Lower Limb

Cases of Main Arterial Damage

Seven cases of gas gangrene come under this heading. Five resulted from injury to the popliteal artery and two to injury of the dorsalis pedis. As the history is very similar in each case they will not be recorded in detail.

Injuries to the main blood vessels of the lower limb are a most potent cause of gas gangrene, and in my experience almost invariably result in amputation. In the series of 6,000 cases there were 9 in which the popliteal artery was injured; in every case amputation had to be performed. Out of four cases of ligature of the femoral artery three resulted in amputation. Should gas gangrene supervene in such cases it is very rapid, and often fatal within 24 hours on account of the vast area of muscle involved. When a main artery has been ligatured in the leg the patient should be watched hourly and amputation performed at the first sign of clostridial infection. Particularly dangerous is the case in which the femoral artery has been ligatured and there is an additional wound of the lower leg; in such a case primary amputation should be carried out. Severance of the anterior tibial artery is more prone to cause gas gangrene than the posterior tibial, for in the calf the peroneal artery can carry on the circulation. If the anterior tibial artery requires ligature its muscles below this point are ischaemic and should be removed.

The thigh is the most interesting site in the body for the study of gas gangrene, and an intimate knowledge of the vascular supply of the muscles is of paramount importance. The muscles of the upper part of the thigh are supplied by arteries emerging from the pelvis, and those of the lower thigh by the profunda femoris and its branches. Should the femoral artery be injured below the origin of the profunda femoris it is the lower leg which is temporarily deprived of its blood supply, and dry gangrene may ensue. The muscles of the thigh are unlikely to be involved by gas gangrene owing to their receiving a normal blood supply by way of the profunda femoris.

Wounds of the popliteal artery present a very different picture, for after ligature of the vessel the calf muscles exposed in the wound are avascular and gas gangrene is more likely to occur. Once clostridia gain an entry the spread down the leg muscles is only a matter of hours, and as large masses of muscle are involved the toxaemia is extreme and rapidly fatal. Exploratory incision of the popliteal fossa should therefore not extend further down the limb than is absolutely necessary. The larger the wound the more avascular muscle is exposed; it is a happy hunting-ground for micro-organisms, and the danger of gas gangrene is greatly enhanced.

The site at which the popliteal artery is ligatured is of considerable importance. If the injury is above the origin of the inferior geniculate arteries the collateral circulation may prove sufficient, but, should it be below, the collateral circulation is most precarious. Only two very insignificant arteries are available—the anterior and posterior tibial recurrent. Of these the latter is inconstant, while the former is very small and incapable in itself of establishing the collateral circulation.

A wounded soldier seldom comes to operation under six hours. By that time muscle necrosis is setting in if arterial damage is present. On approaching a wound of the popliteal artery one should first ascertain if the circulation below the knee is adequate. If the foot and leg are warm operation should be postponed, for interference with the artery may cause spasm, as illustrated by the following case:

Pte. C. sustained a shell wound of the posterior aspect of the knee on July 11, 1944. He was admitted to hospital the next day; there was a small haematoma in the calf. The foot was warm and the dorsalis pedis pulsating; injury to the popliteal artery was not suspected. On account of the swelling of the knee-joint it was thought advisable to explore the wound to ascertain if the joint had been penetrated. The wound was enlarged and the blood-clot was evacuated. The popliteal artery was found severed above the inferior geniculate arteries, and was ligatured. Pulsation in the dorsalis pedis ceased. Gas gangrene was present in the lower limb next day, and although amputation through the thigh was carried out the patient died. If the operation had been postponed until the collateral circulation was more fully developed the chances of survival of the limb and the patient would undoubtedly have been enhanced.

If the limb is cold and pulsation is absent in the dorsalis pedis, then treatment depends on whether the injury is above or below the inferior geniculate arteries. If it is above, then the probable explanation is arterial spasm. The wound should be explored and the damaged segment of the artery excised and the artery ligatured. On return to bed vasodilatation should be encouraged by hot drinks, heat to the uninjured limbs, and alcohol. Smoking, which has a vasoconstrictor action, should be forbidden. There should be no external pressure on the limb in the form of encircling plaster or bandage. The limb, if fractured, should rest on a Thomas splint with light traction. Heat is contraindicated; it increases oxygen demands, so hastens the onset of gangrene and favours the growth of pathogenic organisms. The limb should be exposed to the air or packed in ice. Should the injury be below the origin of the inferior geniculate arteries, then there is but one course—amputation of the limb.

The remaining two cases of injury to the main artery causing gas gangrene occurred in the dorsalis pedis, with much destruction of tissue; gas gangrene was present on the dorsum of the foot.

Injury to Muscular Branches

Damage to the smaller arteries and to those of individual muscles is particularly interesting and important in the thigh. The profunda femoris is the main source of supply to the muscles in this region. Its lateral circumflex branch supplies the greater part of the quadriceps; the main artery itself supplies the adductor and hamstring group of muscles. If either is injured muscle ischaemia will be extensive. This artery is liable to injury in fractures of the femur, especially when the bone is comminuted by a missile entering from the lateral side. In the great majority of compound fractures of the femur in war this artery escapes injury, so ischaemia will be limited to the torn and ragged muscle in the vicinity of the fracture, and gas gangrene is most unlikely to develop. If, on the other hand, the artery is injured high up in the thigh, the adductor and hamstring group of muscles are almost wholly deprived of their blood supply; in which case primary amputation should be performed, for gas gangrene is apt to be extensive and rapidly fatal. When the injury is lower in the thigh, more limited areas of muscle are involved and local excision may suffice. This artery is the key-note to gas gangrene in the thigh, and a thorough knowledge of its distribution is essential to successful surgery. In carrying out débridement of a wound it is important not to injure the profunda femoris or its branches;

when this occurs the patient returns to bed with a fresh mass of ischaemic muscle, in which gas gangrene is most likely to develop. There is nothing more disturbing to a surgeon than to find clostridial infection 48 hours after a well-done operation.

The seven cases of injury to muscular branches are of particular interest and will be recorded in detail; comments as to the vascular distribution will be made in each case. All underwent operation about the 24-hour period; and, as only localized areas of muscle were involved, generalized symptoms were not far advanced. They were diagnosed by the presence of clostridia and the typical "deadhouse" smell.

Gdsmn. D. was wounded on July 30, 1944, and admitted to hospital the next day with a wound in the buttock. Early gas gangrene was present in the upper part of the gluteus maximus; all gangrenous muscle was excised. The missile had pierced the muscle in the region of the greater sciatic foramen. During the operation the superior gluteal artery was sought for as it emerged from the pelvis; its superficial branch was found to have been severed.

The gluteus maximus is a large muscle and is supplied by several arteries. The superficial branch of the superior gluteal supplies the upper portion, the inferior gluteal the middle portion, and the lower part of the muscle is supplied by the first perforating branch of the profunda femoris and the medial circumflex arteries. The superficial branch of the superior gluteal artery having been severed in this case, the upper part of the muscle underwent necrosis, and gas gangrene resulted. If the missile had severed the superior gluteal artery gas gangrene would have been much more widespread. This artery is practically the sole supply to the gluteus medius and minimus, and both these muscles would have been involved. It is common knowledge that certain buttock wounds may result in serious gas gangrene, and I believe this is the explanation.

L/Cpl. E. was wounded by a shell fragment on July 10, 1944, and admitted to hospital next day. There was a large foul-smelling through-and-through wound in the upper thigh medial to the femur. On enlarging the wound an extensive amount of gangrenous muscle was found, involving the adductores brevis, longus, and magnus, also portions of the semitendinosus and semimembranosus; it was confined to the region of the mid-thigh. The profunda femoris artery was severed in the region of its second perforating branch. All necrotic muscle was removed.

Gnr. F. sustained multiple shell wounds of the left calf on July 14, 1944. On admission next day the calf was swollen and foul-smelling. On exploration of the wound the gastrocnemius was found to have been traversed by a missile from the lateral to the medial side and about 3 in. below the knee; muscle injury was extensive. The part of the muscle distal to the track was gangrenous. No particular arterial damage could be found, but one concludes that the sural arteries, as they run down in the substance of the muscle, must have been severed, thereby depriving the muscle beyond this point of its blood supply.

Prisoner of War G. was admitted on July 24, 1944, with an antero-posterior through-and-through wound of the mid-thigh lateral to the femur. On exploring the wound a mass of early gangrenous muscle was found, involving the middle third of the vastus lateralis and vastus intermedius, also a small portion of the lateral border of the rectus femoris. The track of the missile was in the vicinity of the descending branch of the lateral circumflex artery; this artery was sought for and found severed.

The vastus lateralis and vastus intermedius are supplied by three arteries—the upper third by the transverse branch of the lateral circumflex, the middle third by the descending branch of the lateral circumflex, and the lower third by the lateral superior geniculate arteries. The rectus femoris gets part of its blood supply from the descending branch of the lateral circumflex. In this case the descending branch of the lateral circumflex was severed near its origin, thereby depriving part of the above-mentioned muscles of their blood supply, and gas gangrene supervened.

Spr. H., admitted on July 18, 1944, was in similar case to the above, except that the descending branch of the lateral circumflex was injured lower down; the gangrenous area was thus far more limited.

Pte. I. was admitted on July 26, 1944, with multiple shell wounds of the posterior aspect of the thigh. On exploring the wound the semitendinosus was found gangrenous except at its upper end; all gangrenous muscle was removed.

The semitendinosus has a dual blood supply. The upper part is supplied by the medial circumflex, and the main body of the muscle by a branch of the second perforating artery. This artery divides into two branches—one supplies the semimembranosus and the other the semitendinosus. On removing the main body of the muscle this last artery was not located; it had evidently been severed by a missile.

Pte. J. was admitted on July 26, 1944, with multiple shell wounds of the left thigh; his case was similar to the above, but, in addition to the semitendinosus, the semimembranosus was also gangrenous. Both muscles were partially removed.

The semimembranosus, in addition to being supplied by a terminal branch of the second perforating artery, is also supplied by the third and fourth perforating arteries after they pierce the adductor magnus. The point where the second perforating artery divides into its terminal branches is very close to the third perforating artery as it emerges from the adductor magnus; so that a missile is very apt to injure both arteries, as occurred in this case.

Discussion

The distribution of clostridia is widespread. Cutler and Sandusky (1944) found the incidence of clostridial contamination in aerial warfare as great as that of land warfare and that of accidental civilian wounds. I have seen an Italian sailor come off a ship with well-established gas gangrene. The clostridia can be grown from the skin (Roberts, Johnson, and Bruckner, 1933) as well as from wool (Schenken, quoted by Mais, 1940). It can be grown almost without fail from the battle-dress. MacLennan (1943) states: "Their absence from war wounds is a matter of surprise rather than satisfaction; their presence, for resignation rather than alarm." There still exists a fallacious belief that direct contact with the soil is the chief causal factor in the establishment of gas gangrene; the Cutler and Sandusky findings must surely stamp this out for ever. It is the clothing that is the important vehicle, especially the battle-dress, which is largely composed of wool. Tropical kit, being made of cotton, does not harbour the clostridia to the same degree, and should there be an increase of gas gangrene in the European theatre of war in excess of the desert campaign this will probably be the explanation.

MacLennan has shown that in the desert warfare 30% of all wounds contained the organism of gas gangrene, yet only 1% of those so contaminated developed anaerobic myositis. Why is the percentage so small? The answer undoubtedly is that in only 0.33% of all wounds has arterial damage been inflicted and a sufficient amount of ischaemic muscle produced in which the clostridia can multiply.

We must resign ourselves to the fact that many war wounds are contaminated with clostridia, and that, provided ample necrotic muscle is present, gas gangrene will ensue. Early reports on penicillin would indicate that it is powerless to stem the progress. At present the elimination of gas gangrene can come only from early and efficient surgery, which can be greatly aided by a thorough knowledge of the blood supply of the muscles.

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The Joint Consultative Council of institutions recognized by th Minister of Health for the training of health visitors, and of organizations of health visitors, has issued its report for the year 194 from 7, Victoria Street, London, S.W.1. The council, whose chairman is Prof. Winifred Cullis, D.Sc., originated in a conference o representatives of training institutions convened by the Wome Public Health Officers' Association in November, 1931, and wa formally constituted in January, 1932. During the last 14 years i has been a useful means of conveying the conclusions of its member to the Ministry of Health, the Royal Sanitary Institute, and othe bodies, on matters affecting the training and examination of healt visitors, and has been responsible for five publications based o independent inquiry. An inquiry into the alleged shortage of healt visitors in 1941 was conducted by the Joint Consultative Counci but the results were not published. Though the position has altere since then, there was in 1941 no acute or general shortage of healt visitors.

ARSENICAL ENCEPHALOPATHY

A NOTE ON THE CONDITION STRESSING THE VALUE OF POSTURAL TREATMENT, WITH CASE RECORDS

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During an 18-months period—April, 1943, to Sept., 1944—in an area where malaria is hyperendemic and its cerebral manifestations severe and often fatal, it was expedient for us to form a "coma team" analogous to Sir Leonard Rogers's cholera team. This team has treated, in a small ward equipped for the purpose, 155 cases of fully developed coma attributable to malaria in Indian other ranks and camp followers. In addition to malarial coma, cases of coma due to such causes as uraemia, cholaemia, etc., and on five occasions following the injection of arsenicals, have been seen. That these five patients recovered, while at the same time the majority of similar cases occurring in other units terminated fatally (Davies, 1944), is attributed by us to the use of postural treatment in nursing. Support for this assertion, though not conclusive, may be drawn from the fact that in another hospital five cases treated on orthodox lines ended fatally; a sixth case was seen by one of us (J. C. S. P.) some hours after the onset of coma with convulsions. This patient finally recovered on the adoption of the method of treatment outlined below.

Originally devised to prevent the onset of pulmonary oedema, so common in malarial coma, nursing these patients in the sitting posture not only was found to prevent the onset of pulmonary oedema but appeared significantly to modify the depth of coma and the final outcome. The rationale of this procedure is dealt with in the discussion. We will here give a brief description of the condition and our method of treatment.

Description of the Condition

Arsenical encephalopathy—synonyms of which are arsenical serous apoplexy (Lees, 1937), arsenical haemorrhagic encephalitis, and arsenical encephalorrhagia—has occurred in 1.3% of the patients treated for syphilis by the rapid five-day method of administration of mapharside, and has been found to occur in the Army, using neoarsphenamine, and particularly in Tamil patients, with sufficient frequency to merit the most serious attention of all medical officers.

The following description of the pathology is that of Kinnier Wilson (1940). Perusal of the recent literature, of current textbooks, and of fatal case-sheets has added but little to his account of the clinical and histological features.

> According to the English Salvarsan Committee's Report,[1] about 50% of "salvarsan deaths" in all countries have been due to a "haemorrhagic encephalitis," distinguished by abundant small perivascular effusions (mostly of the ring type), plugged capillaries with minute necrotic zones around them, and sometimes incomplete parietal occlusion in larger vessels; on occasions these thrombi are hyaline (Lissauer,[2] von Marschalko,[3] Scott and Moore[4]). Interstitial reactions otherwise (cellular infiltration of vessel coats rather than of perivascular spaces) are never pronounced and frequently lacking.
>
> Multiple minute capillary and pericapillary lesions of this kind, with hyaline thrombosis, are found also in carbon monoxide poisoning and narcosis, and were observed during the war in phosgene-gas cases. They occur, too, in cerebral malaria, fat embolism, and other disease conditions.
>
> Subpial extravasation may accompany the cerebral, which is often well seen in optic thalami, cornu Ammonis, tegmentum, pons, and elsewhere (Scott and Moore, Globus and Ginsburg,[5] Pollak and Riehl[6]). At times, however, nothing more than congestion and oedema is discovered (Obermiller,[7] Stuhmer[8]). Moderate demyelination round haemorrhagic zones was remarked by Strauss and Globus.[9]

Examination of the cerebrospinal fluid shows that initially the pressure is normal. Later, as secondary cerebral oedema sets in, the pressure tends to rise. This also occurs in cerebral malaria. Protein varies from 40 to 300 mg. per 100 c.cm. Globulin is increased, but less so than in infective conditions—e.g., acute anterior poliomyelitis. The cells are usually normal; rarely are there red blood cells.

Aetiology

The causal factor is unknown. Apparently it is (1) not related to the arsenic radical, since poisoning by inorganic arsenic does not give rise to cerebral symptoms (Halcrow, 1943); (2) not related to dosage (Anwyl-Davies, 1941) (nevertheless the high incidence in the rapid mapharside method of treatment must be kept in mind); (3) not due to the Jarisch-Herxheimer reaction, since arsenical encephalopathy has occurred in non-syphilitics (Lees, 1937; Glaser, Imerman, and Imerman, 1935).

There may be some relationship to arsenical purpura—the disintegration of the arsenobenzene compounds in the blood being a possible factor (Halcrow, 1943). Further investigation of this is required. The tourniquet test, bleeding time, and platelet counts should be done in all cases; the very few that we have done so far have been normal.

The fact that recent cases have been described as occurring during pregnancy (Tzanck and Lewi, 1939; Nelson, McGibbon, and Glyn-Hughes, 1943), and the high incidence in Tamils (Davies, 1944), suggest the possibility of a protein or other dietetic deficiency. The work of Vail (1941) on the increased sensitivity to arsenic in the presence of hypovitaminosis-C, and of Horne and Scarborough (1940) on the value of hesperidine (vitamin P) in the treatment of arsenical purpura, is of the greatest interest in this connexion.

Symptomatology

Signs and symptoms usually appear after 2 to 4 injections of the first course of treatment, and may be associated with irregularity in treatment. They begin 1 to 4 days after the last arsenical injection—commonly the second—when headache, vomiting, and delirium are succeeded by deepening coma, a rising temperature, and death. Focal lesions, such as Jacksonian fits, facial palsy, external and internal ophthalmoplegias, have all been observed, as has also a meningitic reaction, although rarely. In cases which recover there may be transient mental and bizarre neurological pictures. These normally pass off after a few days.

Relation of Symptoms to Lesions.—The stage of irritability, headache, fits, and nausea corresponds to the initial vascular lesions. Deepening coma and death appear to be due to acute reactive oedema of the brain.

The average mortality rate is 75% (Kinnier Wilson). In recent literature 34 cases have been described, with 25 deaths; the mortality rate in military practice seems to have approximated this figure.

Diagnosis

Diagnosis may be facilitated by checking the field service card (IAFM 1272), usually carried in the pay-book, and by looking for needle marks in arms and buttocks. Cases are sometimes mistaken for other forms of encephalitis, cerebral malaria, cerebrospinal meningitis, benign lymphocytic meningitis, poisoning by drugs, alcoholism, epilepsy, and hysteria. Of these, in view of the fact that cerebrospinal meningitis will be excluded by lumbar puncture, cerebral malaria is by far the most important, and if the patient comes from a malarious area he must always be rigorously treated for this, irrespective of whether the clinician thinks that the case is one of arsenical encephalopathy or not.

Arsenic and Malaria.—There is evidence to show that the organic arsenicals can reactivate latent malaria, and cases of cerebral malaria have been recorded in which there were negative blood slides and positive brain smears after arsenical administration (Castellani, Marinesco, and Draganesco; quoted by Anderson, 1927). One so-called case of "arsenical encephalitis" in this army, which received no antimalarial therapy, was proved later to have been malarial in origin.

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[1] M.R.C. Rep., No. 66, 1922 (lit.).
[2] *D.m.W.*, xliii, 1917.
[3] Ibid., xxxviii, 1912.
[4] *A.J.S..*, 1928.
[5] *A.N.P.*, xxx, 1933.
[6] *Jahrb. P.N.*, xlvii, 1930.
[7] *B.k.W.*, 1, 1913.
[8] *M.m.W.*, lxvi, 1919.
[9] *J.N.M.D.*, lxxv, 1930.

Principles and Practice of Treatment

The principles of treatment are: (1) to prevent, so far as is possible, the onset of secondary cerebral oedema and exudation through damaged capillaries; (2) to inactivate circulating arsenical drugs; (3) to observe the principles of nursing coma cases; (4) to anticipate complications—e.g., hyperpyrexia, convulsions, pulmonary oedema, pneumonia; (5) in malarious areas and in patients who have returned from malarious areas, treatment must be as for cerebral malaria.

Oedema of the brain in the past has been successfully relieved by repeated lumbar punctures combined with venesection. In view of the fact that in the prone position venous and hence capillary pressures are 80 to 100 mm. of water, while in the sitting patient they are negative to atmospheric pressure, "decongestion" can be achieved simply by nursing the patient sitting up, using a back-rest. The cerebrospinal-fluid pressure at ventricular level then drops to atmospheric level or less.

Postural nursing is the greatest single factor in saving life, and should be used in every case from the onset.

Lumbar puncture should be done initially for diagnostic purposes and the pressure, if raised, reduced to 100 mm. of water. This should be repeated if in spite of postural nursing the coma appears to deepen. A cisternal puncture is often more convenient.

Dehydration of the brain is indicated only if the coma is deepening in spite of postural nursing and lumbar punctures. It is done as for head injuries: (i) Concentrated serum albumin, 25% solution intravenously (U.S. Naval package: 25 g., equal to 450 c.cm. of plasma), is the method of choice. (ii) Failing the above, concentrated glucose-saline as supplied by the Army, 60 to 120 c.cm. intravenously, or hypertonic glucose solution (or sucrose, if available) by slow drip infusion.

Sodium or calcium thiosulphate given intravenously in 0.5-g. doses once or twice daily is of doubtful value. Calcium gluconate and vitamin C may influence capillary permeability. Adrenaline is of doubtful value. Drugs for the purpose of detoxicating the organic arsenicals—the experimental work on which was reviewed in an editorial in the *Journal* (1943, **2**, 681)—have not been used by us, but to be of value they would have to be employed early in the disease process. This is not always feasible, since many of the patients are first seen after coma has developed; but the method might have been applied with advantage to our Case 3.

Complications.—Pulmonary oedema is largely avoided by posture. *Hyperpyrexia* is anticipated by routine rectal temperatures and dealt with by tepid sponging and fanning. *Convulsions and restlessness* should receive ruthless treatment. For fits, hexobarbitone sodium followed by paraldehyde by mouth, or sodium phenobarbitone 6 gr. intramuscularly, is indicated. It cannot be stressed too strongly that patients should not be allowed to have fits, because they raise the cerebral capillary pressure in capillaries whose endothelium has already been damaged. *Adequate antimalaria therapy* should be given, as outlined in the "Blue Book" for pernicious cases.

Summary of Treatment.—(1) Examination of the patient. (2) Lumbar puncture. (3) Sit the patient up on a back-rest. (4) Treatment of complications—e.g., pulmonary oedema, fits, hyperpyrexia, etc. (5) Adequate antimalaria therapy. (6) Calcium or sodium thiosulphate i.v., 0.5 g., with calcium gluconate and vitamin C if available (of doubtful value). (7) Adequate hydration and nutrition by transnasal intragastric Ryle tube left *in situ*.

Case Notes

Case 1.—An Indian sepoy, aged 25, was admitted to hospital on the evening of March 31, 1944, deeply unconscious: 1½ hours before admission he had felt giddy and had fallen down unconscious, bringing up blood-stained frothy sputum. On March 5 he had a sore on the penis, and dark-field examination showed *T. pallidum*. Treatment had consisted of three injections of N.A.B. and bismuth, the last injection having been given on March 27. On admission he was in deep coma, responding only to painful stimuli, with stertorous breathing and frothing at the mouth (not blood-stained). The eyes were half opened, with a vacant stare. The general attitude was that of midbrain posture, arms adducted and flexed across the trunk, elbows and wrists flexed and supinated, fingers semiflexed, and lower extremities extended at all joints. There were tonic spasms lasting two to three minutes, associated with stertor, trismus, some opisthotonos, ocular deviation to the right, and an accentuation of the position, described above. During the resting phase, of similar duration, the arms were often extended and athetoid movements of the fingers were present. A sucking reflex was also elicited at this stage. Just before the height of the tonic phase, flexion of the head to one side produced relaxation of the contralateral limb (Magnus and de Kleijn reflex). Grasp reflex absent; deep reflexes all present and exaggerated; ankle clonus present; plantars extensor and abdominals abolished. Muscle tone appeared normal, as did crude position sense. Conjunctival and pupillary reflexes and swallowing reflex present. C.S.F.: Cells less than 10/c.mm.; proteins, 60 mg./100 c.cm.; chlorides, 720 mg./100 c.cm.; sugar, normal; pressure, no increase. W.B.C., 11,600/c.mm.—polymorphs 54%, lymphocytes 44%, monocytes 2%. Treatment was as described above. April 1: Still in deep coma; urinary incontinence; temperature rose in the evening to 104° F. April 2: Coma lighter; patient easily roused by questioning; plantar reflexes became flexor. April 3: Conscious; B.P. 136/74; still incontinent. April 4: No incontinence. Recovery uneventful.

Case 2.—A Sikh, aged 19, was admitted to hospital on April 15, 1944, deeply unconscious. Five days previously he had received the third injection of N.A.B. for sero-positive syphilis. He was very restless on admission, but when still, lay on his back in a position similar to that of Case 1. There was increased tone in all the limbs, with a tendency to spasmodic arching of the trunk, when the neck became rigid. During the intervals between the spasms the neck was so relaxed as to enable the chin to touch the chest wall. Kernig's sign was negative. Superficial reflexes all present; abdominals brisk; deep reflexes exaggerated and equal on both sides. Spontaneous jaw clonus; no ankle-clonus; plantars flexor. Pupils slightly dilated and eccentric; reaction to light sluggish. No facial paralysis. Respirations regular, rapid, rattling. No cyanosis. No engorgement of veins. Skin: secondary rash present. Healed scar on penis. Pulse 140/min.; B.P. 139/70; rectal temperature 103.2° F. Following treatment he became conscious 42 hours after admission. For the next few days his cerebration was slow but speech was unaffected. Improvement was rapid, and he was discharged for further convalescence on May 5.

Case 3.—A Tamil pioneer, aged 20, was admitted to the V.D. ward on June 6, 1944, suffering from balanitis and penile sores. Two days later dark-field examination revealed *T. pallidum*. Anti-syphilitic treatment was given as follows:

June 15: N.A.B., 0.3 g.; bismuth, 0.1 g
„ 19: N.A.B., 0.3 g.; bismuth, 0.2 g.
„ 22: N.A.B., 0.45 g.
„ 26: Bismuth, 0.2 g.

On June 26 he complained of headache and had slight fever, so no arsenic was given. A blood film showed no malaria parasites. He made no complaint in the evening, and remained well during the next day, although his temperature in the evening rose to 99.4° F. On June 28 he was well early in the morning, but at 11 a.m. suddenly developed a rigor with twitching, and by midday was in deep coma, responding only to noxa. Temperature 102° F.; pulse 144/min.; respirations 18/min. Pupils were dilated, reacting sluggishly to light. No neck rigidity. Deep reflexes all present but sluggish. Conjunctival, abdominal, and cremasteric reflexes abolished. Plantars indefinite. Heart, lungs, and abdomen: N.A.D. No fullness of neck veins. Urine normal. C.S.F.: Pressure, 135 mm. of water; clear; cells 4/c.mm.; protein, 40 mg./100 c.cm.; chlorides, 750 mg./100 c.cm.; sugar, normal. Treatment on the lines described was started, and on the following morning the patient was drowsy, but responded to touch and to questioning. On June 30 he was fully conscious, and thereafter recovery was uneventful.

Case 4.—A Tamil pioneer, aged 22, was admitted to hospital on June 16, 1944, at 11.00 hours, unconscious and having fits. His history was that he had suddenly become unconscious at 10.00 hours. On June 2 sores appeared on the penis. Dark-field examination showed *T. pallidum*, and treatment, with N.A.B., was as follows: June 5, 0.3 g.; June 8, 0.3 g.; June 12, 0.45 g. Temperature on admission was 99.2° F.; pulse 96/min.; respirations 24/min. The patient was lying on his back with his lower extremities extended, and frequently rolled over on his side with his legs drawn up. His arms were moving about in front as if he was trying to grasp some object. Pupils dilated, equal, and reacted sluggishly to light. Consensual reflexes present. There was photophobia. Deep reflexes present; abdominals lost; plantars extensor; and ankle clonus present. Nothing abnormal in heart, lungs, and abdomen. C.S.F.: Pressure, 120 mm. of water; clear; cells less than 10/c.mm.; protein, 300 mg./100 c.cm.; chlorides, 600 mg./100 c.cm. Urine, normal. W.B.C., 8,000/c.mm.—polymorphs 77%, lymphocytes 21%, monocytes 2%. Treatment was given on the above lines, and on the morning of June 17 he was still deeply comatose, responding only to painful stimuli, though the depth of coma lightened towards midday. On the 18th the depth of coma was variable, and the patient became fully conscious the next day. Temperature became normal on June 21, and thereafter the patient remained well, without nervous residua.

Case 5.—A Central Provinces pioneer, aged 18, was transferred from the V.D. Dept. on Sept. 1, 1944. He was a case of seropositive syphilis, and had received treatment as follows:

Aug. 19: N.A.B., 0.3 g.; bismuth, 0.1 g.
„ 21: N.A.B., 0.15 g.; bismuth, 0.2 g.
„ 24: N.A.B., 0.3 g.
„ 28: N.A.B., 0.15 g.; bismuth, 0.2 g.
„ 31: N.A.B., 0.15 g.

On transfer the patient was in coma, with the eyes wide open and face congested. There were spontaneous movements of both upper limbs. No neck rigidity. Pupils were equal, central, and reacting to light. Fundus examination showed blurring of the disks, more marked on the left, with congestion of the veins. Deep reflexes present; superficial reflexes absent; ankle clonus present; plantars flexor. There was a macular rash all over the body. Temperature 101.8° F. Heart, lungs, and abdomen: N.A.D. C.S.F.: Pressure, 70 mm. of water; fluid clear; chemically normal. W.B.C., 5,600/c.mm.—polymorphs 75%, lymphocytes 24%, monocytes *nil*, eosinophils 1%. Treatment was given as in the previous cases, and on the following day (Sept. 2) he was still in coma. Plantars indefinite. In the evening the patient became irritable and resented examination. The plantars became extensor. On Sept. 3 he was conscious but dazed. He answered to his name, but still resented examination. Plantars flexor. On Sept. 4 the patient was fully conscious, and thereafter convalescence proceeded normally.

Discussion

In view of the fact that once capillaries are damaged exudation into the surrounding brain substance is likely to occur, earlier writers (Lees, 1937; Harrison, 1937) have advocated venesection (to reduce congestion), dehydration with hypertonic saline solutions, and lumbar puncture. Cerebral oedema undoubtedly does occur, and is of the interstitial type accompanying head injuries; it is not necessarily associated with a raised intracranial pressure, provided there is free cerebrospinal-fluid absorption. This type of oedema occurs in cerebral contusion and malarial and other encephalopathies.

Cobb (1936) has clearly outlined the physiological mechanism of the cerebral circulation, and notes the following points:

Hydrostatic Factor.—"There is a falling gradient of pressure from artery to vein, steepest in that part of the curve which represents the arteriole. Changes in arterial pressure have very little immediate and direct effect upon capillary and venous pressure, whereas changes in venous pressure affect capillary pressure immediately and conspicuously; in fact, venous and capillary pressures change equally and synchronously."

Osmotic Factor.—"The capillary wall, being a semipermeable membrane . . . is permeable to all the important osmotically active dissolved substances of the blood except protein, so normally plasma protein tends to prevent movement of fluid out of the vessels. In the arterial capillary bed the hydrostatic pressure is greater than the opposing osmotic pressure of the plasma proteins. Therefore a protein-free fluid is filtered into the tissue spaces. On the venous side of the capillary bed, moreover, the hydrostatic pressure is less than the osmotic pressure of the plasma proteins, and the fluid is reabsorbed. . . . . Any obstruction to venous flow, however, will raise the venous and capillary pressure to levels well above the osmotic pressure of the plasma proteins. Filtration from the plasma to tissue spaces will now take place throughout the capillary bed, whereas no real absorption into capillaries is possible; oedema results."

Effects of Posture.—(1) In the horizontal position the venous pressure measures 8 to 15 cm. of water. In the sitting position the cerebral venous pressure becomes negative to atmospheric pressure. (2) In the horizontal position the C.S.F. pressure is roughly equal throughout the ventriculo-subarachnoid system (100 to 160 mm. of water). In the sitting position the intracranial pressure becomes negative to atmospheric pressure, while the pressure in the lumbar sac nearly doubles.

The following table is an attempt to show what we conceive will happen on sitting the patient up; theoretically, the sitting posture should tend to prevent the onset of cerebral oedema (cf., elevation of a traumatized limb to prevent swelling).

Posture	Osmotic Pressure of the Plasma Proteins (mm. Hg)	Venous Capillary Pressure (mm. Hg)	Mean Reabsorption Pressure (mm. Hg)
Horizontal ..	25	12	13
Sitting	25	Approximates nil	Approximates 25

Finally, in presenting these cases as arsenical encephalopathy, the criticism may be levelled that they were in reality cases of cerebral malaria. That such may be so cannot be entirely refuted, since we have seen in the past undoubted cases of cerebral malaria with negative blood slides but with positive brain smears.

However, that five should have occurred is more than a coincidence, and we believe these to have been of arsenical origin rather than malarial. It is most unusual, with three-hourly thick blood films and an expert microscopist, to fail to demonstrate parasites in a true cerebral malaria.

The value of the sitting posture in nursing these coma cases is in no way diminished, since this is the method applied by us with success in the treatment of malarial coma and of the coma of heat-stroke, and we hope that others will apply it to arsenical encephalopathy occurring in an area where malaria is not hyperendemic.

Summary

A brief description of arsenical encephalopathy is given and five cases are described.

That these five patients survived is attributed to the procedure of nursing cases in the sitting position.

The method of treatment is described and the physiology of the procedure discussed.

We wish to express our thanks to Col. F. R. Cawthorn, I.A.M.C., who, having early appreciated the value of a "team," kept its members together despite many difficulties; and to Major R. I. Krishnaswami, I.A.M.C., for help and criticism in the preparation of the paper. Our thanks are also due to the nursing officers, Miss D. J. Oliver and Miss J. St. John Inman, whose untiring efforts have contributed in no small measure to the successful treatment of these cases

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PROLAPSE OF THE RECTUM IN WOMEN*

BY THE LATE

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Apparently it is not generally realized that prolapse of the rectum in women can be treated successfully by an abdominal operation. Nevertheless this is so, and I hope the following account will demonstrate that the method here described should be included in the armamentarium of those surgeons who have to decide the treatment of patients unfortunate enough to suffer from this distressing complaint.

The operation is one that should not be difficult in the hands of those who are accustomed to operate low down in the pelvis, and its guiding principle is self-evident. The desirability of "hooking it up from inside" must have occurred to surgeons, but I acknowledge my indebtedness to Victor Bonney—to whom, incidentally, gynaecological surgeons owe so much—for information as to whether this was or was not a practical proposition. In his book on operative gynaecology he has given a brief account of such an operation, and this can be consulted with advantage by those sufficiently interested.

A war widow aged 29 consulted me on the advice of a colleague of mine because of a prolapse that had occurred shortly after the birth of her first child, which had taken place five years previously. On examination I found that the prolapse was rectal and that some 4½ to 5 inches of bowel protruded. The tone of the anal sphincters was noticeably weak, and pelvic examination showed that the uterus and pelvic floor were relaxed and rather lower than normal. For the relief of this condition she had been operated on by a surgeon who had excised the protruding rectal wall from below in the manner accepted to be adequate, but this had not relieved the condition for long. Knowing the work of this surgeon, who was once a resident of mine, I am sure the operation had been well and truly done and that the failure was in the design of the operation and not in his execution of it. She then consulted a well-known proctologist, and his decision was given against further operation, but electrical treatment was instituted and some pararectal injections were made. Unfortunately no relief followed a persistent course of this treatment, and she was informed that now nothing could be done except a colostomy. This in a young woman of her mentality offered a grim choice from which she naturally shrank.

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* The manuscript of this paper was received from the author on the day before he died.

The patient now became desperate, both mentally and physically, as her whole life centred round the avoidance of calamities in which the bowel contents were suddenly voided. So I decided to operate on her by the abdominal route, having noted that she was a young and attractive woman and would probably wish to marry again. She was realist enough to know that it was the cure of the prolapse that was the target, and if during the course of the operation it should prove to be essential to take steps that would make future pregnancy undesirable that must be regarded as of secondary importance. To me, as the operator, this decision of hers was vital, as I should have to decide during the course of the operation whether to ligature the Fallopian tubes or not. If I were forced to attach the bowel on to the body of the uterus to give it adequate support a subsequent pregnancy might lead to disaster, and must therefore be rendered impossible.

Operation.—With the patient in the Trendelenburg position a lower median incision was made of length adequate to permit free access to the pelvis. The pelvic bowel and rectum were drawn up and a series of No. 2 silk stitches put in place so as to obliterate the pouch of Douglas and suspend the bowel to the floor and the posterior aspect of the vaginal wall. I found the use of Lane's cleft-palate needle-holder a great help in placing these deep and important stitches accurately. Taking care of course not to perforate the bowel, several more tiers were then superadded and the anterior aspect of the bowel supported on to the upper part of the posterior wall of the vagina and the lower third of the cervix, with precautions against leaving a peritoneal pocket into which small intestine could prolapse. Thus far the bowel was nicely and firmly held, and on pulling up the uterus to the position which it would occupy later when suspended, all seemed well, and so I decided against sterilization in this case, as it had not been necessary to attach the bowel to the body of the uterus, which would therefore be unaffected if it were ever subsequently enlarged by a pregnancy. In order to avoid any likelihood of leaving a possible source of obstruction by looping, the pelvic bowel was further spread out and attached to the posterior aspect of the left broad ligament and out on to the pelvic wall, of course avoiding the left Fallopian tube and ureter. On being satisfied on that count, the uterus was firmly suspended by pleating the round ligament on either side from the uterine body out to the pelvic wall. The ends of these silk sutures were then drawn out through the sheath of the rectus on either side and sewn into it firmly. This gave a firm support. (Let me mention here that if it had worked out to be necessary to fasten the bowel on to the back of the uterine body to get adequate support I should have ligatured the Fallopian tubes and fixed the uterus into the abdominal incision by silk sutures.) The abdomen was closed, and on examination at the end of the operation the rectum was found to be very satisfactorily supported. The chief points in the after-treatment were to leave the bowel alone for seven days, and after that an easy and adequate action was produced by liquid paraffin and a small glycerin enema. A residue-free diet was given during these days.

Comment

I have waited for six months before making this report, and the result is so far excellent, and I can see no reason why it should not continue to be so. The bowel now acts readily with daily liquid paraffin, and the patient's evident happiness at the result of the operation is easily understood. Should she marry again later and become pregnant, and should I have to make the decision as to the method of delivery of the child, I should certainly advise Caesarean section and take no risk of any recurrence of her previous very undesirable condition. To this she readily assents, knowing what a recurrence of that condition would entail.

J. K. David and A. S. Minot (*Amer. J. Dis. Child.*, 1944, **64**, 327) record a case of recurrent haemolytic anaemia in a male infant aged 4½ months. Haemolytic activity of the patient's serum took place during an acute haemolytic crisis. After splenectomy the haemolytic activity was no longer demonstrable in the patient's serum and recovery followed.

TUBERCULOSIS OF THE LOWER LOBE

BY

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Pulmonary tuberculosis as it affects the lower lobes has certain characters which deserve special consideration, and it is the object of this paper to call attention to the special features of treatment and prognosis of tuberculous disease in this situation. I have reviewed the clinical records of 2,200 cases of pulmonary tuberculosis in adolescent and adult women who have been treated in the sanatorium at Black Notley in the nine years 1935–43, abstracting those in which the disease was solely or predominantly affecting the lower lobe on one side. Only 81 such cases (3.68%) were found. Cases of tuberculous bronchiectasis—e.g., secondary to childhood bronchial obstruction by enlarged glands and subsequent atelectasis—and cases in which the disease had invaded the lower lobe by bronchogenic spread from one of the upper lobes, were excluded.

The low incidence of lower-lobe disease is striking. The incidence on the two sides did not show any significant difference (48 on the right, 33 on the left side). In 34 (42%) of the cases the apex of the lower lobe was affected, and 32 of these had progressed to cavitation by the time they came under supervision. This tendency to early cavitation of tuberculosis in the apex of the lower lobe is notable, and is worth bearing in mind when considering treatment.

In order to assess the results of treatment the 81 cases of lower-lobe disease have been divided into three groups, based on radiological appearances:—Group I (21 cases): Those showing tuberculous infiltration, including diseases of exudative type, but excluding those in which there was demonstrable cavity formation. Group II (28 cases): Those showing cavity formation, but excluding those in which the cavity occurred at the apex of the lobe. Group III (32 cases): Those in which a cavity had formed at the apex of the lower lobe.

The following is a review of the treatment given. Where pneumothorax is referred to it may be taken to include thoracoscopy, and division of adhesions whenever practicable.

Of the Group I cases, 16 were treated by an initial period of bed-rest alone, which secured quiescence of the disease in 11; an artificial pneumothorax was induced in 4 of the resistant cases and quiescence ultimately secured, though one required a phrenic avulsion in support of the pneumothorax. Of the remaining cases, 3 were successfully treated by early induction of a pneumothorax, 1 by a phrenic avulsion, and 1 by intravenous gold.

Of the Group II cases, 4 were treated by an initial period of bed-rest, which succeeded in 2; one of the remainder was successfully treated by pneumothorax. Of 13 cases treated by early pneumothorax, 10 succeeded, 1 was successful when reinforced by a phrenic avulsion, and 2 were abandoned owing to rapid spread of the disease. Phrenic paralysis alone succeeded in 7 out of 10 cases, the 3 failures subsequently becoming quiescent after treatment by pneumothorax. One case in this group retrogressed in spite of a phrenic avulsion combined with intravenous gold therapy and followed by pneumothorax.

Of the Group III cases, 10 in which the apical cavity was small were treated by bed-rest alone, 8 successfully. Of 16 cases treated by artificial pneumothorax, complete quiescence was secured in 12, 1 had to be reinforced by a phrenic paralysis, and 3 failed entirely. Five cases were treated by early phrenic paralysis—3 succeeded and 2 failed. One other case became quiescent after a course of intravenous gold, but the relative importance of the gold and the concomitant bed-rest was uncertain.

Treatment by Pneumoperitoneum

The use of pneumoperitoneum in the treatment of pulmonary tuberculosis has added another weapon to our armamentarium which most tuberculosis workers agree is of real value in selected cases. One of the indications seems to be disease of the middle and lower lobes, and subsequent to the series of cases reviewed in this paper I have treated a number of cases of mid- and lower-lobe disease by phrenic paralysis followed by pneumoperitoneum. The results so far have been very successful, particularly with middle-lobe cavities and cavities in the middle or periphery of the lower lobe. For the treatment of cavities in the apex of the lower lobe the efficiency of pneumoperitoneum is not so clear.

Prognosis

The prognosis of tuberculosis of the lower lobe has generally been regarded as poor, but it seems that this is an unjustifiably gloomy view to take. In cases without cavity formation (Group I) the prognosis with suitable treatment appears to be good, as the only unsuccessful case in the present series was that of a patient who discharged herself before treatment was completed. In Group II also, quiescence was ultimately secured in 25 out of 28 cases, and the prognosis is apparently good, though more active measures may be required for treatment than in Group I. Where the cavity affects the apex of the lower lobe, however, the outlook is not so favourable (Group III, 25 cases becoming quiescent out of 32—a "failure-rate" of 21.9%). There was a lower proportion of successful pneumothorax cases in this group. The probable explanation of this is that when the lung is collapsed the apex of the lower lobe moves into the paravertebral gutter and escapes compression.

Discussion and Conclusions

While it cannot be claimed that the figures quoted in this series are statistically significant, they represent the experience of a large sanatorium over a period of nine years, and it is probably justifiable to draw certain conclusions based on clinical observation of these cases. These conclusions are:

1. The incidence of lower-lobe tuberculosis is low (3.68%) in a series of 2,200 cases of pulmonary tuberculosis in adolescent and adult women.
2. There is a distinct tendency to early cavity-formation.
3. The immediate prognosis with adequate treatment is better than has usually been thought.
4. If a cavity has formed by the time the patient comes under treatment it is not wise to rely on too long a period of bed-rest alone, and more active treatment should be given as soon as the patient is clinically fit for it.
5. For cavities not at the apex of the lower lobe a phrenic crush followed by pneumoperitoneum offers a good chance of success, and is probably the best initial treatment. Artificial pneumothorax should be held in reserve for these cases, however, and if the cavity is not showing signs of closure after two months the pneumoperitoneum is unlikely to succeed, and pneumothorax should be attempted.
6. Where the cavity is at the apex of the lower lobe an initial pneumothorax seems to be the best treatment. I have not yet had enough experience of phrenic paralysis followed by pneumoperitoneum in cases of this group to express an opinion whether such treatment will overcome the difficulty of the apex of the lower lobe retreating into the paravertebral gutter when collapse therapy is applied to the lung. It seems unlikely that elevation of the diaphragm, even to the height which can be secured when phrenic paralysis is reinforced by pneumoperitoneum, will have more influence on the apex of the lower lobe than pneumothorax followed by adhesion section. At the same time, if a pneumothorax fails to secure complete closure of the cavity, elevation of the diaphragm may tip the scales in the patient's favour by providing a little extra relaxation to the lung, or possibly, in some cases, by "unkinking" a bronchus which had been partially obstructed and maintaining a retention cavity.

My thanks are due to Dr. W. A. Bullough, County Medical Officer, and Dr. M. C. Wilkinson, medical superintendent, for permission to publish the results.

As a war memorial to children killed by enemy action in London a beautiful and up-to-date children's ward is planned for St. Thomas's Hospital. During the air raids on London there were 12 direct hits on the hospital by high-explosive bombs and 2 by flying bombs, in addition to the fall of a large number of incendiaries. St. Thomas's carried on, caring at the same time for the many people brought in as casualties from incidents in the neighbourhood of the hospital. In September, 1940, two house-surgeons, three nurses, and four masseuses were killed by enemy action. There were no casualties among the patients during the raids.

PREVENTION OF MIGRAINE BY ORAL ADMINISTRATION OF CARBACHOL

AN ANALYSIS OF 12 CASES

BY

ALASTAIR KER JAMES, M.B., Ch.B.

It is now generally accepted that the immediate cause of the symptoms of migraine is spasm and distension of the cerebral arteries, particularly those of the scalp and the dura mater; and Rowbotham (1942) summed up the evidence in favour of this view. Many years ago other observers (Féré, 1883; Flatau, 1912) noted vascular changes during the course of attacks of migraine.

In view of this evidence it seems curious that there appears to be no record of any attempt to treat migraine by the administration of a parasympatheticotonic; but it was clinical observation and not therapeutic theory which encouraged me to follow up the unexpected results in Case 1, in which an attempt to remedy obstinate constipation due to an enormously dilated and elongated colon resulted in a marked improvement in migrainous attacks without much alteration in the bowel action. This was effected by giving one tablet of moryl—a proprietary preparation containing 0.002 g. of carbaminoylcholine chloride (carbachol *B.P.*)—thrice daily, but the patient later received twice that amount. The preparation named has been used throughout this experiment; the word "tablet" signifies a dose of 0.002 g. of carbachol.

Further cases of migraine were similarly treated as they arose, and the results seem to merit publication. Though the series is admittedly small, improvement has been consistent, the method is easy and inexpensive, and no alteration in diet or mode of living has been made. All the cases tabulated suffered from the classical symptoms of migraine—viz., periodic attacks of severe headache, often unilateral, generally preceded by visual disturbance, and always followed by vomiting or severe nausea, after which recovery ensued more or less rapidly.

Case 1 suffers from the colonic abnormality previously noted. Case 4 has pulmonary tuberculosis. No. 2 died of periarteritis nodosa three months after treatment by carbachol was begun. The remainder of the patients are in normal health. Some of the series have been taking carbachol continuously for many months, and no toxic symptoms have been observed apart from an occasional mild sensation of heat in No. 8, who takes six tablets daily.

Tabulated Summary of Results

Case	Age and Sex	Duration of Disease (Years)	Average No. of Attacks per Month			Daily Dosage of Carbachol (g.)	Duration of Carbachol Treatment (Months)
			With No Treatment	With Ordinary Treatment	With Carbachol		
1	56 F	46	—	1·5	0·75	0·012	33
2	56 M (1937)	45	10	8	4	0·006	3
3	33 M	4	4	1·2	0·75	0·006	28
4	37 F	9	1	—	very mild 0·16	0·004	20
5	19 F	5	10	4	0·2	0·008	11
6	14 M	7	12	4	0	0·006	6
7	36 F	22	8	—	0	0·006	9
8	52 M	12	10	4	1·25	0·012	11
9	44 F	30	3	—	0·3	0·004	7
10	29 F	15	3	—	0·4	0·006	7
11	23 F	4	2	—	0·4	0·006	5
12	24 F	5	8	—	1	0·006	2

The results are consistent and better than those of the commonly used remedies, and the beneficial effect is similar to that obtained in epilepsy by phenobarbitone. Sufficient time has not yet elapsed to form any conclusions whether the improvement remains permanent after discontinuing the drug. It seems probable that the oral administration of carbachol produces a less intense but more prolonged effect than injection. Cases in which migraine persists after the age of 50 seem to require larger dosage. It was further noted that the systolic blood pressure in the older age groups was low—average 124—which, together with the fact that in three cases known to me the attacks of migraine gradually ceased with the gradual increase in systolic blood pressure, suggests that only soft and elastic arteries can be affected by pathological spasm sufficient to produce migraine.

Further investigation into the efficacy of the method described can best be carried out by the general practitioner, who has the opportunity of closely observing his cases. It should thus soon be possible accurately to assess the value of this treatment.

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Medical Memoranda

Gangrene of the Rectum as a Complication of an Enema

From time to time cases are recorded of injuries to the anus and rectum associated with the giving of enemata by means of the Higginson syringe. Such cases are not common, but the case reported below will serve to remind medical men and nurses of the serious consequences, sometimes fatal, which may follow this simple procedure. Gabriel (1937) and Bacon (1938) state that this accident occurs more commonly than is often supposed, and may pass unnoticed if the trauma is not very severe and the resulting pain not marked, and the condition is not reported to the medical attendant.

Case Record

A Polish miner, aged 49, was admitted to the French Hospital under Dr. Andrew Morland, on July 19, 1944, for severe melaena of four days' duration. There was a history of gastric ulcer with recurring attacks of symptoms going back eight years. On one occasion perforation had occurred; on two others haematemesis had been the outstanding symptom. The patient's condition was not very good: pulse 84 a minute but weak; temperature 98° F.; B.P. 100/80. Blood count: red cells, 1,600,000; leucocytes 4,600; Hb (Sahli) 30%. Urine normal. There was nothing else of importance to record.

On the fifth day after admission the patient complained of abdominal pain, and, next day, of soreness in the anal region. Temperature 99–100° F. He was found to have a foul-smelling purulent discharge from the anus, with swelling and redness of the surrounding skin. Proctoscopic examination revealed, however, that the whole of the right side of the rectum from the midline posteriorly to well above the midline anteriorly was a grey and sloughing mass; above and on the borders of the slough the mucosa was red and oedematous. The abdomen was tender in the hypogastric region, and slightly distended but not rigid. Temperature 100° F.; pulse 92.

It was learnt that three days previously a soap-and-water enema had been given, and was repeated the next day. The enema was given by a very efficient Sister by means of the Higginson syringe to which a rectal tube had been adapted, the patient lying on his left side. After the second enema he felt a pain, which did not last long enough for him to mention it.

It was considered that the patient's condition was serious, so Mr. H. W. S. Wright was asked to see him. He made an examination together with Mr. E. T. C. Milligan. In the meantime the temperature rose to 101° F.; the pulse was 92, and the patient complained of pain. A second proctoscopic examination was done. Diagnosis of gangrene of the rectum was made. A biopsy from the part above the slough was taken, which subsequently showed on section a polypoid mucosa without malignancy.

It was decided to treat the patient conservatively by giving him sulphathiazole and gas-gangrene antitoxin. Sulphathiazole 2 g. was given immediately, being followed by 1 g. every four hours for four days, then 1 g. every six hours for another six days. Antitoxin, 60 c.cm., was injected intramuscularly the first day, then 20 c.cm. for six days. Under this treatment the patient improved rapidly. Temperature and pulse were normal on the fifth day; the pain had disappeared; a slough was passed, leaving a clean ulcerated area which was healing satisfactorily; there was scarcely any discharge, and on August 15 only a small ulcer was present at the ano-rectal junction. At the patient's departure from the hospital on Sept. 6 this ulcer was completely healed, leaving no stricture.

Comment

The case just described is similar in many features to those of Rayner (1932), Pinnock (1937), Murray (1937), and Gabriel (1937). The only difference noted was, whereas in the previous cases the lesion was due to the hard nozzle of the syringe, in the present case it was the rectal tube, generally advised to be used, which produced the lesion. On the other hand, the rectal mucosa presented on section a polypoid appearance—a condition easily damaged even by slight trauma. The mechanism of infection is thought to be as follows: soap-and-water, which may contain caustic soda or potash, is injected under a certain pressure into the submucous layers of the anal canal and rectum, stripping off the mucosa and so depriving it of its blood supply. Micro-organisms usually present in this region find, therefore, a medium favourable to their development and spread.

The prognosis of such cases is always very serious, and death is a frequent end-result even after extensive surgical intervention. Pinnock had two cases with one death, Murray three cases with two deaths, and Gabriel three cases with two deaths. The treatment usually adopted consists of laparotomy with either colostomy or caecostomy. The results are not always satisfactory, the patient being sometimes left with a permanent colostomy or stricture of the rectum. The rapid improvement noticed in the case described was thought to have been due to the combined action of sulphathiazole and antitoxin. The sulphonamides provide us with powerful weapons to fight the high mortality of this serious accident.

I am indebted to Dr. H. S. Stannus for his advice, and to Mr. Wright and Mr Milligan for their proctoscopic findings.

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A Case of Broncho-oesophageal Fistula with No Pulmonary Symptom

Broncho- or tracheo-oesophageal fistula is a well-known complication of erosive conditions of the oesophagus and is often found as an end-result of malignant adhesive peri-oesophagitis. The development of a direct opening between the oesophagus and the upper part of the bronchial tree might well be expected to bring about obvious signs of respiratory distress on the swallowing of fluids, but that this does not necessarily happen is apparent from the following clinical note.

Case Report

A man aged 60 was referred to hospital on Nov. 27, 1944, with all the obvious features of a fairly well advanced cancer of the upper third of the oesophagus. Examination revealed the usual emaciated patient who was able to locate the site of obstruction quite accurately with one finger at the level of the angle of the sternum. At the time of the first examination he asked for a drink of water, which he swallowed slowly, with difficulty, but without coughing. Inspection, percussion, and auscultation of the lungs did not reveal anything abnormal. An attempted barium swallow, carried out at once, caused choking and had to be discontinued because the fluid was seen to run from the oesophagus into both main bronchi, spreading out in their pulmonary ramifications not unlike an ordinary lipiodol screening. Direct inspection by an oesophagoscope showed a mass extending round and closing the lumen of the upper third. On looking into the trachea a small ulcer was seen at the beginning of the left main bronchus, suggesting a broncho-oesophageal communication.

Gastrostomy was obviously the only possible line of treatment, and, with this in view, the patient was put on an intravenous glucose-saline drip for three days. The operation was then successfully carried out under local analgesia. Following upon this the patient subsisted for 10 days by gastric-tube feeding, but died suddenly at the end of that time.

At necropsy the tumour of the oesophagus, a moderately differentiated squamous epithelioma, was found to be adherent to the vertebral column and the arch of the aorta, and had a well-marked fistulous opening extending from it through to the left main bronchus. The lumen of the oesophagus up above the fistula was narrowed to a great extent, but could nevertheless quite easily have permitted of the running down of fluids. The lower lobes of both lungs were of a solid firm consistency and had a sticky fibrinous exudate over their posterior surfaces, their appearances being those of a confluent bronchopneumonia.

Comment

There was thus no doubt about the existence of a broncho-oesophageal fistula, but how long this had been present before the patient's investigation in hospital is a matter of conjecture. In view of the size of the fistulous opening, however, it seemed quite reasonable to assume that it had been there for some time, possibly weeks.

The outstanding feature of the case was the fact that the swallowing of fluids which obviously passed down directly into the patient's lungs did not set up any acute reaction. There was no coughing on swallowing, nor was there any regurgitation of copious frothy sputum.

From the clinical point of view an accurate diagnosis could not have been made in this case without ancillary aids of investigation, in view of the complete absence of pulmonary symptoms.

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Reviews

A TREATISE ON CATARACT

Cataract and Anomalies of the Lens. Growth, Structure, Composition, Metabolism, Disorders, and Treatment of Crystalline Lens. By John G. Bellows, M.D., Ph.D., (Pp. 624; illustrated. 60s.) London: Henry Kimpton. 1944.

Cataract is one of the major problems of ophthalmology. Though surgery gives gratifying results, it can do little for many patients who suffer from severe decline in vision without reaching the stage where operation is either justifiable or feasible. The problem of cataract is thus not exclusively, and perhaps not largely, a problem in surgery. This fundamental truth is brilliantly illustrated by Dr. J. G. Bellows's balanced and monumental *Cataract and Anomalies of the Lens*, a book in the great tradition. A fascinating historical introduction is followed by four chapters occupying almost a third of the book, and dealing with the development, comparative anatomy, growth, structure, chemical composition, and metabolism of the lens. An immense and scattered literature (there are about a thousand references for this section alone) is here surveyed with admirably critical insight. The rest of the text deals with the clinical aspects, and the even more voluminous clinical literature is systematized with the same mastery of the subject and sureness of touch. The different clinical types of cataract are clearly correlated with the embryological, genetic, experimental, and biochemical knowledge that has accumulated, and it is gratifying to find that something like a coherent picture is beginning to emerge out of what at one time constituted a mass of anatomical names. This systematization and clarification, perhaps more than its encyclopaedic range, is the most characteristic feature of this book.

In a foreword the late Prof. S. Gifford compares the book to the earlier study by Hess. This is high praise, but inadequate in this instance. It would be truer to say that Bellows's study has not merely replaced but has surpassed Hess's monumental treatise.

HYPERTENSION AND HYPERTENSIVE DISEASE

Hypertension and Hypertensive Disease. By William Goldring, M.D., and Herbert Chasis, M.D. (Pp. 253; illustrated. $3.50 or 20s.) New York: The Commonwealth Fund; London: Oxford University Press.

This is a book well worth study. Drs. Goldring and Chasis have approached the subject from the point of view of deranged human physiology; that is their attitude to hypertension, and they trace from this at first reversible state the development of the irreversible changes of hypertensive disease. As the authors point out, they have gone back to preclinical studies to do this, and so have aimed at linking more closely physiology and clinical medicine. It is an excellent example and one which might be more often followed.

The book starts with a survey of the types of hypertension and a discussion of the range and value of blood-pressure readings. Then follows a description of the clinical features of hypertensive disease. This chapter is short and bare, making rather dull reading. The authors doubt the existence of a recognizable pre-hypertensive state, and the value of the cold pressor test. Next comes a description of the haemodynamics of hypertension, very clearly set out. They have used catheterization of the right heart for estimation of the output. They agree with the conclusion that vasoconstriction causes the increase in peripheral resistance responsible for the raised blood pressure. A long and very interesting chapter follows on the role of renal function. They have particularly studied the rate of glomerular filtration and the effective renal blood flow, and the excretory capacity and the reabsorptive capacity of the tubules. They conclude that vasoconstriction of the efferent arteriole of the glomerulus, of non-neurogenic origin, is the first abnormal functional change in the kidney. This brings about increase in glomerular filtration but decrease in tubular excretion. The authors doubt the role of unilateral renal disease as a cause of hypertension. Treatment of the disease is discussed with common sense and scepticism, the cause being as yet unknown. They concede that sympathectomy, if extensive enough, may relieve symptoms sometimes, but it does not get rid of the unknown cause. Finally there are appendices giving full data of all their experimental methods.

This book needs careful study and can be thoroughly recommended. The matter is stiff, and the expression is not always as clear as one might wish. The criticism of other work is full and fair. The authors' own opinions are backed up with good reasons. In view of the great volume of work on the subject, largely based on animal experiment, which has appeared in the last decade, this human study is particularly interesting and provides a valuable approach from a different point of view.

DECLINE IN FERTILITY

Race Suicide? By G. F. McCleary, M.D. (Pp. 126. 6s.) London: George Allen and Unwin.

Dr. McCleary's previous contributions to the literature of demography have been characterized by lucidity and fairness; in this book he maintains the high standard he has set himself, with one possible exception to which we shall refer.

In the first chapter he presents the ideals of happiness for its own sake and of duty to which happiness is a corollary, using two well-chosen quotations from Pater and J. S. Mill as texts. In the second chapter he lucidly describes the decline in fertility and how it is measured. In the next chapters the method (birth control) and some of the social reasons are explained. The sixth chapter describes the decline of fertility in the United States of America. In the seventh chapter, which is largely devoted to a criticism of the, sometimes exaggerated, claims of eugenists, Dr. McCleary, we think, falls a little below his own standard of fairness. For instance, speaking of intelligence tests, he writes: "A child of exceptionally intelligent parents achieves a high score in the tests. It would be without warrant to assume that he was born with exceptional gifts; his success may have been due to a life-long association with persons of exceptional intelligence." We should comment that it would be without warrant to assume that this possibility had not occurred to scientific eugenists. There is, we believe, a considerable literature dealing with the differentiation of environmental and inborn factors, and even some on the study of identical twins brought up under different environments.

Chapter 8 studies attempts to increase fertility by legislation, and the last chapter speaks of the future. Whether the appointment of a Royal Commission and a system of allowances for children will have more effect than the legislation of Augustus remains to be seen. Dr. McCleary makes an important point when he shows that in Sweden, a country which has not been at war for more than a hundred years, and has suffered less from others' wars than most neutrals, the decline of fertility has been almost maximal. So a distaste for providing cannon fodder has not been of primary importance as a motive of voluntary sterility. Dr. McCleary says we must have faith in the future of the human spirit. Perhaps the younger generation will.

HEALTH PROBLEMS IN CHINA

China's Health Problems. By Szeming Sze, General Secretary, Chinese Medical Association; editor, *Chinese Medical Journal*. Third edition. (Pp. 76. $1.00.) Washington: Chinese Medical Association, P.O. Box 6096.

The interest aroused in the publication of *China's Health Problems* has encouraged Dr. Szeming Sze to bring out a third (1944) edition. For this the text has been largely rewritten and now includes new sections on the antituberculosis, antivenereal, and antileprosy movements, also on birth control and on nutrition. In view of her unpreparedness for Japanese aggression and her internal political troubles, China's defiance of defeat is truly amazing. War has, however, had the outstanding benefit of emphasizing the magnitude of her health problems and the need for remedial action. China has morbidity and mortality rates which are more than double those of any European country. Of the population 84% live in rural areas and are too poor to pay for private medical care, so that the only solution of this difficulty lies in State medicine, but this in turn must await the provision of an adequate medical profession. If the generally accepted standard of one doctor for 1,500 people is followed China should have some 266,000 doctors. Actually there are only 12,000. Dr. Sze devotes Part II of his book to the status and organization of the National

Health Administration, which controls a number of subsidiary departments—public health, experimental medicine, nursing, maternal and child welfare, and others. Increasingly difficult economic conditions limit much of this work to paper schemes, and we must await the arrival of peace before they can be developed to any practical extent.

One of the Chinese Government's chief responsibilities will lie in the establishment of a higher standard of medical education. At present the number of poorly qualified doctors passing through medical schools of low degree is greater than those from the larger colleges. It is most unfortunate that the Peking Union Medical College, which set the standard for all China and on which the Rockefeller Foundation spent well over £10,000,000, should have been seized and closed by the Japanese. The most active medical body in China is the Chinese Medical Association, which represents the cream of the profession. It has branches in all the main cities and publishes a journal.

This informative report collates the chief problems and puts them in their proper perspective. It is the first of a series of publications relating to the national reconstruction of China.

Notes on Books

A Synopsis of Medicine, by Sir HENRY TIDY, first appeared nearly 25 years ago and soon gained wide popularity. By 1941 it had passed through seven editions and four reprintings, and several thousand copies of another reprint were destroyed by enemy action. Now comes an eighth edition (John Wright and Sons; 30s.). Numerous changes have been made, and the inclusion of new articles and the rewriting of others account for an addition of 40 pages to the text. The greatest advance since the publication of the seventh edition at the beginning of 1939 has been in the region of treatment. "Sulphonamides, then just rising above the horizon, have proved their power over many diseases and saved countless thousands of lives. Some other great advances in therapeutics of recent years have become almost stabilized." The author refers also in his preface to penicillin, "the astonishing substance which will fill many of the gaps still left vacant in the treatment of infections . . . Knowledge of its action is still advancing rapidly, and it has been considered wiser to omit such incomplete and ephemeral references as would alone have been possible at the time of revision."

No. 22 of the *Proceedings of the University of Otago Medical School*, for the year 1945, is edited by Prof. J. B. DAWSON. It comprises twelve reprints of articles on miscellaneous subjects, most of which appeared originally in the *New Zealand Medical Journal*.

T. J. SMITH and NEPHEW Ltd., of Neptune Street, Hull, have produced a new edition of their illustrated publication *Cellona Technique*, a handbook for the functional treatment of fractures, with sections on plaster treatment of tuberculous conditions, soft-tissue injuries, burns, etc. Owing to wartime conditions the number of copies is limited, but the manufacturers will send a copy to any doctor who does not already possess one or whose edition is out of date.

Preparations and Appliances

A SMALL PORTABLE ELECTRO-CONVULSIVE THERAPY APPARATUS

Dr. A. SPENCER PATERSON writes:

The basic requirements of an apparatus for electro-convulsive therapy are not elaborate, and it is because of the additional requirement of maximum possible safety that the machines generally used have been of a somewhat cumbersome nature. Essentially, the function which the apparatus has to perform is to switch on and off a voltage of the order of 100 v. to the electrodes on the patient, with a time interval of 1/2 to 1 second. Alternating current of the ordinary mains frequency serves in an entirely satisfactory manner, and the problem of supply of suitable current is therefore most conveniently met from this source.

To provide the necessary time control, various devices have been used. The chief of these have been motor-driven time switches and condenser or valve circuits operating relays. All such arrangements can, with sufficient care, be made reliable, and they have met the needs adequately. They are, however, either heavy or unduly complex for the simple purpose of switching the current to the patient, and a simplification has been introduced in the present apparatus in the use of an automatic telephone dial for the timing mechanism. This, with suitable modification of its contacts, can be made to switch the current on and off with a time interval exactly equal to the number "dialled" in tenths of a second, and therefore forms a very convenient and simply operated device for the purpose in question.

Selection of the required voltage for the treatment is made by a number of tappings on the secondary of a transformer, connected to the poles of a rotary switch: these tappings are spaced by 10 volts and cover the range 70 to 150 volts, so that any appropriate figure can be chosen to the accuracy that is required in such treatment. This arrangement economizes greatly in weight and bulk compared with the method of voltage control by a high-power resistance in the primary circuit, commonly used.

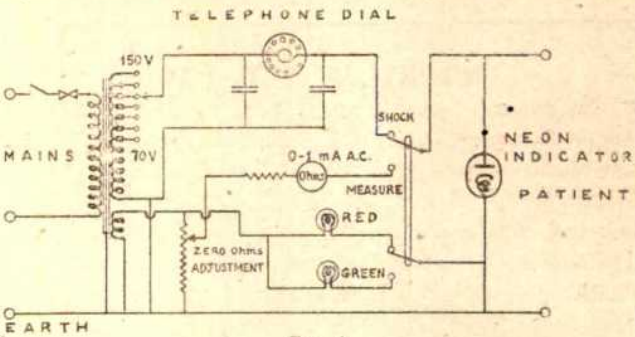

FIG. 1

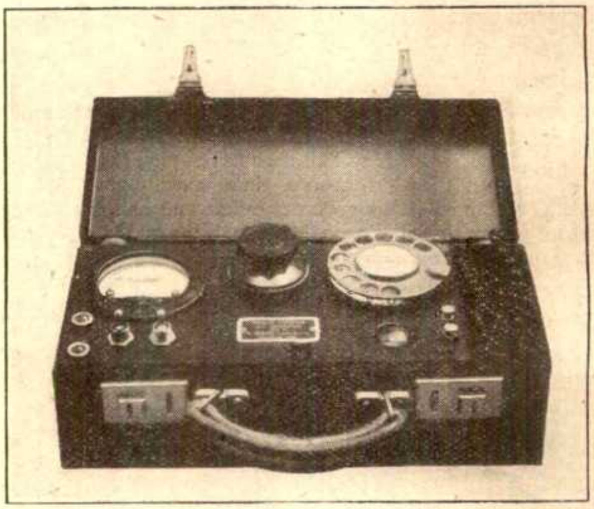

FIG. 2

Measurement of the patient's resistance before giving the convulsion is carried out by connecting a low voltage, of the order of 1 volt, to the electrodes, and observing the current passing through an a.c. milliammeter in the circuit. This meter is calibrated directly in ohms to simplify reading: it must be remembered, however, that the value obtained refers only to the low voltage at which the measurement is made, and the resistance falls very considerably as the voltage is increased. A change-over switch sets the instrument in the "test" or "shock" condition, and indicator lights are fitted to show at a glance which condition is in operation. In addition, a neon lamp is incorporated which glows only for the time the high voltage is switched on: this allows one to test the apparatus by turning the dial before the connexion to the patient is made, and serves as a check that the circuit is "alive."

The circuit diagram is shown in Fig. 1, and a photograph of the finished instrument in Fig. 2. It is made in the most convenient form for carrying, being of minimal size and weight. It is 12 × 5½ × 4 in., the size of a small attaché case, and weighs, including two flexes, 11 lb. It is finished in an inconspicuous manner to this same end. The usual protection by means of fuses as well as an earthed lead in the mains cable are included to give maximum safety to the operator and the patient.

It has been used on a number of patients in various hospitals, and meets the needs of a light portable E.C.T. unit satisfactorily.

I am very much indebted to Dr. Frank T. Farmer, late of the Middlesex Hospital and now physicist to the Royal Victoria Infirmary, Newcastle-upon-Tyne, for his valuable help in the designing of this instrument. It may be obtained from Mr. B. Malme, 423, Hertford Road, Enfield, Middlesex, whose ingenuity has also been of great service.

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VICTORY IN THE WEST

It was officially announced on Tuesday, May 8, that the war in Europe is over. The prodigious events of the last few weeks, culminating in the fall of great armies and cities, foreshadowed the total surrender of Germany. Expectation had been keyed up long in advance of the armistice. Thankfulness and relief are the uppermost feeling in all minds; but, while it is right to rejoice at the great deliverance in the West, no thoughtful person forgets that victory is not yet in the East, and that British and American ships and planes and men are in peril until Japan capitulates. We remember too the plight of the stricken people of Europe now freed from the Nazi yoke, but still to be brought back to a semblance of normal life. The effect of starvation and under-nourishment and the danger of epidemic conflagration in a disrupted Central Europe are matters which are foremost in the thoughts of doctors. In the peace that will develop, medicine, having played so large a part in war, will, we believe, play an even greater part in solving the problems of the future.

PHARMACOPOEIAS AND THE PHYSICIAN

Dr. F. H. K. Green has given a good account[1] of the Therapeutic Trials Committee of the Medical Research Council, which organizes clinical trials on behalf of manufacturers of drugs, provided certain conditions are satisfied in regard to disclosure of composition and publication of results. Since the scheme was started in 1931 more than 40 new products have been accepted for clinical trial. The Council on Pharmacy and Chemistry of the American Medical Association[2] does not initiate investigations, but it reviews evidence submitted to it by manufacturers. Here again there is a set of rules on composition, nomenclature, advertisement, and therapeutic claims, and articles which are accepted are awarded the council's seal of approval. It is estimated that the A.M.A. council considers from 250 to 400 articles every year. Its book *New and Non-official Remedies* describes 1,300 agents, and the *Journal of the American Medical Association* publishes accounts of individual decisions as well as the council's reviews of new developments in therapeutics. The two bodies are therefore engaged in rather different types of activity—the British committee in clinical research, and the American in the provision of information and ethical nomenclature. The Socialist Medical Association[3] has suggested the creation of a Therapeutic Substances Committee which would combine both these and other types of activity. It not only would control all therapeutic substances and appliances and advertisements of them, but would examine and report publicly on all substances offered or advertised for the treatment of disease or the protection of health. It would also have the duty to prepare and submit to every doctor reports on new remedies, and to recommend their inclusion in or exclusion from the *National Formulary*. A glance at the booklet *War-Time Information for Pharmacists*,[4] and in particular the long list of associations connected with the provision of therapeutic substances, suggests that these tasks would be far beyond the powers of any single committee.

We may doubt whether the present drive to rationalize all our social mechanisms is entirely healthy. Nevertheless, it does appear that arrangements for the codification of therapeutic substances in this country are unduly complicated. The *British Pharmacopoeia*, which is prepared by the Pharmacopoeia Commission appointed by the General Medical Council, is designed to provide standards for those drugs which are in general use throughout the Empire. As these are legal standards, the Commission must err on the side of caution in admitting articles to the *Pharmacopoeia*. During the war, however, the Pharmacopoeia Commission has appointed a committee to choose approved names for new remedies which are under trial and which seem likely to be admitted to the *B.P.* in the future. The *British Pharmaceutical Codex* is prepared by the Codex Committee of the Pharmaceutical Society. It is designed as a book of reference for pharmacists and medical practitioners, and gives standards for many articles not included in the *B.P.*, either because they have fallen out of general use or because they are of recent introduction and have not yet had general acceptance. The *Extra Pharmacopoeia* (Martindale), which is now published by direction of the Council of the Pharmaceutical Society, is particularly concerned with recent developments in pharmacology and therapeutics, and it has made itself an indispensable source of information about new, foreign, and proprietary drugs. Unfortunately in the process it has tended to outgrow its original make-up in two pocket volumes, and a fairly drastic revision of its form and contents will soon become unavoidable. The *Extra Pharmacopoeia* aims at being absolutely comprehensive and inclusive, and therefore differs in purpose from both the *British Pharmacopoeia* and *New and Non-official Remedies*, which aim at being exclusive.

This brief review suggests that the time has come when there should be some more formal definition and integration of the functions of the *B.P.*, the *Codex*, and the *Extra Pharmacopoeia*. An official veterinary pharmacopoeia might also be created. The most vital question is the control of the introduction and nomenclature of new drugs. Many people do not like the word "control," but a seal of acceptance is useless unless backed by control of advertisement as well as by general good will. Direct Government control of advertisements of drugs, as suggested by the Socialist Medical Association, would be violently opposed on political and economic grounds, and it would be difficult to enforce. It is not always easy to say whether a substance is a drug, a food, or a cosmetic. In fact, the same substance may be used for all three purposes. Control by the Pharmacopoeia Commission would be more gracefully accepted, particularly if it took the form of an extension of the policy of approved names. Such approved names could almost certainly be regarded as "the accepted scientific name" for the purposes of the Pharmacy and Medicines Act, 1941, which means that the approved name ought by law to be printed on the label of any container in which the drug is retailed. In addition, the editors of reputable medical journals would probably be willing to include the rule of using approved names in their notice to contributors and advertisers. This policy of approving names will undoubtedly increase the work of the Pharmacopoeia Commission, and it is perhaps appropriate here to record the debt of the profession to it and the Pharmaceutical Society, and to the many men who have served on their committees and subcommittees with so little reward or recognition.

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[1] *Brit. med. Bull.*, 1944, **2**, 58.

[2] Smith, A. E., *J. Amer. med. Ass.*, 1944, **124**, 433.

[3] *Medicine Today and Tomorrow*, 1943, **4**, 9.

[4] Compiled by the Pharmaceutical Journal, London, 1942.

Clinical trial of remedies is a tremendous task. The evaluation of a single remedy for hypertension or for cancer may take years and must consume a corresponding amount of the time of valuable investigators. The arrangements suggested by the Socialist Medical Association might well result in political pressure on the research worker, and politicians are not necessarily good judges of therapeutics, as some of them have shown in recent years by misguided enthusiasm for alleged remedies for incurable conditions. The complaint against the Therapeutic Trials Committee is that it moves too slowly, and certainly during the war the tendency has been to short-circuit it and use *ad hoc* organizations, as in the trials of penicillin and patulin. In any event a manufacturer would wish to have a strong case before approaching a body like the Therapeutic Trials Committee, and to begin with he may prefer to make contact with an individual investigator or group of investigators who are interested in the particular field and capable of making tests. Clinical trials may be better carried out in local authority hospitals than in teaching hospitals or key hospitals. The researches on the treatment of meningitis in L.C.C. hospitals[5] and on pneumonia in Glasgow[6] are models of their kind. The Local Health Services Councils may one day provide a mechanism for the promotion of large-scale trials where these are necessary. The days when testimonial evidence could be offered are over, and conclusions on therapeutics must be statistically sound. Trials of this kind will often be enough to show whether a new remedy is acceptable, and it may only be necessary to invoke the more elaborate mechanism of the Therapeutic Trials Committee in special cases. Reputable manufacturers are just as anxious to know the truth as clinical investigators, for they do not wish to embark on heavy expenditure in manufacturing a drug which is not efficacious. There is no reason why manufacturers should not bear the cost of clinical investigations, provided the financial arrangements are approved by the university or hospital authority whose laboratories or wards are being used. But in the final court of appeal—the Medical Research Council Therapeutic Trials Committee—the rule must continue to be enforced that there must be no financial arrangement or contact of any kind between manufacturer and clinical scientist, to avoid the slightest suspicion of bias.

THE REPRESENTATIVE MEETING

Although the contents of the document circulated by the Association to its members have leaked out on to the pages of the lay press, we are still under an obligation to the Minister of Health not to disclose publicly the administrative proposals which were discussed at last week's Representative Meeting. It should be made clear that the secrecy shrouding these discussions is regretted by the Association, which has to adopt the expensive measure of circulating a confidential report of the meeting to every member of the profession. This will be sent out in the near future. From the point of view of the Minister it would apparently be improper for him to allow publication of new proposals until they have been put before the House of Commons. It is necessary to appreciate this point of view of procedure and to respect the Minister's wishes. What we do deplore is the hectoring attitude of some of the self-appointed critics of the medical profession, a few of them, indeed, being inside the ranks of the profession. Their curious view of the method of negotiation seems to be that those who represent the profession should accept the Government's first words without demur. This lop-sided view of democracy is one which hitherto has been more popular on the Continent than in this country. Fortunately the Minister of Health has stuck to the Government's view that the White Paper was published as a basis for discussion with the various interests concerned, and that legislation would not be introduced until full discussions had been held. That there has been give-and-take in the discussions between the Negotiating Committee and the Ministry is wholesome evidence that democracy still works. The voices that have shrieked "No concessions to the doctors" are unfortunate evidence that democracy is not so secure as many of us would wish to think.

There is no doubt that at the meeting last week the Representatives appreciated the hard work the Negotiating Committee had put in, and, by their voting on some outstanding issues, believed the results of the negotiations to be such as to provide a sufficient framework for the proposed National Health Service. It would, however, be erroneous to pretend that the meeting felt happy about the position with which the profession is faced—a discomfort that was reflected in the recurrent appeal, "We must be realists." On one issue that has perplexed many—the 100% issue—the meeting hardly needed to be reminded that 60% of those who answered the Questionary were in favour of including the whole population in a comprehensive health service. The many debates on this subject during the past three years have made it more and more evident that it is illogical to try to exclude one-tenth of the population of this country from a National Service. It would certainly be very difficult to persuade the lay public that exclusion of 10% was in some way bound up with professional freedom. But the fact that many medical men have fought against the 100% issue is in itself a sign of the general distrust a strongly individualistic profession has for administration by central and local government. Those who finally build the new service will have to take this distrust into full account, and will be successful in removing it only in so far as they ensure that the medical profession has a predominant voice in the running of a highly technical service, the contents of which are a closed book to the majority of laymen. The layman is, indeed, probably more ignorant of medical science than of any other science, pure or applied.

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[5] Banks, H. S., *Lancet*, 1938, 2, 7.
[6] Anderson, T., *et al.*, ibid., 1939, 2, 776.

If, in the future political development of this country, central control and direction increase to the point at which the individual controlled begins to lose a sense of full responsibility for what he does, then the quality of service will deteriorate, and the servant will devote much of his energies to making quite sure he does not do one iota more than what he considers he is paid for. Doctors as a body are in a weak position in comparison with other sections of the community, for the humanitarian nature of their work forbids their resorting to the political device of the strike. We can only hope that the country will not abuse this position by exploiting the fact that no medical man would ever refuse to go to the assistance of a sick person. The new service must be so evolved as to give the doctor the fullest scope for practising his art, which is still largely an individual art applied to individual men and women.

PRESIDENCY OF THE B.M.A.

During the past two years two Presidents of the British Medical Association have died while in office—Sir Beckwith Whitehouse and Viscount Dawson of Penn. The Council at its last meeting on May 2 was faced with the position hat there was no Immediate Past President to fill the vacancy caused by Lord Dawson's death, and under the by-laws it fell to the Council to provide for the discharge of the duties of the office until the next Annual Representative Meeting. The Council decided to appoint Mr. H. S. Souttar as President until the next A.R.M. in July, and to recommend to the Representative Body the election of Mr. Souttar as President in respect of 1945–6. It is a great advantage to the Association to have now as its titular head man who has served it in a succession of high posts, culminating in the Chairmanship of Council during the first four years of this war; he has also been Chairman of the Central Medical War Committee and of the Medical lanning Commission, and was Chairman of the Representative Body in 1934–7. Mr. Souttar is in active practice s a surgeon to the London Hospital, and recently held office as Vice-President of the Royal College of Surgeons of England. Apart from his eminence in the profession and his many public services our new President is known o a large proportion of the members at home and abroad or the kindness and grace of manner which are part of his nature.

ARCHIVES OF DISEASE IN CHILDHOOD

With its 101st number the *Archives* enters upon a new hase, for it now incorporates the *British Journal of hildren's Diseases*. It is therefore a suitable moment o record the brief history of these two journals and to ake a glimpse at the future. The *British Journal of hildren's Diseases* made its first appearance in 1904 under he editorship of the late Dr. George Carpenter, who, in n editorial note, observed that in the British Isles there as then no periodical which dealt with disease in childood, although America, France, Germany, and Italy were aking headway in this special field of medical journalism. In 1900 the Society for the Study of Disease in Children had been founded, and undoubtedly its growing strength astened the birth of a special journal. Carpenter was much helped in his enterprise by the late Mr. R. E. Adlard, of the printing firm of Adlard and Son, Ltd. Dr. Carpenter had saved the life of one of the children of Mr. Adlard, who showed his thankfulness by launching and financing the *British Journal of Children's Diseases*, now no longer published as a separate periodical.

The *Archives of Disease in Childhood* first appeared in 1926, largely through the energies of the late Dr. Hugh Thursfield and the late Sir Dawson Williams, then Editor of the *British Medical Journal*, who retained a life-long interest in diseases of children. The new journal was welcomed in our columns in these terms: "Nearly a year ago some of the medical men whose work lies chiefly among children, and who for a considerable time had felt that English work in this branch of medicine was inadequately presented by existing publications, met together, and after discussion determined to sound their colleagues on the advisability of establishing a new journal." The high literary and scientific standard set by the *Archives* has been worthily maintained by its Editors, and the current issue, the first run of the second hundred, sees it strengthened by its absorption of another journal and by the formal recognition of the strong link that exists between the *Archives* and the British Paediatric Association. The appointing of editors and editorial committee and board is now a joint function of the B.M.A. and the B.P.A. The British Paediatric Association has, in recent times, shown its active concern with the preventive aspects of child health, and no doubt this will be reflected in the editorial policy of the *Archives*, which should therefore have a wider appeal in the future, especially to those practitioners whose work among children is associated with that of local health and education authorities.

Much of the preventive medicine of childhood must rest upon the scientific study of disease. The recognition of the disease rickets, for example, and the discovery of its cause have made it possible to plan preventive measures in a scientific way; and so with scurvy. Protective inoculation against such infections as diphtheria, the diagnosis of foot faults and faults of posture, the study of the abnormal behaviour of the "problem child"—all these are witness to the fact that the approach to health has often to be made by a study of the abnormal. The standards of the normal, of "positive health," are but little known, so the title of the *Archives*, if it does not reflect the new optimism, at least reflects what is and not what might be.

THE ASSOCIATION OF SURGEONS

Early in 1914, in a letter to Sir Rickman Godlee, Sir Berkeley Moynihan suggested the setting up of an Association of Surgeons of Great Britain and Ireland. The war of 1914–18 postponed a decision on this, and it was not until January, 1920, that the Association was in fact founded, Sir John Bland-Sutton being elected its first president. The number of Fellows was limited to 250, and the objects of the Association were declared to be the advancement of the science and art of surgery and the promotion of intercourse and friendship among the surgeons of the United Kingdom. The new association took over the *British Journal of Surgery*, which had up till then been managed by a committee of surgeons, but any Fellow reading a paper at a meeting of the Association was to be at liberty to publish it where he wished. Last week the Association met under its new president, Surgeon Rear-Admiral Gordon-Taylor, and completed a day's programme by assembling at a dinner to which many distinguished guests had been invited. There were only two speeches. Sir Alfred Webb-Johnson, in proposing a toast to the President, paid a graceful tribute to him as a surgeon-anatomist and a man of wide culture. In reply, Admiral Gordon-Taylor gave the audience an example of his mastery of oratory, when, by the device of fantasy, he conjured up some of the recent great figures in the history of surgery. In these rather bleak days the large number who attended the dinner were evidently delighted at the opportunity of once more promoting the fellowship of the Association of Surgeons of Great Britain and Ireland.

HEART INJURY

Damage to the heart is so often fatal that the account by Hugh Barber[1] of cases in which the patient has survived is of much interest. They had suffered non-penetrating injuries. The sort of accident which leads to these are blows on the thorax, in particular from the steering-wheel in motoring collisions, crushes, and occasionally falls. External injury may be slight; the thoracic cage is very elastic and the heart may be damaged although no bones are broken. Rupture of the heart may cause death at once, but contusion of the myocardium is compatible with life and not uncommon if it is looked for. The damaged area may rupture later. Routine examination of the heart by the electrocardiograph may give useful evidence. Abnormal curves may be found in about a quarter of the cases, and Barber shows the value of taking records as soon as possible after the accident; as many changes are transient, repeated tracings must be taken. Changes in the T waves are the most frequent findings. Pericardial friction is a useful diagnostic sign, but it does not last long. The early diagnosis of haemopericardium is important for the patient, because tamponade may develop if the effusion of blood is at all large. This is an urgent indication for relief by aspiration; the signs are rising venous pressure and pulse, and falling blood pressure and pulse pressure. Physical signs of myocardial contusion are not conspicuous —possibly nothing more definite than weakness of the sounds. After a latent period signs of failure may come on, with frothy expectoration, dyspnoea, falling blood pressure, and rising pulse rate.

Most cases of myocardial contusion probably clear up completely. Sometimes angina of effort may persist, and sometimes a sort of effort syndrome. Occasionally an aneurysm of the ventricle may be found later. Diagnosis becomes more complicated when there has been antecedent myocardial disease. There appears to be good evidence that coronary thrombosis may be precipitated by trauma when the arteries are already diseased. There is no doubt that auricular fibrillation may arise from injury, as may paroxysmal tachycardia; also sinus bradycardia and occasionally heart-block. Rupture of the aortic and mitral valves has been known for years as a result of severe physical effort: direct violence may rupture them. These findings have a good deal of medico-legal importance in assessing damages when disability results. Fortunately it appears that contusion of the myocardium is unlikely to have a permanent effect on a healthy heart. It is evident that special care should be paid to the examination of the heart after precordial injury, and an electrocardiogram should be taken as soon as possible. The differentiation of antecedent disease and the effects of trauma may give rise to knotty problems in a court of law.

THE MENTAL HOSPITAL

In March, 1943, there was an outbreak of amoebic dysentery at one of the New York State mental hospitals, and the scandal which resulted led Governor Dewey to appoint a Commission to inquire into the administration of these hospitals. General physicians and hospital administrators were represented on the Commission, but psychiatrists only among its advisers. The report of the Commission[1] has therefore a somewhat fresh point of view.

The Commission was unpleasantly surprised to discover the extent to which the State mental hospitals had been allowed to become custodial institutions rather than hospitals in the true sense of the word. The hospitals were understaffed. The State Department had set itself a goal of one physician to 150 patients, but this had never been achieved. Too much of the time of the available physicians was taken up with the care and treatment of the physical ills of the patients. This could be better handled by a staff of "internes," assisted by visiting physicians. Arrangements for active treatment were chaotic. In some hospitals they were available, in others not. A patient's chance of recovery depended on the accident of which hospital he came to. Dementia praecox accounted for a quarter of all admissions and led to an average stay in hospital of 19.3 years. In a second report[2] the Commission has recommended that insulin treatment should be made available to all such patients in the State hospitals. Insufficient interest was also shown in putting the maximum number of patients on parole and in arranging where possible for family care. The State allows $8 a week for every patient in family care, and the Commission considered that, when the cost of maintenance and new construction was allowed for, this was cheaper than institutional care. In the life of the hospital physician an undue part was played by administrative duties. The superintendent did a great deal of the work which should be the province of a business manager, an official who should take the place of the existing steward. In turn the clinical director found himself tied to a desk job. The best positions in the service were reserved for psychiatrists who became administrators; it should be possible to make a career also along clinical lines. There was too wide a gulf between the salary of the superintendent ($8,500–$10,500 per annum) and that of the first assistant, clinical director, and steward ($5,200–$6,450 per annum). Clinical and research interests should be fostered in other ways. To combat "ingrowing tendencies," each institution should have a travel study fund to enable members of the medical staff to attend important professional meetings and to visit centres where noteworthy medical work is being done. Other criticisms of existing arrangements deal with dietary, occupational therapy accounting, business management, etc. Overcrowding of the mental hospitals is serious. The Commission considered that the medical care of the tuberculous was "nothing less than shocking," and it recommends establishing one or more special hospitals located near those maintained by the State Department of Health.

This report has itself met with strong criticisms,[3] into the merits of which we need not enter. It is, however full of lessons for the British as well as the American psychiatrist and hospital administrator. The New York State hospitals include some of the best in the U.S.A., and as a group they are probably more advanced rather than more backward than any corresponding service in this country.

Dr. Charles Hill, Secretary of the B.M.A., is standing as an Independent candidate for the University of Cambridge at the coming election. One of the present representatives of the University, Prof. A. V. Hill, has intimated his intention of not standing again.

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[1] *Quart J. Med.*, 1944, **13**, 137.

[1] *The Care of the Mentally Ill in the State of New York*, New York, 1944.
[2] Reported in *J. Amer. med. Ass.*, 1944, **126**, 437.
[3] W. L. Russell, *Amer. J. Psychiat.*, 1944, **101**, 184.

RHEUMATISM: POSTGRADUATE INSTRUCTION

BY

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Rheumatism may be conveniently defined as a painful disorder of the locomotor system the aetiology of which is obscure. Anatomically this conception will embrace the joints, the fibrous tissues, and the neuromuscular system throughout the body. Symptomatically, it is no exaggeration to say that it may be applied to the occurrence of pain in every inch of the body—quite literally from the scalp to the sole of the foot.

Very early in my professional life I was impressed by the observation "Beware of rheumatism" by an experienced general physician in the course of his lecture on "Errors of Diagnosis." "Which of us," said he, "has not let out rheumatism with a scalpel?" Osteomyelitis is not the only serious error in differential diagnosis. We recall tuberculous arthritis and scurvy. The tabetic with lightning pains will present himself with the complaint of "rheumatism." Vague so-called rheumatic pains in the limbs will be recognized as the manifestation of trichiniasis by an astute observer who has noted oedema of the eyelids. As a contrast, there is the misaken diagnosis of progressive muscular atrophy or a dystrophy when rheumatoid arthritis and trophic muscular changes were he correct explanation.

Cardiologists have associated the symptomatology of disease of the shoulder girdle or subacromial bursa with angina pectoris. The subjects of coronary arteriosclerosis have sometimes been egarded as suffering from these lesions for considerable periods. Pain more or less constant in the shoulder region—most commonly the left but often the right—has developed within an nterval of three or four months after myocardial infarction nd lasted for several years. The shoulder pain has even preceded coronary thrombosis for as long as a year. It is supposed that reflex hypertonus of the muscles of the shoulder irdle plays some part in the simulation of arthritic disease.

Charcot's joints, Paget's disease of bone, and, most tragic of all, malignant disease of the vertebrae or of the spinal cord are other lesions which have been mistakenly regarded as so-called rheumatism. Within a fortnight I saw three examples of arcinomatous metastases, two diagnosed as "sciatica" and one s "brachial neuritis." All three had been under the care of pecialists at spas—men of experience at least as considerable s my own. I record these cases in no spirit of superiority, but as providing a salutary and humbling lesson. In all probability, how often must I have perpetrated similar mistakes!

And so while the specialist in rheumatism may be regarded y the layman as a man with rule-of-thumb methods of physical therapy—to us who reflect upon the traps and pitfalls, the difficulties of diagnosis, he must be recognized as an exceptionally gifted member of the profession, in his approach to very branch, to every system.

Aetiology

I ventured to begin with the generalization that aetiology is obscure. It is not surprising that every possible pathological element in the causation or reputed causation of recognized diseases and lesions has been presumed as an essential or necessary factor, with the unfortunate corollary that much work as been undertaken in watertight compartments instead of determined campaign to correlate in the avoidance of rash eneralizations.

We know that degenerative processes, the inevitable wear nd tear of structures concerned in locomotion, must in some nstances be responsible to an extent which has led to a fatalistic cceptance of the inevitable, the irrecoverable, and to a conlusion merely to make the best of a bad job. The influence of toxaemia waxes and wanes in popularity. Ruthless eradiation of teeth, of tonsils, of gall-bladders, of appendices, of pelvic viscera, with resulting disappointment, has on the whole ncouraged the complete abandonment of this therapeutic approach even if the diehards, deprived of any evidence of the influence of removable foci, still invoke the existence of hypothetical toxins in the interior of the gut.

Metabolic possibilities have naturally provided a wealth of hypotheses, whether along the lines of digestive insults with the presentation of all sorts of dietetic regimes, or on the principle of vitamin deficiencies.

Very naturally the endocrines have come in for their exaltation in importance; more especially as the relationship of arthritic lesions to menstruation, to pregnancy, and to the menopause is in some instances acceptable. Climatology one recalls only briefly in passing. It is a factor which almost everybody is prepared to accept as of some influence, but as one which with very rare exceptions has received the most trivial scientific exploitation.

Of recent date the psychosomatic side has been emphasized to an extent which makes an overwhelming appeal to the psychologically minded. That the emotional disturbances engendered by environmental burdens—poverty, grief, worry, and the like—have a distinct relationship to the onset and exacerbations of rheumatoid arthritis requires no emphasis in endorsement. But the majority of us pause to consider whether or no we shall accept so literally the explanation advanced of symbolic presentations of fibrositis as, for example, "feeling stiff and sore" over some grievance or frustration; of "unbending pride" through resentment; of "inability to stoop" or "lower oneself" to a certain course of action; of "getting it in the neck," both literally and figuratively; of representing through "sciatica" the desire to kick somebody, or through "brachial neuritis" to indulge in fisticuffs.

Yet something psychological may be advanced at least in partial explanation. The most materially minded will be prepared to accept the possibility of emotion leading to muscular spasm and tension, or inducing vasomotor changes which bring about localized areas of ischaemia or which lower the threshold of sensitiveness to external physical agents.

I have ventured to suggest that progress in therapy has been retarded by the tendency of men able and efficient in their particular spheres, yet unduly obsessed by their restricted applications, to reduce their sphere of usefulness by remaining in their watertight compartments. Each and every one of their methods of approach may well have a bearing more or less significant in individual instances, more or less applicable to the subject as a whole. Enthusiasm counts for much in explanation of the presentation of therapeutic virtues and the equally numerous pessimistic repudiations, when one specialist working with a new material or method reports dramatic successes and another reports complete failure.

The future health policy, the Government announces, is to include the treatment of rheumatic sufferers. To implement this intention it is proposed to establish and staff a number of rheumatism treatment centres. These will demand the provision of medical practitioners with special knowledge in the diagnosis and treatment of the rheumatic diseases, and it is the opinion of the Empire Rheumatism Council that it is desirable in the interests of the public health to institute postgraduate courses to enable a number of medical practitioners to acquire that special knowledge.

I need not refer to the nomenclature of "the rheumatic diseases" as agreed by the Committee on Chronic Rheumatic Diseases of the Royal College of Physicians (1936), but I venture to think that the brief survey I have presented of the scope of what may be legitimately included, and of the difficulties and possible pitfalls in differential diagnosis, sufficiently indicates the importance of instituting a comprehensive course of postgraduate training.

It is at this stage premature to describe the exact steps which must be taken in the selection of suitable trainees and to decide if they shall possess special qualifications that may be regarded as a *sine qua non*, or to do more for the present than anticipate that training grants will be available from public funds or from other available sources to permit of their whole-time attention. The facilities for appropriate instruction available at teaching hospitals, postgraduate schools, rheumatic treatment centres, orthopaedic centres, and the like are also matters which are at present under consideration; and the remuneration of teachers employed must also be a necessary item in the scheme that is proposed.

But it may be permissible to give some indication of the syllabus envisaged and to state that, in order to attract the right type of entrant for this specialty, a preliminary course (three months) on general medicine at the Postgraduate College or similar institution should be undertaken especially with the encouragement to take a higher degree or diploma. A suggested syllabus of the course itself may now be outlined.

A Suggested Syllabus

Aetiology.—Survey of the recent trends in aetiological concepts in acute and chronic rheumatism and arthritis, including toxic, metabolic, climatic, dietetic, and traumatic factors and possibilities.

Pathology.—The classification and pathology of acute and chronic rheumatic diseases (including gout and spondylitis). Morbid anatomy and histology.

Applied Anatomy and Physiology.—(*a*) Surface anatomy: body mechanics and posture. (*b*) The structure and action of muscles and joints. (*c*) The skin and its reactions. (*d*) The blood, the circulation, and respiration as they affect the locomotor system. (*e*) The nervous system with reference to: (1) Segmental and peripheral nerve distribution. (2) Pain: the methods of causation, transmission, reference, and clinical application.

Radiological Investigation.—The normal radiology of bones and joints. The radiology of the rheumatic and pseudo-rheumatic diseases.

Clinical.—(The chief rheumatic diseases will be dealt with during the course in general medicine. Such "rheumatic symptoms" as occur in poliomyelitis, tuberculosis, gonorrhoea, osteomyelitis, leukaemia, etc., may be mentioned.) Standardized history-taking and the recording of symptoms. Orthopaedic aspects: postural and congenital abnormalities; chronic strain. Neurological aspects: neuritis, prolapsed disks, "hysterical joints," the mechanism of pain reference, muscular dystrophies; "sciatica."

Therapy.—Physical medicine: demonstrations of apparatus and methods in use; remedial exercises and physiological rest; the writing of prescriptions. Re-education of muscles and joints: occupational therapy. Reconstructive surgery of joints. Specialized methods of treatment: gold salts; procaine injections; aspiration of joints. Simple plaster work. Vaccines. Manipulation. The prophylaxis and treatment of acute rheumatic fever.

(N.B.—Practical experience of all the above should be acquired when working as a clinical assistant in rheumatic and orthopaedic special departments or hospitals.)

Social Medicine.—Environment; housing; dietetic, psychological, traumatic, industrial, and occupational factors.

Finally it may be pertinent to recall the close co-operation between orthopaedic specialists and "rheumatologists" advocated by the joint committee of the Empire Rheumatism Council and the British Orthopaedic Association, and the agreement of these bodies in their joint memorandum to the Ministry of Health as regards the organization and, where possible, as regards buildings, for the establishment of a decentralized scheme of out-patient and treatment centres depending upon a central hospital department. It would appear desirable for trainees to spend three months in an orthopaedic centre. The replacement of the title "orthopaedic physician" for "rheumatologist" might well be considered.

EMPIRE LEPROSY RELIEF ASSOCIATION

TWENTY-FIRST BIRTHDAY APPEAL

On April 26 at the Mansion House an appeal for £210,000 was launched at the coming-of-age meeting of the British Empire Leprosy Relief Association (B.E.L.R.A.)—that is, £10,000 for each year of its work. The Lord Mayor, who was accompanied by the Lady Mayoress, in opening the proceedings read a message from the King, who is patron of the association. Messages in support of the appeal were also read from the President, Lord Halifax, and from Lord Wavell, Viceroy and Governor-General of India.

Sir **ALFRED BEIT**, M.P., represented the Colonial Office in the absence through indisposition of the Colonial Secretary, Col. Oliver Stanley. He spoke of the long and fruitful collaboration and consultation of B.E.L.R.A. with the Colonial Governments, which would need not only to be sustained but extended in the future. Although the various Governments concerned had not been inactive, it could not be denied that measures for the relief of leprosy are still inadequate, and the Colonial Governments would desire to be associated with the tribute he was paying to the association. The newly passed Colonial Development and Welfare Act would be able to provide some of the required assistance, as in the case of the recent grant to Nigeria, but the Colonial Office hoped they would be able to rely on receiving help from B.E.L.R.A. in the future as in the past. The tours in the Colonies of medical secretaries of the association had been greatly appreciated, and further research work was essential. Last year he had witnessed for himself the leper settlement in Southern Rhodesia, with the remarkable record of 50% of cures as a general average. Equall good work had recently been carried out by Dr. Ernest Mui in the Trinidad Leper Settlement.

Achievements and Aims

Sir **BERNARD BOURDILLON**, chairman of the Executive Committee paid a tribute to the three founders of the association—Sir Fran Carter, recently deceased, Sir Leonard Rogers, and the Rev. Fran Oldrieve, the first secretary. He need not go into the history an twenty-one years' work of B.E.L.R.A. because the visitors had bee supplied with a pamphlet on the subject by Sir Leonard Rogers He paid a tribute to the good work of Toc H volunteers inspire by their founder-padre. He considered the time to be overripe fo a whole-hearted drive to exterminate leprosy in the British Empire It was only through the investigations of the last twenty-one year that the immensity of the task had been realized with the discover that there were probably about two million sufferers from lepros in our Empire—a far larger number than had been previousl suspected. Thirty years ago the only recognized treatment for leper was what amounted to imprisonment for life; this led to conceal ment of cases. Now we knew that far the more common neur cases were seldom infective, and therefore did not need segregatio and that if the disease was taken early enough it was susceptible t treatment. For example, when he was acting as Governor of Ceylo fifteen years ago the 600 known lepers were isolated. Soon afte as the result of a visit from the association's medical expert, th new methods of control were introduced into Ceylon, and a surve increased the known numbers to over 3,500. Only the infectiv cases were isolated, and all received treatment, with the result th from 1941 onwards new cases had declined and a start had bee made towards eliminating the disease from the island. Two and half years ago he had visited, as Governor of Nigeria, two enormo mission leper settlements in Southern Nigeria, whose work ha received 100% co-operation from the whole population. He ha been so convinced that "here is a magnificent work on absolute sound lines which must be extended until we gradually cover t whole country" that he got his Director of Medical Services prepare a scheme for a capital expenditure of £58,000 and an annu expenditure of £40,000 for five years. Col. Stanley at once provide the money from the Colonial Development and Welfare Fund. B this sum would only suffice for the three worst-infected of the Provinces of Nigeria, and one-third of the total lepers. Hence t necessity for the most liberal support of the present appeal B.E.L.R.A., who wanted in addition to extend their methods many other colonies. Twenty-one years ago the association rais only £4,000 by their first appeal, but subsequent efforts had enabl them to spend just over £100,000 on actual work in the field. announced the receipt of a gracious gift from His Majesty. T United African Company had given the splendid sum of o thousand guineas, and Barclay's Bank and John Holt and Co. £5 each.

First-hand Experiences

Dr. E. **MUIR** spoke of his wartime work at the beautiful isla leper settlement of Trinidad. He traced the spread of leprosy the Western Hemisphere after its discovery. Good progress h been made since Trinidad had modified its stringent Leper Segreg tion Act to allow early cases of a mild type to be treated in spec out-patient clinics, in accordance with B.E.L.R.A. principles. India and Africa admission of lepers to the modern type of agric tural colonies was now regarded as a privilege; no compulsion w required. Conditions were much more difficult under the compulso segregation system in Trinidad, but patient work had improved t atmosphere of that settlement. The introduction of improv methods of treatment had done more than anything else to remo the sting of compulsion. Last August an American firm had su plied him with a new synthetic sulphonamide, which had been ported to be effective in tuberculosis, and which had been favoura reported on in the U.S.A. Carvile Leper Settlement. This had giv encouraging results in the hands of Muir at Trinidad and h increased the cheerfulness of the patients. With regard to t future he pointed out that B.E.L.R.A., in co-operation with vario missionary societies, had been to a large extent responsible f pioneer work, and the demonstration of methods along which lepr could be dealt with effectively. The arrangement for the Niger

Government to take over and extend much of the work there would free B.E.L.R.A. to concentrate on other parts of West and East Africa, the Sudan, and other colonies. Work was urgently needed to test new remedies, for the discovery of a real cure for advanced and highly infective cases did more than anything else to hasten the elimination of leprosy. The best birthday present to B.E.L.R.A. was the provision of ample funds to enable the open sore of leprosy to be healed throughout our Empire.

Mrs. **GRAINGER**, who has recently returned from many years of work in Nigeria, latterly spent at a missionary leper settlement with 15,000 patients under treatment, spoke eloquently on her experience. She emphasized the importance of caring for the children of the patients to save them from infection, and the joy of handing back their healthy children to mothers who were being discharged cured from the settlement. The proceedings terminated with a vote of thanks to the Lord Mayor and the Lady Mayoress moved by Sir **LEONARD ROGERS**.

MEDICAL SERVICES IN TRINIDAD

SEVERE CRITICISMS BY GOVERNOR'S COMMITTEE

A committee to review the medical and health policy of the colony of Trinidad and Tobago was appointed by the Acting Governor in August last. By arrangement with the Secretary of State and the medical authorities in Scotland, Col. Sir Alexander Russell was appointed chairman. Of the four other members of the committee two belonged to the medical and two to the legal profession. Evidence was given by many public bodies and associations, including the Northern Division of the Trinidad and Tobago Branch of the B.M.A., and by the oilfields companies and sugar estates, and the heads of Government Departments submitted memoranda. The report of the committee, which has been laid before the Legislative Council, contains as many as 160 recommendations.

"Grossly Deficient"

The committee finds the medical staff of the Health Department, as a whole, to be grossly deficient, though the deficiency s relatively less on the medical than on the public health side.

> "When due allowance is made for the war, and the admitted hortage of medical men, there appears to have been no real effort, even before the war, to build up a staff sufficient to deal with both the usual and the more specialized aspects of curative medicine."

Apart from this, the committee found evidence of a certain "lack of keenness" and lack of *esprit de corps* and spirit of service among a considerable proportion of the medical staff of the Department. This deplorable situation, it believes, is largely due to the absence of a proper system of staff organization, and, as regards the hospitals, to the lack of a grade of house-physicians and house-surgeons. Another cause is the unatisfactory method of granting study leave and of selecting officers for promotion. The specialist service is also declared to e very inadequate, while the district medical service is "depressing in the extreme," in some areas so deficient as to be virtually on-existent. There is no regular system of appointment of district medical officers, full-time, part-time, and contract officers eing appointed in a haphazard manner without due regard to he size of the area or the needs of the population.

> "We have heard numerous complaints of inaccessibility, hardship, exorbitant fees, callousness, and even sheer neglect in connexion ith the district medical service; and it seems to us that these are ound to persist until the whole service is thoroughly reorganized nd established on a satisfactory basis so as to ensure that even a poor labourer in a remote country district, in case of need, can btain speedy and effective treatment."

On the public health side of the Health Department the usual ctivities are to be found, yet in the absence of a stated policy the public sees in these activities only spasmodic and uncorreted effort. The committee adds that it

> did not receive that assistance we anticipated from witnesses as gards the formulation of a medical and public health policy. On e contrary, most of them, individuals as well as associations and cieties, were principally concerned with, and devoted most of their written and oral evidence to, pointing out defects of the present stem. In fact, it is true to say that we rarely received any conuctive suggestions."

Proposals for Reorganization

The committee suggests as a long-term policy the reorganizaon of the medical service in accordance with certain proposals it lays down. Among its proposals is the appointment of a medical officer of health for each county, to have control of health staffs and to be responsible for all health activities in the area. One innovation suggested on the medical side is a united specialists' service for the whole of the British West Indies. It is considered that the present method of classifying medical officers in the colonial hospitals into Grades A, B, and C should be extended to all officers in the medical services, and a further grade D created to include house-physicians and house-surgeons. An officer should be up-graded to A only if he possesses an advanced degree, and to B only if he has taken a period of study leave and has gained an additional qualification from a British university.

On the question of private practice the committee says:

> "We do not think it is the duty of the Government to provide medical service for the whole population; that is not a generally recognized Government function in any part of the world. But we think the policy of the Government should be to encourage the settlement of private general practitioners in rural and semi-rural areas, and one of the most certain methods of achieving this aim is to forbid private practice to all Government medical officers."

The only exceptions to this should be in certain scantily populated areas where it is unlikely that any private doctor would care to settle without a monetary inducement of some kind. It is affirmed unhesitatingly that the employment of part-time district medical officers is unsatisfactory and should cease at the earliest possible date. County and district medical officers should be fully occupied and have no time for private practice.

Other proposals are for a central advisory committee, the Director of Medical Services to be chairman, one member to be nominated from the Legislative Council, one to be nominated by the Northern and another by the Southern Division of the B.M.A. Branch, and one each to represent the Port-of-Spain and the San Fernando municipal councils. The committee recommends that all the sugar and oil companies should be required to provide a satisfactory medical service for their employees, and that the shipping and industrial interests of Port-of-Spain should provide a health centre, ambulance service, and full-time medical officer for the treatment of emergency cases arising among their workers.

Much public criticism has centred around the colonial hospital at Port-of-Spain.

> "We have evidence to show that a number of the complaints are justified, some of the medical officers being equally responsible with the nurses in respect of delayed and careless treatment, lack of kindliness, and even neglect. . . . We have had evidence, which we accept, of a certain number of deplorable incidents which are bound to reflect on a hospital's good name."

On the other hand, many complaints are second-hand or third-hand stories. The committee believes that the general proposals made with regard to staffing will go far to improve conditions. The appointment of medical staff committees and the closer contacts which it is recommended that the director and deputy director should have with the staffs may do much to dispel suspicion and resentment. All the hospitals which the committee saw require complete reconstruction, and a very unfavourable opinion was formed of the district hospitals.

Many other recommendations are made concerning specific services, and appointments, promotion, and leave of medical officers. Finally, in place of the present Medical Board, it is proposed that a new controlling body, the Medical Council of Trinidad and Tobago, should be set up to take over the registration and discipline of medical practitioners. It should consist of twelve members, all belonging to the medical profession, nine of them elected by the registered medical practitioners of the colony, and the other three nominated by the Government.

Government's Reply

In a short covering memorandum the Government states that it has no desire to minimize the severity of the strictures on the medical services of the Colony, except in so far as they are due to war conditions and serious shortage of staff. On the contrary, the Government would not have instituted an inquiry if it had not expected such criticisms. But it explains that the shortcomings are not the result of financial parsimony. The amount expended on health services has increased by well over 50% during the last three years. Every effort will continue to be made to secure more officers, for whom funds have already been provided, and the Council will be asked to vote further funds. But there must be no disappointment if some time elapses before this policy can be fully adopted in the medical department, since hitherto, notwithstanding most urgent representations, it has not been found possible to engage enough experienced administrative officers even for the secretariat.

On the question of the serious shortcomings revealed in the Colonial Hospital, Port-of-Spain, and in the district hospitals, it is stated that the initiative of the Director of Medical Services and of the Government in respect of discipline has been circumscribed by statutory restrictions, and it will be necessary to consider and submit amending legislation to the Council.

Reports of Societies

SULPHONAMIDES AND PENICILLIN IN URINARY DISEASE

A meeting of the Section of Urology of the Royal Society of Medicine was held on April 26, Mr. F. McG. LOUGHNANE presiding, for a discussion on the use of the sulphonamides and penicillin in urinary disease.

Wing-Cmdr. J. C. AINSWORTH-DAVIS said that the introduction of the sulphonamide compounds had proved to be the greatest advance yet made in urinary disinfection. The sulphonamides could be used for both acute and chronic infections, and acted most powerfully on organisms of the coliform, streptococcal (other than *faecalis*), and gonococcal groups. Six basic principles should be observed in their administration: (1) The initial dose, or two doses, to be large, in order to obtain the maximum concentration of the drug in the blood stream in the shortest possible time. (2) Sulphathiazole (which in his experience was the most useful of the compounds) should be administered 4-hourly for at least two days, and unless there were strong reasons to the contrary the patient should be awakened at night for this purpose. (3) A white blood count should be taken before beginning the course, and repeated on alternate days in order to guard against agranulocytosis. (4) Fluid intake during treatment should be increased to at least 5 pints in 24 hours to maintain the urinary output at a minimum of 3 or 4 pints. If the output fell below 2 pints in 24 hours, with pain in the loins and haematuria, blocking was suggested and treatment should cease. (5) Alkalis should be prescribed to be taken by mouth three times a day. (6) It was no longer necessary to withhold sulphur-containing foods such as eggs.

In severe infections endangering life the customary dose should be increased by 50%—that is, 1½ g. instead of 1 g.—and an intravenous injection of from 2 to 4 g. should be given as a preliminary measure. In mild infections or in prophylaxis against urethral fever the dose should be diminished by 50% (0.5 g. instead of 1 g.). For children up to 3 years the dose should be one-third the adult dose; from 4 to 10 years, one-half; and from 11 to 15 years, two-thirds.

Apart from some nausea, headache, and cyanosis there were three main complications which called for cessation of the drug: primary or acquired sensitivity, agranulocytosis, and blocking of renal tubules, pelves, and ureters with crystals. A mild degree of leucopenia need not cause alarm, but a rapid fall in the white blood count to below 4,000 should raise suspicion, and a fall to below 2,500 indicated agranulocytosis.[*] Blocking of renal tubules was due to deposition of crystals of sulphathiazole, which was one of the less soluble sulphonamides, and might occur at any time during treatment and had been known to follow small doses of 5 to 10 g. given by mouth or even one large preliminary injection. The speaker described what he called a ureteric "corkscrew," which, in cases of sulphathiazole anuria, he inserted first in one ureteric orifice and then in the other, giving it a clockwise twist to overcome the obstruction; on withdrawal it would bring with it a mass of crystals.

Penicillin in Urinary Infections

Dr. ROBERT CRUICKSHANK described the properties of penicillin and the organisms against which it was active. Its activity was unimpaired by blood or pus; it had no local or systemic toxicity, but it was unstable in weak solutions and was inactivated by acids or alkalis, by bacterial contaminants, and by heavy metals. He felt that it would be advantageous to keep a considerable degree of laboratory control over the use of penicillin. A medical man finding a case which he thought suitable for its administration should consult with his bacteriological colleague.

The two popular methods of administration were by intramuscular injection intermittently and by intramuscular drip continuously. The drug was rapidly excreted, and therefore if given intermittently it must be at frequent and regular intervals. An earlier view was that the only thing which could be done to delay excretion was to produce nephritis in the patient. Some advance had more recently been made by the use of oily excipients, and one of the amino-acids had also been tried. These methods might help to space out the doses. Intramuscular drip was now commonly used; intravenous drip had been tried but had a tendency to sclerose the veins, and most people, he thought, had given it up. Febrile reactions might be obtained with the use of penicillin, and therefore reliance must be placed upon a temperature chart.

The first and most obvious indication for penicillin therapy in urological infections was staphylococcal infection of the kidney. This was not a very common condition, but it was interesting to remember that after the last war, as a sequel to various injuries giving rise to staphylococcal infections, there was a great increase in perinephric abscess, and this might be repeated. The laboratory methods of diagnosis were: (1) examination of the urine, when the infecting staphylococcus would generally be found, and (2) the white cell count, which, if it got around 20,000 or over, was a strong presumptive sign of staphylococcal infection. In such cases early systemic treatment with penicillin should be recommended, treatment continuing until all clinical signs had disappeared and the urine had been clear for a definite period. Dr. Cruickshank showed the following table to indicate the comparative sensitivity of bacteria to penicillin in urine at *p*H 7.6:

Organism	Inhibitory Level of Penicillin Ratio
Staph. aureus	1/30 unit
Str. faecalis	3 units
B. proteus	8 „
B. coli	30–60 „

Limitations of Penicillin

Mr. CLIFFORD MORSON said that he had had the opportunit of treating a case, in collaboration with Dr. Cruickshank of a severe *Staph. aureus* infection in which it wa suggested that penicillin might be tried. The patient's symptoms were constant backache and frequency of micturitio (every 30 minutes). The treatment consisted of 15,000 unit of penicillin intramuscularly every four hours for five days An interesting point was that after each injection the patien had a good deal of pain in the calf of the leg; but within 4 hours the result was dramatic: the urine became sterile (i had not been sterile for three years) and all the pain in th back disappeared. As each day passed the patient could hol his urine for a longer time, and on the fifth day he was holdin it for two hours day and night. About the tenth day after th beginning of the treatment, however, and five days after i cessation he developed a severe *B. coli* infection, the urin being loaded with this organism; but no other organisms we present, and frequency was as great as before. Penicillin seeme to stimulate the growth of *B. coli*. Incidentally he could n agree with a statement in the Medical Research Council's repo that *B. coli* was sensitive to the sulphonamides. The case became symptomless, but still the urine contained *B. coli*.

Mr. H. P. WINSBURY-WHITE agreed with this last observatio A mild infection with *B. coli* could be got rid of by means a sulphonamide, but it came back again. He added a wor concerning the usefulness of the sulphonamides in prophylax in instrument cases generally. All were familiar with case which required regular and frequent use of instruments, an no matter what care was exercised the patients were subject mild attacks of fever. He had found a small dose of sulpho amide—2 g. a day for three or four days—to control that tendency.

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[*] A later speaker suggested that the term "granulocytopenia" would be etymologically more correct, "agranulocytosis," strictly speaking, meaning total absence of white cells.

Wing-Cmdr. A. W. Badenoch said that at his R.A.F. hospital they had had a good deal of experience of penicillin, though not much in urological conditions; the field for penicillin in urology was very limited indeed. A few cases of *Staph. aureus* infection uncomplicated by an obstructive factor had responded remarkably well, clearing up in a day or two. They were kept on penicillin for a few days after the urine had become sterile and followed up at the end of the month. Out of rather more than 200 cases in which intramuscular drip had been used, 17 had developed abscesses at the site of the puncture. For this reason they had returned to intermittent injections, the number of which had been cut down and the dosage scaled up. By giving two doses a day of 50,000 units they had been able to get the same clinical results as with 3-hourly doses of 15,000 units.

Choice of Compounds

Mr. E. W. Riches said that his objection to sulphathiazole was that it made the patient feel so extremely ill. He did not think it the best of the sulphonamides to use in urinary infections if consideration were given not only to its potency but to the way in which it was tolerated. He preferred sulphadiazine, given in the same doses; and although some patients were intolerant to sulphadiazine and vomited after it the number was much smaller than with any of the other sulphonamides. He agreed with what had been said about the return of *B. coli* infections, but he thought that in such cases, if a diligent search were made, some cause such as stasis, atony, or trauma in the urinary tract would be found. He preferred mandelic acid for a pure *B. coli* infection, and thought it more effective than any of the sulphonamides. He had seen penicillin used in a number of urinary cases, but in a spinal unit, where there were many complications. The greatest value of penicillin in these cases had been as an "umbrella" under which to operate. The post-operative course had been rather smoother when penicillin had been given immediately preceding the operation. He was sure that it was necessary to go on with penicillin longer than the temperature chart might indicate.

In further discussion Dr. R. A. O'Brien asked whether the leucocyte count was any guide to the safe period when to drop penicillin; also how far one could relieve the patient of the discomfort of frequent intramuscular injections. Dr. A. Stanley suggesed that sulphamezathine was the safest of the compounds and was as effective as the others in urinary cases. Lady Florey said that the pain of intramuscular injection would be reduced when penicillin became more pure as a result of improvements in the manufacturing process. Meanwhile, a good technique on the part of the nursing staff would do much to abate the discomfort.

Wing-Cmdr. Ainsworth-Davis, replying to the discussion, said that he fully agreed as to the value of a short course of sulphonamides before using instruments or before operation, followed by a post-instrumental or post-operative course; the results were very much better. Dr. Cruickshank said that information received from Canada seemed to show that even with inert penicillin, as pure as it could be made, there was a good deal of pain, and there procaine was given as a routine measure. Intermittent muscular injection, with two of the night injections omitted, was, in his experience, preferred by patients to the continuous drip.

DIPHTHERIA ANTIGENS

At a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on April 27, with Sir Weldon Dalrymple-Champneys in the chair, an address was given by Sir Percival Hartley, of the National Institute for Medical Research, Hampstead, on diphtheria antigens, their preparation, properties, laboratory testing, and statutory control.

Historical Retrospect

In a short historical survey Sir Percival Hartley said that it was almost 25 years ago in that same Section that Sir Charles Martin communicated observations he had made in Rouen during the last war on the rate of disappearance of diphtheria bacilli from the throat in soldiers. Since then the outstanding event had been the clear demonstration that a considerable degree of protection to individuals and communities could be afforded by active immunization. Until 1913 there had been no simple way of finding out which members of the community needed protection and whether the measures which might be taken would be of any use for that purpose. In that year Schick described his famous test, which changed the whole situation, and Park, a great pioneer in this field, who had not liked the idea of injecting into children a material which caused paralysis in guinea-pigs, became one of the warmest defenders of the Schick test. At a ceremony in New York shortly before his death Park immunized the millionth child, and Schick the first of the second million.

Of all the prophylactics which had been used toxin-antitoxin caused the greatest anxiety to those who made it because the amount of toxin and antitoxin had to be so precisely adjusted. Accidents followed its use, and to those associated with the work the remarkable thing was not that they occurred but that they were so few. For many years until the preparation became obsolete every batch of toxin-antitoxin was tested in his own laboratory at Hampstead before its release was permitted. Some had always maintained that toxoid and not toxin should be the base of all antigens. In 1923 the successful immunization with a toxoid-antitoxin mixture was reported. This preparation had been largely superseded in recent years, but it played a useful part in those early days. It was employed almost entirely in this country. Then came the use of formalin in depriving diphtheria toxin of its toxicity, and for its ease in preparation and its safety the formol toxoid enjoyed wide popularity, while in some European countries and in Canada it was the antigen of choice. Its drawback was its liability to cause unpleasant local reactions, especially in adults. Toxoid-antitoxin floccules for active immunization became popular because the local reaction was only slight; the antigen was particularly suitable for the immunization of adults, and gave as a rule high Schick-conversion rates. In his own laboratory it was shown that while these floccule preparations made a very poor showing on guinea-pig tests for their antigenic activity, they made a good performance when administered to the human; it had then occurred to him that the tests which it was necessary to apply by law to diphtheria prophylactics did not permit this particular kind of antigen to display its qualities.

Alum-precipitated Toxoid

In 1926 Glenny and his colleagues showed that the addition of alum to formol toxoid gave an insoluble precipitate which had high antigenic properties. The antigenic activity of the toxoid was increased from 50 to 100 times by turning it into the insoluble A.P.T., which had advantages not possessed by other forms of prophylactics, and in its modern form was a relatively pure antigen. It was not particularly prone to cause local reactions in young persons, and for the primary immunization of the very young it was the antigen of choice. Its greatest merit was that it was effective in two doses, whereas other forms of prophylactic required three. During this war millions of children had received two injections, and, although it had not been possible to Schick-test them all, in control tests two spaced injections of A.P.T. had given a very high conversion rate. Opinions differed as to whether and when the Schick test should be applied in the immunization campaign, but if the pre- and post-Schick tests were to be omitted, it was with this antigen that this could be done with the greatest justification.

The progress towards active immunization against diphtheria (Sir Percival Hartley continued) had had a series of setbacks owing to fatal accidents following injection of antigen. In Texas in 1919 a number of children died after receiving what should have been a perfectly safe toxin-antitoxin but which contained toxin in amounts lethal to the human subject. These tragic instances created a profound impression and put back the clock, but they brought support to the claim then being worked out in this country for statutory control of certain therapeutic substances. The need had been shown most strikingly in the case of salvarsan; then the discovery of insulin, the demonstration of extreme variability in potency of pituitary extracts, and the whole trend of medical research all pointed in the same direction. It was evident that the manufacture, testing, and supply of specific remedies should not be left to the uncontrolled activities of inexperienced and ignorant persons. Under the Therapeutic Substances Act, 1925, accordingly, diphtheria prophylactics, among other things, might be prepared only by accredited licensees, and licences were granted only to those who could reach and maintain the very high standard demanded in the matter of expert staff and laboratories. All such preparations must conform to standards laid down in respect of purity, potency, and quality.

The Search for a Standard

Sir Percival Hartley confined himself to one aspect of this control—namely, potency. A number of difficulties would be resolved, he said, if potency could be assayed by comparative tests in relation to a standard, and the question had often been asked why, if difficulties of this kind had been overcome in the case of insulin and tuberculin, the arsphenamines, and the vitamins, the same could not be done in the case of diphtheria prophylactic. But the technical difficulties in the assay of antigens were very great. In England not one but several standards would be required, and the methods of comparative testing were very far from being precise.

In the spring of 1941 it was discovered that a brand of A.P.T. of low antigenic activity was being used in the national campaign, and laboratory tests at Hampstead confirmed the low Schick-conversion rates which were reported in the field. Though this A.P.T. was found later to be defective in other ways, these batches did comply with the requirements of the Therapeutic Substances Act, and so far as the potency tests were concerned it was clear that the Schedule itself was defective in ways that had not been anticipated. Primarily this defect was due to the attempt made in 1925 to bring all types of diphtheria prophylactic under the same regulations. In those early days of the Act, when the various prophylactics were reasonably similar in type and of the same order of activity, when antigens made in other countries had to be taken into consideration and brought within the scope of the Act, and when it was quite uncertain how many antigens would have to be legislated for altogether, this policy might have been justified. But with the advent of A.P.T. 50 to 100 times more active than those earlier antigens, these batches of very low potency, good enough to render guinea-pigs Schick-negative, but far below what was required for the immunization of man, could be passed into use.

This was a very serious matter, but it was faced; and action was taken by the Ministry of Health, by medical officers of health, by the licensing authority under the Therapeutic Substances Act, and by the manufacturers themselves and their expert advisers, and the worst consequences of this catastrophe were avoided. He described in detail the laboratory investigations which were carried out. As a result two rigorous requirements were laid down to which all A.P.T. must conform—namely, that the preparation should contain not less than the equivalent of 50 flocculation units of toxoid per c.cm., and that it should be shown that 10 guinea-pigs given two doses of one flocculation unit at an interval of a month must give an antitoxin production of not less than 2 units per c.cm., calculated on the geometric mean.

The results of a number of field and laboratory experiments on manufacturers' samples were shown. The laboratory adopted a standard which was an arbitrarily selected A.P.T., known to give a good showing in guinea-pigs, and subsequently in the field. The manufacturers' samples in this experiment satisfied the two requirements laid down. Arrangements were made for testing the standard in one or more schools alongside the manufacturers' sample, using so far as possible an equal number of children in the groups immunized, and then they were Schick-tested. The standard was found to do all that was expected of it, and by the tests at Hampstead all the samples fulfilled the requirements. This work had not yet been brought to an end, but those concerned felt themselves now on firmer ground than they had been for some time. With regard to the practical business of providing diphtheria prophylactic for the immunization of children, he did not think that any country in the world was better served than our own.

The remarks of speakers in the discussion which followed the address—Dr. R. A. O'Brien, Mr. A. T. Glenny, Dr. H. J. Parish, and others—were all in the vein of reminiscence.

Correspondence

An Undergraduate Medical School at Oxford

SIR,—The report of the Goodenough Committee has been received with little open criticism, partly because any medical school which refuses to fall in with its recommendations is likely to find itself at a considerable financial disadvantage. As Oxford graduates, however, we feel bound to put forward some criticisms of that section of the report which deals with the University of Oxford (Chapter 6, paras. 41-52, pp. 122 to 125).

Shorn of its trimmings the suggestion put forward by the university and apparently approved by the Goodenough report amounts to the foundation of an undergraduate clinical school to train "teachers, investigators, and consultants rather than general practitioners." This involves two assumptions which we believe to be quite unjustified: the first, that medical students before having started on the clinical period are in a position to determine what type of medical career they wish to take up; the second, that there is at this stage in their education any means of selecting those who are likely to prove efficient "teachers, investigators and consultants."

We teachers who have long been in close touch with undergraduate medical schools realize only too well that it is impossible to prognosticate the development of any particular medical student during his three years of clinical work. Some who have covered themselves with honours in the pre-clinical period fail lamentably as clinicians; others with chequered careers in their pre-clinical studies may ultimately prove quite outstanding both as clinicians and as teachers.

It must be remembered that some of the greatest figures in medicine—for example, Sir James Mackenzie—spent many years as general practitioners. It may well be that every potential consultant or teacher would benefit far more by a period in general practice than by three years of study in the "rarefied atmosphere" (*vide* Goodenough report, p. 124) of Oxford. Few undergraduates go down from Oxford without feelings of poignant regret, and many medical students at the impressionable age at which they normally leave Oxford would wish to remain there to complete their clinical studies. As a result the suggested undergraduate school would be likely to be filled mainly by those with sentimental attachments to Oxford. Those who, perhaps, with the assistance of their parents, took a broader view of their future medical education would continue to go to teaching hospitals in London or elsewhere.

It is probable that should such an undergraduate school as is envisaged in the Goodenough report come into being it would within a few years die of inanition. In the meantime, however, it might well have dealt a severe blow to the opportunities for research and postgraduate teaching which were visualized as the fruit of Viscount Nuffield's benefactions. The Nuffield professors were not selected with a view to their becoming teachers of undergraduates, and the strain of an undergraduate teaching school would necessarily considerably restrict their more vital functions. We trust that the university will not attempt to implement the recommendations in the report without further consideration.—We are, etc.,

G. H. BATEMAN.
G. E. BEAUMONT.
DENIS BRINTON.
W. D. W. BROOKS.
L. R. BROSTER.
L. GRAHAM BROWN.
MAURICE CAMPBELL.
J. J. CONYBEARE.
ERIC A. CROOK.
P. G. DOYNE.
TERENCE EAST.
CECIL FLEMMING.
MYLES L. FORMBY.
C. M. HINDS HOWELL.
NEILL HOBHOUSE.
THOMAS HUNT.
G. L. M. McELLIGOTT.
GEORGE E. NELIGAN.
W. H. OGILVIE.
R. S. BRUCE PEARSON.
WILFRED J. PEARSON.
J. H. PEEL.
ARTHUR E. PORRITT.
MAURICE SHAW.
E. B. STRAUSS.
C. P. SYMONDS.
HENRY TIDY.
O. L. V. DE WESSELOW.

Chronic Otorrhoea

SIR,—Mr. Thacker Neville (April 28, p. 594) draws attention once more to the extremely satisfactory results obtained by the dry treatment of chronic otorrhoea. In 1931 I[1] recorded that over 80% of cases of chronic otorrhoea in school-children responded promptly to the daily aural insufflation of a powder consisting of 1% iodine in boric acid. In some cases cauterization of the sessile granulations by 50% silver nitrate solution was undertaken. I also recorded[2] the view that before any case of chronic otorrhoea is referred for operation at least 12 weeks' continuous treatment with the powder should be completed. The powder is made by thoroughly mixing the iodine crystals with the boric acid powder in a mortar and storing in a glass-stoppered bottle. Since 1931 the aurists to the L.C.C. (who annually treat some 4,000 cases of chronic otorrhoea in school-children) have used this powder with similar satisfactory results. Mr. Scott Stevenson has expressed the opinion that I had underestimated the good results of the treatment of chronic otorrhoea with this powder. The insufflation iodidi cum acidi borici is the formula used by the L.C.C. Since 1931 the powder treatment of chronic otorrhoea has spread and is generally accepted.

Until all writers on chronic otorrhoea classify their cases it is impossible to draw any deduction from statistics of their results. Dr. A. G. Wells,[3] chief aurist to the L.C.C., has drawn up the following classification, which I consider an excellent one:

1. Tympanic or tubo-tympanic infection (66% of all cases in school-children fall into this group). This is associated with a central perforation, small or large, temporary or permanent. It is this type of case which, with due attention to the causal nasopharyngeal infection, responds 100% to the dry treatment; in many cases the use of plain boric acid powder suffices. This type of case rarely becomes complicated and rarely requires operation on the mastoid.
2. Tympanic infection with granulations (9% of all cases in children). Where the granulations are sessile, repeated cauterization with 50% silver nitrate solution and the use of iodine-boric powder will cure over 50% of cases. Where the granulations are exuberant, conservative treatment is useless and operation is indicated.
3. Attic disease (4% of cases in children). Should there be no response to powder treatment in 12 weeks operation is indicated.
4. Aural polypi } About 6% of all cases.
5. Cholesteatoma }

Both these types require operation forthwith. 50% of all intracranial complications of otorrhoea are associated with these lesions. If such cases are treated promptly by operation these complications do not occur.

The L.C.C. as a result of its thorough treatment of chronic otorrhoea in school-children over a period of years has literally wiped out the incidence of lateral sinus thrombosis, brain abscess, and meningitis arising from chronic otorrhoea. A personal experience of fifteen years as aurist to the L.C.C. and twenty years' hospital practice has revealed that all cases of intracranial complications associated with chronic otorrhoea have developed in patients in whom treatment has been neglected and no operation undertaken.

On the other hand chronic otorrhoea is also a preventable disease and is almost unknown in the well-to-do population. Wilfred Trotter stated that the tuberculous joint was a disease of the poor, and the same may be said of chronic otorrhoea. Prompt and active treatment of all cases of *acute* otorrhoea will prevent the development of *chronic* otorrhoea, and in attaining this end the use of conservative mastoid surgery should be exploited to the full, at an early stage of the causal acute infection.—I am, etc.,

London, W.1. N. ASHERSON.

REFERENCES

[1] Asherson, N., *Lancet*, 1931, **2**, 630.
[2] —— *Chronic Ear Discharge*, London, 1938.
[3] *Annual Report of the L.C.C.*, 1933.

Newer Concepts of Breast-feeding

SIR,—I entirely agree with the first half of the letter by Mr. Eric Coldrey (April 14, p. 530) on this subject, and I would like to add other causes and remedies which I have found in advising a large number of mothers during this war and in successfully breast-feeding two babies myself.

(*a*) Worry and lack of rest. These have unfortunately been big factors: anxiety about husbands; all the worry of seeing about the baby's rations, extra milk, cod-liver oil and orange-juice, etc., which have to be dealt with very soon after arriving home; so much of this seems unavoidable, but advice from the doctor to have one hour's sleep in the afternoon and sit with the legs up while sewing in the evening can have a marked effect.

(*b*) Very full painful breasts when the milk first comes in, and 7 to 14 days later insufficient milk. If fluids are restricted on the third day after delivery when milk is first coming in and subsequently increased according to the merits of each case, the breasts scarcely become painful at all; the baby is not choked by getting the milk too quickly, and there is not the risk of pressure atrophy on the milk glands from too full breasts. Some mothers can take fluid in large quantities again on the 4th and 5th days, but in others, and especially multiparae, restriction may be necessary up to the 10th to 14th day. (I found this necessary with my second baby.)

(*c*) Decrease in quantity of milk when the mother first gets up and at one month when she is trying to undertake more household duties. The feeds which are commonly affected are the 2 p.m. and 10 p.m. ones, and from experience I have found (despite Dr. Coldrey's remarks to the contrary) that a 2-oz. complementary feed following one or both of these feeds will very often tide the mother over these periods provided everything possible is done to encourage the mother's milk and she is told that this is a temporary measure only and will be unnecessary in one to two weeks' time. The great advantage of not having a hungry crying baby in the afternoon and during the night is that the mother gets much more rest and ease of mind, which are such big factors in promoting lactation.

One last point. I don't know whether Dr. Coldrey erroneously used the word "sick" visitor for "health" visitor, but the person he describes closely resembles what are known in this country as "health visitors," and I would like to point out that he has made very sweeping statements on the evidence of one bad specimen of this type of highly qualified nurse. In my experience in this country I have not met one health visitor who did not take the utmost trouble to encourage every mother to breast-feed her baby, and it is, in fact, in the essence of their teaching.—I am, etc.,

Dorking, Surrey. MARY C. JEFFRIES.

Women in Labour

SIR,—Dr. John Elam's letter (April 7, p. 495) draws attention to a matter which should, I feel, give reason for some heart-searching in the profession.

The necessarily dispassionate detachment with which the doctor makes his diagnosis and devises treatment is too often exaggerated into a completely, though not consciously, callous attitude to the distress and "humanity" of his patient. This is to be seen nowhere so regularly and so markedly as it is in the field of midwifery. It seems that those whose professional life is concerned with women in labour, through the presence of severe pain as a constant background to their work, unconsciously come to accept it as inevitable and to lose any sense of reaction against it.

While my ship was in an American port recently I was privileged to attend the course in continuous caudal analgesia at the Pennsylvania Lying-in Hospital, Philadelphia, conducted by the originators of this continuous method, Drs. R. A. Hingson and W. B. Edwards. Their results in the relief of pain in labour are dramatic and complete. The method, as they teach, has definite limitations and does somewhat alter the normal course of labour; it does call for increased time and skill from the obstetrician and anaesthetist. This would seem to be a worth-while price to pay for the relief of one of the severest, and certainly most frequent, pains with which Nature afflicts our race. If men and all women were called upon to bear it I have no doubt that this statement would meet with virtually unanimous agreement.

In May, 1944, Dr. Hingson could state that more than 30,000 births had been managed with this technique in more than half the countries of the world (*Amer. J. Obstet. Gynec.*, **47**, No. 5), and it can surely be pronounced past any merely "experimental" stage. In March, 1945, I can find one British hospital in which the technique has been attempted, and there courageously under considerable difficulties. I can find no other evidence of active interest elsewhere.

In reply to Dr. Elam's very understandable challenge in his closing sentence I would like to assure him that there are very many of us representing "youth," but whose fingers are being kept far from the "helm" by the exigencies of the three Services. We are trying to keep alive in ourselves, in frustrating circumstances and with a wholly nebulous future, that spirit of practical idealism so well exemplified by his letter.—I am, etc.,

T. B. FITZGERALD,
Surg.-Lieut.-Cmdr., R.N.V.R.

SIR,—I write in support of Dr. John Elam's (April 7, p. 495) and Dr. R. J. Minnitt's (April 28, p. 607) comments on gas-air analgesia. Publicity in the newspapers has impressed the midwives and their authorities with the necessity for relieving pain in labour, but their training in such methods as are available is often farcical. I agree with Dr. Minnitt that until there is a standardized curriculum for special instruction and a *central* examination instituted it is impossible for reasonable standards to be maintained, and the present methods of analgesia are merely brought into discredit.—I am, etc.,

London, W.1. K. G. LLOYD-WILLIAMS.

SIR,—The various viewpoints expressed on this subject in recent letters have been most interesting. When all is said and done, however, there are five factors which govern the present lamentable state of analgesia in labour: apathy, conservatism, prejudice, lack of apparatus or facilities, and lack of anaesthetists. Of these, the first three are by far the most important, as they govern—or rather misgovern—*policy*, and without a progressive policy nothing spectacular will ever be done about the last two.

With regard to apathy and conservatism, I well remember watching the face of a certain midwife during a Caesarean section under caudal analgesia. I was not then very conversant with the technique, and analgesia was not as perfect as I would have wished; consequently the patient suffered some mild discomfort during the latter stages of the operation. The attendant midwife wore an expression of considerable alarm, although an hour later she exhibited no concern whatever over the agony of a young and frightened primipara in labour. She was conditioned to perfect anaesthesia in the operating theatre and to imperfect analgesia—or none at all—in the labour ward, and was completely unaware of the inconsistency of her attitude.

Prejudice was once discussed by Lord Lister in the following manner:

> "When I was a little boy I used to imagine that prejudice was a thing peculiar to some individuals. But, alas! I have since learned that we are all under its influence, and that it is only a question of degree. But let us ever contend against it: and remembering that the glorious truth is always present let us strive patiently and humbly to discover it." (Graduation Address—1876.)

Were all of us concerned to search our hearts in the light of these words I feel sure that many more women in labour would have an easier time; and that newer methods of securing analgesia would come in for less ill-informed criticism.—I am, etc.,

Sutton, Surrey. A. H. GALLEY.

SIR,—"Mother and Doctor" (April 28, p. 608) hits the nail on the head when she says that the majority of people in attendance at a labour seem to imagine that the patient is "making a fuss."

Having quite recently "strafed" a midwife who, though she had four children of her own, criticized my giving analgesics in labour, I feel that some midwives take an almost sadistic joy in withholding sedatives from mothers in labour. Although I have made real efforts to have sedatives available in the labour ward for every midwifery case of mine, I find the nurse nearly always has a reason for not giving it. The usual answers are that it means doing an extra P.V. to see how far on the patient is or that "the mother is having good pains and coming on fine without it." As a mere male I cannot understand this callous attitude on the part of one woman to another which seems to develop as soon as a midwife enters an institution or maternity home.

Out on the "District" things are different: the nurse treats the mother as a real charge on her sympathies, and if she knows the doctor is anxious to relieve the pains of labour she very soon lets the doctor know that she is willing to co-operate, and will follow to the letter instructions given for administration of a sedative.

I do not mean to put *all* the blame for the lack of help in the relief of labour pains at the door of the nurse, but when in my own experience I have seen drugs withheld when they were actually freely available I feel the nurse's outlook on pain must be sadly warped. Why the difference in attitude between hospital and district nursing? I cannot imagine the reason.—I am, etc.,

Crewe. J. K. B. WADDINGTON.

SIR,—On what authority or evidence does your correspondent "Mother and Doctor" make the extraordinary allegation that nurses in charge of women in labour have "often neither the knowledge *nor the desire* to mitigate the suffering"? (my italics). Any lack of knowledge is not the fault but rather the misfortune of the nurse. To state that members of the nursing profession do not wish to save their patients all possible suffering is a slander which cannot be allowed to go unchallenged. Such unsupported statements recall Kipling's "Female of the Species": "Unprovoked and awful charges, even so the she-bear fights; speech that rips, corrodes, and poisons, even so the cobra bites."—I am, etc.,

Kirkconnel. BOWMAN EDGAR.

Detection of Nicotinic Acid Deficiency

SIR,—I read with great interest your annotation on this subject (April 21, p. 561). I feel compelled, however, to make a few comments on a number of minor errors, and particularly on the last sentence of your article.

The minor errors are: (*a*) It was not Coulson, Ellinger, and Holden[1] but Sarrett[2] and Huff and Perlzweig[3] who proved that most of the so-called trigonelline found by earlier methods is really nicotinamide methochloride. (*b*) Ellinger and Coulson[4] found that not only nicotinamide methochloride but also the genuine nicotinamide metabolite in urine is non-fluorescent. (*c*) Najjar, White, and Scott[5] did not "isolate F_2 in crystalline form," but obtained crystals from an F_2 concentrate, the analysis of the crystals yielding results not corresponding to the postulated formula. There is no evidence in favour but some against F_2 being a butyl ether of N-methyl nicotinamide-carbinol (Ellinger[6]). (*d*) Najjar[7] in his latest paper "proposed a test . . . based on the measurement of N-methyl nicotinamide chloride in the urine instead of the fluorimetric measurement of F_2." He uses this fluorimetric measurement, but compares the fluorescence intensity of F_2 with that of a fluorescent standard derived from nicotinamide methochloride instead of a quinine sulphate standard; this had already been done earlier by Huff and Perlzweig[8] and Coulson, Ellinger, and Holden.[1] (*e*) The minimum nicotinamide methochloride output in normal people after the intake of 100 mg. nicotinamide is considered by Najjar[7] to be "2.1 g."; 2.1 mg. is, of course, the correct value.

In the conclusion it was stated that "we still have no simple laboratory method for estimating the level of nicotinic acid nutrition in man." This conclusion is based: (*a*) on the observation of Ellinger and Coulson[4] that the extent of the elimination of nicotinamide methochloride depends on a number of factors other than the intake of nicotinic acid, such as exercise, food, the presence of methyl donators in the tissues, and the efficiency of the methylating mechanism of the body; and (*b*) on the failure of Sargent, Robinson, and Johnson[9] and Mickelsen[10] to find an increase in nicotinamide methochloride output after nicotinamide intake. The results of these last two papers disagree with all the findings of other investigators, most of which are not quoted in your annotation. Moreover, the findings of Sargent, Robinson, and Johnson are valueless, as they have been carried out with an obsolete method already abandoned by its author, Najjar. The values given by them for normal people are in the order of one-hundredth of those found with three different reliable methods by numerous other workers, and the estimation of the response to ingested nicotinamide was carried out on 1- or 3-hour samples 12 hours after the intake of nicotinamide, when at least 90% of it was eliminated. Mickelsen[10] and Mickelsen and Erickson[11] did not compare the response to different amounts of nicotinic acid in the same person, but in different persons, and tried too small amounts to give a discernible rise in nicotinamide output (Ellinger and Coulson[4]). Exercise and food intake can be controlled during the testing period. Lack of sufficient available methyl-donators and damage to the methylating mechanism as might be present in certain liver diseases (Ellinger and Benesch[12]) might reduce the specificity of the test to a certain degree; but both these facts can be ascertained.

No direct relation between nicotinamide intake—dietary or extradietary—and nicotinamide methochloride elimination can, however, be expected since an overwhelming proportion of the nicotinamide requirement of the human body is covered, not by the dietary intake but by the release of this substance by the intestinal flora (Ellinger, Coulson, and Benesch[13]; Ellinger, Benesch, and Kay[14]). The nicotinamide methochloride elimination in urine provides, however, a solid basis for the assessment of the level of the nicotinamide state of the human body. Three methods can be used: the estimation of the basic 24-hour output without extradietary intake of nicotinamide, the response to a single dose, or to 4 or 5 doses of nicotinamide on consecutive days. Investigations carried out by various workers using one or more of these methods (Huff and Perlzweig,[3] Ellinger and Coulson,[4] Ellinger, Coulson, and Benesch,[13] Ruffin, Cayer, and Perlzweig,[15] Coulson, Ellinger, and Smart,[16] Ellinger, Benesch, and Kay,[14] Ellinger, Benesch, and Hardwick,[17] and Hochberg, Melnick, and Oser[18]) provide values for the average basic nicotinamide methochloride output and for the responses to ingested nicotinamide in healthy man, which are in good agreement in spite of the great individual fluctuations of the nicotinamide methochloride elimination, and in spite of the fact that the nicotinamide methochloride assay in the urine was carried out by at least three entirely different methods. When cases with clinical symptoms of nicotinamide deficiency were examined[14 15 17] much (50 to 80%) lower values for both average basic output and response to ingested nicotinamide were observed.

This agreement and the great differences between healthy and deficient people prove the reliability of the method if all recommended precautions are taken.—I am, etc.,

P. ELLINGER.

Lister Institute of Preventive Medicine,
London, S.W.1.

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[4] *Nature*, 1943, 152, 383; *Biochem. J.*, 1943, 37, xvii.
[5] *Johns Hopk. Hosp. Bull.*, 1944, 74, 378.
[6] *Nature*, 1945, 155, 319.
[7] *Johns Hopk. Hosp. Bull.*, 1944, 74, 392.
[8] *J. biol. Chem.*, 1943, 150, 483.
[9] *J. clin. Invest.*, 1944, 23, 714.
[10] *Fed. Proc.*, 1944, 3, 61.
[11] *Proc. Soc. exp. Biol.*, N.Y., 1945, 58, 33.
[12] Unpublished observations, quoted from [6].
[13] *Nature*, 1944, 154, 270.
[14] *Lancet*, 1945, 1, 432.
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Infection from Dead Teeth

SIR,—I read the article on pulpless teeth by Prof. E. Sprawson and others (April 21, p. 551). I will not quarrel with what is written, but I would like to point out a few omissions.

1. The loss of the nerve supply of a tooth should render the tooth subject to trophic changes and more liable to infection and less able to fight back. This is true in syringomyelia and tabes. Why is it always neglected by writers on dead teeth?

2. The sterilization of root canal does not guarantee sterility of dentinal tubules. The authors by implication say that "if you can be sure of a sterile root canal carry on the vicious practice of filling dead teeth." And yet it is admitted that it s next to impossible to check the harm to general health done by these foci of infection. The *x* rays are useless, and duodenal or gastric ulcer or rheumatism or anaemias can always be seen by doctors. Dentists do the damage, and doctors have to do he salvaging. Incidentally doctors are now arguing openly hus: extraction of bad teeth does not cure, so why extract? orgetting that to cure a cut throat you have to do more than emove a razor!

I would like to ask the authors the following questions: (*a*) How many pulpless teeth have they examined after five years rom the date of filling the roots and how many were found terile? (*b*) What number of people with dead teeth have been examined completely—i.e., by test meals, *x* rays, blood counts, etc.—after ten years, and what is the standard of health in them as compared with similar class without dead teeth? Obviously a "follow-through" is most essential for the dental profession if it wishes to remain part of the healing profession; otherwise it is likely to become no more than a manicuring or plumbing "profession."

So far as I can make out the average dentist's standard is, "The patient is satisfied." With this as his motto no one can accuse him of aiming too high. In my view it would be a service to humanity if leaders like Prof. Sprawson condemned without qualification all root fillings.—I am, etc.,

K. MALIK.

London, N.5.

Hearing Aids

SIR,—The letter of Mr. O. C. Leadbitter (April 28, p. 210), president of the Hearing Aid Manufacturers Association, raises an issue of national importance. A good hearing aid to-day costs about £20 to £30, and it appears that we may not look forward to any considerable reduction. This will be a severe blow to the deafened and to those doctors and social workers who have devoted themselves to this problem.

Mr. Leadbitter speaks with undoubted authority, and I am happy to pay tribute to him and his fellow manufacturers. The development of the modern hearing aid is largely due to the enterprise of his association, and the deafened have much to be grateful for. It must be remembered, none the less, that business firms, however well-meaning, cannot run at a loss, and in view of the present impasse it behoves us to consider in what way their function may be supplemented. The cost of a hearing aid may be allocated as follows: (*a*) Components—primary cost of, (*b*) distribution, (*c*) research, (*d*) Government taxes, (*e*) profits.

(*a*) *The Components* in a three-valve hearing aid may be listed as follows: (i) container, (ii) batteries, (iii) telephone, (iv) microphone, (v) valves, (vi) transformer, (vii) potentiometer volume control, (viii) chokes and condensers for intervalve couplings. The circuit is simple and standard. Most of these components are manufactured by primary producing companies. It is, in fact, possible for a "hearing-aid" manufacturer to purvey an instrument without having himself produced a single component.

(*b*) *Distribution.*—This must be subdivided again into (i) advertisement, (ii) sales, (iii) maintenance. It is not easy to comment without prejudice on these features, but it is certainly to be deprecated that the cost of an instrument should in any way be enhanced by the sterile element of private advertising. A similar criticism applies to sales. Shop rentals, salaries, and commissions must all be paid for, and the private manufacturer has perforce to establish his centres at strategic points. In a few large towns unnecessary overlapping occurs, whilst large areas are left badly provided for. Maintenance is a heavy burden. Many patients have already written to you feelingly on this point.

(*c*) *Research.*—Much remains to be done in this direction, and the medical profession is admittedly partly to blame. The technical problems are clearly recognized. Components must be reduced to minimum size compatible with efficiency and consistency. Modern service equipment already incorporates many such improved units which should be made available without further delay. Adequate co-ordination between clinician and physicist is unfortunately still lacking. Much remains to be done in the correlation of patient and instrument.

(*d*) *Government Taxes.*—It would be interesting to know how much these amount to, and it is difficult to believe that enlightened public opinion will tolerate their continued imposition. It should surely not be impossible to abolish purchase and similar taxes in such a deserving cause.

(*e*) *Profits.*—The above analysis contains many implied criticisms of a destructive nature, and it may well be asked what constructive proposals are available. It behoves us to await the authoritative findings of the four committees to which Mr. Leadbitter has already referred, but as these are not yet available the following expression of a purely individual opinion is perhaps permissible.

(1) I believe that the hearing-aid manufacturer would welcome the opportunity of producing a first-class instrument at a reasonable price if he could be relieved of the responsibility of distributing it.

(2) Advertisement—in so far as it is at all necessary—should be in the hands of the National Institute for the Deaf and related bodies.

(3) Distribution should be undertaken by regional hearing-aid centres. These are urgently needed and should be opened in every large town. The late Dr. Tookey Kerridge did much pioneer work in this direction, and the achievements of Drs. Ewing and Littler in Manchester cannot be too highly praised. Individual efforts, however, cannot cope with this nation-wide problem. Many more

clinics must be established. Every deafened individual should be able to make contact with such a clinic. Provision should be made not only for testing but also for supplying and maintaining the most suitable instrument.

Standardization is essential, and this brings us to the question of research. I do not wish to digress into technical details, but I am firmly of the opinion that no more than two, or at most three, different models of valve instrument are justifiable. Competitive private production unfortunately results in multiplicity of instruments which merely differ in inessentials, such as plugs, shape of box, and so on. Further research is essential, and in this the otologist must collaborate with the physicist. It is imperative to produce adequate testing instruments. The pure-tone audiometer is valuable but inadequate. We urgently need standardized intelligibility tests. The physicist must design and produce his models with accurate specification of performance, and the otologist must support him in assessing the value of each model in different types of deafness. In this way it should be possible to produce standardized instruments at less than half the present cost. Blue-prints could be circularized widely so that simple replacements and running repairs could be done by any radio shop, while the original sale would be made on the basis of adequate intelligibility tests in the regional centre.

Such a scheme is undoubtedly a counsel of perfection. The difficulties are many and obvious, but it is clear that the good will of all parties is not lacking, and under the authoritative guidance of the present official bodies we may look forward to an adequate solution of this grave problem.—I am, etc.,

Liverpool. A Tumarkin.

Prolonged Use of Minimal Doses of Sulphonamides

Sir,—It is rightly recommended in acute infections that where sulphonamide chemotherapy is used it should be administered in full doses, and that the blood concentration should be kept at an efficient bacteriostatic level for the duration of the course, which is limited usually to 7 or 8 days. The question of the use of sulphonamide drugs in chronic or subacute conditions has received little attention in the published literature, and the following observations may not be without interest.

Helmholz in the *Proceedings of the Special Meeting of the Mayo Clinic* (1941, **16**, 145) reported the use of small doses of sulphathiazole in the treatment of a case of chronic urinary tract infection. He found that quite low concentrations (4 to 5 mg. per 100 c.cm.) of sulphathiazole in the urine were sufficient to keep the infection under control, and this was given without any ill effect for a period of 7 weeks up to the time of writing. This concentration was obtained by administering less than 0.4 g. of sulphathiazole by mouth per day. There are records of other cases where an even smaller dosage has been effective and has been given without untoward reaction for very much longer periods of time. Although brief mention is made of it in the M.R.C. pamphlet No. 10, entitled "The Medical Use of Sulphonamides," on page 21, it is evident that this method of dealing with chronic and subacute urinary infection is not well known, and one feels that it is worthy of emphasis.

Among other conditions of urinary infection where the method might be employed with effect are certain cases of pyelitis of pregnancy; as a rule early dosage of sulphathiazole (about 4 g.) per day for four days will clear up the condition, but in a certain number of cases this is followed by relapse and the course has to be repeated sometimes as many as three or four times. It is suggested that in cases where a relapse has occurred the treatment should be recommended with a dose of about 2 g. sulphathiazole per day for two to three days, and this gradually reduced to as small a dose as will keep the infection under control and the urine free from pus. This dosage, which may be as low as 1/2 g. every day, may be continued for 4 to 8 weeks until about the 30th week of pregnancy, when the condition tends to resolve naturally. In the case quoted sulphathiazole was used, although it would appear that sulphadiazine would be equally, if not more, effective in view of its slower rate of excretion.

It will thus be seen that the quantity of drug administered is certainly not more than 3½ g. per week, and therefore the amount given in four weeks is less than that given in the normal course (16 g. in 4 days). The adoption of this technique has, one feels, much to support it and would appear to offer a useful means of overcoming the associated toxaemia, anaemia, discomfort, and, in many cases, the inconvenience of a stay in hospital.

Three objections may be cited against the method, the most important being the possibility of producing drug sensitivity. It is inevitable that a small number of cases will be so affected, but the incidence is likely to be less than 5% judging by the published figures. In any case sensitization, if it is going to occur, is most likely to do so on or about the 8th day of administration, and by the continued exhibition of small doses (Tate and Klorfajn, *Lancet*, 1944, **2**, 553) the patient may be desensitized.

The second objection is the possibility of blood dyscrasia, but this is extremely unlikely and can be guarded against by regular medical supervision. The third objection, theoretically possible but extremely improbable, is harmful effect of the drug on the foetus. There has been no literature published to suggest, however, that even where prolonged and vigorous courses of sulphonamide chemotherapy have been given during pregnancy there is any untoward effect on the foetus. In the dosage described the amount of sulphathiazole entering the foetal circulation must be so small that the possibility of damage can be discounted.

Pyelitis of pregnancy is only cited as one example of where small and long-continued doses of sulphathiazole may be usefully employed for what virtually is a temporary chronic urinary bacilluria. Patients with indwelling catheters come into the same category, and there are private reports of the value of this method in patients with prolonged urinary infection where no underlying pathological condition can be found. In these cases or where surgical interference is not possible, prolonged use of small doses of sulphathiazole has proved effective. A dosage of the same order can make old age much more tolerable for the unfortunate victim of prostatic hypertrophy, nocturnal frequency being markedly reduced.

I am informed that dermatitis herpetiformis is an example where the same therapy has proved of value, although it seems possible that penicillin may be more effective in the latter condition.—I am, etc.,

Medical Department, May & Baker, Ltd. R. J. Eadie.

Sulphonamides and Measles

Sir,—I was very interested in Dr. Frankland West's letter on the above (April 21, p. 567). During the recent epidemic of measles I used sulphathiazole as a routine in about 70 cases, of which only two developed pneumonia. (These, however, made a rapid recovery.) The dosage for children of 1 to 6 years was 1/4 tablet four-hourly.

My observations have not shown that the present epidemic has been any less severe than any of the epidemics during the last ten years.—I am, etc.,

London, N.W.10. L. Sheldon.

Nurses and Tuberculosis

Sir,—You recently afforded me the courtesy of your *Journal* (March 24, p. 424) for a letter on this subject. The General Nursing Council for England and Wales, of which I am an elected member, has to-day (April 27) made it a requirement of hospitals approved as training schools for nurses that their student nurses shall be medically examined, including *x*-ray examination of the chest, either shortly before or on entry to training, the *x*-ray examination to be repeated at intervals of not more than 12 months. The Council also recommended the adoption in all training schools of the Memorandum on the Supervision of Nurses' Health issued by King Edward's Fund for London.

An important milestone in safeguarding nurses' health and improving living conditions has thus been passed. These measures will help, but nothing short of an entirely new approach to the training of nurses will effectively stem the 60% leakage, which is the cause of the shortage of nurses. Over 20,000 entrants have to be recruited each year in order to provide the average of 7,000 nurses who become State-registered annually and qualified to practise nursing.—I am, etc.,

London, W.2. Evelyn C. Pearce.

Shall We Nationalize Medicine?

SIR,—Dr. Charles Franklyn's letter (April 21, p. 570) implies there are only two alternatives from which to choose, "Shall we nationalize medicine?" or "Shall we commercialize medicine?" He seems to have been unfortunate since leaving the same hospital as myself—St. Thomas's. He draws a picture of practice to-day as being a sheer commercial "ramp." This, I am convinced, is incorrect. The vast majority of medical men are honest, hard-working, and friendly to each other. The average practitioner spends most of his professional life in one place, and does not build his reputation upon the sands of sharp practice.

After a period of Service medicine in the last war, house appointments subsequently, and general practice in this town since, I state emphatically that I have experienced the same friendly spirit in all three, and that whatever competition exists is co-operative and not "cut-throat." We all want to try to find the best way of bringing the best help to the greatest number, but ordinary practitioners like myself begin to have grave and serious doubts when zealous planners of Dr. Franklyn's type start bleating about "an assured position and an allotted task." Allotted by whom?—I am, etc.,

Bournemouth. E. D. GRANGER.

Obituary

GARNETT WRIGHT, M.B., F.R.C.S.

We regret to anounce that Mr. Garnett Wright died on April 29 at the Salford Royal Hospital, to which he was for many years honorary surgeon. He joined the B.M.A. in 1907 and held office as vice-president of the Section of Surgery at the Manchester Annual Meeting in 1929.

He received his medical education at Edinburgh University, and after winning prizes and medals during his student career graduated M.B., Ch.B. with honours in 1900. He then came south and for six years held resident surgical posts at Weston-super-Mare, Wolverhampton, and Stafford, at Ancoats Hospital, Manchester, and finally at the Leicester Royal Infirmary. He then settled in Manchester in consulting practice as honorary surgeon to Ancoats Hospital. At a later date he transferred his work to a greater sphere of experience at the Salford Royal Hospital. While working in house appointments he obtained the F.R.C.S. diploma in 1905. No surgeon from other schools than Manchester who settled in that city won such success in professional life. Of quiet, unassuming nature, he met with friendship from the physicians and surgeons and gained the good opinion and confidence of new graduates by his teaching power, sound judgment, proved surgical skill, and attractive personality and presence. He took part in the scientific discussions held in Manchester, and was in turn president of the Pathological Society and the Medical Society; as a committeeman and president he exercised unusual influence for good in their welfare and success. He was honorary surgeon to the Royal Deaf Schools at Old Trafford, where his work was greatly appreciated, and consulting surgeon to the Eccles and Patricroft Hospital.

Garnett Wright was particularly interested in abdominal surgery, writing several papers on gastro-jejunal and allied subjects in the medical and surgical journals. He was very successful in his operations on the thyroid gland and took this subject, with a review of it, for his presidential address to the Manchester Medical Society in 1936. At the Victoria University of Manchester he held appointments at different times as lecturer in surgical pathology and operative surgery and as assistant lecturer in the whole subject. He was a Fellow of the Association of Surgeons of Great Britain, and in 1935 was responsible for publishing the report of its collective inquiry into gastro-jejunal ulceration.

On March 19 news was received in Preston that Lieut.-Col. **WILLIAM SIMPSON** had died in a yachting accident in Jamaica. A colleague writes: Recalling his intense and tireless energy, his sudden death came as a severe shock to all the medical men in the Preston district. He came to Preston in 1938 as the first obstetric consultant to the new maternity hospital of the Preston Royal Infirmary, and the great success of this modern, well-equipped hospital was in large measure due to his skill, his energy, and his personality. His work at the hospital, in neighbouring hospitals, in the clinics of the Lancashire County Council and the Preston Corporation, satisfied the most captious critic. Tall and powerfully built, he gave doctors and patients alike that feeling of confidence which is the hall mark of the perfect consultant. In spite of successive nights spent in dealing with emergency cases, he appeared full of energy and vitality. He was always ready to help the practitioner in his obstetric difficulties, and his practice of midwifery was a pleasure to see. Before coming to Preston he had held appointments in Glasgow, London, and Barnsley. In the last-named town he had been associated with Dr. F. A. Sharpe, the late M.O.H. of Preston, who predeceased him but a few weeks. A graduate of Glasgow in 1923, he proceeded to the M.D. in 1927, and obtained the D.R.C.O.G. in 1936. He was interested in the Territorial Army, and at the beginning of the war held the rank of major. He left Preston in the latter part of 1940 to take up his duties in the R.A.M.C., and at the time of his death he was the A.D.M.S. in the Bermudas. He died in his early forties. His friends will cherish his memory and mourn the passing of one whom they could ill afford to lose: in life respected, in death regretted, by all whom he had served so well.

We regret to announce the death of Dr. **HORATIO NELSON BARON** on March 25, at the age of 86, at Orford, Suffolk, where he had been in practice for 45 years. Born at Hungerford, Berkshire, he was educated at Blue Coat School and Queen's College, Oxford, and at King's College Hospital, qualifying M.R.C.S., L.R.C.P. in 1888. After serving for a time as a ship surgeon he settled in practice at Pailton, near Rugby, and went to Orford in 1900. He joined the B.M.A. in 1890, and was chairman of the former South Suffolk Division in 1926–7. Other appointments held by him were: vice-chairman of the East Suffolk Insurance Committee and chairman of the East Suffolk Panel Committee. He was a member of the East Suffolk County Council. Dr. Baron was a man devoted to his profession and much loved by a wide circle of patients, colleagues, and friends. He had the vitality of a man much younger than the years he carried so easily on his equable shoulders, and to the very end of a long professional life he kept up a keen intellectual interest in medical science. He was always proud of his family connexion with Lord Nelson, after whom he was named. He leaves a widow, two sons, and three daughters.

Dr. **HORACE LANCE FLINT**, of Mansfield, Notts, died suddenly on March 27 while staying at Scarborough. He was born in that town 63 years ago, where his father was in practice. Before taking up medicine he served as an apprentice engineer. After graduating at Leeds with honours in 1909 and doing several hospital appointments he joined a leading practice in Mansfield. He served his country from 1915 to 1918 in Egypt and France. He returned wounded, and later had the opportunity of working under Sir Thomas Lewis, gaining much experience in cardiology, holding an appointment later in the heart centre at the General Infirmary at Leeds. He obtained his M.D. and published a book entitled *The Heart—Old and New Views*, in the preparation of which he received much encouragement from Sir William Osler. On returning to practice in 1919 he was the first physician in Nottinghamshire to own an electrocardiograph, and was frequently called in in consultation in the county. Considerable interest was aroused in the town when a hunter owned by one of the Royal Family arrived at his house to be electrocardiographed (the first time this had been done on a horse); it was found to be suffering from complete heart-block and had to be destroyed. Dr. Flint served for many years as physician on the staff of the Mansfield General Hospital. In 1937 he had an attack of coronary thrombosis; after many weeks' rest he resumed his full professional duties, but was obliged to forgo activities in recreation which he loved so well. The war years with the extra burdens they imposed increased the frequency of his attacks of angina. Last June he was obliged to give up work which was his life's interest, and had scarcely resigned himself to a life of inaction when he had his fatal attack. Dr. Flint combined the happiest qualities of the family doctor with a special knowledge of a particular branch of medicine, one of the best methods of ensuring a broad outlook on a specialty, and in the changes overtaking medical service, an example which, it is hoped, will often be followed. He leaves a wife, a married daughter, and two sons, one of whom is qualified in medicine.

Dr. **WILLIAM B. MARTIN** died at Old Colwyn, North Wales, on Easter Sunday, 1945. He was born at Cork, Ireland, on Oct. 21, 1882, being the eldest son of the late Lieut.-Col. John Martin, R.A.M.C. He received his medical education at Owen's College, Manchester, obtaining the English conjoint qualification in 1907 and the D.P.H. about a year later. After some time in private practice he contracted phthisis in 1912, from which he made a good recovery at Nordrach-on-Mendip Sanatorium, remaining there as assistant for about a year. After holding appointments at other sanatoria he became district tuberculosis officer to the Kent County Council in 1918, which post he held until 1937, when he had to resign owing to ill-health. He published several papers on tuberculosis, and, in spite of ill-health, retained his interest in this subject until the end. The numerous letters received testify to the esteem and affection felt towards him by his patients and those with whom he worked. He was a member of the B.M.A. since 1911.

Dr. **Thomas Marlin**, of Portland Place, London, who died at Bushey Heath, Herts, on April 5, was the son of David Marlin, of Butterburn Park, Hamilton. He studied medicine at the University of Glasgow, at University College Hospital, and at St. Bartholomew's Hospital, and graduated M.B., Ch.B.Glas. in 1909. He proceeded M.D. (with commendation) in 1912, obtained the D.P.H. in 1915 and the D.M.R.E.Camb. in 1920. His early appointments were those of house-surgeon at the Miller General Hospital and house-physician at the City of London Hospital for Diseases of the Chest. Later he was for a time medical officer in charge of the massage, electro-therapeutic, and light department at University College Hospital. He served during the last war as officer in charge of the massage department of No. 5 Orthopaedic Convalescent Camp, Salonika, and of the Special Military Surgical Hospital at Edmonton. In recent years Dr. Marlin had been physician in charge of the department for manipulative treatment and physiotherapy at the Hampstead General Hospital and was also honorary medical officer to the British Boxing Board of Control. He published in these columns a paper on "Some Common Complaints amenable to Spinal Treatment," and wrote a book in 1934, *Manipulative Treatment for the Medical Practitioner*. He joined the B.M.A. in 1915 and held office as vice-president of the Section of Radiology and Physiotherapeutics at the Annual Meeting at Cardiff in 1928.

Dr. **George Mackie**, of Wellington, Shropshire, died on April 10 at the age of 75. His father was a doctor in Inch. He was educated at Aberdeen University, and had been in practice at Wellington for nearly half a century, retiring only last year on account of failing health. He was a very popular figure in B.M.A. circles, both local and central, having been Representative of the Shropshire and Mid-Wales Branch 1919–34, again in 1936–9, and finally in 1941. He was a member of the Rural Practitioners' Subcommittee, 1925–30. At the Annual Meetings of the Association he was a regular and welcome figure, and will be remembered as one of the most joyous participants in the visit which the Association made to Canada in 1930 and on the world tour in 1935. He had been president of his Branch and was for many years chairman of the Shropshire Panel Committee. Mackie took an active part in everything which affected the interests of Wellington. It was largely owing to his efforts that the local cottage hospital came into being; he was very active on the St. John Ambulance Brigade; in the last war he was mobilized in the Territorial Force as a major, having been associated with the Volunteer movement from his earliest days in Shropshire. He was greatly interested in music and was president of the Wellington Orchestral and Operatic Society. In short, Mackie was a fine example of the good general practitioner who threw himself into every movement likely to advance the interests of his adopted home. A local colleague writes, "He was a man with a kindly heart, always ready to help and to look with compassion on the failings of another, but, above all, always able to smooth a difficulty with that rare gift he possessed in such abundance—a keen sense of humour." This appreciation will be shared by all who knew him, and their sympathy will go out to his wife.—A. C.

The medical profession, particularly in West Derbyshire, has lost a distinguished member in the person of Dr. **Walter Phillips**, of Matlock, who died suddenly on April 19. Born in Damascus in 1878, the son of the Rev. John Phillips, of the Irish Presbyterian Mission there, it was natural that these early influences should have a profound bearing on his later career. On the return of his parents to Belfast he entered the Royal Academical Institution there and later Trent College. Thence he passed on to Queen's College, Belfast, and graduated B.A. in 1898. His medical training was taken at Queen's and at the Middlesex and London Hospitals. He qualified M.B., Ch.B., B.A.O. in 1902, and immediately joined the B.M.A. After house appointments at the Belfast Royal Victoria and London Hospitals he followed in his father's footsteps to become a medical missionary of the same Church, and so began an arduous and distinguished career in China. His period of service there was interrupted only by a visit to England in 1912 to take his F.R.C.S., and on his return to the East he became surgeon to the General Hospital at Newchang and also port medical officer. His steady conscientious work did not pass unnoticed, and for his services during various plague epidemics he was honoured by the Chinese Government. On the outbreak of the Japanese "incident" in North China he returned home and carried on a busy general practice. He is survived by his wife, a son, and a daughter, the son being in the I.M.S. and the daughter in the W.A.A.F. W. H. M. writes: Very shy and reserved, it was not easy for one to get to know him, but once one had penetrated this barrier one found a true friend. His knowledge of medicine was not circumscribed, and he kept abreast of modern developments. Dr. Phillips found little time to contribute to medical journals, but he had literary talents of no mean order, and he wrote several short stories and novels which were much enjoyed by a small circle of friends but which his innate reserve would not allow to be published. He made an excellent conversationalist, and his wide travelling abroad made him an excellent linguist. Apart from his literary efforts, his hobbies were carpentry and the serious study of Nature on the quiet lonely moors near his home.

Dr. **James Whitelaw Alexander**, who died on April 24, was born in Glasgow in 1863, the son of Dr. Thomas Alexander. Educated at Glasgow University and Anderson College, he qualified L.R.C.P.&S. in 1886. He went to sea as surgeon in the British and Burmese Steam Navigation Co., which he eventually left to go to the West Riding Mental Hospital, Wakefield. Later he was at Rainhill Mental Hospital, where he became assistant medical officer. He took his M.R.C.P.Ed. in 1894. Then he settled in Armley, Leeds, as assistant to Dr. Coleman, whom he succeeded in practice. While in general practice he took the M.D.Durham. For many years he held the appointment as medical officer to St. Mary's Infirmary in Armley. He later gave up the practice but continued as medical officer to St. Mary's until he finally retired in 1933 and went to live in Scarborough, where he died. Running parallel with his busy life, he made the Army his hobby, starting in the early Volunteer days up to the formation of the Leeds Rifles of the West Yorkshire Regt. (T.A.). He held the Territorial Decoration. He trained and went to France with the 8th Battalion Leeds Rifles, which he commanded until being invalided home in 1917. He was awarded the D.S.O. and was twice mentioned in dispatches. Later he was transferred to the R.A.M.C. and posted Administrator to the Sunderland War Hospital, which appointment he held until the end of hostilities. He was retired with the rank of brevet colonel. He returned to Leeds and rebuilt the remains of the practice in Armley. Dr. Alexander was a great reader and was the proud owner of a very fine library, every book of which he had read, and from many of which he could quote with almost uncanny accuracy. He was buried in Scarborough with military honours. He leaves a widow and one son, Dr. Neil W. Alexander. A correspondent writes: He never wasted a minute in a very busy life as a doctor and soldier, and he was loved by all those whom he served in practice and by all those who served him in the Army. I think he had only two enemies—the Hun and the patient at Rainhill Mental Hospital who felled him with a crowbar when off his guard. I only regret he never lived to see the final defeat of his first enemy. He was a great clinician and a fine soldier.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a Congregation held on April 27 the following medical degrees were conferred by proxy:

M.B., B.CHIR.—P. B. S. Cooper, J. J. Fleminger, R. J. Harrison, M. B. McIlroy

UNIVERSITY OF EDINBURGH

At a graduation ceremony, to be held on June 22, the Hon. LL.D., will be conferred on Lieut.-Gen. Sir Alexander Hood, K.C.B., C.B.E., F.R.C.P., Director-General, Army Medical Services; also on Prof. Frédéric Joliot and Madame Irène Joliot-Curie, joint Nobel prize-winners, for their work on the induced radio-activity of common elements.

UNIVERSITY OF DUBLIN

The fourteenth John Mallet Purser Lecture will be delivered by Prof. B. A. McSwiney, Sc.D., M.B., F.R.S., dean and professor of physiology, St. Thomas's Hospital Medical School, in the physiology theatre of the School of Physic, Trinity College, on Wednesday, May 16, at 4.30 p.m. The subject is "Visceral Sensation."

The Services

Major-Gen. O. Ievers, C.B., D.S.O., retired pay, has been appointed Colonel Commandant of the R.A.M.C., in succession to Major-Gen. W. H. S. Nickerson, V.C., C.B., C.M.G., retired pay, who has attained the age limit for the appointment.

Surg. Lieut.-Cmdr. J. E. Hughes and Surg. Lieuts. J. H. Begg and G. L. Grove, R.A.N.R., have been mentioned in dispatches for gallantry, skill, and devotion to duty while serving in certain of H.M. Australian ships in the successful assault operations on the Lingayen Gulf, Luzon Island.

Capt. J. D. Fisher, R.A.M.C., has been awarded the M.C. in recognition of gallant and distinguished services in North-West Europe.

Liberated.—Major W. R. Henderson and Capt. P. E. R. Tattersall, R.A.M.C.

Repatriated.—Surg. Cmdr. W. Greaves, R.N.

CASUALTIES IN THE MEDICAL SERVICES

Killed in action at sea.—Capt. James Arthur Perkins, R.A.M.C.

Missing, presumed killed.—Temp. Surg. Lieut. Alexander Grahame Moray Wilson, R.N.V.R.

Wounded.—War Subs. Capts. P. Delap, K. G. Green, and C. W. Mearns, R.A.M.C.

Wounded or injured.—Temp. Surg. Lieut. G. Smith, R.N.V.R.

Fl. Lieut. **Sydney Wetherell**, who was killed by enemy action on April 8, was born in October, 1911. He studied medicine at Guy's Hospital and qualified L.M.S.S.A. After holding appointments as assistant in general practice he was commissioned as flying officer in the Medical Branch of the R.A.F.V.R. on Dec. 5, 1941. At the date of his death he was medical officer to a Royal Air Force squadron over-seas.

Squad. Ldr. **George Forbes Rees-Jones**, R.A.F.V.R., died on April 18, when serving as radiologist at a Royal Air Force general hospital over-seas. He was born in 1908, studied medicine at Glasgow University and University College Hospital, London, and qualified M.R.C.S., L.R.C.P. in 1931. Before being embodied for war service he obtained the D.M.R.E.

DEATHS IN THE SERVICES

Major-Gen. Sir **Charles MacWatt**, C.I.E., I.M.S.(ret.), died after a very short illness on April 14 at the age of 80. He had a long and distinguished career culminating in his appointment to be Director-General of the Indian Medical Service from 1922 to 1926. He received his medical education at Edinburgh University, where he graduated M.B., C.M. in 1886 and in 1897 passed the B.Sc. in Public Health. In 1911 he obtained the F.R.C.S.Eng. and in 1925 was elected F.R.C.P.Ed. He entered the I.M.S. in 1887 and saw much service on the frontiers of India at Hazara in 1888, Lushai 1889, and in the second Miranzai and Hazara expeditions in 1891, and received the Frontier medal with clasps. He rose steadily and reached the administrative grade as Inspector-General of Civil Hospitals in 1918, having already received the C.I.E. in 1916, and he had also been awarded the Kaisar-i-Hind Medal, first class. His sound administrative work in the Punjab led to his selection as head of the I.M.S. in 1922 with the rank of major-general, and in 1925 he was knighted, having also been appointed Honorary Surgeon to His Majesty King George V. On his retirement in 1926 Sir Charles MacWatt continued to live in India for some years and was adviser on medical and sanitary matters to his friend the late General Sir Ganga Singh, Maharaja of the Bikanir State. His high medical qualifications and sound careful administrative abilities were the foundation of his highly successful career. By his first wife, Blanche Mathilde, daughter of the late Lieut.-Gen. S. F. Blyth, C.B., he had two sons; he married again last year. He was a member of the British Medical Association for 47 years, and in 1891 contributed a paper to the *British Medical Journal* on gunshot wounds of lungs.

Major-Gen. **Henry Charles Rupert Hime**, late A.M.S., died on April 24. He was born on Nov. 8, 1877, son of T. W. Hime, M.D., and studied medicine at Leeds, graduating M.B., Ch.B. of Victoria University, with honours, in 1899, and taking the D.P.H. in 1908. He served as an officer of the R.A.M.C. in the South African War 1899–1902 and again in the war of 1914–18. He received the D.S.O. in 1917 and was created C.B. in 1934 when he retired from the A.M.S.; he was also awarded the Belgian Croix de Guerre for his services in the last war. Joining the B.M.A. in 1902 he held office as president of the Egyptian Branch in 1928–9. General Hime was Honorary Physician to the King in 1932–4. After retirement he lived at Bemerton, near Salisbury.

Medical Notes in Parliament

National Health Service Negotiations

In the House of Commons on April 19 Mr. **Lipson** asked the Minister of Health if he would issue a White Paper on the new proposals for a national health service which he had put before the British Medical Association and which they had circulated to their members, so that members of the House and the public might also have an opportunity to consider the Government's revised scheme. Mr. **Willink** said he had made it clear that there was as yet neither any revised scheme put forward by the Government on this subject nor any proposals of which publication in a White Paper or otherwise would be appropriate. Mr. **Lipson** asked if the Minister did not agree that he had informed the B.M.A. that if these new proposals were acceptable to their members he was prepared to recommend their acceptance by the Government, and was he treating the House fairly when the B.M.A. had circulated these proposals not only to their 70,000 members but to the public. Mr. **Willink** replied that he had made his position clear in the answers given the previous week.

Mr. **Aneurin Bevan** asked when the Minister proposed to tell the House what were the proposals he had discussed with the B.M.A. Mr. **Willink** said there were as yet no proposals.

Dr. **Summerskill** said Mr. Willink knew he had put these proposals to the profession and had undertaken, if they commended them, to sponsor them to the Cabinet. Mr. **Willink** answered that if Dr. Summerskill desired to challenge every statement he had made he could not deal with the matter further.

Lady **Astor**: Is it not true that this body is a trade union, like any other?

Sir **Waldron Smithers** asked the Minister whether, in view of the divergence of opinion about the proposals in the health White Paper and in view of the fact that many doctors, nurses, and patients were on active service, he would postpone the introduction of the Bill based on the health White Paper until after the General Election. Mr. **Willink** replied that he was not prepared to give any undertaking to that effect.

Mr. **McNeil**: Are we to understand, from the answer, that the Minister intends to introduce a Bill based on the White Paper before the General Election?

Dr. **Edith Summerskill**: The original White Paper?

Mr. **Willink**: I cannot say the date, and I cannot say what the eventual form of the Government's proposals will be.

Penicillin Supplies

On April 19 Col. **Lyons** asked to what extent penicillin was now procurable at the direction of a medical practitioner, and what facilities existed for its immediate availability when prescribed. Mr. **Willink** replied that the scheme for the wider distribution of penicillin was in operation. Supplies of penicillin had been issued through the distributing centres to nearly all the larger hospitals in the country and could be obtained, on request, by any hospital which had a suitable case. Supplies did not yet permit of the unrestricted distribution of penicillin through chemists and the usual trade channels. A practitioner who requires penicillin for a patient must therefore obtain it from a hospital and not through the issue of a prescription to the patient.

Research into Pneumoconiosis

On April 24 Mr. J. **Griffiths** asked the Minister of Fuel and Power if he had any statement to make about the efforts to combat pneumoconiosis among coal-miners. Major **Lloyd George** said that, following the report of the advisory committee on pneumoconiosis, arrangements had been made between his Ministry and the Medical Research Council for further investigations into the cause, prevention, and treatment of pneumoconiosis. The Council, in conjunction with his Ministry, had undertaken to establish and maintain a research centre in South Wales, and had appointed Dr. C. M. Fletcher to direct the work. He would take up his duties on June 1 next, and it was hoped to provide a small number of beds at a selected hospital. Additional physical and chemical investigations and reports would be made by inspectors of mines and other members of the Ministry staff. A joint committee of the Ministry and the Council had been appointed to assist in the development and co-ordination of the whole scheme of research.

Figures were not available of the number of workers lost to the industry by reason of silicosis and pneumoconiosis. He was informed that the number of new cases of silicosis and pneumoconiosis certified by the Silicosis Medical Board for total disablement and suspension from the industry on account of these diseases between Jan. 1, 1939, and March 31, 1945, was 6,483, and that during that period 647 death certificates were also issued by the Board. These figures included a relatively small number of surface workers certified under the Coal-mining Industry (Pneumoconiosis) Scheme, 1943.

Food Supply for Norway

Answering Mr. Harvey on April 20 Mr. G. HALL said the food situation in Norway was serious, though not catastrophic. It was not nearly so bad as in Holland or as it was in Greece just before the liberation. There appeared to be no widespread starvation among Norwegian children. Much of the relief provided by Sweden had been earmarked for children. Supplies of foodstuffs were being sent forward from Sweden as well as drugs and surgical instruments. Very considerable quantities of medical supplies were also being sent by the American Red Cross. Supplies from Sweden to Norway were not generally sent under the auspices of the International Red Cross, but to a body in Oslo called the Swedish Donors' Representatives, who distributed them through various charitable organizations, schools, and children's institutions. A delegate of the International Red Cross reported that the arrangements made by the body in Oslo ensured a wise and judicious use of the relief supplies.

Wheat Germ for "Medicinal Purposes"

On April 24 Sir E. GRAHAM-LITTLE asked the Minister of Health on what principle his Department advised allocation of wheat germ for the production of certain patent foods and medicines by a few favoured firms; what was the source of the wheat germ thus used; and what proportion that allocation bore to the available supply of wheat germ in this country. Mr. WILLINK said that the principle on which his Department advised was that any preparation for which wheat germ was allocated should be of such a composition that it was of value for medicinal purposes, and that it should be made available for such purposes.

The National Flour

On April 25 Mr. STOKES asked the Minister of Food on what date the standing committee on medical and nutritional problems made its recommendation with regard to the reduction of the extraction rate of wheat from 85 to 80%; and on what date the advice of the committee was specifically sought on this question.

Mr. TOM WILLIAMS: I understand that the committee was asked for advice on May 8, 1944, and that it submitted its report on July 27, 1944.

National Dental Service

Sir E. GRAHAM-LITTLE asked on April 26 whether Mr. Willink was aware that a statement of his proposals regarding a national dental service, promised by April 14, had not been circulated to the profession.

Mr. WILLINK said he understood that the profession's representatives began a few days ago the circulation of a report to those whom they represented of various matters which they had discussed with him. He wished, if possible, to know the profession's views on these matters before the Government considered what proposals they would make to the House on dentistry in the new service. He would keep in touch with the profession as to the best means of achieving this.

Medical Board for Pneumoconiosis

Dr. SUMMERSKILL reported on April 26 that a large number of workers suffering from pneumoconiosis awaited examination. She asked what action was being taken to expedite this. Mr. PEAT answered that Sir William Jowitt, in company with Major Lloyd George, had discussed this matter with the miners' representatives. With the assistance of the Minister of Health it had been possible to obtain the services of a few more doctors on the medical boards. Other special arrangements had been made with a view to expediting the examination of the applicants. The primary need was to get additional doctors with the necessary experience for this work. This was a matter of great difficulty at present.

Mr. OLIVER asked on the same day whether Sir William Jowitt knew of the anxiety felt by workers in industries which exposed them to the inhalation of silica, asbestos, and other dust when these men had contracted pneumoconiosis, and that no provision had been made to include them in the Workmen's Compensation Act. Mr. PEAT replied that the Minister would be prepared to consider some suitable extension of the compensation schemes for pneumoconiosis when an adequate number of doctors qualified to carry out the necessary medical examinations were available. Operation of the existing schemes was being severely hampered by the shortage of doctors. Sir William therefore could not contemplate extending them at present.

Admission of Medical Students

Mr. WILLINK on April 26 told Mr. Lipson that the average number of medical students accepted at the teaching hospitals for the three years before the war was 1,462. The number of admissions for the session to begin next autumn was not known. The medical schools would not complete the selection of candidates till later in the year. The average figure for the three years before the war included 226 women. Admissions for the present academic year were also 1,462, including 374 women. The numbers in medical schools could not be readily increased. There was great difficulty in obtaining staff, but the Ministry was doing all it could.

Mr. LIPSON asked the Minister to consider making use of public hospitals to give training to would-be women medical students who had been refused admission to teaching hospitals this autumn.

Mr. WILLINK replied that this was being considered.

Education in Scotland

Mr. JOHNSTON moved the second reading of the Education (Scotland) Bill in the House of Commons on May 1. He said that the object of the Bill was to bridge certain gaps in the Scottish educational system. It was a denial that education either began at 5 or ended at 14 years of age. This was a machinery Bill, providing for nursery schools, primary schools, compulsory secondary education up to 16, and after-school education. There would be certain ancillary services and free transport to and from school or college. There would be a medical inspection at the junior colleges, and free medical treatment, including the provision of spectacles. Scholarships, bursaries, and other allowances might be paid to persons over school age; this would cover students at universities and central institutions.

The Bill was read a second time.

Food of British P.O.W.s

On May 1 Sir JAMES GRIGG answered a series of questions regarding the rations supplied to and the treatment of British prisoners of war in camps in Germany. He said that all ex-prisoners on reaching this country completed a questionary which enabled them to give information about the treatment they had received. They were returning in large numbers daily, and it would not be possible to collate the information derived from their reports for some time. Numerous representations had had to be made to the Germans during the course of the war about breaches of one or other of the articles of the Geneva Convention. He gave particulars of the food given to our prisoners by the Germans in a reply on March 2. Information received recently suggested that even these rations had been reduced since then. Owing to the disintegration of the German administration and transport system during recent weeks, and the large-scale compulsory transfers of our prisoners of war, it was impossible to make any statement of general application at present.

Casein Hydrolysate for Starving Children

On May 1 Sir JAMES GRIGG informed Mr. Parker that he was aware that casein hydrolysate was used with success in Calcutta during the recent famine to revive moribund individuals and restore them to health; and that attempts were now being made to supply it to the inmates of concentration camps in Germany and to Dutch civilians, both in the standard form and in a form suitable for intravenous injection for cases *in extremis.*

Civilian War Casualties

Mr. HERBERT MORRISON states that from the outbreak of the war to date the civilians killed or injured by enemy action in the United Kingdom numbered 146,760. Killed or missing, believed killed, were 60,585, including 26,920 men, 25,392 women, 7,736 children under 16, and 537 unclassified. Persons injured and detained in hospital numbered 86,175, including 40,736 men, 37,816 women, and 7,623 children under 16. In the London regional district the casualties were 80,507.

Medical Relief for Channel Islands

The Red Cross relief ship *Vega*, in her fourth voyage to the Channel Islands lately, carried medical and surgical supplies. Two doctors of neutral nationality, who will act as a medical commission to select sick persons for evacuation, travelled on this fourth voyage and should by now have started on their task. On her third voyage the *Vega* carried 1 ton of x-ray films, a consignment of hearing aids for the deaf, one consignment o miscellaneous medical supplies, and 1,400 litres of petrol for doctors' cars and ambulances. On her second voyage she carried 20 tons of mixed medical supplies and a small consignment of anaesthetics; on her first voyage 37 cwt. of mixed medical and surgical supplies.

Medical Examination before Oversea Service.—On April 10 Mr. JAMES GRIFFITHS asked the Secretary of State for War whether men of 40 years of age and over were subject to a special medical examination to ascertain their fitness for the conditions prevailing in the Far East before being drafted for service in that theatre of operations. Sir JAMES GRIGG said that no special medical examination was given to such men. The normal examination of all men posted over-seas, which naturally took their age into account, was designed to ensure that no one was sent abroad who was not medically fit for the duties he would be called on to perform.

Mass Radiography.—Mr. WILLINK said on April 19 that the number of mass radiography units that could be manufactured was still limited, nor was it possible at present to make available more than a proportion of the medical specialists needed to operate the system. It was not yet practicable to extend mass radiography facilities to the East Riding of Yorkshire.

Incidence of Tuberculosis.—Mr. JACKSON on April 19 asked the Minister of Health to institute inquiries into the increased incidence of tuberculosis as billeting young children and placing young children with elderly people who had the disease might be the cause of the increase. Mr. WILLINK said no special inquiry was needed, nor should the trend of tuberculosis be judged from incidence rates alone. In fact the number of deaths from tuberculosis was no higher to-day than before the war. The danger to which Mr. Jackson referred was recognized, and great care in billeting children was exercised by local authorities while evacuation was in progress.

Hospital at Dar-Es-Salaam.—Col. LYONS on April 25 asked about the insufficiency of accommodation and the inadequate and obsolete equipment at the European hospital at Dar-Es-Salaam and the high incidence of malaria contracted by patients therein; what report was made by a commission of inquiry upon the matter; and what steps were proposed. Mr. EMRYS-EVANS answered that as the result of the report of the committee referred to, which found the state of the hospital to be unsatisfactory, expenditure of £74,000 had been approved for the extension and improvement of the hospital buildings. Large orders for modern equipment have been placed in this country by the Tanganyika Government. These orders would be met as rapidly as possible.

Christian Science Nurses.—Dr. SUMMERSKILL asked on April 26 why certain individuals attached to the Christian Science movement had been permitted to call themselves nurses in view of the recent Act which limited the description "nurse" to those suitably qualified. Mr. WILLINK said he had not yet brought into operation the provisions of Subsection (1) of Section 6 of the Nurses Act, 1943, which would restrict the use of the title "nurse," or made regulations under proviso (*b*) to that subsection. When he did so it was his intention to require Christian Science nurses to describe themselves as "Christian Science nurses." An assurance on the matter had been given by his predecessor, and the House of Commons, in the Public Health Act, 1936, had given statutory recognition to Christian Science nursing homes. He thought the object of the Act would be sufficiently met by a provision that Christian Science nurses should be required so to describe themselves. There had been difficulty in bringing the regulations into operation, particularly from an omission in the drafting of the Act. He hoped to make the regulations at an early date.

Notes in Brief

Mr. Johnston has appointed a Scottish Committee of Inquiry into the provision made for children deprived of a normal home life. The committee includes Dr. Nora I. Wattie.

By 273 to 74 the House of Commons on April 17 refused to allow Dr. R. D. McIntyre to take his seat as member for Motherwell without being introduced by two sponsors. On the following day Dr. McIntyre appeared with two sponsors, affirmed and took his seat.

Mr. Willink is consulting his Medical Advisory Committee about future arrangements for the diagnosis and treatment of rheumatic diseases, with which spas are specially concerned. He says it would be premature to make any pronouncement on the subject at present.

Having regard to the substantial proportion of those entitled to vote who are serving in the armed Forces, elections to the Dental Board for some time to come would, Mr. Attlee states, not only involve great practical difficulties but inadequately reflect the views of the electorate.

There appear to be no fewer than 26 classes into which patients in E.M.S. hospitals can be grouped for the purpose of recording adequately at any time the number of Ministry of Health patients and the number of other cases, the total in-patient days, total out-patient attendances, and the number of *x*-ray examinations. This sounds formidable, especially to the non-administrator, but hospitals will be helped by the booklet *Emergency Hospital Scheme: Classification of Patients* published by the County Accountants' Society. The latest (3rd) edition is now available, price 2s. 6d., from the secretary of the society at County Hall, Chichester.

Medical News

The British Council has arranged the following lectures for doctors of the Dominions and U.S. Forces and members of the B.M.A. in Birmingham, to be held at the University Overseas Club: May 13, "The Problems of Peptic Ulcer; The Present Position as seen by a Physician," Dr. T. L. Hardy. June 3, "Cancer: Some Theoretical Considerations," Mr. Hugh Donovan. June 17, "Fat Embolism," Prof. A. C. Frazer.

A meeting of the London Association of the Medical Women's Federation will be held at B.M.A. House (Tavistock Square, W.C.) on Wednesday, May 16, at 8 p.m., when Lieut.-Col. Albertine Winner, R.A.M.C., will speak on "Social Medicine and the Women's Services in the Armies of Britain, Canada, and the U.S.A." Surg. Lieut.-Cmdr. Rewcastle, R.N.V.R., and Wing-Cmdr. Butler-Jones, R.A.F., will open the discussion. Medical men and women guests are invited.

The following meetings of the British Institute of Radiology will be held at 32, Welbeck Street, W.: Thursday, May 17, 7.30 p.m., annual general meeting, followed by ordinary meeting and presidential address by Dr. E. Rohan Williams, "The Planning of the Diagnostic Radiological Department in a Large General or Teaching Hospital"; Friday, May 18, 4 p.m., Dr. J. F. Brailsford, "Malignant Diseases of Bone"; 5 p.m., informal meeting of medical members to show interesting cases.

A meeting of the Eugenics Society will be held at the rooms of the Royal Society, Burlington House, Piccadilly, W., on Tuesday, May 29, at 5 p.m. Mr. Cyril Bibby will give an address on "Sex Education—Aims, Possibilities, and Plans."

The next quarterly meeting of the Royal Medico-Psychological Association will be held at Birmingham City Council House, Victoria Square, Birmingham, on Thursday, May 31, at 10.15 a.m., when papers will be read by Dr. Alfred Meyer and Dr. F. A. Pickworth on "Neuropathological Problems arising from Leucotomy" and "The Physiology and Pathogenesis of Amnesia" respectively. At 2.15 p.m. the retiring president will deliver his valedictory address entitled, "Some Observations on the Reduction of the Distinctions drawn between Mental Ill-health and Physical Ill-health."

A reception was held on April 17 at the Society for Visiting Scientists, 5, Old Burlington Street, London, W., for the Belgian professors on a fortnight's visit to this country as guests of the British Council. Among those present were: Profs. M. F. L. de Hemptinne and C. J. Jungers, Faculty of Science, Louvain; N. Goormachtigh and P. Govaerts, Faculty of Medicine, Ghent; V. Bohet, Professor of English, Liége; and P. T. Lambrechts, Faculty of Philosophy and Literature, Liége.

At the quarterly meeting of the Central Council for Health Education held at B.M.A. House, London, on April 19, the chairman, Dr. Arthur Massey, announced that Lord Woolton, Minister of Reconstruction, had accepted the invitation extended to him on behalf of the council by the Minister of Health to succeed the late Dr. Temple, Archbishop of Canterbury, as its president.

The American College of Chest Physicians has cancelled its annual meeting which was to have been held at Philadelphia in June.

In the course of a single day's session a mobile team operating from the Ministry of Health's blood transfusion centre at Leeds recently collected blood from 820 donors, all of whom were Service personnel at a military unit. This is the highest number of donors ever dealt with by one team during one working day. The team consisted of one medical officer, assisted by 12 nurses, a blood-grouping technician, and a clerk, and worked from 8 a.m. to 4.30 p.m. The next day the blood collected by the team was flown to the B.L.A. in Western Europe.

The following medical men have been adopted as Labour candidates for Parliament: Lieut.-Col. Leonard F. Browne, R.A.M.C., for the Penrith and Cockermouth Division of Cumberland; Dr. Stephen Taylor for the new Barnet constituency; and Squad. Ldr. S. Segal, R.A.F.M.S., for Preston.

At the request of the Netherlands Government, the Bernhard Baron Research Professor in the Royal College of Surgeons of England, Prof. John Beattie, is at present serving on the Advisory Committee of S.H.A.E.F. Netherlands Mission which is advising that Government on the measures necessary for the relief of famine conditions in Northern Netherland. Prof. Beattie has charge of the laboratory and chemical investigations and has been chosen because he has developed and tested in the College laboratories various forms of treatment for extreme cases. He has with him in Holland members of the technical staff of the College who are training Dutch technicians in the up-to-date technical procedures required in this important work of famine relief.

As a precaution against mistakes in replacing gas cylinders on anaesthetic apparatus or in connecting a pipe-line to the apparatus—e.g., to a cylinder of nitrous oxide instead of a cylinder of oxygen—the Ministry of Health suggests in a circular to hospital and local authorities that a second person, preferably a doctor, should examine the connexions, making sure all is correct and in order, and record the fact that he has done so in a book kept for this purpose. It is greatly to be hoped that hospital authorities will follow this or some equally reliable procedure.

Dr. J. G. Treharne Thomas, *M.C.*, has been promoted to the post of medical superintendent of Cambridgeshire Mental Hospital, Fulbourn, nr. Cambridge.

The Universidad Central de Quito, Ecuador, has created a Chair of the History of Medicine with Dr. Virgilio Pasedes Borja as the first professor.

The March issue of the *Irish Journal of Medical Science* is a Rotunda Hospital bicentenary number.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* during the week the incidence of scarlet fever went up by 141 cases, of diphtheria by 127, and dysentery by 60, while notifications for measles fell by 4,441 cases, those for acute pneumonia by 91, and those for whooping-cough by 22.

The increase in diphtheria is the largest for two years. There were small rises in most areas: Lancashire had 27 more cases than last week, Yorks West Riding 25, and Northumberland 20. In York C.B. the cases rose from 9 to 27. Notifications of scarlet fever rose throughout the country except in the south-east and south-west. The only large fall in acute pneumonia was that of Yorks West Riding with 39 fewer cases than last week. Measles returns fell by the following amounts in individual counties: Yorks West Riding 687, Essex 495, Staffordshire 348, London 337, Middlesex 330; increases of the following amounts were also reported: Sussex 92, Cumberland 76, Southampton 60, Cornwall 47.

A general increase in incidence, rather than fresh outbreaks, was responsible for the breaking of last week's record total for dysentery. In London cases rose from 32 to 77 (St. Marylebone 41, Wandsworth 13). The other large returns were Lancashire 61, Yorks West Riding 37, Warwickshire 33, Staffordshire 29, Middlesex 26, Kent 23, Devon 23, Derbyshire 23, Essex 22, Gloucestershire 22, Oxford 16, Northumberland 14.

In *Scotland* the incidence of dysentery was 17 higher than last week, and of measles 43 higher. The largest returns for dysentery were: Glasgow 55, Edinburgh 30, Aberdeen 21, Inverness 10, Zetland County 19. The recent outbreak in the west end of Aberdeen, involving 252 cases, has been traced to a milk supply; no fatal cases were recorded.

In *Eire* a rise of 13 in the notifications of diphtheria, and 23 for whooping-cough, and a fall of 34 for measles were recorded. The rise in diphtheria was contributed by the outbreak in Leixlip, Co. Kildare, and by Lullymore Turf Camp.

In *Northern Ireland* notifications of scarlet fever fell by 26 cases and of diphtheria by 8.

Quarterly Returns for Northern Ireland

During the December quarter the births registered were equivalent to a rate of 22.7 per 1,000, this being 3.0 above the average of the five preceding fourth quarters. The infant mortality was 68 per 1,000 registered births, and 6 below the five-years average for the December quarter. Maternal mortality was 2.3 per 1,000 births, and 1.1 below the average. The general death rate was 12.5 per 1,000, this being 1.5 below the rate for the corresponding quarter of 1943, and 0.4 below the five-years average. Deaths from pulmonary tuberculosis and other forms of tuberculosis numbered 201 and 62, the former being the same as and the latter 2 in excess of the five-years average.

The provisional returns for the year show that the death rate during 1944, 12.8 per 1,000, was the lowest ever recorded in Northern Ireland. The infant mortality, 67 per 1,000 registered births, was also the lowest on record, and was 10 below the average of the five preceding years. The birth rate, 23.5 per 1,000, decreased by 0.7, but was 2.1 above the five-years average.

Week Ending April 28

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,426, whooping-cough, 1,190, diphtheria 564, measles 16,023, acute pneumonia 530, cerebrospinal fever 56, dysentery 486, paratyphoid 3, typhoid 3. One case of typhus fever was imported into the country.

No. 16

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended April 21.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	73	2	23	4	4	75	3	32	5	3
Deaths		1	—				—	2		
Diphtheria	565	19	108	113	14	622	31	166	105	28
Deaths	7	1	2	—	—	15	—	2	1	1
Dysentery	523	77	197	4	—	204	33	95	3	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	3	—	—	—	—	2	—	1	—	—
Deaths		—					—			
Erysipelas			23	7	3			54	10	2
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				22					11	
Deaths	47	5	9	8	1	46	15	25	6	3
Measles*	15,901	1314	437	52	34	2,784	283	632	263	15
Deaths	13	2	3	—	—	—	—	—	3	—
Ophthalmia neonatorum	68	6	15	—	—	69	3	14	2	—
Deaths										
Paratyphoid fever ..	3	—	—	—	—	2	1	2 (B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	573	23	5	2	3	829	63	4	9	7
Deaths (from influenza)	11	1	—	1	—	18	2	2	2	—
Pneumonia, primary ..			191	33				220	30	
Deaths		29		12	9		34		8	10
Polio-encephalitis, acute	1	—				1	—			
Deaths		—					—			
Poliomyelitis, acute ..	8	1	1	—	1	5	—	1	1	—
Deaths		—					—			
Puerperal fever		4	19		—		—	14		—
Deaths										
Puerperal pyrexia‡ ..	167	8	11	3	4	150	8	11	3	1
Deaths		—					—			
Relapsing fever ..	—	—			—	—	—			—
Deaths										
Scarlet fever	1,356	51	192	22	36	1,607	103	189	18	77
Deaths	3	—	1	—	1	—	—	1	—	
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	5	1	—	8	—	1	—	—	11	2
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough* ..	1,212	66	181	56	24	2,321	221	178	47	27
Deaths	9	—	5	—	—	13	1	2	—	—
Deaths (0–1 year) ..	342	40	56	46	13	353	55	79	35	24
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4,469	600	621	228	115	4,505	646	593	240	128
Annual death rate (per 1,000 persons living)			14·1	14·7	§			13·6	13·7	§
Live births	6,432	674	849	394	282	7,541	947	1027	489	298
Annual rate per 1,000 persons living ..			17·0	25·4	§			20·9	31·9	§
Stillbirths	199	14	38			239	26	35		
Rate per 1,000 total births (including stillborn)			43					33		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Monckeberg's Senile Degeneration

Q.—*A lady aged 60, with blood pressure about 250/130 and symptoms of cardiac deficiency, suffers from attacks of severe pain in both calves, coming on only with walking. X-ray films reveal slight calcification of the tibial arteries. Nicotinic acid upsets her. Would sympathectomy help?*

A.—This patient is suffering from Monckeberg's senile medial degeneration of the tibial arteries. The presence of calcification in the middle coats shows that the disease is well advanced, and there must certainly be a considerable degree of obliteration of the channels. It is not possible to do much at this stage of the disease. Sympathectomy would be of little use, and she is old for this. Great care must be taken of the feet to preserve the skin from injury. Papaverine is sometimes helpful in relieving the pain on walking.

Smoking and Hypertension

Q.—*In his article "The Antidiuretic Action of Nicotine"* (JOURNAL, *March 24, p. 403), Prof. J. H. Burn states that smoking raises the blood pressure. Would you kindly tell us if it definitely aggravates hypertension and should therefore be stopped?*

A.—An answer to a rather similar question was published in the *Journal* of June 10, 1944 (p. 801). The blood pressure has been observed to rise on the average about 20 mm. systolic and 15 mm. diastolic when a normal subject smokes two cigarettes, even though he is a habitual smoker. The pressure returns to normal within five to fifteen minutes. The rise is apparently due to peripheral vasoconstriction. No comparable data have been noted for the rise in blood pressure in hypertensive subjects on smoking. It is generally agreed, however, that tobacco smoking is *not* an aetiological factor in essential hypertension, and it is further stated that patients with chronic tobacco poisoning have a low blood pressure. There is, in fact, no evidence that smoking aggravates hypertension and no justification for stopping it in this disease. On the other hand, there is a great deal of evidence that the vasoconstrictor action of tobacco is harmful in effort syndrome, neurocirculatory asthenia, angina pectoris, Buerger's disease, and other disorders of the peripheral circulation, and that it should be stopped in these conditions. In theory it may also be harmful in wound shock if the blood supply to a limb is imperilled by arterial injury.

Giant Urticaria

Q.—*What is the most promising line of treatment for a case of giant urticaria, with irritating and crippling effusions into the feet and joints? Calcium has not helped. Are peptone injections likely to be of use?*

A.—Treatment of urticaria, and especially giant urticaria, is often unsatisfactory, as shown by the large number of different therapeutic procedures. The allergic theory provides for only a proportion of the cases, sensitiveness to food or focal infection being well-known examples. Common foods are not often causal factors, because of automatic desensitization to them: the scratch tests or passive transfer method of Prausnitz and Kuestner may help to solve the problem of the cause, but as in other allergic manifestations skin-testing never offers final evidence of aetiology. Elimination diets are more likely to be helpful. A psychological factor is so often present that a sedative mixture may be included. The investigation requires a detective's mind and application to seek out and possibly discover some unexpected internal or external determining agency. General measures should include treatment of the nervous system by rest, change of environment, or of work; and desensitization by non-specific procedures, such as intramuscular injection of peptone. Alternatively an acid mixture after meals, or peptone 7 grains one hour before meals. Adrenaline injections during the attack may be required, and, finally, focal infection should be treated if found.

Hunter's Test for Bile in Urine

Q.—*What is the technique for Hunter's test for bile in the urine (referred to in your recent annotation on the treatment of hepatitis —March 24, p. 415)?*

A.—The following description of Hunter's test is taken from the second edition of Dr. G. A. Harrison's *Chemical Methods in Clinical Medicine:* "In a centrifuge tube place 10 c.cm. of urine; if it is not acid, it must be made slightly so with acetic acid. Add 4 c.cm. of 10% barium chloride, mix, and mark the upper level of the fluid with a grease pencil. Centrifuge and decant completely. Add distilled water to the mark, mix thoroughly, centrifuge, and decant completely again. Stir the precipitate with 0.5 c.cm. of van den Bergh's diazo reagent by means of a capillary pipette of which the end has been sealed in the flame. Add 2 c.cm. of alcohol (absolute or 96%) and 0.3 c.cm. of 6% $Na_2HPO_4 . 12H_2O$. Mix and centrifuge. If bilirubin is present the supernatant fluid will be red, due to the formation of azobilirubin."

Vasomotor Instability

Q.—*A woman of 23 suffers from extreme vasomotor changes in the hands and feet, most marked in the fingers. In warm weather, or after exercise, piano-playing in particular, the hands become red, swollen, and painful. In cold weather she has a chilblain type of circulation. She has had all the recommended treatments, but they are of no avail. What can be done for her?*

A.—This is a most difficult problem in therapeutics, and success in treatment is uncertain. The patient evidently suffers both from the effects of vasodilatation which warmth induces in the digits and from vasoconstriction in response to cold. It is not at all clear that the degree of such changes is outside the limits of normal variation, and it is possible that the abnormal feature in the patient is her mental reaction to the variations in her circulation. It is suggested, therefore, that treatment along general lines with particular attention to the patient's personality and her orientation towards the circumstances of her life may prove the most satisfactory treatment. Neither vasodilator nor vasoconstrictor drugs nor surgical operation offer any rational or empiric therapeutic prospects in this condition.

Methods of B.S.R. Estimation

Q.—*There is much variation in the method of recording sedimentation rates (B.S.R. or E.S.R.). Is it legitimate to divide the results obtained by the 200-mm. Westergren method by 2 in order to obtain a percentage, so as to be comparable with other results expressed initially as percentages?*

A.—To divide the reading obtained from the Westergren method by 2 is not strictly correct in comparison with other methods. For practical purposes comparable results may be obtained providing the other methods calculate the percentage on the amount of plasma. For example, the figures given are from experimental results, the normal values showing the most divergence.

No.	Westergren Method; 200-mm. Tube. Plasma mm. (and mm. %)	Modified Zeckwer and Goodell Method; 10-cm. Tube. Plasma mm. %	Micro-method; 100-mm. Tube. Plasma mm. %
1	50 (25)	30	24
2	36 (18)	26	18
3	10 (5)	5	8
4	4 (2)	2	5

Trichomonas Infection

Q.—*What is the technique of "blueing" in resistant cases of trichomonas infections of the vagina? What strength of solution of gentian violet is used?*

A.—In resistant cases of trichomonas infestation, first the vagina should be irrigated or swabbed with a solution of sodium bicarbonate; it should then be dried and painted with a 1–2% aqueous solution of viola crystallina (gentian violet) or liquor tinctorum, which consists of crystal violet and brilliant green, 0.5% of each in equal parts of alcohol and water. The application may be made through a Cusco or Fergusson speculum according to the preference of the operator.

Unilateral Flush after Food

Q.—*A boy aged 2 years has since birth had a facial erythema almost immediately after beginning his meals. It persists for 1/2 to 3/4 hour after feeding and then clears. The part of the face affected is that extending from the temporal region downwards across the malar bone to the angle of the mouth—on the left side; it is about two inches wide and fairly well defined. What are the exact condition, aetiology, and treatment, if any?*

A.—This is a curious story, rather like the rare "jaw-winking" phenomenon in which a congenital ptosis is temporarily improved when the child opens the mouth. Jaw-winking is usually explained as an atavistic regression to a condition present in fishes. It may be, in the present case, that the area described as affected corresponds to a "gill-opening." Essentially, the description is of an unusual vasomotor reflex action, and, provided there is no underlying naevus or naevoid condition, there is no treatment.

Radium for Rodent Ulcer

Q.—*I have recently had a rodent ulcer excised, and the base cauterized by the electric cautery. I have been told that the use of radium may cause cataract. Is this so? And if so, is there no method of using radium that will prevent such a contingency? The ulcer was near the left canthus, between the nose and the eye.*

A.—There is no danger of a cataract resulting from the proper use of radium for a rodent ulcer in the situation given. As a rule, the dose reaching the conjunctiva is insufficient to produce any conjunctival reaction, so that it is quite certain that the lens—where the dose is still smaller—will be uninjured.

Consent for Operation on Minors

Q.—*Is it legally necessary or desirable to obtain the parents' consent before doing in a minor a lumbar puncture under a local analgesic for diagnostic or therapeutic reasons (e.g., relieving intracranial pressure)? If it is necessary, it would seem that consent should previously be obtained for many minor operations—e.g., exploratory puncture of the chest, opening a quinzy, giving of intraperitoneal saline—even though no anaesthetic be used.*

A.—In strict law even the slightest physical interference with the person of another is an assault, for which damages can be awarded in a civil action or punishment in a criminal prosecution. Most kinds of physical interference which would otherwise be assaults may be justified by the consent of the person who suffers them, and among these justifiable forms of interference are medical and surgical procedures which are not in themselves unlawful. As a minor cannot give a legally valid consent, his parent or guardian must consent for him. Consent must, to be valid, be given freely and with substantial knowledge of the nature and purpose of the interference. The law knows also, however, an implied consent. By placing a minor in hospital, a parent doubtless gives an implied consent to his treatment by reasonable measures which carry no material risk to health or life. Where the medical adviser proposes to adopt a measure which involves drastic interference and carries risk, he owes the duty of first obtaining valid consent. As in so much of our law, the line between ordinary measures of treatment to which consent may be assumed, and drastic (not a legal adjective this, but one selected for convenience) treatment to which special consent ought to be asked, cannot be drawn in general terms. Its precise position in each situation is a question of fact, and in drawing it a court would consider such factors as the degree of pain, disturbance, or risk involved; or whether the particular act complained of was a usual part of the treatment of the particular illness, so that the person who had the right to consent or refuse might reasonably be held to have agreed to it by the act of bringing his child for treatment; and the like. The doctor should always bear in mind the need for consent to a class of procedures which may here be loosely but not inappropriately called "serious." If he asks himself whether he, in the parent's place, would prefer to be given the chance of refusing consent, he will probably not go far wrong.

Fatigue after Removal of Ovaries

Q.—*A patient aged 45 had a fibroid uterus and cystic ovaries removed eighteen months ago. She menstruated regularly until her operation, and her blood pressure, taken at the time, was 132/71. She now has "palpitation" and a tendency to fatigue. Her heart and pulse are normal. Her blood pressure is now 135/98. I propose to treat her with hexoestrol mg. 1 t.d.s. Will this have any effect on her blood pressure?*

A.—A patient who has had the uterus and both ovaries removed is likely to suffer from menopausal symptoms. These most commonly take the form of headaches, hot flushes, and emotional disturbances, though palpitations and a tendency to fatigue may also occur. Hexoestrol in the dosage mentioned is likely to relieve such symptoms and to give the patient a general sense of well-being, and —provided anaemia is excluded, and treated if necessary—this would seem to be the correct treatment in this case. The dosage should be gradually reduced as the symptoms improve. It is unlikely, however, that this treatment will have any effect on the rising blood pressure. This patient is probably suffering from benign hypertension in a mild form, and it is likely that the pressure will continue to increase with age. Hypertension is common, and according to S. C. Robinson and M. Brucer (*Arch. intern. Med.*, 1940, **66**, 393) slightly over 40% of the adult population is actually or potentially hypertensive. In the case described the condition is so slight that no treatment is indicated, and it is doubtful if the rise of pressure is great enough to cause the symptoms of which the patient complains. The possibility of a functional element should not be overlooked, and reassurance will probably help the patient a great deal.

LETTERS, NOTES, ETC.

Climate and Burns

Dr. **FRANK MARSH** (pathologist, A.I.O.C., Persia) writes: In the *Journal* of March 10 (p. 344), Prof. Kenneth Black, in a letter on climate and mortality from burns, brings evidence to show that a warm climate lessens this fatal incidence. We "enjoy" a climate with a very hot summer, and, by European standards, a moderately cold winter. It is true that we see more fatal cases of burns in the winter, but I think the main reason is that in cold weather cooking fires are lighted *in the dwellings*, and in summer the cooking is usually done outside. A very common cause of severe and fatal burns among women is the explosion of a "primus"-type stove designed to work with kerosene, and used, through ignorance or misplaced ingenuity, with gasoline. Such accidents are infinitely worse when they occur in a small room than in the open air, judging from results. In the open a metal or dried mud screen is built round the fire as a wind shield, unnecessary indoors. Kerosene and petrol burns are usually very severe, and a certain proportion are not accidental but malicious; frequently the victim is young, well developed, and good-looking. It is not claimed that these latter are factors affecting the mortality unfavourably, although statistically, no doubt, a case could be made out. Dirt is an unfavourable factor associated with cold; a sweating skin is probably a relatively clean skin. Certainly the mortality is much lower in the warm weather, but I have always thought this variation due to a number of contributory causes—such as more clothing worn out of doors than indoors, the exceptional severity of indoor-inflicted burns, the concealment afforded by a small windowless room for malice, the greater danger of explosions, etc., in a confined space, and the absence of wind shields, etc. I do not think the climate—blameworthy as it is in nearly every respect—can take the whole burden for the high mortality in Glasgow.

Oedema of the Ankles in Hot Climates

Dr. **GEOFFREY HALL** (Cunderdin, Western Australia) writes: In the *Journal* of Aug. 19, 1944 (p. 262), I see a reference to swollen ankles in hot climates. You might be interested to hear of a phenomenon I have seen here in pregnant women. In my last 100 midwifery cases there was one case of pre-eclampsia with albuminuria, but the percentage of cases of definite pitting oedema of the feet in the absence of varicose veins or any local condition was 5. Swollen ankles in the absence of albuminuria or other signs of toxaemia developed in these 4% of cases in the last three months of pregnancy, and invariably the patient volunteered that the swelling came up in hot weather and disappeared completely in cold. Thus the syndrome is analogous to swollen ankles in hot climates. In my cases no doubt the pressure of the head on the pelvic veins produces venous stasis in the lower limbs and aggravates the condition, but I feel that in both instances the syndrome is primarily due to peripheral vasodilatation from the heat, with increased capillary permeability. I can find no reference to swollen ankles in the condition known as "heat disease," but as the treatment of this is sodium chloride, I wonder whether such treatment would be effective in the conditions under discussion.

Treatment of Supraspinatus Tendinitis

Mr. **J. R. ARMSTRONG**, F.R.C.S. (Ely), writes: In discussing the treatment of supraspinatus tendinitis your correspondent (March 31, p. 468) does not mention excision of the acromion. This procedure, described by Watson-Jones in 1943 (*Fractures and Joint Injuries*, 3rd ed., p. 418, Livingstone, Edinburgh), is a certain, and in some cases the only certain, method of dealing with these lesions. The supraspinatus tendon impinges on the overlying acromion in the middle range of abduction, when the tendon is swollen or inflamed. This pressure produces pain and causes the painful arc of shoulder movement which is a characteristic feature of supraspinatus tendinitis, with or without calcification. Moreover, these repeated small traumata further aggravate the condition of the tendon. The rationale of excision of the acromion is obvious. Supraspinatus lesions seem to fall into two broad classes: those which tend to clear up spontaneously and those which do not. In the latter class the results of injection of the tendon have, in my hands, been inconstant and disappointing. This contrasts markedly with the almost dramatic relief produced by excision of the acromion. The operation itself is comparatively simple, the post-operative convalescence is short, and the subsequent function of the shoulder is normal.

Electrically Induced Convulsions in Epilepsy

Dr. **H. PULLAR-STRECKER** (Falmouth) writes: The idea of "letting-off steam" under controlled conditions of time and place appears useful in selected cases. As a criterion, however, tables should have a third column, showing the average number of spontaneous plus induced convulsions per month. In the four illustrative cases given by Dr. Gerald Caplan (April 14, p. 511), such number is roughly as follows: B.I. 4.5; O.P. 8.5; M.T. 10; C.A. 4.

BRITISH MEDICAL JOURNAL

LONDON SATURDAY MAY 19 1945

"PRIMARY ATYPICAL PNEUMONIA"

AN EPIDEMIC ASSOCIATED WITH MALARIA

BY

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There is still considerable doubt as to what extent atypical pneumonia is a "new" disease in the sense that von Economo's encephalitis was a new disease in 1918, or whether until recent years these cases went unrecognized under such diagnoses as bronchitis, bronchiolitis, pneumonitis, etc. There appears to be considerable variation in the severity of the illness, and in some published series most of the cases were mild. Thus Campbell *et al.* (1943), while reporting one death in 200 cases, say that on the whole they were mild with infrequent complications, and among 75 cases occurring in a college Contratto (1943) reports that none was serious. It can readily be believed that the milder cases occurring sporadically may have gone unrecognized, but it is not so easy to see how, in its more acute manifestations, the disease could have passed the notice of clinical and radiological scrutiny, especially when encountered in an epidemic form.

The review of early reports in the excellent paper of Drew *et al.* (1943) makes it clear that similar cases were apparently noted from time to time in America, France, and Spain during the past 10 years. But it seems to have been a rarity in Great Britain, and only since the war began have frequent reports drawn attention to its prevalence. Most of the recent reports are from the Services, and the careful medical scrutiny which is given even to minor illness probably accounts for the identification of many mild cases which would pass unrecognized in civil practice.

Whether or not it was frequent but undiagnosed before the war, it seems that the increased incidence now noted is due to the opportunities for infective spread in the crowded communities inevitable in wartime, and it invites comparison with the influenzal pneumonia of 1918. Fortunately, atypical pneumonia so far has manifested as a disease of relatively mild incidence and low morbidity. It has been suggested (Army Medical Department Bulletin, 1943) that dietary deficiency may account for the increase in certain cases, but this certainly does not apply to the Services. Whether in debilitated populations the disease may develop more serious forms remains an uncomfortable possibility.

In a series of 125 cases Needles and Gilbert (1944) had one fatal case, which came to necropsy. The illness ran a typical course till the 11th day, and the patient then became dyspnoeic and cyanosed. Death occurred on the 18th day, and the main finding was a profuse purulent bronchiolitis. The authors point to the similarity between their cases and types of influenza described by workers in 1918–19.

Epidemiology

The present paper is based on a series of 112 cases treated in a military hospital while on service in North Africa and Italy. Only a handful were encountered in Africa, but during the first few months in Italy the numbers were such as to suggest an epidemic. Leishman and Kelsall (1944), in a review of their work in a hospital in India, report no case of atypical pneumonia in a total of 11,645 cases. This, in association with other reports we have been able to review, suggests that atypical pneumonia is a disease of temperate climates and is rare in the Subtropics and Tropics. It is generally accepted that atypical pneumonia is of virus origin, but no relation has been shown with any of the known virus diseases. The psittacosis virus has been suggested as a possible cause, but in Italy birds of any sort, not to mention parrots, are a rarity. In addition, atypical pneumonias have been noted in association with lymphocytic choreomeningitis, rickettsial infections, Rocky Mountain fever, influenza, chicken-pox, and other diseases thought to be due to virus infections. Howat and Arnott (1944) report seven cases of atypical pneumonia in smallpox contacts, and quote Reimann, Hewens, and Price, who claim that this syndrome may be produced by smallpox virus. It is perhaps worth noting that prior to the quasi-epidemic of atypical pneumonia here described there had been a large incidence of infective hepatitis, also a virus disease of unknown origin, and the two diseases were seen in comparable numbers throughout the period of investigation. We were unable to show any relation between the two. No lung lesions were found in a selected number of cases of hepatitis, and although two cases of atypical pneumonia developed mild jaundice, this is recognized as an occasional complication (Reimann and Stokes, 1939).

It is clear, therefore, that an atypical pneumonia may occur in association with most of the known virus diseases, but there is no evidence to show that primary atypical pneumonia is associated with any one in particular.

There was no case of cross-infection in any ward nursing atypical pneumonia, and no member of the staff was infected. We were, however, able to obtain some evidence of infectivity among patients admitted from the same units. Thus there were several groups from the same military units, many beginning on the same day, and therefore suggesting a common source of infection, and, in addition, evidence that others had been infected by their comrades. From a survey of 30 such cases, made up of groups from five units, it was possible to arrive at a probable incubation period, with extremes from 6 days to 12 days; the average incubation period was 10 days. It appears, therefore, that the disease is infective only during incubation, and that, when established, may, like infective hepatitis, be treated in general wards without fear of cross-infection. Vance *et al.* (1943) gave sputum and nasal washings from 12 patients to 5 volunteers intranasally. They failed to produce infection. This supports the view that the established disease is of low infectivity.

Onset and Course of Illness

The onset was marked in most cases by fever, malaise, and shivering (or a definite rigor), muscle pains, headache, anorexia, and, in a few, constipation and nausea. One case began with vomiting, one with diarrhoea, and a third had a small haemoptysis as the first sign of illness. These groups were distinguished according to the mode of onset:

1. Gradual onset with low fever, malaise, and some of the mentioned symptoms in a mild form (39=34.8%).

2. More sudden onset with pain in the chest and high fever. Two cases in which the lesion manifested at the extreme base had pain in the corresponding side of the neck as the initial symptom (39=34.8%).

3. In a third group the initial symptoms were masked by malaria, and were diagnosed by discovering a few rales in a patient who was not responding to quinine (34=30.4%).

The second group, who showed no evidence of malaria, had an onset severe enough to suggest at first malaria. These cases usually ran an acute course with high fever, and demonstrate that atypical pneumonia is not always a "benign" illness, unless one restricts the term to the question of morbidity and complications. The fever usually finished by rapid lysis about the eighth day, with extremes of 1 and 24 days. There was considerable debility in most cases, but 7 to 14 days after subsidence of fever they were able to be transferred to a convalescent depot, and were then seen a month later for further radiographs. Convalescence was continued if necessary till the lung fields were clear.

Age Incidence

In common with American reports, in this series we found a maximum incidence in the younger age groups, as is shown by the following figures:

Age Group:	15–19	20–24	25–29	30–34	35 and over
No. of cases ..	1	43	27	25	16

In this respect atypical pneumonia is quite unlike pneumococcal pneumonia.

Symptoms

Cough.—As an early symptom, cough, troublesome and non-productive, is described by other writers (Drew *et al.*, 1943; Meakins, 1943; Correll and Cowan, 1943; Leake and Blatchford, 1943), but in this series cough was slight or absent in 69 (61%), and in the remainder was never troublesome—that is, counter-measures were not required.

Rigors.—Of the 112 cases 59 had shivering at or near the onset, and in a large number—about 25% of the whole—there was a brisk rigor signalling a sudden onset. Discounting those who had a malarial complication, the remainder showed a similar onset, 50% having initial shivering, and about half of these a definite rigor. Unlike lobar pneumonia, the rigor, when it occurred, was not closely associated with chest pain, although in most cases there was pain of various types a few days after the onset.

Pain in the Chest.—Of the 112 cases 70 had pain of some sort in the chest. It was not so severe as typical pleuritic pain, and was found as a rule to be strictly localized to the site of the lung lesion. The majority had pain in the antero-lateral aspects in relation to the fan-shaped lesion spreading from the hilum. In others the pain was felt in the back, again on the side, and at the site of the lung lesion. In seven cases pain was felt in the supraclavicular region and in the neck; in five of these a lesion in the upper lobe was found, but in two others the lesion was situated on the diaphragm, indicating reflex irritation via the phrenic nerve. In three cases in which a dense lesion was found spreading from the midzone of the hilum the patients complained of a constricting pain across the chest at this level. Although pain was so frequent, friction was not detected in any case, thus sharply differentiating this type of lesion from that of lobar pneumonia, in which the pleural surface is usually involved early. This is in line with the view, long held by one of us (J. F.), that the so-called pleuritic pain is not due to friction between inflamed pleural surfaces but to a spasm of the chest musculature over the site of the lesion. The pain was not notably aggravated by cough or deep respiration, and only in one case was morphine required. In Meakins's (1943) cases this "non-pleuritic" pain only was noted, but Drew *et al.* (1943) found friction pain in four cases in their series of 50, and Markham (1942) found pleural involvement in three of 65 cases. It is evident that the atypical lesion does not usually spread to involve the pleura. Even when radiologically the lesion had apparently spread to the lung periphery no friction was detected.

Differential White Cell Counts: Percentages

Case No.:	1	2	3	10	12	20	25	27	28	35	36	39	51	53	56	64	66	74	82	84	90	92	93	98	100	110	112	118	119	120
Polymorphs	56	64	70	50	31	61	28	49	64	61	59	39	52	62	44	63	68	54	56	50	69	70	68	66	52	62	47	55	85	61
Lymphocytes	36	27	22	44	62	30	69	47	30	34	39	46	43	36	50	32	25	45	43	30	24	23	33	32	28	32	39	40	14	37
Monocytes ..	7	8	4	5	7	7	3	4	5	4	2	5	5	5	4	5	7	1	1	10	6	6	8	2	14	4	8	4	1	2
Basophils ..	—	—	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	—	—	—	—
Eosinophils..	1	1	3	1	—	1	—	—	1	1	—	—	—	1	2	—	—	—	—	1	1	1	1	—	4	1	6	1	—	—

Sputum.—The quantity and type of sputum were found to be roughly related to the extent of the lung lesion and to the severity of the illness in general. Thirty-four (30.4%) had no sputum throughout, but one of these was ill enough to be put on the "serious" list. All the others had a little mucous sputum early in the illness, but it was seldom notable before the third or fourth day, by which time it had usually become mucopurulent, and 24 on or about the fourth day had some blood present. In four the sputum at one point could be described as rusty! Drew *et al.* suggest that such a finding calls for a review of the diagnosis, but all were otherwise typical (e.g., Case 28).

Bacteriology of the Sputum.—In every case except one sputum culture produced a mixed flora. Pneumococci were present in almost every case, usually in association with streptococci; but frequently Friedländer's pneumobacilli, and less frequently *Micrococcus catarrhalis* and staphylococci, were also present. In one case Pfeiffer's bacillus was in association with pneumococci and streptococci, and in two cases only a few pneumococci were grown from scanty mucoid sputum. The almost constant presence of pneumococci raises the question of their pathological significance; but the course of the illness, uninfluenced by sulphonamides, the low leucocyte count, and atypical lung appearances, made it unlikely that they were more than the normal flora of the upper respiratory tract. One of us (J. F.) has shown that a low leucocyte count in the early stages of pneumococcal pneumonia is found only in extremely toxic cases, usually Types II, III, and related types. In such cases the lung lesions are as a rule massive and typical. Unfortunately, biological selectivity tests were not available to us.

Leucocytes.—Counts were made in 68 cases during the first 48 hours after admission (most of the cases were admitted on the first or second day of illness), and in many instances were repeated on the sixth and ninth days. The highest count was 13,600 per c.mm., and the lowest 3,400; 20 (16.9%) were under 6,000, 62 (55.3%) were under 10,000, and 5 were more than 10,000. These findings are similar to those of Meakins (1943), who found less than 10,000 per c.mm. in 73% of his cases; Leake and Blatchford (1943), who found counts from 6,000 to 9,000; and Correll and Cowan (1943), who found less than 9,000 per c.mm. in 55.5% and less than 12,000 in 95%. Haight and Trolinger (1943) state that while the count was low or normal at the onset, later they found mild leucocytosis. In the present series two were found to have an increase from 7,600 and 5,000 on the third day to 10,400 and 9,600 respectively on the sixth day, but most showed no notable change, and in several the count decreased—e.g., in one, 7,800 on the third day, 6,100 on the sixth, and 4,600 on the ninth. Shone and Passmore (1943) state that one of their cases had a leucocytosis of 61,000 per c.mm.; this must be exceptional. In 30 typical cases we made differential counts (see Table).

With few exceptions these counts reveal a relative lymphocytosis with a slight increase in monocytes. There was no eosinophilia and no primitive cells were noted. Moeschlin

(1943) finds a lymphocytic reaction to be usual in virus pneumonia (primary atypical pneumonia) between the 12th and 17th days. The lymphocytes may form 74% of the total white cell count on the 13th day, and then begin to fall. He also noted an eosinophilia as high as 10% on the 13th to 15th days. Similar changes are found in infectious mononucleosis, measles, and hepatitis. He points out that in pneumococcal pneumonia the lymphocytes are usually less than half the total of those present in atypical pneumonia, and suggests that this fact may be useful in differential diagnosis.

Cold Agglutinins.—Ramsay and Scadding (1939) and Turner *et al.* (1943) report that high titres of cold agglutinins were regularly found in primary atypical pneumonia. This promises to be of great value in differentiation. Under field conditions it was found to be impracticable to undertake this investigation for the series. In two cases with characteristic clinical and radiological findings cold agglutinins were absent.

Physical Signs

Most of our patients had sharp fever. The average duration of pyrexia was 8 days—ranging from 1 day to 24 days; in 51% it was 8 days and less, and in 81% 10 days and less. In many cases the illness began with high fever, in 82% reading more than 102° F.; 42 had peaks of 103° F. or more, the highest being 105.4° F.; only 8 of these latter had an associated malaria. In remarkable contrast to the high level of the temperature curves, there was little or no change in pulse or respirations. Brachycardia was not observed (Drew *et al.*, 1943; Meakins, 1943). Cyanosis and dyspnoea were unusual or absent, as was to be expected from the small amount of lung tissue involved. About 70% had frontal headache, which was sometimes very intractable and suggested meningeal irritation. Five had suffusion of the eyeballs, and slight labial herpes was noticed in 4 cases. Faucial congestion (3 cases), epistaxis (2 cases), jaundice (2 cases), and petechial rash (1 case) were also noted. Gastro-intestinal disturbance was rare, and occurred usually at the onset (anorexia, nausea, diarrhoea, and constipation). Six patients were notified as being seriously ill; but once the diagnosis was established there was little cause for anxiety, and the illness terminated quietly by lysis. There was no case showing albuminuria, and no diminution of chlorides was observed.

Enlarged spleen was found in only 8 patients, and 5 of these had an associated malaria. Owen (1943) noted an enlarged spleen in 8 of 16 patients, not associated with malaria.

Chest Signs.—Twelve patients had no detectable physical signs throughout the illness. They were found to have minimal lesions radiologically—either centrally, in a lobe, or closely applied to the hilum. Ten who had no signs during the first few days, when the lesion was still distal from the periphery, had detectable signs later, when radiographs showed spread to the lung surface. As has been generally noted, the most common finding was small crepitations strictly localized to the area of the lesion, and usually accompanied by a diminished breath sound. Next in frequency came harshness of the breath sound, and in many cases a soft tubular breath sound was heard. Occasionally, when the lesion was larger and denser, and especially if basal, the percussion resonance was diminished, but frank dullness was not observed. Since the lesion usually is relatively small and may occur in any part of either lung from apex to base, a very careful examination of the whole surface area is necessary. At first we failed at times to detect signs until radiographs had indicated the place, but latterly the significance of localized small signs had made the diagnosis possible before radiological confirmation. In no case was there any evidence of pleural effusion.

Complications.—Drew *et al.* in their series of 50 had three cases of otitis media and one of antral sepsis, and in common with other writers they found a secondary rise of temperature "on many occasions." Secondary temperatures did not occur in our series, and there were no complications, except in two cases which early in the illness developed mild transient jaundice. This absence of complications we ascribe in part to the routine use of sulphonamides, which for this reason, and for other reasons stated below, we recommend in treatment. Leake and Blatchford report that chemotherapy is ineffective, and that they had no complications. We believe that "chemotherapy" (meaning sulphonamides) and "no complications" are more closely related than is implied.

Treatment

We kept our patients in bed for 7 to 14 days after the temperature became normal, and continued convalescent care, usually in an adjoining convalescent depot, till the lung was clear radiologically. As full a diet as the appetite allowed was our rule, for there were no gastro-intestinal difficulties worth mentioning. Chest pain and cough yielded to simple measures. When the temperature was high it was dealt with by sponging, but the absence of respiratory embarrassment (as in lobar pneumonia) allowed these patients to be comfortable in spite of a high temperature.

There is no specific treatment, but several good reasons may be advanced for giving a sulphonamide when the lung lesion has been found.

1. The diagnosis of "atypical pneumonia" cannot be made with certainty in the first few days of illness even with *x*-ray evidence, and the administration of a sulphonamide for at least a few days is a valuable therapeutic test and an assurance against missing a pneumococcal pneumonia.

2. The "atypical" lesion is a debilitated area of tissue probably highly vulnerable to the flora of the upper respiratory tract, especially pneumococcus and streptococcus. It seems reasonable to hope that sulphonamides may inhibit secondary infection by these possible invaders.

3. It may be objected that sulphonamides may depress the already low leucocyte count. But it appears that the leucocyte count in these cases is around normal figures because this type of infection does not call forth a leucocyte response, since there is no indication that the count is low because of "depression" of the marrow. If this be so, it is not to be expected that sulphonamides will adversely affect the leucocytes to any extent. The findings in this series seem to indicate that sulphonamides from this point of view are harmless in the ordinary case.

On these grounds we gave to every case 2 g. of sulphapyridine or sulphathiazole when the diagnosis of a "pneumonia" was made, and continued with 1 g. every four hours for three or four days.

Association with Malaria

The majority of our cases were admitted during a period when there was a heavy incidence of malaria in the area. About one-third (30.3%) had the typical lung lesion in association with malaria. The presence of malaria did not, however, have any influence on the period of pyrexia due to the atypical pneumonia. In both groups (atypical pneumonia plus malaria, and atypical pneumonia alone) the average duration of pyrexia was eight days (Case 15).

If we had not been aware of the prevalence of atypical pneumonia many of the malaria-infected cases might from physical signs alone have been assumed to have merely associated bronchitis of malarial origin. Several cases had an acute onset resembling malaria, and the diagnosis became clear only as the illness progressed unaffected by quinine therapy (Case 49).

The fact that the presence of malaria, and antimalarial therapy, did not influence the duration of pyrexia seems to support the view that the association was fortuitous, although it is possible that a latent malaria might be activated by the onset of atypical pneumonia. Conversely, a population debilitated by malaria may well be more susceptible to this virus infection.

In North Africa we saw very many cases of malaria and only a handful of atypical pneumonia; but these malaria cases were largely fresh infections in healthy troops, whereas about 50% of the malaria infections seen in Italy were relapsed cases, often many times relapsed.

It would seem, therefore, to be true for primary atypical pneumonia, as according to Osler (Christian, 1942) it is for pneumococcal pneumonia, that its occurrence in association with malaria is fortuitous.

Radiological Findings

In common with other observations the *x*-ray findings in this series showed much diversity. In 56% the lesion was right-sided and there was a predilection for the middle and upper zones. In the lower zones the costophrenic angle area (Case 120) and less often the cardiophrenic area were the sites mainly affected. Lesions maximal at the hilum were usually on the right side.

In a few cases a whole lobe appeared to be involved, but in the large majority the lesion was small. The area of opacity in no case traversed more than one lobe, but in three cases a lesion was found at both bases. The appearances in these latter resembled the tracheobronchitis described by Kornblum and Reimann (1940). The opacities were never so dense as in pneumococcal pneumonia and usually showed some degree of mottling. Three showed an area of loss of translucency with marked reticulation at the hilum similar to the second type of Drew *et al.* (1943). The edges were indefinite except where bounded by a pleural line.

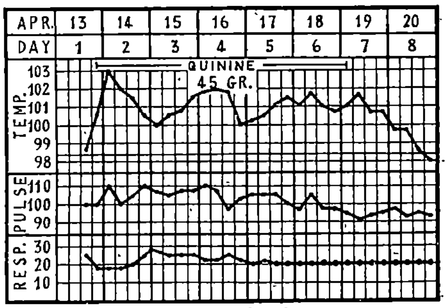

Fig. 1.—Case 15 Atypical pneumonia and benign tertian malaria.

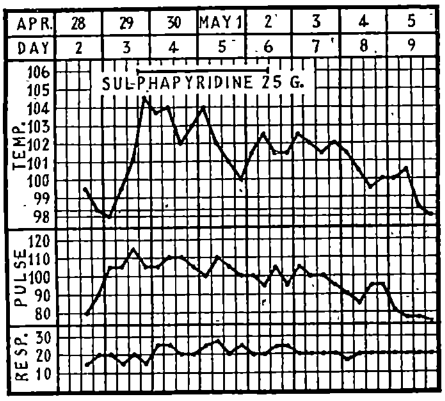

Fig. 2.—Case 49. Onset resembling malaria.

In one group the lesion was localized at the periphery but had no apparent connexion with the hilum; some of these were fan-shaped, with the apex towards the hilum (Case 118), but others were rounded or oval. In one the whole right supraclavicular region was involved. Where the lesion was fan-shaped one or more branches of a main bronchus were seen to be involved, as in the "partial pneumonias" described by Shanks, Kerley, and Twining (1938). In one case a lesion starting at the periphery was followed serially and was seen to spread towards the hilum.

The opacities usually persisted for some time, often several weeks, after the patient was afebrile, although in a small number resolution was complete before the patient left the hospital for the convalescent depot. In all those we were able to follow (34) the lung fields were clear in from four to six weeks after becoming afebrile, but frequently a thickening of the pleural line persisted. In nearly all cases the hilar shadow was enlarged on the side of the lesion only. In several cases with upper-zone lesions the *x*-ray appearances suggested tuberculosis, but serial films and the clinical course readily eliminated this diagnosis. Other writers state that lung abscess, carcinoma of the lung, unresolved lobar pneumonia, and bronchiectasis may simulate the appearances of atypical pneumonia; that difficulty did not arise in this series.

After the considerable experience afforded by this investigation it was found possible to make a fairly definite diagnosis by radiograph only; but, where there was doubt, correlation with the clinical findings clarified the issue.

Illustrative Cases

Case 2.—Pte. A., aged 20, was admitted on May 7 with a history of two days' headache and aching in the back. He shivered at the onset, and since then had been perspiring. He complained of loss of appetite and slight nausea, and had a little dry cough. There was no past history of malaria. On admission he was flushed and looked "toxic." No physical signs were detected in the chest. Temperature 101.8° F., pulse 100, respirations normal. Blood smears for malaria were negative. Two days later he complained of a tight feeling across the chest, and sticky rales were heard over the right upper lobe anteriorly. Next day a small crop of petechiae appeared on the chest and back. The white cell count on May 9 was 5,500 per c.mm. (polymorphs 64%, lymphocytes 27%, eosinophils 1%, mononuclears 8%). Some mucoid sputum obtained on the same day showed a few pneumococci, pneumobacilli, and non-haemolytic streptococci. The fever continued for six days and fell by lysis. Radiography showed infiltration extending from the right upper hilum to the right apex. This case was one of five admitted from the same unit; they were probably infected on the same day.

Case 15.—Pte. B., aged 20, had been over-seas for nine months, but had previously been well. His illness began on April 13 with the gradual onset of headache. He had no shivering, cough, or sputum. His temperature rose to 101.5° F.; pulse 90. Blood smears were positive for B.T. malaria, and he was given full doses of quinine. Next day his temperature was 103° F., and a harsh breath sound with a few crepitations was noted over the right middle lobe. Radiographs showed an area of infiltration, chiefly at the periphery of the right midzone and bounded below by the right middle pleural line. His temperature persisted around 102° F. for seven days, terminating by lysis on the eighth day. A follow-up radiograph on May 6 showed no abnormality.

Case 16.—L/Cpl. C., aged 25, was admitted on April 28. Four days previously he had a sudden onset of headache and backache accompanied by a rigor. On the morning of the 25th he wakened with a stabbing pain in the left back on breathing or bending. On the 27th a blood smear showed B.T. malaria, and quinine in full doses was given. On the 29th radiographs showed a small opacity in the left midzone, chiefly peripheral. On the 25th his temperature was 105° F. and pulse 100; thereafter he ran a sharp fever, uninfluenced by quinine, for six days. The white-cell count was 9,650. A repeat radiograph on May 12 showed clear lung fields. In this case there were no physical signs and no sputum throughout the illness.

Case 28.—Cpl. D., aged 22, was admitted on April 25 complaining of headache and of shivering for two days. Next day blood smears showed B.T. malaria, but examination of the chest was negative. On the 27th he produced some rusty sputum, and radiographs showed a fan-shaped patch of consolidation extending from the right upper hilum and bounded below by the right middle pleural line. The white blood count was 5,650 per c.mm. (polymorphs 64%, lymphocytes 30%, monocytes 5%, eosinophils 1%). The sputum contained many pneumococci, with streptococci and Friedländer's pneumobacilli. He ran a moderate temperature (100° to 101° F.) for eight days, and had a rapid convalescence.

Case 49.—Pte. E., aged 29, was admitted on April 29 with a history of sudden onset of headache, shivering, general aching pains, and slight cough, of 12 hours' duration. Blood smears for malaria were negative. On admission he had some small rales in both midzones, and next day a soft tubular breath sound was heard in the right lower zone anteriorly. Radiographs showed a band of consolidation extending from the hilum to the periphery and situated on the diaphragm. The white cell count was 13,600. There was no sputum throughout the illness, and he ran an intermittent high fever swinging between 100° and 104° F. for eight days, uninfluenced by full doses of sulphapyridine. Blood culture was negative. Convalescence was disturbed by the onset of a mild dysentery (Schmitz), but otherwise he made a rapid recovery.

Case 66.—Gnr. F., aged 22, was admitted on April 22 with a history of sudden severe headache, shivering, and backache two days previously. Blood smears for malaria were negative. During the first five days no physical signs were detected and he was treated for malaria, but on the 28th scattered rhonchi were heard over the right upper chest and, later, crepitations were heard at the inner end of the fifth right interspace. The white cell count was 5,800 per c.mm. (polymorphs 68%, lymphocytes 25%, monocytes 7%). Radiographs showed a small patch of consolidation in the right inner subclavicular region. He had an intermittent high fever for eight days, swinging between 100° and 103° F.

Case 68.—L/Sgt. G., aged 25, was admitted on April 28. For three days he had felt unwell with slight headache, anorexia, and backache. He had a slight cough but no sputum or chest pain. On admission his temperature was 102° F. and pulse 95. On the 30th he had a rigor, and blood smears showed B.T. malaria. On the same day crepitations were heard over the left upper zone anteriorly and radiographs showed a fan-shaped area of consolidation extending outwards from the left upper hilum to the outer subclavicular region. The white cell count was 3,300. There was no sputum throughout the illness. He had eight days' mild pyrexia, and three weeks after the onset radiographs showed only a little residual striation.

Case 113.—L/Cpl. H., aged 21, was admitted on Aug. 16 complaining of headache, dyspnoea, and general malaise. He also had pain in the right chest anteriorly on respiration. Three days after admission he had a small haemoptysis, but no physical signs were detectable till the following day, when crepitations with distant tubular breathing were heard at the right base and radiographs showed an oval consolidation situated on the diaphragm, which was slightly elevated. The white-cell count was 5,650 per c.mm. On admission his temperature was 100° F., but on the two succeeding days it reached 103° F., and settled by lysis on the sixth day. The pulse was never more than 100 and respirations 22. Culture of the sputum showed streptococci, pneumococci, and *M. catarrhalis.* A radiograph four weeks after the onset showed only a slight residual opacity.

Case 118.—Gdsmn. I., aged 22, was admitted on Sept. 25 with a history of a few hours' headache and shivering. His temperature on admission was 104° F. and pulse 110. Blood smears were negative for malaria. On the 27th no physical signs were detected, but radiographs showed a fan-shaped area of consolidation in the left upper zone, chiefly peripheral. The left hilar glands were notably enlarged. The white cell count was 5,200 (polymorphs 55%, lymphocytes 40%, monocytes 4%, eosinophils 1%). He had no sputum till four days after the onset, when there was a slight haemoptysis. He had a high intermittent fever (100° to 104° F.) for nine days, but made a rapid convalescence.

Case 120.—Dvr. J., aged 37, was admitted on Sept. 23 complaining of headache, shivering, and backache. He had a slight cough with a little mucoid sputum, and complained of pain in the left lower chest anteriorly. A few coarse crepitations were heard in this area, and radiographs showed a fan-shaped opacity in the left lower zone of medium density, extending outwards from the lower hilum and leaving the costophrenic angle free. The white cell count was 5,000 per c.mm. (polymorphs 61%, lymphocytes 37%, monocytes 2%). Blood culture was negative. Temperature on admission was 101° F.; thereafter he ran a high intermittent fever, with frequent peaks of 103° F., for nine days. Radiographs three weeks after the fever subsided showed that the lesion was rapidly resolving.

Discussion

During some months of the Italian campaign atypical pneumonia was an important cause of long-term sickness. As compared with other reports available to us, our cases ran a much more acute course, as evidenced by the high temperature maintained with small intermissions, but complications were absent and there was no morbidity. Our evidence supports the view that the disease is of virus origin, and the similarity of the clinical and radiological pictures suggests that in this series the same virus was responsible. There was no evidence of association with other known virus diseases. It is notable that diseases presumably due to a virus—infective hepatitis, varicella, poliomyelitis, and atypical pneumonia—have occupied a pre-eminent place as causes of long-term sickness in this campaign. This is testimony to the fact that in the Second World War the bacterial diseases have been largely under control, thanks to sulphonamides and the various prophylactic measures. Apart from typhus, the answer to most of the virus diseases is still awaited.

In many cases the severity of the illness was in marked contrast to the small area of lung involved. This suggests an analogy with poliomyelitis, in which the lesion may be very small even in fatal cases. But while a small local lesion is the rule in poliomyelitis, fatal cases occur, with widespread damage to the nervous tissue. Is it to be feared that atypical pneumonia also may produce extensive lesions, and will this prove to be the "influenzal pneumonia" of 1918 and 1929? Just as in severe cases of poliomyelitis acute haemorrhagic reaction may occur, so in atypical pneumonia frank bleeding from the irritated lung tissue is not infrequent, unaccompanied by the bacteria-laden mucus seen in pneumococcal pneumonia.

In view of the frequent association of malaria and atypical pneumonia in this series we recommend that cases of malaria which fail to respond to quinine should have a thorough clinical and radiological examination to exclude the association. It has been our practice in these cases to continue antimalarial treatment with quinine only when the atypical lesion has been discovered; for, as we have stated above, every patient in whom the pneumonia was diagnosed was given sulphapyridine or sulphathiazole, and it has been our experience that a sulphonamide and mepacrine together may not be well tolerated. The combined use of a sulphonamide and quinine, on the other hand, causes no disturbance.

Summary

Cases of primary atypical pneumonia to the number of 112 were admitted to a military hospital in Italy during the spring of 1944. For some weeks the incidence reached epidemic proportions.

Most of the cases had an acute onset and ran a high intermittent fever for an average of eight days. In other respects the clinical findings were similar to those in recent British and American reports.

There were no complications and no morbidity, but there was considerable debility, requiring four to six weeks' convalescence, so that the majority of these men were off duty for a total of about eight weeks.

One-third of the cases had a benign tertian malaria infection in addition to atypical pneumonia. There was no evidence that the association was other than fortuitous in a population among whom malaria was prevalent.

Sulphathiazole and sulphapyridine had no effect on the course of the illness, but we ascribe the absence of complications and secondary fevers to their routine use. There was no indication that they had any toxic effect on the polymorphonuclear leucocytes, and when used in combination with full doses of quinine, in the malaria cases, no adverse effect was noted.

We wish to thank Major W. Stewart for his assistance with the bacteriological examinations; S/Sgt. Maitland for his work with the records; and Col. R. I. Poston, T.D., for his co-operative encouragement.

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INCIDENCE OF PUERPERAL AND LACTATIONAL MASTITIS IN AN INDUSTRIAL TOWN OF SOME 43,000 INHABITANTS

BY

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It is very difficult to estimate the true incidence of mastitis, as most statistics come from hospitals and cases occurring in domiciliary midwifery practice are not included. In addition, information is not as a rule available to the hospital staff as regards the occurrence of mastitis in patients after they have been discharged from maternity hospitals—usually not later than, and often before, the fourteenth day of the puerperium. Hospital statistics thus tend to underestimate the number of cases.

Moon and Gilbert (1935) state that the frequency of puerperal infections of the breast is probably underestimated and too little notice is taken of the associated morbidity, the chief reasons for this being that (1) patients pass to surgical care other than that responsible for delivery, and (2) there is practically no mortality due to mastitis. Waller (1938) supports this view, and is sure that many lying-in institutions underrate the risk of breast infections through not hearing of the results. Chatillon (1941) says that statistics found in the literature, although valid for any particular institution, give only a very imperfect idea of the real incidence of mastitis because of lack of information as to what happens to women after discharge from hospital or to those delivered at home. Macpherson (1943) also holds this opinion, and may be quoted: "Infection in the puerperal breast, however, has received less attention than its frequency and ill effects upon the mother merit, possibly because most cases begin about the time of the patient's discharge from institutional care, after a hitherto apparently normal puerperium." Rubeska is quoted in Williams's (1941) *Obstetrics* as finding a frequency of 0.54 to 4.1% in the various German clinics, while Waller (1938) found that out of 163 patients attending his clinic, and all delivered in one hospital, 11 (6.7%) developed suppurative mastitis. Chatillon (1941) estimates that the incidence has fallen during the past 40 to 50 years from 5–15% to 0.5–1.5%. Gilbert (1941) states that 3% in a series of 100 cases had recurrent mastitis—"which is higher than the usual incidence"; and Robinson (1943), in a series of 1,100 cases of failing lactation, found that 33 (3%) gave a history of breast abscess. It may be noted that most writers estimate the maximum frequency at the present time to be not more than 3%, and that the author who records the highest incidence (6.7%) obtained his statistics from a child welfare clinic.

In view of the meagre information available, apart from hospital statistics, about the incidence of mastitis it was thought that an inquiry into the relevant conditions in a circumscribed area might shed some light on the problem.

The Investigation

The area concerned is an industrial town in Scotland with a population of roughly 43,000, and has a municipal maternity hospital with 30 beds. In order to ascertain the actual frequency of mastitis a system of "unofficial" notification was initiated. Each health visitor was asked to notify, using a standard form of notification, all cases of puerperal or lactational mastitis occurring in her district. This did not give an absolutely complete incidence for the period under review, as almost certainly some cases were missed, but any inaccuracy must have been on the side of underestimation.

Criterion.—Definite evidence of suppuration was the criterion adopted as to what constituted mastitis. Without such a standard it would have been difficult to exclude "breast flush" or simple engorgement; and, for the purpose of this survey, mastitis was considered to be present only when there was a history of spontaneous evacuation or incision of an abscess.

Period under Review.—The notification scheme was started in Dec., 1941, and cases known to have occurred in the later months of 1941 were included to cover the period from Sept. 1, 1941. Any case of mastitis occurring after Dec. 31, 1943, was excluded. The period under review was therefore two years and four months.

Incidence.—This has been taken to be the number of cases of suppurative mastitis occurring from Sept. 1, 1941, to Dec. 31, 1943, as a percentage of the total births. The incidence found may be slightly lower than the true one, as the notifications for the months of Sept., Oct., and Nov., 1941, were retrospective and depended on the memory of the health visitors. For this reason the incidence for each year is given separately.

During this period 156 cases of suppurative mastitis were notified—i.e., almost one in every ten recently parturient women in the town certainly suffered from breast abscess—while the following must also be taken into consideration: (1) Some cases may not have been reported, or may have been missed for some other reason; (2) patients who had mastitis which resolved without going on to abscess formation were not included. The real incidence of mastitis, including non-suppurative forms, must therefore have been higher than the figures given in Table I would suggest.

TABLE I

	Total Births	Mastitis Cases	Percentage
1/9/41 to 31/12/41	251	16	6·37
1942	737 } 1,500	77 } 140	10·45 } 9·33
1943	763	63	8·26
Totals	1,751	156	Mean, 8·91

Parity.—In the series of 156 cases of mastitis 92 (59%) were primiparae and 64 (41%) were multiparae (Table II). The proportion of primiparae to multiparae in all the burgh births during the period concerned is not available, but it is possible to give the proportion for the maternity hospital. It may be contended that a hospital proportion would not be truly representative, as in most maternity hospitals first confinements predominate. This contention does not apply to any great extent in the hospital concerned, as most confinements (over 90%) were booked cases, admitted strictly in order of application and not on account of any anticipated difficulty nor because of primiparity; less than 10% were emergency admissions. Of the total confinements in the maternity hospital from Sept. 1, 1941, to Dec. 31, 1943, 51% were of primiparae. The proportion of primiparae to the total births for the burgh was not likely to be greater, and therefore it will be seen that a slightly larger number of primiparae developed mastitis (59%) than might have been expected from the proportion of primiparous patients (51%) found in the local institution. The percentage of primiparae in this series was not so high as that found by Moon and Gilbert (1935) in the City of London Hospital (73%), and was more in agreement with Winckel's estimate (two-thirds were primiparae) as quoted in Williams's *Obstetrics* (1941).

TABLE II.—*Parity*

Hospital deliveries:		Mastitis cases (156):	
Primiparae	51·4%	Primiparae	92 (59%)
Multiparae	48·6%	Multiparae	64 (41%)

Place of Delivery.—Most authorities are agreed that mastitis is more common in institutions. Moon and Gilbert (1935) found a much smaller incidence of mastitis in their district patients, who were, broadly speaking, of the same social status and general health as the hospital patients; and they came to the conclusion that acute puerperal mastitis is essentially an institutional disease. Chatillon (1941) says that mastitis seems to occur more often in maternity institutions than in the patients delivered at home, and Waller (1938) also considers that the incidence of mastitis is much higher in women delivered in institutions. Although in the present investigation very few cases of mastitis actually occurred in the municipal maternity hospital, 121 of the 156 patients (77.6%) had been delivered in the hospital (Table III), the condition usually developing after the return of the mother to her own home. This figure is higher than was to be expected, as the percentage of all burgh births taking place in the hospital for the period under review was under 43 (45 for the past five years). To put it another way, 16% of women delivered in hospital developed mastitis, while only 3.5% of women delivered at home did so. There is a significant difference here, and these figures provide strong evidence in support of the view expressed by most writers that mammary infections occur more frequently in women who are delivered in maternity institutions. Although mastitis was found to be more common in primigravidae the high incidence in hospital patients would not be accounted for by this factor alone, as only approximately half the patients delivered in hospital were primiparous women.

TABLE III

	Hospital	Home	Total
Number of confinements	748 (42·7%)	1,003 (57·3%)	1,751
Number of mastitis cases	121 (77·6%)	35 (22·4%)	156
Percentage who developed mastitis	16·18	3·49	8·91

Time of Onset.—As records of the time of onset of mastitis usually come from maternity hospitals, and as hospital staffs may have no knowledge of cases occurring after the patients have been discharged from hospital, the figures may exaggerate the earliness of its appearance. According to Williams's *Obstetrics* (1941) the symptoms are rarely seen before the end of the first week of the puerperium, and as a rule not until considerably later. Moon and Gilbert (1935) found that the average time of onset in a hospital series was the eleventh day of the puerperium, varying from the fourth to the twenty-fourth day. The exact date of onset was known in 93 of their patients, and in 80 (86%) it occurred before the end of the second week. According to DeLee (1938) the parenchymatous (most common) type seldom begins before the seventh day, and most often occurs from the tenth to the twentieth day. Kenny (1941) says that the symptoms usually appear late in the puerperium, often in the third week or later, while Macpherson (1943) found that 15 out of 26 cases (57%) occurred within one month of parturition. The authors of *Queen Charlotte's Text Book of Obstetrics* (1943) state that mastitis usually arises during the third week of the puerperium. Waller (1943) considers that 90% of acute abscesses of the breast occur within the first month after delivery. In the present series, in only 16 of the 156 cases (Table IV) did the first symptoms appear before the end of the second week, and in only four during the period normally spent in hospital. The highest weekly incidence was in the third week after delivery, and the latest time recorded was when the infant was 5 months old (two cases). Only 16 (10.3%) began before the end of the second week. This may be compared with the percentage of 86 given by Moon and Gilbert (1935); but their statistics related to a hospital series. The time of onset in our series was more in agreement with the views of DeLee (1938)—one-third of the cases occurring from the tenth to the twentieth day—and of the authors of *Queen Charlotte's Text Book of Obstetrics*. It should be noted, however, that, although the highest weekly incidence was in the third week, 45% of the cases occurred after the end of the fourth week.

TABLE IV

Time of Onset		All Cases		Cases Delivered in Hospital	
During pregnancy		1	16 (10·3%)	0	12 (9·9%)
1st week		0		0	
2nd week		15		12	
7–10 days ..	4				
10–14 days ..	11				
3rd week		41		33	
4th „		29		24	
5th week		26	70 (44·9%)	18	52 (43·0%)
6th „		11		9	
7th „		13		12	
8th „		6		4	
9th „		5		4	
10th „		1		1	
11th „		2		0	
12th „		1		0	
13th „		0		0	
14th „		1		1	
15th „		0		0	
16th „		1		1	
17th „		0		0	
18th „		1		1	
19th „		0		0	
20th „		1		1	
21st „		1		0	
Total		156		121	

Discussion

The incidence of mastitis (8.91%) found as a result of this investigation is much higher than is generally believed to be the case. It can be argued that the town concerned had a larger number of breast abscesses than other areas; but this argument would be difficult to substantiate, because comparable figures for other areas are not generally available. Most statistics are gleaned from hospital records, and these of necessity include only cases occurring early in the puerperium and in women delivered under the aegis of the hospital—intern or extern. They do not include cases arising after discharge from hospital or those of women delivered at home by the family practitioner or midwife. Chatillon (1941) admits this difficulty, and casts doubt on the value of low statistics from hospitals. He says: "We know by experience that a number of mammary infections begin only after the patient leaves hospital." Published figures probably, indeed almost certainly, underestimate for this reason. The incidence reported from other areas would no doubt be much lower than that found in this investigation, but it should be noted that if the investigation had not been carried out the incidence for the burgh as obtained from hospital statistics would have been much lower. The number of cases actually occurring in the maternity hospital and known to the staff of that institution was very small. Reference to Table IV shows that in only five instances did the onset occur before the tenth day of the puerperium (the usual time of discharge from the hospital), and only 16 cases (10.3% of the total) occurred before the end of the second week. The one other likely source of information was the general hospital of the town, and it was found that only 58 of the 156 cases had been treated in that institution. The others, apart from those in whom spontaneous evacuation had occurred, had had incision done either in their own homes or in hospitals outside the burgh. The claim can therefore be made that it was only because of this special investigation that the high incidence was brought to light.

The incidence may have been still greater than the figures given in Table I would suggest, as it is highly probable that even with the aid of the notification scheme some cases were missed and cases of non-suppurative mastitis were excluded. It is significant that when, for the purposes of another inquiry, some 250 women in the same town were carefully followed up for a period of six months after delivery, the incidence among them was even higher—viz., 25.1%—and a further 5.4% had a history of mastitis which subsided without abscess formation. It may be submitted not only that the compilers of hospital statistics underestimate the frequency because they do not know about cases occurring outside, but that notification under a scheme such as that instituted for this investigation also underestimates, although not to the same extent, because of "missed" cases.

To account for the large number of cases of mastitis occurring during the period under review the possibility of an epidemic must be considered. It is of interest to note that the maternity hospital was closed at the beginning of 1943 because of an outbreak of post-partum pyrexia and other signs of infection. On the other hand, the incidence of mastitis during this period did not show any unusual increase, and, after a short period of closure followed by more strict limitation of admissions, the maternity hospital had no further trouble. It should also be noted that the incidence of other infections in the burgh did not show any abnormal rise during 1942 and 1943. If the high incidence found was due to the investigation coinciding with an epidemic period it would seem that the epidemic was of considerable duration, and the matter can be cleared up only by further observations.

Another fact which emerged as a result of the investigation was that there was a much higher incidence of mastitis among women who had been delivered in hospital. It should be pointed out that only one hospital was concerned, and it is possible that some factor applicable to that one institution may have been partly responsible; for instance, owing to excessive demands on its accommodation the hospital was often overcrowded. There is no doubt that this high incidence among hospital patients merits deep consideration in view of the increasing tendency for confinements to take place in institutions. Probably the most important factors responsible for the undue prevalence among hospital patients are as follows:

1. *The Presence of Micro-organisms in Cases of Infection, in "Carriers" (Patients, Staff, and Visitors), in Dust, etc., to Which the Newly Delivered Woman has Not Acquired an Immunity.*—At the present time "black-out" conditions and deficient ventilation probably increase the importance of this factor, and, although the same "black-out" conditions exist in the home, they may not be so dangerous, owing to the patient being more resistant to any micro-organisms present.

2. *The Possibility that in Overcrowded Nursery Conditions the Infant Acquires Micro-organisms which are Later Transferred to the Mother.*—Henderson (1943) has shown that there is a high incidence of neonatal infection in maternity hospitals, that *Staph. aureus* is the commonest cause of such infection, and that staphylococcal conjunctivitis is much the commonest staphylococcal lesion. He considers that the causes of the high incidence are overcrowding of nurseries, absence of barrier nursing precautions, and inadequacy of nursing staff. Benians (1943) found in a maternity hospital that a high proportion of infants and people of all ages carry *Staph. aureus* in the anterior nares; almost 100% of infants in the nurseries of the hospital were nasal carriers at the age of 10 days, and the carrier rate among the nurses varied from 25 to 85%. In such conditions, especially when overcrowding of the nursery coexists, it seems to be extremely likely that an infant may leave the maternity hospital harbouring in the eyes, nose, or skin a strain of *Staph. aureus* to which the mother is not inured; the transference of these organisms to the breast of the mother during suckling would be almost unavoidable.

In order to minimize the risks of infection it is very necessary that in maternity hospitals or units attention should be directed to the provision of adequate bed-spacing (the Medical Research Council Subcommittee (1944) recommends that the distance between bed centres should be not less than 12 ft.), proper ventilation, avoidance of overcrowding, and the desirability of cubicle nursing for both mothers and infants. It is also advisable that there should be ample window space, as Garrod (1944) has shown the bactericidal effect of light—even diffuse daylight; while van den Ende and his co-workers (1940, 1941a, 1941b, and 1941c) have demonstrated that oiling of floors and bedclothes reduces the number of dust-borne bacteria in a ward.

3. *The Tendency to Overcrowd Institutions.*—This may act in two ways—by increasing the chances of infection, and by reducing the time available for carrying out adequate prophylactic measures and for careful supervision of breast-feeding.

4. *The Rigid Hospital Routine of Feeding, with Unduly Long Intervals (Usually Four Hours) Between Feeds, thus Encouraging Stasis.*—This is probably an argument in favour of three-hourly feeding in the early days and also for feeding from both breasts at each feed. Moreover, there is the strict adherence to a time-table, so that the infant is kept for a fixed time at the breast, whether or not he is getting milk, thus tending to cause trauma of the nipple. Admittedly, more frequent feeding and more careful supervision during feeds would require a larger staff than most institutions possess at present.

5. *Malnourishment Predisposing to Infection.*—A further possibility to be considered is that the woman who is delivered in hospital belongs to a special type, perhaps of a poorer class and therefore more likely to be undernourished. Statistical information on this point is not available, but the impression is that the hospital patients in this series were representative of the population as a whole. Against this hypothesis is the fact that the results of this investigation showed that mastitis did not occur more often in women of the lower-income class.

To account for the fact that in this series most cases began after leaving hospital is difficult. It may be that so long as the patient is under supervision and strict precautions are being taken to prevent the entry of micro-organisms—such as by covering the nipple between feeds—the infection can be warded off. This prophylactic technique may, however, break down when the patient returns home, and infection may then occur. This would not explain why infection occurs less often in women delivered in their own homes, where, presumably, the same breakdown in technique is as likely to happen. Other possible explanations are a long incubation period for the infection acquired in hospital, infection of the mother by her infant after discharge from hospital, or that recently parturient women are discharged from hospital before the time of greatest susceptibility.

The maximum incidence occurred during the third week of the puerperium, and there would appear to be a strong argument in favour of retaining patients in maternity hospitals for a longer period than is the present custom or than is possible with the accommodation available. Women are discharged on the tenth day of the puerperium—or even earlier when there is a demand for beds—before lactation is sufficiently well established and at a period when great difficulty with the process is often experienced. At such a time, and before the mother has fully recovered from the confinement, the added strain and worry of going home to cope with household duties and a new infant, combined with lack of time to carry out the general routine of antisepsis learned in the hospital, may perhaps tip the balance and precipitate the onset of an infective process. It may seem inconsistent to point out that mastitis occurs much more often in women delivered in hospital and at the same time advocate that mothers should be kept for longer periods in hospital, but, once the mother is in hospital, there does not seem to be much to be said for discharging her before she is fully recovered in health and the process of lactation firmly established and secure.

Although the highest weekly incidence was in the third week of the puerperium, 45% of the cases occurred after the end of the fourth week. Cases occurring as late as this may well be missed by the compilers of hospital statistics having no cognizance of the results after the patients have returned to their homes, and this would apply even if the stay in hospital were extended beyond the present customary period.

Summary

Attention is drawn to the fact that most statistics relating to the incidence of acute mastitis are probably misleading and err on the side of underestimation.

An attempt to get some information regarding the true position in an industrial town of 43,000 inhabitants revealed an incidence much higher than is generally accepted. From information received under a notification scheme it was found that over a period of 28 months 156 women developed suppurative mastitis, giving an incidence of nearly 9%. It is suggested that any discrepancy between these figures and those published from other areas is due to the fact that the latter relate only to cases occurring in hospitals and early in the puerperium.

As comparable figures for previous years are not available there is no proof that the incidence has increased.

As a predisposing factor it was found that the place of delivery played an important part. Breast abscesses occurred in 16% of the women delivered in hospital and in only 3.5% of those delivered at home. While less than half the burgh births occurred in hospital, 78% of the notified cases had been delivered in hospital.

The onset occurred most commonly in the third week of the puerperium, but in 45% of the cases the first symptoms did not appear until after the fourth week of the puerperium.

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A FURTHER CASE OF PARANOID PSYCHOSIS SUCCESSFULLY TREATED BY ADRENALECTOMY

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A special study of adrenal disease has been made at Charing Cross Hospital since one of us (L. R. B.) performed an adrenalectomy on a case of sexual precocity over 15 years ago. In 1933 Broster and Vines published a study of ten women suffering from virilism and showed a differential staining reaction demonstrating differences in the cortical tissue of normal and sexually abnormal individuals of both sexes. About this time it was noticed that women suffering from virilism were often abnormal—undersexed or homosexual, sometimes psychotic. The cases operated on, and new cases, were studied psychologically. These were published in full in Broster's *Adrenal Cortex and Intersexuality* in 1938. This work attracted the attention of Dr. R. D. Gillespie, who discovered a woman suffering from a severe schizophrenic paranoid psychosis combined with adrenogenital virilism. He was kind enough to send her to Charing Cross Hospital, and a study was made on the effect on her psychosis of removal of one of her adrenals. The result was a complete cure, which was published in full (Allen *et al.*, 1939). The woman showed a prepsychotic personality of schizoid, " odd-man-out " type. There was a previous history of telegraphist's cramp and exophthalmic goitre. She noticed hirsutism at 14, which spread by the time she was 18. When seen at 34 she was very hairy, and for the past six years had thought she smelt. This hallucination had increased, and she finally became so psychotic that she believed people were talking about her and certification was considered. An adrenalectomy was performed, and 12 days after it she had lost her hallucinations and had become heterosexually attached to her dresser, who had been kind and patient with her. Three weeks after the adrenalectomy she became confused for a few hours, but this passed away, and she has never had a recurrence. She has returned to her position in the Post Office (from which she had been discharged and pensioned) and has continued to work there happily ever since.

We are fortunate in being able to present another similar case.

Case Notes

The patient comes from healthy Jewish stock. The father and mother are alive and well. One sister, aged 22, is a little hirsute, and a brother, aged 24, very hairy. There is no family history of neurosis or psychosis.

Personal History.—She is a good-looking brunette Jewess. Her birth was normal and she developed normally until 2 years old, when she had an attack of meningococcal meningitis in which she was unconscious and showed spinal rigidity, necessitating treatment in hospital for six weeks. She recovered, and started school at a normal age. A tomboy, good at games but below average at her lessons, her schooling was uneventful. She developed a facial tic on leaving school. There was strong masturbation guilt as a girl, and when she vomited after eating sardines, at the age of 12, she developed an obsessional fear of this recurring. When she left school she studied domestic science, disliked it, and transferred to a commercial college, which she enjoyed. She then entered her father's business and remained well till 1936 (aged 19), when she complained of pain in the right iliac fossa and a radiograph suggested appendicitis. The appendix was removed, but she still had abdominal pain. She had great anxiety over masturbation at this time, and became excited and upset, and could not sleep for a while. This passed off in time. She remained a little masculine in her interests: after leaving school she still played games, particularly cricket and hockey. Cosmetics were not used, and she smoked heavily after 21. Although she had one female friend, to whom she was attached, there was no overt homosexuality. At the age of 21 she went to her father and told him she had had two proposals from young men and did not know which to marry. Her father told her she must decide for herself, and she finally married a young man who worked in her father's business and who eventually became a partner. During her engagement she had a period of general restlessness and was depressed for a time. The phobia of vomiting increased and was accompanied by marked claustrophobia, with feelings of nausea, dizziness, and panic. These symptoms passed away before her marriage. This was successful, but there was no real sexual happiness, and she complained of having little or no orgasm.

There was no further illness until she went to a dance in Dec., 1940. This was at a Manchester hospital. There was an air raid, and the shelter in which they took cover received a direct hit from a bomb, killing a woman next to her. She was found running down a corridor, without her shoes, calling for her husband in a hysterical state. She was put in bed for three weeks, apparently recovered, and remained well till the autumn of 1941, when her previous symptoms returned with greater intensity and she complained of giddiness, inability to concentrate, obsessional fears of sirens, anxiety lest there should be further raids, abdominal discomfort, and sexual dissatisfaction. She insisted that something was wrong with her abdomen. On Feb. 4, 1942, she saw Dr. Henry Cohen, who diagnosed an obsessional psychoneurosis and recommended psychotherapy. He thought that her personality was schizoid, but found no psychosis present. As a result she was sent to the Cassel Hospital on Feb. 24, 1942. Unfortunately when she arrived she was inaccessible with blocking of thought, staring into space with inability to concentrate. Psychotherapy was impossible, so she was given electrical convulsive therapy (twice weekly—seven shocks in all), bellergal, and paraldehyde. She was discharged, with a diagnosis of a depressive state with schizoid and hysterical features, because of her suicidal impulses. Psychotherapy was then started by Dr. Cross of Manchester. She was accessible when treatment began—April 13, 1942—but rapidly became depressed, sleepless, and self-accusative. Treatment was abandoned on Aug. 4, as psychotherapy was impossible. She then saw Dr. Barton Hall, at Liverpool, who diagnosed katatonic schizophrenia and advised treatment at Crichton Royal Infirmary. She was transferred there in October. She had further electrical convulsive therapy—six convulsions—and insulin. She wore trousers and smoked heavily during her stay. She was attracted to another female patient, and attempted to caress, and make physical advances to, her. She was restless, complaining, vicious, overactive, and interfering: she tried to reorganize the wards. She left on Dec. 5, but took such a long time packing her clothes that she and her husband missed the train and were forced to spend the night at a hotel in Dumfries. They attended a dance in the evening, but she misbehaved and was noisy and obstreperous. It was with difficulty she was persuaded to return to their room. Sexual relations took place that night. When she arrived home she continued to behave badly, and was more or less uncontrollable; she destroyed all her underclothes, threw away the household goods, made a violent homosexual attack on a nurse in charge of her, refused to go to bed, and was almost impossible to manage. She again saw Dr. Barton Hall, who diagnosed her as a typical katatonic schizophrenic with flexibilitas cerea and attacks of katatonic excitement. She was therefore transferred back to Crichton Royal Infirmary, where she had further electrical convulsive therapy (six shocks). She improved, but still remained katatonic, hallucinated, and solitary. She was given further insulin therapy without effect.

In Feb., 1943, it was noticed that she had amenorrhoea, and an Aschheim-Zondek test was performed on the advice of Mr. Dewar, the visiting gynaecologist. This was positive, so it was decided, in view of the deterioration in the psychosis, that the pregnancy should be terminated. This was done on March 8, and an 8-weeks foetus was removed. She was still very psychotic and hallucinated, muttering to herself, so she was given further insulin therapy. She had 65 insulin comas between April, 1942, and July, 1943, but remained facile and fatuous, and behaved as a naughty child.

It was then noticed that she was becoming hirsute, and endocrine dysphasia was suspected. Mr. Dewar suggested that it was of pituitary or adrenal origin. Her pituitary was investigated but found normal. Dr. Hain, of the Animal School of Genetics of Edinburgh, tested her urine and showed pregnanediol in the merest trace. The ketosteroid excretion at various dates was: May 15, 1943, 21 mg. a day; July 29, 1943, 46 mg.; Sept. 28, 1943, 24 mg.; Jan. 18, 1944, 17 mg. (Average 27 mg. a day.)

Mr. Dewar advised 5 mg. of progesterone three times weekly. The patient improved during Sept., Oct., and early Nov., 1943, but unfortunately relapsed later in November and became grossly deluded again. She attempted suicide by drinking petrol. The progesterone injections were continued without apparent effect, either physical or psychological. She tried to make a further homosexual attachment to another patient, but was separated from her. On Jan. 19, 1944, Dr. Wislicky, her private doctor, asked for her to be examined with a view to adrenalectomy, and this was kindly permitted by Dr. McCowan, the superintendent of Crichton Royal Infirmary, and by Dr. Meyer Gross, under whose care she was there. She was seen on Jan. 19.

Physical Examination.—She was a well-built woman of 26 years, dressed in a pullover and trousers. Her hands were stained with nicotine. Her cheeks had a high natural colour with thick down on them, as well as on the upper lip and chin. There was coarse, thick hair on her thighs and legs, but not so thick on the arms and forearms. There were tufts of hair on the dorsum of the toes but not on the backs of the fingers. The hair had a masculine distribution over the abdomen and some stretched up to the chest. The fat distribution was masculine in type; the buttocks were more masculine in shape than feminine, but this was not marked. She was strong, without the very developed musculature observed in these cases. No abnormality was detected in any system. Her nervous system was perfectly normal from the organic point of view. Her blood pressure was 120/80.

Psychological Examination.—She was accessible, co-operative, and behaved well while examined. She said she felt ill but properly orientated, and appreciated she was being examined to help her to recover. She stated that she was worried by airplanes, which gave her electric shocks when they flew over, and vaguely connected this with her wiry hair. She said spontaneously that she was hallucinated and heard "voices" saying obscene words to her. She often missed the thread of conversation, and this she explained as due to the "voices" distracting her attention. She had feelings of influence, and felt she knew also what people were thinking. She said she attempted suicide because she was Jewish and people hated the Jews, but had no antisemitic delusional symptoms. Her mood was gloomy but not depressed or anxious. She said her voice was more masculine, and she wore male clothes. She felt she was deteriorating and wished for treatment. Insomnia worried her. A diagnosis of schizophrenia in a woman suffering from adrenogenital virilism was made. She was transferred to Hampstead and examined there. She was extremely suspicious and confused, and stared absentmindedly into space. She spoke slowly and with hesitation. In view of her physical condition it was decided she was suitable for adrenalectomy. A laparotomy was performed on Feb. 21, 1944, and the left adrenal was found to be the larger of the two. The left ovary was fibrotic. A month later an adrenalectomy was performed. The pathologist reported that "the cortical cells showed the presence of a large amount of granular red staining material (ponceau-fuchsin stain)." A further specimen of urine taken two weeks after operation showed that the excretion of ketosteroids had dropped from 27 mg. to 7.2 mg. a day. Surgically this patient was typical of Group II virilism. Her hair could be pulled out easily, and in three months her period had settled down regularly to three to four days in a 28-day cycle.

Post-operative Findings.—The patient was re-examined on March 30, 1944. The improvement was striking. She stated she was thinking better and felt she would improve further. There was more insight. The hallucinations had gone, although she was still inclined to day-dream. She had lost her delusions and no longer felt "electric-shock" sensations when airplanes flew over: this was remarkable, as there were constant air raids at the time. She talked more freely and was less taciturn. She was more feminine and took more interest in her surroundings. Her mood was brighter and she welcomed visitors. She continued to improve. The daily steroid output fell from 30 mg. to 7.2 mg. She was well psychologically, although on April 6 she complained of some pain over the right iliac fossa and was passing jelly in her urine. This was investigated and found to be of no significance. (It should be noted that the previous case also had a short period of confusion three weeks after her adrenalectomy.) Her husband was seen at the time, and was very happy over the result. She complained that she had " no decent clothes to wear " and spent the remaining time in the nursing home going out with her husband, visiting cinemas, dancing, and improving her wardrobe. She worried over running a house and over the " points " system of rationing. In fact, her conversation was that of any intelligent woman suddenly faced with the difficulties of wartime life after years of isolation. She has been seen twice since her operation, and still maintains her recovery. On Nov. 2, 1944, she wrote to say that she was spending her time shopping, cooking, and housekeeping, and drove her husband's car when possible. The letter was that of a perfectly normal person—which indeed she now is.

It is of interest to note that this is the sixth case in which adrenogenital virilism has been combined with a psychosis, and the fourth in which the psychosis was schizophrenic in nature. The response to adrenalectomy was exactly similar in the previous case we were able to observe before and after operation. The fact that this patient was given the finest treatment (apart from adrenalectomy) suggests that these cases are unlikely to respond to ordinary therapy.

Summary

A further case of adrenogenital virilism combined with a paranoid psychosis is recorded.

These conditions occasionally arise together, and the occurrence of a syndrome, though of necessity a rare one, is possible.

Adrenalectomy appears to be successful in a certain number of cases.

As this condition does not seem to respond to other forms of treatment adrenalectomy should always be considered.

We are grateful to Dr. Wislicky of Manchester, Dr. P. K. McCowan, superintendent of Crichton Royal Hospital, and Dr. Meyer Gross for kindly allowing us to see this case, and for the use of notes and photographs; also to Dr. H. W. C. Vines, pathologist to Charing Cross Hospital, for allowing us to report his findings.

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HYPERTRICHOSIS WITH MENTAL CHANGES

THE EFFECT OF ADRENALECTOMY

BY

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The following case of hypertrichosis associated with mental changes, which gradually resolved after adrenalectomy, may be considered worthy of record for its psychiatric interest.

A married woman aged 25 was admitted to hospital on Feb. 1, 1944, under Dr. V. E. Lloyd-Hart and referred to A. S. P. and to R. G. for investigation. She had always, according to her mother, been somewhat introspective, imagining herself to be more seriously ill than others believed her to be. She was married to a soldier, then in Italy, with whom her relations had not been altogether happy owing to his alcoholic habits, but this worry had been relieved from the time he had joined the Army over a year before. Her mother, with whom she lived, was an invalid with an irreducible hernia who suffered from hysterical fits. The patient's young son had severe asthma, which often disturbed her at nights. She remained well until March, 1943, when she had an attack of cough with pyrexia. From that time she began to complain, to a steadily increasing extent, of a roaring and buzzing in the ears, " pins and needles " all over, nausea and abdominal pain, sudden feelings of exhaustion during which she contemplated suicide, insomnia, and a feeling of extreme tenseness and tremulousness. During the five months before her admission all these symptoms became worse, and in addition she began to perspire excessively and offensively. Acne and an inordinate growth of hair made their appearance. Her complexion became sallow and her weight dropped from 9 st. 7 lb. to 8 st. 3 lb. Her breasts became smaller and her menstruation, which had always been somewhat irregular, became scantier and less frequent, appearing for two days at intervals of 24 to 45 days.

On examination she was found to be a thin, sallow dark-haired woman looking 10 years older than her age and with a permanent expression of discontent. There was an excessive growth of hair on the arms, forearms, back of the hands, thighs, legs, and face. The pubic hair was feminine in distribution but excessive. Acne was present on the face and back. The blood pressure was 145/85 and the pulse rate varied between 72 and 100. The breasts were flat and deficient in glandular tissue. Otherwise nothing abnormal was found on ordinary clinical examination. Psychiatric examination revealed a tense hypochondria rather than a true depression. The patient had had certain worries, as already described, but the resolution of some of these had not resulted in any improvement in the hypochondriacal state.

The following further investigations were performed. Glucose-tolerance test: Resting blood sugar 79 mg. per 100 c.cm.; after 50 g. of anhydrous dextrose, half-hourly values of 133, 143, 116, and 108 mg. per 100 c.cm. Blood count: Haemoglobin 110%, R.B.C. 6.2 millions, W.B.C. 7,000. Androgen excretion (Dr. Lloyd Warren): 21 mg. of 17-ketosteroids a day. Perirenal insufflation (R. G.) suggested slight enlargement of the left adrenal gland, but was not conclusive.

A diagnosis of adrenal virilism was made, but in view of the indefinite skiagram she was discharged and readmitted a month later. Perirenal insufflation then seemed to show an increase in size of the left adrenal—an appearance which was actually illusory. The 17-ketosteroids had increased to 33.8 mg. a day. Operation was therefore advised.

At operation on April 21, 1944, the abdomen was explored through a transverse incision extending from just above the umbilicus to the 10th left costal cartilage. After palpation of the pelvic organs had excluded any gross abnormality the peritoneum was closed and the left adrenal identified and removed extraperitoneally. The extraperitoneal removal was helped by high spinal analgesia and the use of diathermy; it was made very easy by the extreme thinness of the patient. The gland was macroscopically normal. The usual precautions against shock were instituted (eucortone before operation, intravenous saline, and repeated blood-sugar estimations for the first 48 hours after operation), but her post-operative condition never gave rise to any anxiety.

The preliminary perirenal insufflation had excluded an adrenal tumour on the right side, and it was therefore possible, by the use of a transverse incision, to combine the essential preliminary exploration of the abdomen with the removal of the affected adrenal. This saved the patient a second operation. Histological examination of the adrenal gland showed a positive reaction to the ponceau-fuchsin stain.

A few days after operation the limbs were shaved, but the hair on the face was allowed to remain. During the next few weeks it gradually disappeared. Two months after operation she looked much more youthful. There was no sign of further growth of hair in the shaven or unshaven areas. She was still rather tense and anxious, and complained, though with less insistence, of indigestion. The noises in the head were now intermittent and were increased by solitude, inertia, and worry. She had not menstruated since the operation.

Eleven months after the operation a remarkable change was found. She looked her age—10 years younger than before the operation. Her weight had risen to 8 st. 9½ lb. Her complexion was no longer sallow, but a normal pink and white. There was no acne or hypertrichosis, though she had not shaved or used a depilatory. Her habitual frown had given place to a ready smile. After three oestrogen withdrawal bleedings had been induced, regular menstruation had begun and had occurred for the last five months without any further treatment. The noises in the head were now absent for long periods and were only occasionally brought on by worry. She was no longer tense, and considered herself to be psychologically normal. Her parents said that she had ceased to be self-centred and that she no longer " played up " or talked about her ailments. They were most impressed by her youthful appearance. Her 17-ketosteroid excretion was now (April 27, 1945) 18.8 mg. a day.

Discussion

The association between adrenal virilism and mental change is discussed by Allen and Broster in their paper on page 696 of this issue. The case here described is of considerable psychiatric interest. The psychological changes preceded the external physical changes. When first seen the patient was drifting into a tense hypochondriacal state in which at times she wished for death. The removal of most of the real causes for her anxiety did not bring about her recovery. This state is notoriously difficult to influence by psychological means.

Only after operation was she set on the road to recovery. It is noteworthy that the insomnia, dyspepsia, and the morbid habit of magnifying the noises in her head did not disappear immediately after the operation but improved over a number of months concurrently with the remarkable change in her appearance. It seems reasonable to suppose that the rejuvenating effect of the operation enabled the patient gradually to emerge from her hypochondriacal state.

TREATMENT OF IMPETIGO

THE VIRTUES OF CALAMINE LINIMENT AND SOME MINOR DRAWBACKS OF LOCAL SULPHONAMIDE THERAPY

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No one with experience of treating impetigo can fail to have been impressed at some time or other by the disastrous effects of using a remedy to which the patient's skin happens to be intolerant. First of all there is the major disaster of sulphonamide sensitization, in which the unlucky patient, after weeks or months of treatment, finds himself sensitized, perhaps incurably, to exposure to ordinary daylight, not to mention half a dozen of the potential irritants of a chemical nature he may have encountered during his illness.

But we are not so much concerned with dangers that are well known as with the accidents of therapy that may conceal their nature under the guise of an intransigent malady that persists in getting worse in spite of our treatment, or that somehow just does not get well. Such events are much more common than may be imagined. It is always well to remember the four things that a given local treatment can do: it can, of course, do nothing at all; it can make the disease better; it can make it worse; and it can prevent it from getting well.

It is the last possibility by which one is so often deceived. We therefore venture to draw attention to a mode of treatment which, incidentally, we claim to give results superior to all others in our own hands, but which also has the great virtue of avoiding the application to the skin of antiseptics or other substances capable of irritating it or giving rise to sensitization. Its main disadvantages are the extravagant use of dressings and the need for considerable skill and care in their application; but these are decisively outweighed by the reduction of the time spent in hospital, and the entire avoidance of disastrous sensitization phenomena.

The Calamine Liniment Method

Our method rests on six principles: (1) The free exposure of all parts to treatment—by shaving, if necessary. (2) The avoidance of trauma (apart from that occasioned by shaving). (3) Ensuring that the dressings are kept in close apposition with the affected parts, and that they remain moist. (4) That they are removed only for the few minutes necessary for shaving or re-dressing, and immediately reapplied. (5) That every outlying lesion is included in the treatment and that the dressing extends an inch or so beyond the affected area. (6) Finally, that the method of applying the remedy is altered as occasion demands—e.g., from compresses to smears—not the remedy itself.

Since each of these principles is of importance and neglect to observe any one may result in failure, we feel justified in entering into more detailed explanation of some of them.

Exposure of Affected Parts.—Ruthless shaving is, in our opinion, the key to success. On admission all hairy areas which are crusted are shaved, no matter how raw. To offer a little protection to the tender area, and to aid in softening the crusts, the parts are first anointed with lanette wax base; a lather of soap and water may or may not be used. No attempt should be made to save the hair of the scalp or eyebrows if involved. They should be thoroughly shaved, as even a small tuft of hair overlooked will delay cure. The eyebrows grow rapidly, and in the presence of persistent crusting it may be necessary to re-shave. Over the bearded region this should be done every second day.

Lanette Wax Base

Lanette wax	10 parts
Vaseline	10 ,,
Water	ad 60 ,,

Modified Calamine Liniment (to economize oil)

Adeps lanae	2½ oz.
Lanette wax	2½ ,,
Calamine	3½ ,,
Olive oil	20 ,,
Water	ad 80 ,,

Avoidance of Trauma.—To shave and to avoid trauma are apparently contradictory instructions. The damage caused by shaving is outweighed by the rapid healing which results from the closer contact secured for the dressing. Apart from shaving, no attempt is made to encourage the removal of crusts. Those crusts which do not separate readily and come away with the first dressing are not interfered with, as they seldom fail to do so with subsequent dressings, leaving a surface rapidly healing or healed.

Dressings.—For the dressing to be effective the closest contact is essential. Folds of gauze, four to eight layers thick, are completely saturated with calamine liniment and moulded on to the affected parts. Apposition in the natural folds is secured by packing and firm bandaging. The ear presents special difficulty. Several layers of gauze in the form of a tape are well saturated and tucked into all the natural folds and crannies of the ear. A similar dressing is made to encircle the ear to prevent the fissuring which so readily occurs at the upper and lower poles and in the retro-auricular fold. Unfortunately the ear dressing sometimes causes earache. To obviate this a dry plug of cotton-wool is inserted into the meatus and changed with each dressing. If the skin infection extends into the meatus the plug can be saturated with the liniment. To reach the deeper parts, otherwise inaccessible to dressing, a drop of cod-liver oil can be instilled. This relieves discomfort. An ear-cap of saturated gauze should be applied to keep the dressings in position. The response to this careful dressing is dramatic, and all crusting disappears in 24 to 48 hours. Subsequently the liniment can be simply smeared on without any dressing to cover it.

After discharge the patient is advised to wash or shave over a protective layer of lanette wax base or calamine liniment for a few days.

There still remain a few points on technique to be mentioned. First, the use of jaconet as a covering dressing. By retaining moisture, this economizes labour and material. Twice-daily treatment has sufficed, and fewer layers of gauze are required. Hot weather and the presence of acute inflammation are contraindications to the use of jaconet. It is essential at all times that the dressings remain moist; otherwise, by adhering, they may cause damage.

Pitfalls leading to failure arise from insufficient padding of the natural folds—e.g., fold of chin, angles of mouth, nasolabial folds, and bridge of the nose—and from bandaging that is not firm enough to keep the padding in position. If the angles of the mouth are involved it is an advantage to apply to the upper lip a dressing which is overlapped at the angles of the mouth by the firm lower-jaw bandage. The naso-labial folds should be treated in the same way as the folds of the ear—with a tape dressing. Bandaging must be firm, and to achieve this two half-masks, consisting of goggles and a four-tailed bandage for the chin, are preferable to one face-mask, which would tend to sag in places. The eyebrows also need particular care, and a specially thick firm dressing to ensure the rapid removal of all crusts. Liq. tinctor. applied twice daily to the eyelids will deal effectively with any lesions too close to the eye for bandaging.

The main points in the management of the case have now been dealt with. There is, however, one other item of supreme importance—that of not lightly changing treatment. One change is apt to lead to numberless others, until the medical officer and skin are both bewildered—the skin finally refusing to tolerate treatment.

Comparison with Sulphonamide Treatment

The method just described was elaborated by us towards the end of the period during which the local treatment of pyodermia with sulphonamides was fashionable, and we cannot dismiss the subject without further reference to that popular form of treatment. In a series of 643 cases, comprising 364 of impetigo and 279 of infective dermatitis, we recorded, with reference to the local treatment received before admission, the length of stay in hospital before the patient was fit for duty or for discharge into civilian life.

Of the cases of impetigo which had a general average stay in hospital of 14.5 days, 84 had been treated with sulphonamides for an average of 22 days; of the rest—some of which we ourselves treated with sulphonamides, some with calamine liniment, and some with other remedies—the figures were 11.4, 10.8, and 12.6 respectively. Of the cases of infective dermatitis, 63 which had been treated elsewhere with sulphonamides took 28.1 days on the average to get well, as compared with 18.6 days for the rest. It will be seen from these figures that the average duration of stay in hospital of the cases we ourselves treated with sulphonamide is scarcely longer than that of the cases treated with calamine liniment. Selection played a part in this. Mild cases for which expenditure of large quantities of liniment and dressing appeared extravagant, and cases of the types considered especially amenable, were treated with sulphonamides, while all the more severe ones had calamine liniment. Nevertheless, we feel it necessary to set out once more in tabular form the advantages and disadvantages of the two methods:

Local Sulphonamides	*Calamine Liniment*
1. Ease of application (as thick smears, twice daily)	1. Elaborate procedure requiring care and skill
2. Economy—no dressings required	2. Initially extravagant in material—saturated dressings, jaconet, bandages, etc., but smears only later
3. Aggravation of local condition encountered not infrequently	3. Aggravation rarely if ever encountered; almost foolproof
4. Risk of delaying response to subsequent treatment	4. No such risk; a favourable preparation for subsequent treatment
5. Experience required in choosing the type of case likely to respond straightforwardly to treatment	5. No such experience required
6. Limited safe period of use, 5–7 days; beyond that, increasing risk of sensitization	6. Unlimited safe period
7. Risk of later serious after-affects: (1) sensitization to light; (2) sensitization to sulphonamides	7. Safe treatment; no bad after-effects

Summary

Antiseptics are not necessary in the successful treatment of impetigo. The use of any of them—mercurials, dyes, sulphonamides, etc.—entails the risk of disastrous aggravation of the disease. Unsuccessful treatment with sulphonamides, quite apart from obvious sensitization phenomena, makes subsequent cure more difficult. A method of treatment with a simple calamine liniment is described and recommended for use in severe cases of all kinds of impetigo and infective dermatitis.

We are indebted to Lieut.-Col. Wilson for his interest and the suggestion of extending the application of calamine liniment to the external meatus in the presence of otitis externa; to Major Twiston Davies, command dermatological specialist, for his untiring help in preparing this paper; and to the nursing staff, especially Sister Joyce, who suggested the ruthless shaving.

The Malta Health Report for 1943 appears over the signature of Dr. A. V. Bernard, Chief Medical Officer. During the period under review there was a rapid and substantial improvement in the public health of Malta and Gozo. Although overcrowding was worse than ever and environmental sanitation far from perfect, the special attention paid to maternal and infant welfare work, the small incidence of infectious disease, and the use of sulphonamide drugs in treatment of respiratory and intestinal infections all helped in reduction of the death rate. Antidiphtheria inoculation brought down the mortality from this disease to the lowest for nineteen years. The slaughtering of many goats during the siege and pasteurization of milk resulted in a lower incidence of undulant fever than ever before. Only one case of indigenous malaria (benign tertian) was observed. War casualties were 5.7 per 1,000 of the population. An explosive outbreak of typhoid fever followed percolation from a bomb-damaged sewer into one of the main water reservoirs. Subsequently an Order was issued for compulsory inoculation. This is the last of a series of reports which deal with actual war conditions in Malta.

Medical Memoranda

Expulsion of Ectopic Foetus per Rectum

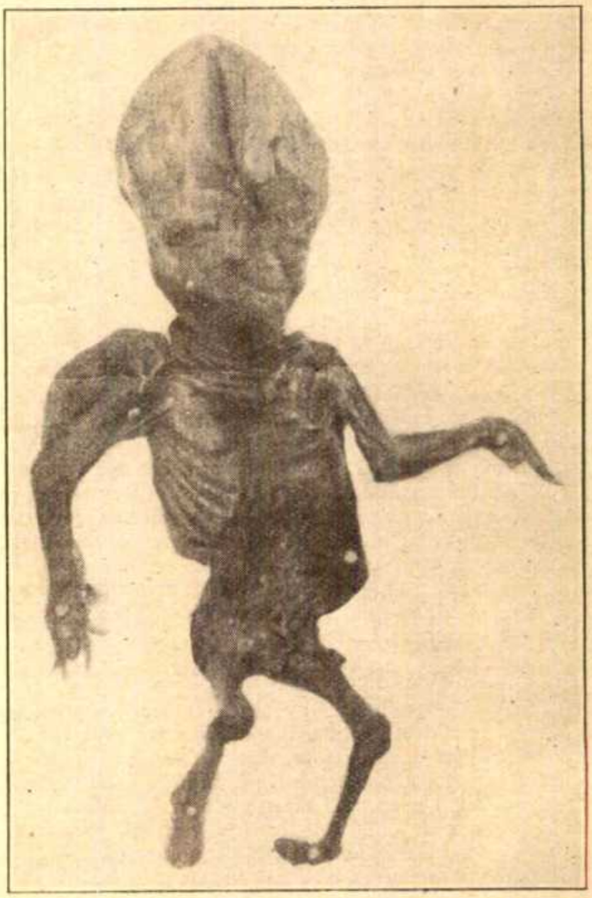
It is a rarity for a foetus to be expelled per rectum, and for this reason this case is being reported.

CASE REPORT

The patient, aged 28, came to the hospital complaining of acute abdominal pain, abdominal swelling, and obstinate constipation. Just before admission she had a severe uterine haemorrhage after a period of three months' amenorrhoea. With this bleeding there were vomiting and inguinal pain. Previously menstruation, which started in her fourteenth year, had always been regular. In this year she married and for ten years she remained sterile. Her husband died and she remarried.

On admission the temperature was normal and the pulse 90. The patient was pale. Abdominal examination revealed a hard mass rising out of the pelvis and reaching half-way to the umbilicus. Per vaginam the uterus was found to be anteflexed, and the fundus was felt one finger above the pubis. The portio vaginalis was conical and the cervix closed. The posterior fornix was distended by a hard mass separate from the uterus and filling the pouch of Douglas. Posterior colpotomy was performed, but no discharge followed this. Pelvic haematocele was diagnosed and the patient treated conservatively. For six days the temperature remained at 39° C. As there was no improvement operation was advised, but the patient refused and left hospital.

A fortnight later she returned complaining of rectal haemorrhage and stating that she had passed a foetus per rectum two days previously. The foetus (see photograph) was 9 cm. in length an mummified. On rectal examination a fistula could be felt, 3 cm in diameter, on the anterior wall about 7 to 8 cm. from the anus Through the fistula the finger entered the large sac of the haematocel There was a blood-stained blackish discharge. For 22 days th temperature varied between 37 and 38° C. At the end of this tim she was examined again. The uterus was deviated to the left, bu the left fornix was normal. On the right side there was a mas the size of a fist, attached to the pelvic wall. The patient made a uninterrupted recovery.



From the literature available there has been a similar typ of case reported (Binagh and Bardi, 1929), but the whole c the foetus was not expelled per rectum.

Smyrna Hospital H. Y. BASKAM.

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Reviews

ENDOCRINOLOGY OF WOMAN

Endocrinology of Woman. By E. C. Hamblen, M.D., F.A.C.S. (Pp. 571; illustrated. $8.00 or 58s.) Springfield: Charles C. Thomas; London: Baillière, Tindall and Cox. 1945.

The war, by slowing down research in sex endocrinology, has, as Prof. Hamblen points out, provided an opportunity for an appraisal of the results of the spate of experimental work of the pre-war years and for assessing the value of the various discoveries when applied to clinical medicine. This book, which he has written in place of a second edition of his previous work *Endocrine Gynecology*, takes full advantage of this opportunity and is an admirable survey of the field. There are many books on the subject, but this is one of the best. It differs from others in that it has a broader outlook and puts the reproductive system in its proper perspective, paying due attention to other systems and bodily processes, such as growth and metabolism, which are affected by hormonic processes. All the glands with an internal secretion—the pancreas, thyroid, thymus, parathyroids, pineal, in addition to the pituitary, gonad, and adrenal—are considered. Moreover the importance of the endocrine system is not overstated, nor the place and value of hormone therapy. Prof. Hamblen does not allow enthusiasm for his specialty to affect his clinical judgment, and how pleasing it is to find simple common-sense treatment of a non-endocrine nature recommended in place of more fanciful and expensive types of hormone therapy of questionable value. Theories without sound foundation, conflicting views, and unconfirmed findings are mostly omitted, so the book is essentially a practical one. References are made only to articles written in English. It is, as claimed, "streamlined," but it remains a moderately large book for the reason that it contains a wealth of detailed information, presented in well-ordered and attractive manner. There are few matters which fall within the orbit of its title to which reference is not made.

The book is divided into five sections. The first deals in turn with the various glands—their development, anatomy, histology, function, and interrelationships, with an account of the chemistry and actions of their hormones. Each chapter is introduced by an outline of the history of the main discoveries regarding each gland. The second part is concerned with sex differentiation and the behaviour of the endocrine system during intra-uterine life, childhood, maturity, and the development and retrogression of reproductive activity. The clinical investigation of both the adult and the child, special tests and diagnostic procedures, blood and urine chemistry occupy the third section, while the last two deal with functional diseases of the various glands and endocrine therapy respectively. Throughout there are good diagrams and illustrations, and most helpful tables showing differential diagnosis, hormone levels in body fluids, etc.

The book bears the imprint of a strong personality, which comes to the surface more particularly in the clinical sections. This gives it an impressive sincerity and honesty but has the disadvantage that some views and types of treatment, though generally accepted, are not described because they do not meet with the approval of the author. Thus all forms of androgen therapy for any condition in woman are only mentioned to be condemned. This attitude may prove correct, but it is doubtful whether the present state of knowledge justifies it. Again, there are few who would agree that the use of oestrogens for the suppression of lactation is unnecessary and that the older methods of a binder and purgation are equally efficient. But there are not many examples of this type which could be quoted, and to compensate for them is the fact that every form of treatment recommended has been used personally by the author.

Prof. Hamblen in his preface says the book is intended for undergraduates as well as the newly qualified, but that is to underrate its scholarship. It is more suited to the gynaecological specialist, who not only will find in it an easily assimilated summary of all that is of practical value in recent developments in the endocrine field but will also wish to keep it for reference when dealing with any unusual and difficult case. Even those who already possess a reference book of this type would do well to read it if only because of its well-balanced outlook and its critical and rational approach to the subject.

RADIOLOGICAL PHYSICS

Physical Foundations of Radiology. By Otto Glasser, Ph.D., Edith H. Quimby, Sc.D., Lauriston S. Taylor, Ph.D., and J. L. Weatherwax, M.A. (Pp. 426; illustrated. 25s.) New York: Paul B. Hoeber, Inc.; London: Hamish Hamilton.

The four authors who have collaborated in the production of this textbook of radiological physics have kept in mind the needs not only of the young postgraduate preparing for a radiological diploma, but also of the more senior radiologist whose mind cannot so readily absorb modern physical concepts. In four chapters Glasser summarizes the history of radiology, the fundamentals of corpuscular and electromagnetic radiations, and the modes of interaction of radiation and matter. Weatherwax gives the essentials of electricity and magnetism, and their application in the different types of high-voltage generators and *x*-ray tubes; he also contributes an excellent chapter on the physical principles of *x*-ray diagnostic procedures. Taylor deals with the measurement of *x*-ray quantity and quality, and the chapter on protection will be of especial value to anyone installing a new apparatus or designing a new department. Quimby's contributions cover the whole field of radiotherapy and are full of suggestions which would improve the practice of even the senior radiotherapist; for example, the Table of Errors in Dosage on page 241 stresses the importance of measuring every physical factor as accurately as possible, for even so the dose given to a patient may be 20% out from what was intended. Her chapters on biological effects and on therapy records are particularly valuable, and there is also a full appendix of depth-dose tables.

The book is a model of lucidity and compression, and is free from misprints except for the transposition of the symbols D_0 and D_n on page 211; the references are well chosen and up to date, and the index complete; it should certainly be kept close at hand in every radiotherapeutic department.

A MEMOIR OF DAVID EDER

David Eder. Memoirs of a Modern Pioneer. Edited by J. B. Hobman. Foreword by Sigmund Freud. (Pp. 215. 8s. 6d.) London: Victor Gollancz. 1945.

This is a biography and appreciation of a remarkable man. A Jew born of parents in comfortable circumstances, David Eder found the study of medicine not altogether compatible at first, but once qualified he grew into an impassioned socialist, which was reflected in practical work in the East End of London, where he became one of the pioneers of the school medical system. This, however, was only after a period of medical officership in the revolution-ridden Republic of Colombia and far up the Amazon, where he got involved in the war between Brazil and Bolivia. Later he fell under the influence of Freud and Ernest Jones, then in Canada, and became one of the pioneers of psycho-analysis in this country.

Always concerned with the welfare of his race, Eder became closely involved in the Zionist movement at the end of the last war after the Balfour Declaration in 1917. He spent four arduous years in Palestine, and then came back to a busy psycho-analytic practice in London, where his broad humanity and wide knowledge of the world and its inhabitants stood him in good stead. For all his socialistic and Zionistic aspirations, however, he was not an optimist, as is shown by his final address as president of the Medical Section of the British Psychological Society, in which he attributes the hopes of progress so widely shared by the human race to a fantasy of victory over the universal aggressiveness with which we are born.

Appreciations of his activities as a socialist doctor are written by Harry Roberts; as a psycho-analyst by Edward Glover, who also analyses his character on psycho-analytic grounds; and as a Zionist by Leonard Stein and Sir Wyndham Deedes. Prof. Freud's appreciation of Eder's work is expressed in a foreword and several letters. This book is one which may be read in moments of relaxation with interest and a considerable amount of instruction.

Notes on Books

The 7th edition of Dr. PALUEL J. FLAGG'S *The Art of Anaesthesia* (J. B. Lippincott Company; 36s.) is a dogmatic, and therefore valuable, presentation of the subject, in a style redolent of the author's forceful personality. Brief descriptions are included of new anaesthetics and methods, but the author maintains with vigour that, because ether is the safest anaesthetic known, skill in its administration should be the first concern of every anaesthetist.

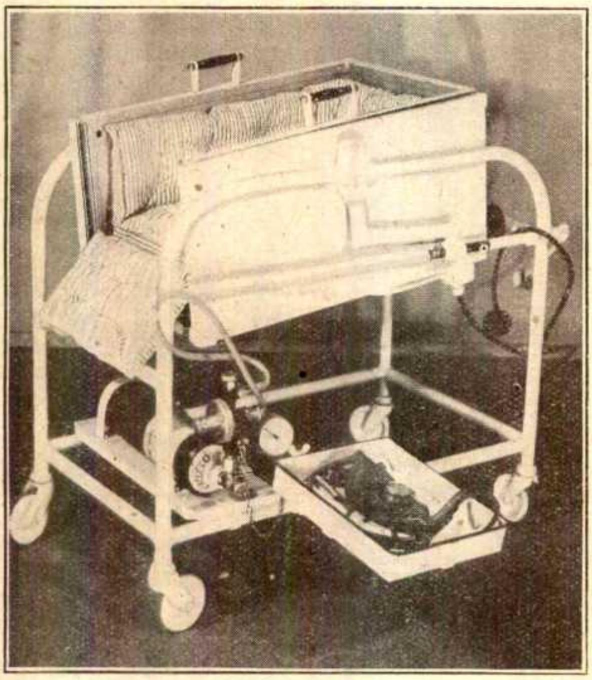
A new pamphlet entitled *Making Work Lighter*, the sixth of the series of Lighting Reconstruction Pamphlets, has been issued by the Illuminating Engineering Society, 32, Victoria Street, London, S.W.1. With comic illustrations in colour by Fougasse it differs in style from the preceding ones, and is intended primarily for distribution to all concerned with industrial lighting. The price is 6d. a copy.

Preparations and Appliances

A NEW ELECTRICALLY HEATED BABY'S COT

There has recently been put into service, at the Middlesex Hospital Maternity Department, an improved type of electrically heated cot. A feature of this cot is that the heating element is thermostatically controlled so that the temperature of the mattress and the bedding can be maintained at a uniform predetermined level, anywhere within the range of 60°–120° F.

The cot consists of two rectangular-shaped metal boxes placed one inside the other, both suitably flanged so as to form an adequate air space in which the heating element and thermostat are housed. The inside box is provided with ventilation holes in such positions as to ensure that a continuous current of warm air flows to the specially designed mattress, also box-shaped, which rests on a miniature bed spring. To prevent the mattress becoming scorched through contact with the metal, the cot is lined with heat-insulating material.



The "head" ends of both boxes are fitted with removable slides which permit of the baby being resuscitated by means of intubation, using the Gibberd and Blaikley apparatus, or having such treatment as may be necessary without its being lifted out of the cot or being otherwise subjected to a change of temperature.

The cot is attached to a trolley by means of two bearings, which incorporate the well-known Middlesex tilting device. The trolley is equipped with four ball-bearing castors, a rack for an oxygen cylinder, and a small tray for instruments. When not in use the tray, which is mounted on a pivoted stand, can be tucked away underneath the cot.

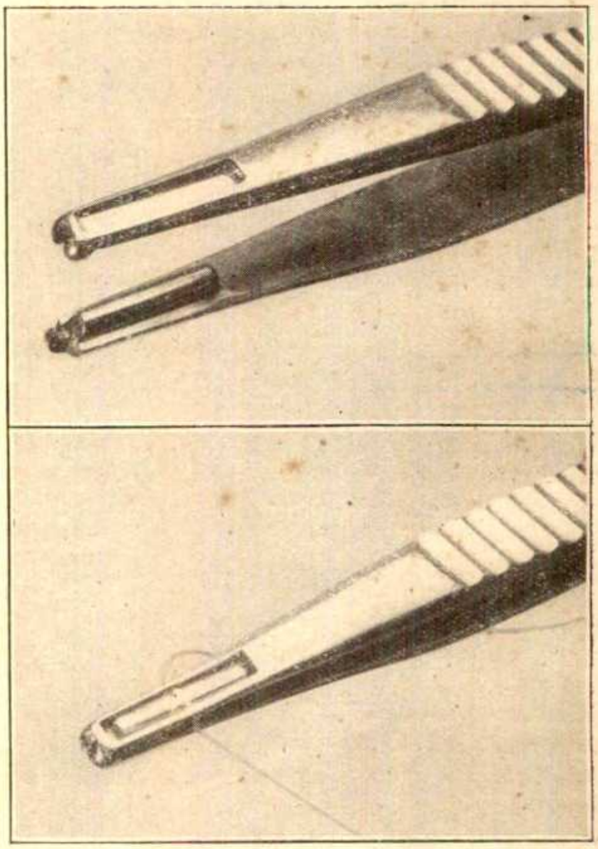
The apparatus, which was designed by Miss M. Williams, sister-in-charge of the maternity department, was constructed in the Middlesex Hospital workshops. The photograph shows the trolley with the cot "head" end removed.

NEW DISSECTING FORCEPS FOR "NO-TOUCH" TECHNIQUE

Major JOHN CHARNLEY, R.A.M.C., writes from the Orthopaedic Department, Shaftesbury Military Hospital:

Few dissecting forceps will grip suture material positively enough to make them suitable for tying knots in "no-touch" technique. The heavy finger pressure often needed soon tires the surgeon's fingers, and in some forceps the jaws may even open again and release the suture if excessive pressure be used.

The transverse serrations found behind the terminal teeth of an ordinary pair of toothed dissecting forceps are really of very little value in holding tissues; the efficiency of such an instrument depends on the design of the terminal teeth. When used in an attempt to tighten a knot the transverse striations lie parallel to the line of pull and thus allow the suture to slide and probably lacerates it, if it is soft catgut.



When the forceps illustrated are used as tissue forceps they work quite naturally on their terminal teeth; when used to tie a knot the suture is trapped in the fenestrum by the projection on the opposing blade. The suture material is therefore made to execute four right-angle bends within the grip of the jaws.

In practice the instrument holds wet catgut as delicately and powerfully as could be wished. It holds all other suture materials well, whether wet or dry, and is outstanding in performance with nylon. The best results are achieved when the habit has been learnt of deliberately seizing the suture some distance behind the point to ensure that it is well held in the trap. The soundness of the grip under the lightest finger pressure is impressive.

The present model is built on sturdy lines because it was essentially designed for bone work, but doubtless Messrs. Downs Bros., who have so easily surmounted the difficulties of the original design, could make others on a lighter scale.

Watson and Sons (Electro-Medical) Ltd., whose temporary head office is 76, Castle Street, Reading, have issued a leaflet on a new apparatus for the location of foreign bodies in the eye, which was developed in conjunction with Group Captain J. F. Bromley consultant in radiology to the R.A.F. A full description of th apparatus appeared in the *Transactions of the Ophthalmologica Society*, Vol. LXIII, "An Apparatus for Localizing Foreign Bodie in the Orbit," by J. F. Bromley and T. Keith Lyle.

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SYNTHETIC OESTROGENS AND CANCER

Not long after it had been announced that stilboestrol had some effect on the course of prostatic cancer, practitioners, acting on the assumption that cancer is a unity, give stilboestrol in other types of the disease, notably of the breast. Following desultory correspondence in the columns of this *Journal* the treatment of mammary carcinoma with stilboestrol was discussed at the Royal Society of Medicine,[1] and a committee was formed, with Prof. E. C. Dodds as chairman and Dr. Alexander Haddow as vice-chairman, to investigate the subject further. Not long afterwards we published two papers by Dr. Haddow and his colleagues on synthetic oestrogens and malignant disease.[2] These workers pointed out that many carcinogenic hydrocarbons also had the property of retarding the growth of both normal and malignant tissues. A few of these hydrocarbons had in addition slight oestrogenic activity. This interesting story is rounded off by the observation that oestrogens, both natural and synthetic, in certain circumstances are carcinogenic and in other circumstances have growth-retarding properties. In their first paper Haddow and his colleagues gave an account of the treatment by synthetic oestrogens of 40 cases of carcinoma of the breast and 33 cases of cancer elsewhere. The first of their cases was treated in February, 1941. In 10 of the 22 cases of mammary carcinoma given triphenylchlorethylene there was an initial regression of the tumour, which was unfortunately not maintained. In the most dramatic of these cases there was almost complete regression within three months of taking triphenylchlorethylene by mouth, but this was followed by a regrowth of the tumour and final death from cancer. Similar results were experienced in the treatment of breast cancer with stilboestrol. This painstaking work makes it clear that these remedies do not provide a cure for cancer; but another fact is added to the mass that has accumulated round this subject—namely, that synthetic oestrogens do have some retarding effect upon the cancer cell.

In their 10 cases of prostatic cancer treated between 1941 and 1943 Haddow and his colleagues observed symptomatic and general improvement in all except one, improved appetite and gain in weight, regression of the primary tumour in 4 cases and of secondary deposits in lymph nodes in 3; but in other cases, in spite of general improvement, the number and size of secondary deposits in bone continued to grow. As the stilboestrol treatment of carcinoma of the prostate was first introduced in 1940, we are not yet in a position to assess the results in terms of "cure." The progress of 7 cases of proved adenocarcinoma of the prostate treated with stilboestrol or stilboestrol dipropionate since March, 1940, has been described by Kahle, Schenken, and Burns.[3] A detailed account[4] [5] was given in 1942, and the present communication deals with the 5 of the original 7 patients who could be traced. One of the 5 died of urinary sepsis and heart failure. The findings are so important that the statements made by the authors are quoted: "In all 5 cases, including the fatal case, serial histologic examination showed definite regression in the carcinomatous tissues. There was a regression of metastatic osseous lesions, as demonstrated by serial roentgenologic examination, in the single case in which such lesions were present, and a regression of metastases to the lymph nodes in another instance." Massive doses of the drug produced no ill effect except in one instance of transient gynaecomastia. Another interesting point brought out is that in one case a recurrence of carcinoma occurred and the patient was equally responsive to a second course of treatment. The histological findings on sections taken at various periods throughout the treatment are also extremely interesting. The authors noted the following: "(1) In the untreated specimen the neoplastic cells present large vesicular nuclei, prominent nucleoli, and granular, reticular cytoplasm. (2) In the first stage of regression there is a decrease in the size of the nuclei associated with condensation of the nuclear chromatin. Nucleoli are no longer visible and mitoses are absent. Cytoplasmic vacuoles appear and are located predominantly at the bases of the cells. (3) In the second stage of regression the nuclei are pyknotic." These observations are highly important. The relief of symptoms—even though this may be only temporary—is an advance in therapeutics. The regression of the primary tumour is a very startling fact. But it is difficult yet to appreciate fully the significance of this work. If the effect of stilboestrol on prostatic adenocarcinoma cannot be repeated on adenocarcinomas in other parts of the body it is tempting to suggest that carcinoma of the prostate is different from other forms of malignant disease, which is tantamount to suggesting that cancer has more than one cause, just as an inflammatory reaction has more than one cause. Haddow and his colleagues did, however, observe an effect on carcinoma of the breast treated by stilboestrol and of the bladder treated by triphenylchlorethylene. We must emphasize that the benefit observed in these cases during treatment with synthetic oestrogens —and possibly, therefore, resulting from this treatment—was only transitory, and that the hopes raised in the sufferers and their relatives were finally dispelled by death. And although apparently dramatic results are obtained in the treatment of cancer of the prostate, the cautious reader will observe that bony metastases can grow and extend during a treatment which is associated with a regression of the primary tumour.

Kahle and his colleagues discourage speculation on the mode of action of stilboestrol. Theoretically the curative effect may result from action of the pituitary, or direct action on the cancer cells or on the testes and the cells producing the androgenic hormone. Another possibility is that the stilboestrol may upset the balance between androgens and oestrogens in the body and thus influence the growth of the new tissue. Others have suggested that the action may be due to some particular molecular configuration of the oestrogen. Dodds and his colleagues, responsible for the synthesis of the stilboestrol group of substances, have always pointed out that the structural resemblance of these substances to naturally occurring hormones is only superficial, and there would appear to be little advantage in speculating along these lines. Stilboestrol, hexoestrol, and dienoestrol are used in enormous quantities all over the world, mainly in the treatment of menopausal disturbances and the termination of lactation. The quite unforeseen use in the treatment of carcinoma of the prostate may prove to be the opening of a new and more hopeful chapter in the control of malignancy.

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[1] See *British Medical Journal*, 1944, **2**, 20.
[2] Ibid., 1944, **2**, 394, 398, 492.
[3] *J. Urol.*, 1943, **50**, 711.
[4] Ibid., 1942, **48**, 83.
[5] Ibid., 1942, **48**, 99.

CHEMOTHERAPY OF TUBERCULOSIS

With the discovery first of arsphenamine, then of sulphonamides, and most recently of penicillin, effective drugs are now available for the cure of many of the infections of temperate climates. Others can be controlled by the prophylactic use of serum and vaccines. Among those conditions for which there is no effective cure are the common cold, influenza, and tuberculosis, and the last of these undoubtedly forms the biggest problem for chemotherapy. Numerous compounds have been tested for their action upon tubercle bacilli; most of the tests have been done *in vitro,* but some have been performed *in vivo,* mostly on guinea-pigs. Unfortunately the disease is so chronic, even in guinea-pigs, that a large number of animals are required over a long period to complete a single test; progress is accordingly slow. Among compounds which have been demonstrated during recent years to inhibit the growth of tubercle bacilli *in vitro* may be mentioned 2 : 4-dichlorobenzophenone[1] (active 1 : 100,000); sulphur compounds, especially mercaptobenzothiazole[2]; 3 : 5-diodo-2-hydroxylbenzoic acid[3] (active, 1 : 10,000); and 3 : 6-diamino-10-methylacridinium iodide[4] (active *in vitro* 1 : 250,000, but inactive *in vivo*). The compounds shown to be active *in vivo* have been mostly salts of heavy metals. Of these, gold compounds have received the most attention and are the best known. During the past twenty years preparations such as sanocrysin or solganal B have been used extensively in the treatment of human disease. Experts on tuberculosis are still far from unanimous about their value. Cadmium sulphate has been recommended as being as good as sanocrysin, while being cheaper and non-toxic.[5] In Germany a preparation of copper called "ebesal" was found to be useless for human pulmonary tuberculosis.[6] In a review in 1940 Findlay[7] concluded that none of the remedies up to that date had been shown to have a decisive influence on the course of the human infection.

In 1941 a more hopeful chapter was opened by the work of Hinshaw and Feldman[8] on sulphone derivatives. The earlier sulphonamide compounds had proved disappointing when applied to tuberculous infections, but these workers demonstrated that promin (sodium *p,p′*-diamino - diphenyl - sulphone - N,N′ - didextrose sulphonate) arrests but does not completely suppress tuberculous infection in guinea-pigs. However, when promin (or promanide, as it is known in this country) was tested in human tuberculosis the results were disappointing. It caused toxic effects such as anaemia, cyanosis, agranulocytosis, gastro-intestinal disturbances, and other symptoms, and its therapeutic action was not very pronounced.[9] It was clear that promin was not the long-awaited remedy, though perhaps it might point the way towards it. The most successful method of using promin was that reported in 1942 by Tytler and Lapp,[10] who applied it locally to tuberculous ulcerations; but this report does not seem to have been amplified or confirmed. Various improved forms of promin have been announced, the most hopeful being promizole (4′-2′-diamino-phenyl-5′-thiazole sulphone),[11] which is somewhat similar to sulphathiazole; but clinical reports are not yet available. The sulphone group of compounds is the most promising one discovered so far. A most interesting development, however, has recently been reported[12]—namely, the use of the antibiotic substance, streptomycin, against tuberculosis; this is described in more detail on another page. In guinea-pigs it is as effective as promin.

The latest example of bactericidal action against tubercle bacilli *in vitro* is reported by Faulkner,[13] who has shown that diethylstilboestrol (4 : 4′dihydroxy-α : β-diethyl stilbene) is active in this respect. In a previous paper she had demonstrated that stilboestrol is bactericidal *in vitro* for Gram-positive organisms such as staphylococci, haemolytic streptococci, and diphtheria bacilli. When incubated at 37° C. for 24 hours in an aqueous medium, tubercle bacilli are killed by stilboestrol at a concentration of 1 : 20,000. If the bacilli are suspended in a medium containing 25% of serum the activity of the compound is much reduced, and a concentration of 1 : 3,000 is needed. In the light of these results it is interesting to recall clinical experience on the association of tuberculosis and pregnancy. During pregnancy phthisical women may appear to improve in health, but in the puerperium the tuberculous disease usually advances more rapidly. Tuberculosis of the placenta is very rare, but it occurs occasionally in women with acute generalized tuberculosis or advanced chronic pulmonary tuberculosis. It is stated in Faulkner's paper that the antituberculous action of stilboestrol is being investigated *in vivo,* and the results will be awaited with interest. But in view of the low activity in the presence of serum, and the long history of previous disappointments in this field, it seems most probable that the search for an effective remedy for tuberculosis will still have to go on. The chemotherapy of tuberculosis should be investigated on a much greater scale than in the past, once the war is over.

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[12] Feldman, W. H., and Hinshaw, H. C., Ibid., 1944, **19**, 593.
[13] Faulkner, G. H., *Amer. Rev. Tuberc.*, 1944, **50**, 167.

DIMETHYL PHTHALATE AS AN INSECT REPELLENT

The fight against insect-borne diseases has in this war been an important part of the fight against the German and the Jap. It has been conducted with the weapons of immunization and drugs, by new methods of killing the insects, and by protective clothing and repellents. A repellent which would prevent insects from biting ought to be an ideal protection; but unfortunately a bloodthirsty insect is not easily put off. Citronella, the material chiefly used before the war, was effective only for quite a short time, though its pungent (and eventually repugnant) odour seemed very persistent to the human nose. Systematic research revealed several new repellents that are more efficient and more pleasant. One of the most widely used is dimethyl phthalate. It is a colourless and practically odourless oily liquid, boiling at about 280° C. and less than 1% soluble in water. Together with other phthalic acid esters it is widely used in industry as a plasticizer, but, according to Lehmann and Flury, no cases of industrial poisoning are known. A point which should be remembered in handling or using the substance is that it softens and dissolves plastics, some of which are in common use; therefore it should not be allowed to contaminate certain buttons, plastic jewellery, or fountain pens, and possibly some kinds of artificial silk may be attacked.

Dimethyl phthalate can be applied to the skin without harm, though it may cause smarting on a few sensitive areas (such as eyelids, lips, or scrotum), which should be avoided. This treatment is easily carried out by anyone and will prevent the bites of mosquitoes for three to five hours. When 50 to 100 c.cm. was sprayed on to a suit of clothing, protection from *Aëdes taeniorhynchus* was obtained for about a week. Similar results were obtained with *Aëdes aegypti* and *Anopheles quadrimaculatus* in laboratory tests. Since mosquitoes readily bite through clothing, this method is a valuable adjunct to skin application.[1] Dimethyl phthalate has been successfully used in the field as a repellent for *Phlebotomus papatasi*, the vector of sandfly fever. No satisfactory method of controlling the disease or controlling the vector has yet been devised. The usual procedures, such as screening, are ineffective because of the small size of the fly. In an experiment carried out in the Eastern Mediterranean area[2] the daily use of dimethyl phthalate by troops reduced the complaints of bites and the incidence of the disease. For protection against fleas dimethyl phthalate also shows promise. Laboratory tests[3] of forty-six possible repellents were made by exposing a treated human arm to a large number (500–1,000) of dog and cat fleas (*Ctenocephalides spp.*). Dimethyl phthalate was high on the list of efficiency and was devoid of certain objections, such as toxicity to man and high cost. Clothing treated with it will give protection from flea attacks for several days. As well as repelling biting insects, dimethyl phthalate will prevent the attacks of the mites *Acariscus* and *Eutrombicula*. The larvae of these mites are called "chiggers" in the U.S.A., and their attacks are similar to those of the harvest mite, to which they are related. The repellent is applied to all the openings of the clothing and is said to give good protection for thirty days after treatment.[4]

Dimethyl phthalate is not the only new promising repellent. Indalone (*n*-butyl mesityl oxide oxalate) and "Rutgers 612" (2-ethylhexanediol-1;3) have been widely employed,[1] while the insecticide pyrethrum also acts as a repellent by its paralytic effect.[3] Some species of insect are most sensitive to one and some to another. For example, "Rutgers 612" has proved most effective against *Aëdes*, whereas dimethyl phthalate is most effective against *Anopheles quadrimaculatus*. Indalone is of little value for the latter but is highly efficient for the stable fly, *Stomoxys calcitrans*. To obtain the very best possible results it may be desirable to choose the most suitable repellent for the circumstances or possibly to make a universal mixture.

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PLANNING IN PAEDIATRICS

Both in the report of the Goodenough Committee and in the report of the Royal College of Physicians on medical education it was stressed that more attention should be paid to paediatrics. The R.C.P. Planning Committee recommended "that paediatrics should be regarded as a major clinical subject," and now a Paediatric Committee of the College—widely representative not only of paediatrics but also of general medicine, public health, psychiatry, and obstetrics—has endorsed this, and in an interim report sets out detailed proposals for undergraduate and postgraduate education in this subject. It is stressed that throughout pre-clinical training more attention should be paid to normal growth and development of children and to morbid processes which are peculiar to childhood. In the clinical stage it is recommended that a period of not less than one-third of that devoted to clinical medicine should be set aside for clinical paediatrics. This is to be supplemented by work in a neonatal department while the student is taking his course in obstetrics; by visits to a child welfare centre; and by opportunity for observing chronic diseases at special "homes" and convalescent homes. For a medical school with an annual entry of 80 to 100 students a paediatric department of 100 beds is suggested, with additional beds for tonsillectomy cases and for infectious diseases. The general supervision of all children admitted should be undertaken by the paediatrician in association with the surgeon and specialist who may be concerned with treatment. For the staffing of such a department, which it is hoped will have university status, a whole-time director of professorial rank is recommended. The remaining staff is on the following lines: one whole-time assistant, preferably with the rank of reader in the subject; one whole-time senior assistant; one registrar; two part-time paediatricians—on the hospital staff; and resident officers. It is also suggested that from the departments of psychiatry, radiology, and pathology a member of the staff should interest himself especially in the problems of childhood. Surgeons and specialists would also be appointed to the department, and stress is laid upon the great importance of the nursing staff being on the Sick Children's Nurses' Register.

These considerations of curriculum and staffing lead on to the place of paediatrics in the final examination, with special reference to the Conjoint. Questions on paediatrics in the medicine paper and a separate clinical examination are recommended, with paediatric examiners taking part. Postgraduate training is discussed for four groups: consultant paediatricians to be trained on the lines already agreed upon for consultants in general by the three Royal Colleges; consulting physician-paediatricians with a modified training as an interim measure until more of the first group are available; general practitioners requiring refresher courses; and medical officers in the child health service, who should, it is recommended, be closely linked to the hospitals so as to ensure working association between preventive and curative work. It is apparent in this report that the experience of Canada and the U.S.A. has been carefully studied: the recommendations follow closely the established practice across the Atlantic, so that the claims of paediatricians, great as they may appear in the eyes of those accustomed to what the Goodenough Committee described as "inadequate" in this country, are not in the nature of fancy experiments but an attempt to keep pace with the developments of a subject "vital to the future of the nation."

STREPTOMYCIN, A NEW ANTIBIOTIC

The brilliant success of penicillin has led to vigorous search for other antibacterial products derived from mould and similar micro-organisms. Many such substances have now been described—e.g., gramicidin, clavacin, helvolic acid, etc.—but none of these has come into extensive clinical use. Recently two promising compounds named streptothricin and streptomycin have been isolated by Waksman and others[1] [2] from certain species of soil actinomycetes. They resemble each other in many respects, but streptomycin is likely to prove the more valuable of the two. It is obtained from *Actinomyces griseus* grown under certain conditions. Like streptothricin, it is highly stable and resists moderate heat, storage, and the action of most other organisms; thus it is in marked contrast to penicillin. Chemically it appears to be an organic base. It is soluble in water but not in ether or chloroform. It inhibits the growth *in vitro* of *B. subtilis,* the tubercle bacillus (human strains), *Bact. coli, Staph. aureus, Brucella abortus, Bact. aerogenes,* and various other Gram-negative organisms of the *Salmonella* or dysentery groups. It has a moderate inhibiting effect upon the growth of *Proteus, Sal. aertrycke,* and *Ps. pyocyanea.* It has no action upon moulds or *Trypanosoma equiperdum.* Its toxicity for animals is fairly low, the lethal dose for mice of a purified preparation being 7 g. per kg. In most of these respects streptothricin is similar, but its antibacterial action is less powerful and is restricted to a smaller number of organisms.

The chief promise of these compounds lies in their action on the Gram-negative bacilli, many of which are resistant to both sulphonamides and penicillin; the results of clinical trials will be awaited with interest. So far none have been reported (perhaps because only small quantities of the compound are available), but animal tests have been carried out in mice. Streptomycin has been very effective in protecting mice against a mixed infection of *Proteus vulgaris* and an anaerobic streptococcus, both obtained from a case of severe human infection. Favourable results have followed treatment by streptothricin of mice and chick embryos infected with *Sal. aertrycke, Sal. schottmülleri,* or *Br. abortus,* or when similar infections due to *Sal. schottmülleri, Ps. pyocyanea, Shigella gallinarum,* or *Br. abortus* were treated with streptomycin. In the United States there is trouble due to a disease called tularaemia, which is unaffected by sulphonamides and penicillin. In a recent year 1,600 cases occurred, with a mortality of 3 to 5%. Heilman[3] has now reported that the causative organism, *Pasteurella tularensis,* is more than thrice as sensitive to streptomycin as *Bact. coli,* and that infections in mice can be completely prevented by this compound. The most interesting of all applications of streptomycin, however, is its possible use against tuberculosis. As observed above, it inhibits the growth of tubercle bacilli *in vitro.* Recently Feldman and Hinshaw[4] have described a trial on tuberculosis in guinea-pigs, similar to their previous trials with promin. Guinea-pigs were inoculated with virulent bacilli and treated with doses of up to 6,000 units daily for sixty days. At the end of this time there was widespread tuberculosis in untreated control animals, while in the treated animals it was hardly detectable microscopically; viable bacilli, however, were usually still present. These results are interpreted as showing that the antituberculous activity of streptomycin is comparable with that of promin and similar compounds. Further work will be awaited expectantly. When streptomycin and streptothricin become more widely available in large enough quantities their clinical applications will deserve careful study.

SEX HORMONES FOR MELANCHOLIA

With increasing age high spirits tend to fall. This is as true for the mentally disordered as for the sane, and as age creeps on mania becomes rarer and melancholia commoner. In the involutional period of life a depressive colouring to mental illness is the rule rather than the exception, and illnesses of many different kinds may then show depression as their most prominent symptom and be difficult to disentangle. Patients who on first admission to hospital are diagnosed as suffering from involutional melancholia may turn out to be suffering from an organic disease such as cerebral arteriosclerosis, others from a late schizophrenia, and others from a recurrent manic-depressive syndrome. Still another type of melancholia has been found to arise in people of a rigid, unbending, conscientious, and puritanical temperament—the so-called obsessional personality. In them there are fair hopes of spontaneous recovery—hopes which have been turned into high probabilities by the advent of convulsive therapy.

Danziger and his co-workers[1] [2] have pointed out what may prove to be yet another small but distinct group, consisting of patients who became depressed with a failure of the endocrine activity of the sex glands. The evidence in favour of the existence of this group is so far purely clinical. The possibility of endocrine failure in women as the cause of the depression is suggested by a close temporal relationship between its onset and the menopause. If patients are chosen in whom this relationship holds and the illness is a first attack, Danziger shows that benefit follows the administration of oestrogen, and the bigger the dose the better the result. From cases reported in the literature 1 of 3 recovered or was greatly improved with doses of less than 3,000 international units a month, 9 of 13 with doses of 24,000–45,000, and 22 of 23 with doses of 80,000–600,000. In men there is no such simple indicator of endocrine change as the menopause. But it seems that even in a mixed group of patients the response to androgens is better than could have been expected from the natural history of the disease. Even if this method of treatment does not prove in general to have better prospects than convulsive therapy it clearly needs further study. A minority of patients, in whom there is no reason to suspect either a late schizophrenia or an organic dementia, still fail to get better after treatment with fits, or, having once improved, again relapse. It is possible that among them are those whose illness is due to endocrine change. Furthermore, the pathogenesis of these illnesses is so little understood that more information about a possible physiological basis would have theoretical as well as practical importance.

The next session of the General Medical Council will begin on Tuesday, May 29, at 2 p.m., when the President, Sir Herbert Lightfoot Eason, will take the chair and deliver an address.

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[1] Schatz, A., Bugie, E., and Waksman, S. A., *Proc. Soc. exp. Biol., N.Y.,* 1944, **55**, 66.

[2] Waksman, S. A., Bugie, E., and Schatz, A., *Proc. Mayo Clin.,* 1944, **19**, 537.

[3] Ibid., p. 553.

[4] Ibid., p. 593.

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[1] *Arch. Neurol. Psychiat.,* Chicago, 1944, **51**, 457.

[2] Ibid., p. 462.

THE CHILD'S ACQUISITION OF SPEECH

BY

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In the course of a research into defects of articulation in school-children I discovered, with some astonishment, that although the child psychologists have already built up a considerable literature regarding the development of *language* in the young child, there were apparently no records of any large-scale observations concerning the normal acquisition of the actual speech sounds. Most of this work on the acquisition of language has been done by non-medical psychologists recording the linguistic development of one child or of a small group of children, usually the offspring of highly intellectual parents. The latest English observers (to mention only a few) include M. M. Lewis, Susan Isaacs, C. W. Valentine, and G. Seth (writing in collaboration with D. Guthrie, the laryngologist); while the whole field of mental development in relation to language development has recently been admirably surveyed by A. F. Watts. Leopold Stein, who now works in London, approaches the subject from the point of view of the medical psychologist who is also a philologist and a speech therapist, and for this reason his work is particularly valuable.

The reason for this apparent neglect of research into the acquisition of normal speech sounds was immediately obvious when I began my own investigations. The difficulties are four-fold. (1) The young child, in passing from the stage of babbling to the stage of fully articulate speech, makes use of a number of sounds for which there is no recognized phonetic symbol, so that accurate charting is sometimes impossible, and the recorder is obliged to use those symbols which most nearly represent the child's speech. It is therefore essential that the recorder should be an experienced phonetician. (2) It is unscientific to draw conclusions from incomplete records of a child's speech, but it is exceedingly difficult, in the time at one's disposal, to persuade some children to demonstrate the full range of their phonetic usage. The observer must therefore be skilled in the examination of young children. (3) It is unwise to generalize from the speech of one child or of a small group of children. It is therefore necessary that the recorder should have facilities for observing large numbers of young children with widely differing intellectual, social, and geographical backgrounds. (4) In order that speech sounds may be normally acquired it is necessary that the child's mechanism for speech and hearing should be perfect. It is therefore desirable that the observer should be a medical officer experienced in detecting even slight deviations from the normal anatomical, physiological, and psychological standards.

In the course of some 3½ years I have been able to collect complete records of the speech of 650 children under the age of 5 years. Of these, 620 were children attending nursery schools and clinics, while the remaining 30 were mostly children of friends and relations whom I was privileged to observe over prolonged periods. In addition to these there were dozens of other children encountered in nurseries, trains, shops, even in bus queues, who provided me with fragmentary samples of their speech. The records were charted according to age (in 1/4-year periods) and sex.

The Child's First Efforts

From the detailed analysis of this mass of material a definite pattern gradually emerged. Following the infant's realization that the speech and gestures of his adult attendants possess meaning—a realization which normally occurs about the age of 8 to 9 months—he begins to make responsive sounds whenever he is spoken to, and to play with his own vocal sounds when he is alone. These sounds are usually of the repetitive variety—"bab-bab-bab," "mum-mum-mum," "dad-dad-dad"—sounds which are promptly appropriated by the parents as proper names. Soon this game is carried a step further by the child's recognition and subsequent echoing of the cadences of adult speech, so that his babbling assumes normal vocal inflections or "tunes." Listening outside the nursery door to this tuneful babbling, it is often impossible to believe that the child is not using articulate speech. He uses most of the vowels and consonants, but the sequence of utterance is so undisciplined that the result is unintelligible. At this stage the child's comprehension of speech, which rapidly outstrips his performance, is often remarkably good. ("Shut the door, please," "Look, here's Daddy coming," and "Never mind, I'll kiss it better," says the mother, and he immediately responds.) The child now realizes that speech is the most convenient form of communication. The use of real words follows. Often this real word is comprehensible only to the mother. It is imperfectly articulated and therefore difficult to interpret, but since he uses it consistently for any given object or activity his mother rapidly learns to understand him. Just as the experienced ear makes up the missing frequencies from a telephone conversation, although only about 70% of the speech sounds are actually transmitted, so that the listener is unconscious of any deficiency, so the mother listening with the ear of knowledge and love will assure one that the child's speech is "perfectly plain," and that "he can say anything," although the recorder is struggling to interpret a glorious jumble of phonetic substitutions, elisions, and omissions.

For some time not only the tunes of speech but the loudness and shrillness of the voice itself are greatly exaggerated. I have observed this many times in children of every social grade and level of intelligence. They tend to shout, using a very wide range of notes, as if a nice discrimination of pitch and intensity comes only with more experienced listening and imitation. The first "words" or sound groups often consist only of vowels and a tune, and are frequently accompanied by an explanatory gesture; thus the child says "i—i" ("dicky") and points at the sparrow in the garden, or, handing the last brick, "a—aw!" ("that's all!"). Or the word consists of a labial consonant, a vowel, and a tune; thus "baw" = "ball," "mow" = "mouth," "woh a?" = "what's that?".

Vowels

The vowel sounds used re-echo the accent of the environment in which the child lives, but certain deviations from the environmental normal are constantly observed. The long vowels—"oo" (pool), "aw" (paw), "ah" (palm), "er" (pearl), "ee" (peel); and the short vowels—"u" (as in hut and in put), "o" (hot), "a" (hat), "e" (set), "i" (sit), appear some time before the diphthongs; but frequently the sound "e" (set), and less frequently the sounds "u" (hut and put), and rarely "o" (hot) and "i" (sit), are lowered to the sound "a" (hat); while "u" (put) is lowered to "o" (hot) so that "egg" = "agg," "head" = "had," "pull" = "poll"; and less frequently "foot" = "fat," "duck" = "dak," "cot" = "cat," even "bib" = "bab," although more usually the "i" (bib) becomes "e" (beb). The diphthongs are difficult to write in ordinary script, but they are the vowel sounds in the words "mail," "mile," "boy," "sole," and "cow." They consist of two vowel sounds closely joined together, the first of which (in English usage) is generally given more weight and resonance than the second, to which the tongue glides only lightly and briefly. The diphthongs appear to cause the child considerable confusion at first, so that the latter less prominent half is often omitted; thus "lady" = "leddy," "now" = "nah," "noise" = "nawse," although occasionally the latter half is used—thus "lady" = "leedy," "cow" = "coo." Later when the presence of two sounds has been appreciated the diphthongs themselves are sometimes interchanged; thus "coal" = "cowl," "day" = "die," and less frequently "my" = "may." I have recorded these apparent Cockneyisms over and over again in the speech of children who have never heard a true Cockney vowel in their lives.

Consonants

While the vowels are being acquired consonants are rapidly tacking themselves on to them—first at the beginning of the word (since the initial consonant is normally spoken with more weight than the terminal one and therefore is more rapidly appreciated by the child's inexperienced ear) and, much later, at the end and in the middle of the word. The first consonants to be acquired are usually the nasal sounds (m and n) and the labials (b and p), followed by the "front stops" (t and d). Less often the "back stops" (k and g) are used first, but whichever pair the child first acquires he normally uses only that pair for both front and back stops for an appreciable time; thus when the front stops are chosen, "top" = "top" and "doll" = "doll," but "doggie" = "doddy," "cup" = "tup," "cat" = "tat"; or where the back stops are used, "cup" = "cup," but "two" = "koo," "dirty doggy" = "gerky goggy," "toy tank" = "koy kank."

The sounds represented in ordinary script by the letters "r," "l," "w," and "y" are usually late in appearing, and are frequently interchanged, so that a "rabbit" may be a "wabbit" or a "labbit" or a "yabbit"; a "lion" may be a "rion" or a "yion," and so on; but whichever sound the child chooses the substitution is usually consistent for a period of some weeks or months. The last single consonant sounds to be acquired and finally differentiated are "h" (which is a mere breathed sound) and those forming the group represented in ordinary script by the letters "z," "zh" (as in "pleasure"), "v" and "th" (voiced, as in "mother"), and their unvoiced equivalents "s," "sh," "f," and "th" (as in "thing"). These sounds appear to give the child considerable difficulty, and even when they have been acquired they are often interchanged; thus "father" = "farver," "another" = "anozzer," "thing" = "fing," "finger" = "thinger," "five" = "thithe" (sometimes "five" = "pibe," another auditory confusion), "sweeties" = "feetie," "sixpence" = "thikthpenth." Of all the sounds the unvoiced "th" ("thing") is the last to be fully appreciated. It is so rare before 5 years of age that of my 650 cases only 20% of the girls and 9.7% of the boys used it correctly. There could hardly be a prettier demonstration of the auditory basis of speech than this, since we know from Harvey Fletcher's investigations that the phonetic force of the voiceless "th" is the least of all the speech sounds, being 680 times less than that of the vowel sound "aw" (paw).

While the child is still in the process of differentiating these last two sound groups (the "r, l, w, and y" group and the "s, f, th" group) the first attempts at double consonants are being made. At first all double consonants are reduced to one single sound; thus "train" = "tain," "cream" = "keam," "please" = "pease," "pretty" = "pitty," "bridge" = "bid," "spoon" = "poon," "star" = "tar," "school" = "kool," "jam" = "dam" (the letter "j" is really two sounds—d–zh); "chip-chop" = "tip-top" (ch is really t–sh). In other words, the child once more at first chooses the sound which is easiest to hear and uses it alone; but as he becomes aware of the presence of a double sound an interesting fact emerges. He will usually make use of his habitual single substitutions in these double sounds, so that "three" = "fwee" or "fyee," or even "flee," "tree" = "klee," "drink" = "dyink," and "scream" becomes the wonderful tongue-twister "thkleam."

Speech Development

It has been pointed out that the initial consonant sounds appear before the central and terminal ones. This observation applies to all sounds which are difficult to hear and includes even weakly stressed syllables and vowels. For instance, the neutral sound which ends so many of our spoken English words (china, motor, paper) is often not appreciated for a considerable time. But the child is so conscious of the cadences and rhythm of speech that he will invariably leave a space for the unspoken sound, which might be compared to the rest in music or, perhaps more accurately, to the metrical pause in prosody, since there is seldom an actual break, but rather a lingering over the preceding vowel. Thus I have many times recorded this gradual evolution of the words "pussy cat":

pu: pu
pu: pu ta ("a" as in "hat")
pu: i ta
pu: i tat
pu: i cat
pussy cat

These patterns of speech development are so constant, the cases of anatomical defect are so rare (with the exception of malocclusion of the jaws, which I have noted elsewhere as being closely associated with defects of "s" in slightly older children), and the child's tongue finds it so easy to perform athletic feats impossible to the adult, whose phonetic habits are firmly established, that I cannot believe these substitutions are due to any muscular incoordination. I feel sure they must be true auditory confusions. The fact that nouns and verbs are the first grammatical entities to be acquired also points to the auditory basis of speech, since not only are they focused upon the child's attention because they are associated with his bodily activities, but they also receive greater phonetic emphasis than any other parts of speech. Harvey Fletcher has shown that good hearing over the upper frequencies of the speech range (i.e., 4,096 to 8,192 cycles per second) is necessary for the accurate appreciation of the sounds "s," "f," and "th" in nonsense syllables. My own observations on the speech of various groups of school-children indicated that both the child with impaired hearing and the mentally retarded child had difficulty in distinguishing these sounds—the first because he is *physically* incapable of appreciating their upper components, the second because he is *functionally* unable to recognize fine distinctions, although his actual hearing for pure-tones may be normal. Just as his muscular control is clumsy and his mental processes immature and slow, so are his speech patterns infantile in character.

This interesting question therefore arises: Are these consistent patterns of speech occurring in the normal course of development the result of some structural immaturity (analogous to the hypermetropic eye of childhood) in the auditory nerve itself or its association areas; or are they the result of a psychological immaturity—in other words, of that faculty of attention and discrimination which is listening? I incline to the latter view, since I have observed many times how rapidly these infantile habits of speech improve when the child is introduced to the salutary influences of community life in a nursery school. In my experience baby speech most commonly persists in the neglected child, in the spoilt only child, and in the adored youngest of large families. The only child of intelligent parents usually acquires perfect speech very early; but the over-indulged child, to whom everything is given if he merely points and whose parents consider his defective language to be unique and charming, and the neglected child, to whom nobody troubles to talk, these have no incentive to improve their articulation. I have observed the same "environmental" retardation occurring, even more dramatically, in the case of twins. In their small world nobody else matters but one's twin and one's mother, and between them they establish a rudimentary vocabulary which is sufficient for their entire nursery existence, and which is often so completely unintelligible to the rest of mankind that it has been thought that they have evolved a new language. On phonetic analysis, however, I have always found that the words used are recognizable but degenerate forms of normal infantile speech. The best remedy for all these children—neglected, isolated, or over-indulged—is daily attendance at a nursery school. It should be remembered that this intellectual neglect may occur in hospitals and in residential nurseries although the child's physical needs receive devoted attention. Nurses in charge of young children should never be allowed to forget their responsibilities towards the child's mental growth.

Speech Therapy

The question of formal speech therapy in the absence of gross anatomical defect, such as cleft palate, does not usually arise before 5 years. The child who by 2½ years has not made any attempt to develop normal speech, however slowly, along the lines indicated above should be suspected of deafness or mental retardation and the appropriate expert consulted. But there can be no more question of teaching the child to speak before he has made his own spontaneous efforts than there can be of teaching him to walk before he has made an attempt to stand and to crawl. The child should be presented with good models and should be encouraged to speak in every possible way by being played with, spoken to, and, just as importantly, listened to. For this reason the play methods of the day nursery school, where the child is provided with toys, creative material, new experiences, and intelligent guidance, are usually of the utmost benefit to his linguistic and therefore his general intellectual development. When infantile habits of speech persist after 6 or 7 years old the assistance of an experienced speech therapist becomes essential, or the child will stabilize his defects so that they become increasingly difficult to correct. Moreover, his scholastic progress, especially in the linguistic subjects, will be seriously delayed. The child who does not readily respond to this expert teaching should be examined by the school medical officer with a view to determining whether his intelligence quotient and his hearing for pure-tones are normal.

Summary

The speech of 650 children under 5 years old was examined and phonetically recorded. A consistent pattern of speech development was observed. The auditory implications of this speech pattern are discussed.

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Nova et Vetera

THE SAN JUAN EARTHQUAKE

A MEDICAL NARRATIVE

Early last year the British press contained brief references to an earthquake that had occurred in San Juan, Argentina. The scantiness of the information available at a time when most space in the general press is necessarily reserved for war news lends particular interest to an account[1] of this disaster by Dr. Carlos I. Rivas of the Instituto de Clínica Quirúrgica of Buenos Aires. At first glance one is struck by the familiarity of the scenes depicted in the accompanying photographs. A whole street lies in ruins, with nothing standing but a few sections of wall. Another picture shows the crushed remains of a car buried under a pile of masonry. In a third, two rescue workers stand by an excavated corpse.

San Juan is a town with a population of 20,000, the capital of the province of the same name. It is west and slightly north of Buenos Aires, and about 700 miles away. On the evening of Jan. 15 a brief report was received in Buenos Aires that there had been an earthquake at San Juan; few details were available. On the following morning it was heard that the incident was serious, and that many injured were in urgent need of attention. An emergency scheme was quickly improvised, and on the next day a train left Buenos Aires carrying 20 doctors, 30 nurses, and abundant surgical equipment. At the same time a team of 20 surgical specialists, including Dr. Carlos I. Rivas, assembled at the El Palomar airfield, where they were joined by General Perlinger, Minister of the Interior, and took off for Mendoza in two military aircraft. On arrival at Mendoza, about 100 miles from their ultimate destination, they learnt that "the extent of the tragedy is not yet known, but each fresh news seems more unfavourable."

The rest of the journey was made by road, and as they approached the outskirts of the city they were greeted by a sight which the cinema had made familiar, but which they had hardly expected to see for themselves—an exodus of survivors in columns which grew more dense as the city limits were approached. Further on they were confronted by an incredible spectacle. "The San Juan earthquake involved the complete destruction of the city." As the car lurched through streets covered with debris, exclamations of amazement escaped from the lips of the surgeons, but soon they were silent—"all their energies concentrated in their eyes." Freak effects were to be seen—a dining-room exposed, with a meal uneaten and undisturbed on the table. At last they reached the Hospital Rawson, which was found to have been partly destroyed. Patients had been transferred to the hospital garden, where they lay in bed surrounded by relations and friends. The medical staff had been continuously engaged in administering first aid to an ever-growing stream of injured survivors. A little further, on a smooth lawn, lay hundreds of corpses in rows, many of them in grotesque attitudes, while survivors seeking missing relatives or friends moved among them in an anguish of fearful expectation.

It was clearly impossible to establish a suitable medical organization in such surroundings, and the party therefore chose a building in a reasonable state of preservation—the Colegio Nacional—and, with the aid of six soldiers, worked desperately to transform it into an emergency hospital. From a photograph reproduced by Dr. Rivas this seems to have been done very efficiently. This preliminary task was completed by 8 p.m., and by midnight, when the additional medical personnel arrived by train, a hundred patients had been treated. With the arrival of these reinforcements, available personnel was organized into five surgical units, who set to work on a constantly renewed emergency hospital population of 120 patients. The principle adopted was to give whatever attention was needed to render each patient fit for transportation as quickly as possible to a suitably equipped surgical centre elsewhere. As would be anticipated, there was a predominance of fractures of the lower limbs and of chest injuries. Lesions of the vertebral column were fewer.

After several days of uninterrupted work, some hundreds of cases had been dealt with and the work of the Buenos Aires mission was completed. Although the thousands of dead, and the hundreds of wounded evacuated to Mendoza and now enjoying rest, food, and medical attention represented a solution of the medical problem, Dr. Rivas says that the members of the mission were acutely aware that a far greater social problem remained. As the surgeons gazed at a convoy of men, women, and children leaving their desolated town to start a new life in some unfamiliar place, they did not know whether to be moved more by compassion for their misfortune or by admiration for their stoicism.

This account by Dr. Rivas is not intended to be anything but a personal narrative. It gives no details of treatment or of the lesions encountered, and does not refer to the auxiliary services—emergency food and water supplies, clothing, and rest centres—that a totally devastated town might be supposed to require. There is only a passing reference to an event which further clouded an experience already full enough of misfortune—an accident to one of the planes which cost the lives of some of Dr. Rivas's surgical colleagues. Nevertheless the reader is left with the impression that the surgeons who were called upon so dramatically to help in this unpredictable disaster brought to their task a high degree of fortitude and resource.

N. HOWARD JONES.

MEDICAL EDUCATION IN THE U.S.A. BEFORE THE CIVIL WAR

Medical Education in the United States Before the Civil War, by Dr. William Frederick Norwood, with a foreword by Prof. Henry E. Sigerist, is published in Philadelphia by the University of Pennsylvania Press, and in London by the Oxford University Press (price 36s.). This volume of just over 480 pages with its extensive bibliography is an important contribution not only to the story of American medicine but also to the cultural history of the United States. It surveys the rise and progress of the American system of medical instruction and the institution of medical learning up to the time of the Civil War—a period of gradual progress in raising the standards of professional education, for it saw a renaissance begun at Harvard in 1771 and emphasized many years later at Johns Hopkins.

The author in his review of all the colleges throughout the U.S.A. has been thorough. We cannot find any that have been omitted. During the first two centuries of colonial history, instruction by apprenticeship was the prevailing system. Ere long European influence began to bear fruit. London, Paris, and especially Edinburgh, were attractive to young Americans after 1750, who on their return became preceptors and lecturers. In the first medical schools there was generally a provision for the M.B. degree as well as a doctorate, but as so few of the baccalaureate candidates ever returned to qualify for the advanced degree it was abolished in the second decade of the nineteenth century in favour of the M.D. After several years of struggle Elizabeth Blackwall in 1847 gained admission to Geneva College and graduated two years later. In 1850 forty women entered the Pennsylvania Women's Medical College, from which Dr. Ann Preston accepted the chair of physiology and hygiene and thus became the first woman medical professor. By 1865 four medical colleges for women had been established. The most significant event of this period was the founding in 1847 of the American Medical Association. It was conceived as an instrument of reform and charted a course for the elevation of medical education; it rescued the early American profession from being largely empiric.

Dr. Norwood has paid much attention to documentation while maintaining the interest of his story. His book will be found valuable in exploring the subject of the medical birth of a nation.

The old Foundling Hospital, established in 1740 by the philanthropist Capt. Thomas Coram, has had many medical friends. Some years ago the boys and girls and those in charge of them moved from the large site in Bloomsbury to new quarters at Berkhamsted in Hertfordshire. It is a sign of the times that the Foundling Hospital Schools are in future to be known as the Thomas Coram Schools, Berkhamsted.

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[1] Rivas, C. I. (1944). *Bol. Inst. clín. Quirúrg. B. Aires*, **20**, 585.

Reports of Societies

PREPARATION OF DIABETIC PATIENTS FOR OPERATION

At the meeting of the Section of Anaesthetics of the Royal Society of Medicine on May 4 Dr. George Graham read a paper on "The Preparation of the Diabetic Patient for Operation."

Diabetes to-day, said Dr. Graham, was not a contraindication for any operation provided a physician was at hand who knew how to look after these patients, adequate facilities for such estimations as blood sugar were available, the best anaesthetic was chosen and given by a good anaesthetist, and the operation was well and quickly done. A local or spinal analgesic caused least disturbance. Gas-and-oxygen was the next best, provided enough sugar was given to prevent any cyanosis. The intravenous anaesthetics, pentothal and evipan, came next. Ether, which might be necessary to get complete relaxation with gas-and-oxygen, should be used only in small amounts; avertin was better not used, and chloroform should never be used.

The diabetic condition should be as well controlled as possible. If it was mild and the patient was not taking insulin but was having a small amount of carbohydrate, say, 100 g., it was better to increase the carbohydrate to, say, 150 g. and to give a small dose of insulin (10 units for an extra 50 g.). In the morning six units might be given, and four at night, for two or three days before operation. If the patient was having insulin but was passing a good deal of sugar, and the operation was not an emergency, it was better to increase the insulin for a few days, and thus stabilize the condition. If the patient belonged to the class liable to have overdoses when any attempt was made to get the urine sugar-free, no change should be made. The ordinary or quick-acting insulin should be used in the preparation of the patient rather than the slow-acting insulins. If the patient was taking one dose of protamine zinc or globin insulin, say 20 units, he should be given for two or three days 12 units in the morning and 8 at night of the ordinary insulin. If bigger doses were being taken they should be split up in the same manner.

On the day of operation the morphine given should be as small as possible, say 1/6 gr. The patient should have his usual feeds at bedtime, and on the morning of the operation he should have at least 50 g. of glucose. The dose of insulin given varied according to the type of anaesthetic. If 50 to 70 g. of carbohydrate were taken at breakfast the patient should be given 50 to 70 g. of glucose, and his usual dose of insulin, together with a supplement depending on the anaesthetic. If the anaesthetic was gas-and-oxygen and ether at least 10 units should be given as a supplement; if pentothal, 2 or 4 units; and if a local or spinal analgesic, no supplement at all. The sugar should be given two hours before the time for the operation. The only complication which might occur, if the dose of insulin and sugar was arranged somewhat on these lines, was hypoglycaemia, evidenced when the patient did not recover consciousness at the right time after the operation. Dr. Graham had seen this once only, but it was a complication to remember, and if the patient had not recovered consciousness at about the right time an intravenous injection of glucose should be given.

In an emergency operation, if the patient had been taking insulin and was not passing sugar, the dose of insulin and glucose was decided as for the set operation. If the patient was passing a good deal of sugar and some acetone bodies the supplementary dose of insulin for the analgesic should be increased—10 units for a local or spinal anaesthetic, 14 or 16 for pentothal, and 20 to 25 if ether was given. This supplement would be sufficient for the anaesthetic, but the patient might need much more after the operation. If he was very ill, with, say, intestinal obstruction, and passing much sugar and acetone bodies, and the operation could not be delayed, the dose of sugar should be increased to 100 g. and 100 units of insulin should be given. It was in this type of case that estimations of blood sugar were most valuable both before operation to ascertain the height of the blood sugar, and after to learn the effect of the anaesthetic. The patient would need big doses of insulin after the operation if coma was to be prevented, and it was a great advantage if the blood sugar could be estimated at frequent intervals.

Correspondence

Carbachol and its Antidote

Sir,—In the annotation on carbachol and its antidote (May 5, p. 636) the statement that atropine is an effective antidote against carbachol poisoning requires qualification.

Atropine will antagonize the muscarinic actions of carbachol, but requires more time to do so than it does to neutralize those of mecholyl. The reason for this is probably that carbachol is not affected by cholinesterase. Furthermore, atropine cannot block the nicotinic action of carbachol on ganglia, which action is relatively feeble in the case of mecholyl. In the case of the muscarinic action there is probably a quantitative factor, and the dose of atropine required increases to some extent with the dose of carbachol. It would therefore seem that to be sure of effective action of atropine against moderate doses of carbachol the former drug would have to be injected before the latter. The nicotinic actions would be left untouched.

When, by mistake, the dose of carbachol given is of the order of two hundred times the therapeutic amount the patient exhibits often a phase of severe hypertension. Carbachol is a useful, but none the less dangerous, drug, and should collapse occur following its use atropine is no certain guarantee of survival, although in many cases it will gradually relieve the collapse. Special caution in the use of carbachol is needed. The two unfortunate mishaps which have been reported as having occurred from mistaken injections of the iontophoresis dose instead of the proper subcutaneous dose would probably not have been averted by the use of atropine.—I am, etc.,

London, W.1. Hugh Dunlop.

Convalescent-home Accommodation

Sir,—In pre-war days it was commonly stated that there was a scarcity of convalescent-home accommodation for hospital patients of both sexes and all ages; so much so, indeed, that one often heard hospital almoners complaining of the great difficulty in obtaining convalescent treatment for patients about to be discharged from hospitals who were really unfit to return to their own homes and still less fit to return to their normal occupations. For this reason also many patients occupied beds in hospital longer than was necessary for hospital treatment, thus substantially reducing the annual turnover of beds, and consequently many patients were kept waiting much too long before admission to hospital. In other words, the hospital accommodation was not being used to the best advantage of the community, owing to the lack of suitable convalescent-home accommodation.

During this war considerable additions have been made to convalescent-home accommodation for the benefit of Service patients. For example, the War Organization of the British Red Cross Society and Order of St. John have at the request of the Ministry of Health provided more than 200 convalescent homes containing over 12,000 beds and more than 20 residential nurseries for delicate children under the age of 5 evacuated from London. These convalescent homes are scattered throughout the whole of England and Wales, so that every county has one or many more. They are mostly country mansions, adapted, equipped, and maintained, and (practically speaking) wholly paid for out of the Ministry of Health annual vote. Some are civilian convalescent homes at seaside resorts taken over by agreement for the duration of the war. Up to a recent date more than five million pounds has been paid by the Ministry of Health to the War Organization for the adaptation, equipment, and maintenance of these homes and residential nurseries.

All the convalescent homes and residential nurseries which I have visited are admirably adapted and well equipped for the purposes for which they have been provided, and there is no doubt they have been much appreciated and of immense benefit to the Service convalescents as well as the evacuated children under 5.

The time is now rapidly approaching when many of these convalescent homes will be closed down owing simply to the fact that the beds are no longer required for the convalescent Service patients or evacuated children, and ultimately of course the whole lot will be closed down when the last of the convalescent Service patients are discharged and the evacuated children under 5 return to their own homes. Bearing in mind the great shortage of convalescent-home accommodation in pre-war days and the very important fact that over five million pounds of public money has already been spent during the war on these "homes," it seems a thousand pities that, so far as I know, no attempt has been made by the Ministry of Health to arrange for these well-equipped places to be used for convalescent civilian patients from our hospitals after they are no longer required for convalescent Service patients and evacuated "children under 5." I fully realize that the owners of some of these adapted mansion houses and the management committees of the pre-war convalescent homes will desire their release as soon as conveniently possible, but it is equally certain that for obvious reasons a considerable number of the adapted mansion houses will never be occupied again by those families to whom they belong. In these circumstances surely it is worth while taking the necessary steps to secure the use of some of these well-equipped mansion houses for the benefit of civilian convalescent patients before they are stripped of their equipment and rendered useless for such a highly desirable purpose. The only authority in this country which can take the necessary action is the Ministry of Health, and it is devoutly to be hoped that the opportunity for securing this available and widely spread provision for the much-needed convalescent accommodation will not be lost.—I am, etc.,

Criccieth, North Wales. FREDERICK MENZIES, M.D.

Civilian Mass Radiography

SIR,—Your leading article on civilian mass radiography (April 14, p. 521) was of much interest to those of us carrying out the practical side of the work, but far from the apparatus being an interesting toy with a useful propaganda value the limited number of sets in operation are already performing a valuable function in the detection of the asymptomatic lesion.

There is no unanimity of opinion among the various local authorities and, need I add, among the interested members of the profession as to how these units should be organized. The problems of organization do not seem to be fully appreciated, and even with more apparatus diagnostic units or the more fully developed centres for clinical research are, for geographical reasons alone, except perhaps in exceptional cases, a practical impossibility.

Surely the fundamental function of a mass radiography unit is to detect an abnormality and, once detected, to pass the patient on either direct or through his own doctor to the appropriate and equipped centre for full and complete investigation—a procedure as suggested in Memo. 266T. As a separate centre for clinical research a whole team of medical personnel would be necessary, and it is not difficult to visualize that this promising infant would develop prematurely into a monster with bronchoscopy, electrocardiograph centres, etc., and before long special mass radiography hospitals.

In the mass radiography organization, unlike the Services, the attitude of the general practitioner must be considered, and it would be interesting to know whether, in a centre for clinical research, the patient's doctor is to play an active part or to be completely by-passed with or without even a letter informing him what action is being taken. In the organization of my own authority all persons requiring investigation are referred to their private doctor, as it is felt that the latter should be intimately associated with the general development of the scheme. I have heard it said and seen it stated in correspondence that this is the correct procedure; the following appeared in a letter in the *Journal* of Sept. 30, 1944: "The private medical attendant can best decide, on the basis of the report and his clinical observations, whether care and notification are necessary, or only an old lesion is being dealt with and secrecy can be maintained without danger to others."

During the past eighteen months the unit allocated to my authority has covered practically the whole of the County of London from eight static centres. Due in part to the specially abnormal conditions existing in London and the area surveyed, organization had to be somewhat different from that advocated in the M.R.C. report. No clinical work so far as the mass radiography unit is concerned is undertaken by the medical director. All full-size films are discussed by a panel comprising, apart from the medical director, the consulting radiologist for the council, a tuberculosis specialist, one general physician, and any tuberculosis officer in the area under survey who may care to attend. All individuals who in the considered opinion of the panel exhibit a significant lesion as judged by the skiagram, and a history, taken at the time of attendance for a large film, are referred to their own doctor with the *x*-ray films and report and suggestion as to further procedure.

Admittedly follow-up statistics and ultimate fate of individuals with minimal and other lesions are at a great disadvantage in the civilian unit as compared with the Services with their disciplined and organized population. The civilian is a free agent, and as he probably feels quite fit may elect to do nothing, remain under the supervision of his own doctor, or attend a private consultant rather than a tuberculosis dispensary. Information, however meagre, even on the immediate fate of these people is entirely dependent on voluntary co-operation, and I fully realize that an accurate follow-up over a period of years will be extremely difficult, if not impossible. But, however many the drawbacks, let us use mass radiography as, I believe, was the original intention—simply as a sieve to isolate those who need further investigation, leaving it to the existing services to complete the investigation and supervise these cases.—I am, etc.,

Public Health Department, L.C.C.,
London, S.E.1. J. STUART ROBERTSON.

SIR,—I have been greatly interested in the leading article on this subject and in the correspondence which has followed its publication.

The mass radiography centre of the Glasgow Public Health Department has, in its relation to tuberculosis, become in effect a sixth tuberculosis dispensary within the city. Its medical director has retained in his present post the facilities he had as a tuberculosis officer for observing patients in whom either the diagnosis of tuberculosis or the question of activity of a tuberculous lesion was in doubt, and for recommending patients directly for treatment or observation in hospital. Undue delay in admission of patients with early lesions to hospital is obviated, even in these days of long waiting lists, by his having a certain number of beds earmarked for the use of patients discovered by mass radiography. Patients are referred to the ordinary tuberculosis dispensary only after their dismissal from hospital or after a period of several months' observation at the mass radiography unit, if it is then decided that further follow-up is necessary.

It will be seen, therefore, that the patient does not require to go to the tuberculosis officer for the area in which he resides to obtain corroboration of the diagnosis. With this exception the administration of mass radiography in Glasgow is very similar to what Dr. Beynon has outlined for Nottingham in your issue of May 5 (p. 639), and the medical director here has the same close liaison that Dr. Beynon has with tuberculosis dispensaries, a cardiac clinic, the hospitals, and the bacteriologist.

I am definitely not in agreement with Dr. G. Lissant Cox (April 28, p. 605) in his view that the mass radiography team should leave arrangements for detailed diagnosis and treatment to existing chest clinics. This may be the most satisfactory administrative method for a county area, but it is certainly not required in large towns. In Glasgow it would add unnecessarily to the work of sadly overburdened dispensaries and *x*-ray departments. Further, is it not desirable that a patient who has probably paid three visits to the mass radiography unit, for miniature film, large film, and medical examination, should on the last occasion be given an opinion as to his condition and future treatment, and not have to undergo further review by another medical officer before a decision is made?—I am, etc.,

ALEX. MACLEAN,
Glasgow. Medical Director, Mass Radiography Centre.

SIR,—I have read the letters on this subject with interest and have been waiting for one of the "authorities" to come down to earth and discover that he is dealing with human beings and not a herd of animals. Except in a few cases each of these human beings has his own doctor of choice, who can probably give a full clinical history of his patient and would be of great help in assessing the case. In most cases, however, the patient's own doctor is ignored until the case has been passed from one "expert" to another and the patient's future has been decided upon.

I quote two instances from my own practice. I received a letter from the local mass radiography centre to say that as Mrs. A.'s miniature film was abnormal she had been recalled for a large film and clinical examination. A diagnosis of bronchiectasis was made, but the thoracic surgeon did not advise active measures on account of the general condition of the patient. On receipt of this letter I turned up my notes, and found that several years previously at my first examination I had written: "Bronchiectasis of both lower lobes, general condition poor, very nervous." In the second case Mr. B.'s miniature film was abnormal, and the letter from the centre runs: "I recalled him for a large film and clinical examination. When I did this I did not, of course, know that he had been in a T.B. sanatorium nine years ago." The man was examined and his B.S.R. done, and it was decided that there wasn't any marked activity at present. The patient had been examined at intervals by his previous doctor, by the tuberculosis authorities, and by me, and each one of us could—and did—reach this decision, and also could have prophesied what lesions would be seen in the radiograph. Both these patients thought they were bound to undergo all these investigations. It is true that they were asked to go, but we all know how requests from official sources can sound like commands. These are the only letters I have received, although probably several hundreds of my patients have undergone *x*-ray examination at these centres. It took me several weeks to allay Mrs. A.'s fears.

I freely admit that there may be a proportion of "missed" cases discovered by mass radiography; but I am sure that most of the "previously undiagnosed" discoveries are in people who had not been to their doctors for some time. Mass radiography can be a very useful weapon against pulmonary tuberculosis, but let us use it in the right way. May I, with the greatest trepidation, make a suggestion as to the routine to be followed in mass radiography? Mr. A. goes to be examined. His name and address are taken and he is asked if he has ever been treated for tuberculosis (the question can be worded in many ways to avoid the "T.B. complex" if so desired). The name and address of his doctor are entered on the record card. When the small film is examined the doctor is notified whether it is normal or abnormal. If abnormality is reported, surely it is entirely a matter for the patient and his doctor to decide what further action is to be taken. Further investigation can be made through the usual public health channels or privately at the patient's wish and expense.—I am, etc.,

Bristol. **Walter Woolley.**

Conservative Treatment of Tuberculosis in a General Hospital

Sir,—The present shortage of sanatorium beds has been the subject of much discussion and anxious thought on the part of those concerned with the treatment of pulmonary tuberculosis. It has often been found that during the time which usually elapses between diagnosis and admission to a sanatorium the patient's condition deteriorates, and he occupies a sanatorium bed for a longer time; or the consequences may be even more serious. It would seem that this evil cannot be overcome without more beds, yet much may be done to mitigate its effects. Where the prognosis is not hopeless when the patient is first seen, it is our experience that deterioration is rare, and improvement not unusual provided strict rest in bed is ordered and observed during the whole of the waiting period. In such circumstances collapse therapy is seldom a matter of urgency except in some cases of haemoptysis.

It is when the waiting period is spent in a general hospital particularly that the second danger is added. There too often the practice followed is recklessly to attempt to establish a pneumothorax without the knowledge, experience, and facilities necessary for the wise selection and management of cases and the recognition and treatment of complications. Much more harm is often done in this way than would have been the case had conservative treatment been adopted until admission to sanatorium was possible. To illustrate this point we quote our experience with the cases sent to us from one general hospital which has a distinguished medical staff:

Between September, 1944, and March, 1945, we received ten patients from that hospital, with one exception ex-Servicemen who were admitted there for treatment pending transfer to a sanatorium. In nine of them artificial pneumothorax had been embarked on there, and in seven quite clearly mismanaged. As a result the chances of recovery had been lessened in, at the very least, two, of whom one has died. Four of the seven, although in a precarious condition, had not been confined strictly to bed, and the patient who has died had been allowed home on week-end leave, although a month before spread of disease to the other lung had been noted. But the best example of the dangers of over-enthusiastic active treatment in inexperienced hands is provided by the following case. Pulmonary tuberculosis was discovered while the patient was a prisoner of war in Italy, and he spent a year in hospital in enemy hands, where he was treated on conservative lines. Repatriated last July, he was sent to that same general hospital, where a left artificial pneumothorax was induced. It was found that much of the upper lobe of the left lung, to which the disease was almost wholly confined, was directly adherent to the chest wall. At that stage the A.P. would have been abandoned by almost every physician with experience in that form of treatment and thoracoplasty contemplated. Instead the pneumothorax was maintained, and, worse still, ill-advised attempts at pneumonolysis resulted in haemothorax followed by tuberculous empyema and an atelectatic lower lobe, which is unlikely to re-expand. More recently the disease has spread to the other lung, and the prognosis is now hopeless.

We cite the foregoing series of cases because it illustrates so well the points we wish to make, and not because we think it is unique; in fact, though the twin bogies "air embolism" and "pleural shock" fortunately are seldom found outside the lecture room, the numerous common dangers may go unremarked in the medical schools. This appears to be a reasonable conclusion when such a note as the following accompanies a patient admitted here for adhesion section from a well-known teaching hospital: ". . . there were adhesions in the lower part of the thorax. About 300 c.cm. of air every three days has been necessary to maintain a *positive* pressure and to prevent expansion of the lung. . . ." The patient on admission was febrile, had a positive sputum, extensive adhesions at all levels, a turbid, sterile effusion, and a partially atelectatic lung.

Uniform success in the treatment of pulmonary tuberculosis attends none of us, but some of the bad results are not unavoidable. We feel that when we may expect the waiting lists to be swollen by the return of many tuberculous ex-prisoners of war we are justified in pleading that our medical colleagues, however distinguished in other fields of medicine, who have to treat these patients temporarily, should not be obsessed with what may seem urgent indications for collapse treatment, but more mindful of the importance of strict rest in bed, even in these days of acute shortage of nursing staff.—We are, etc.,

W. L. Yell.
R. S. McDade.
T. A. C. McQuiston.
Essex County Hospital, Chelmsford. R. H. S. Hirst.

Artificial Respiration

Sir,—I do not want to take up valuable space in the *Journal*, but I do wish to point out that Schäfer's method has stood the test of time and experience and has given uniformly good results.

During the last year I have seen two young sailors who were subjected to underwater explosions when their ship was torpedoed. They were picked up in an unconscious condition by a trawler, some of the members of whose crew performed on them the mechanical method of artificial respiration advocated by Eve. The patients were transferred to hospital, and on their arrival at port their condition was desperate. One of the patients died two hours after admission, and necropsy revealed four perforations of the small gut with intestinal contents all over the abdominal cavity. The other patient recovered sufficiently to warrant surgical intervention. Laparotomy showed three perforations of the terminal ileum and one in the outer wall of the caecum. Although the perforations were small, the whole peritoneal cavity was full of faeces. The perforations were sutured, and all known methods to combat shock and peritonitis were instituted. The patient died two days later from general peritonitis.

There is not a shadow of doubt in my own mind that the "rocking method" of artificial respiration adopted in these two cases deprived these men of any chances of recovery. Medical men may employ any method of artificial respiration that they consider best, but is it justifiable to teach the lay public a method which is very dangerous under many conditions? The laity are not competent to diagnose surgical complications; and, therefore, any method of artificial respiration taught them should be simple and fool-proof and should have stood the test of time.—I am, etc.,

London, W.1. CECIL P. G. WAKELEY.

Sulphonamides in Measles

SIR,—The writers of the letters extolling the use of sulphonamides in measles appear to ignore the importance of controls in assessing the value of a drug. The score or so of cases I have seen in children in the recent epidemic were all treated by cutting off all food and drink except water, sugar, and fruit juice until the temperature was nearly normal. Some of them had expectorant cough mixtures, others sedative cough mixtures, and the rest no drugs at all, but this slight variation in treatment seemed to make no difference to the course of the disease. All the cases were as mild as those described by Dr. Frankland West (April 21, p. 567).

It may be that if sulphadiazine had been withheld from some of the cases described the course of the illness would have been more severe, but proof of such a theory is completely lacking.—I am, etc.,

Binfield, Berks. L. G. JACOB.

Oxaluria

SIR,—I was much interested in the article by Lieut.-Col. J. M. Black (April 28, p. 590) on the cases of oxaluria treated by him in India in 1943. He has rightly emphasized the importance of adequate fluid intake, and the avoidance of oxalate-containing foods in order to prevent oxaluria. There is one possible factor in oxaluria production which he has not mentioned, and which indeed seems seldom referred to in British medical literature, but which I have reason to think is very important. Prof. Herter in his *Lectures on Chemical Pathology* (1902) tells how his assistant, Dr. Helen Baldwin, produced oxaluria experimentally in dogs by giving them large quantities of cane sugar or glucose until a state of excessive fermentation accompanied by gastritis was produced, and gives it as his own opinion that "human oxaluria may arise during carbohydrate decompositions in the digestive tract under conditions at present imperfectly understood"—one of which may be "permanent diminution or absence of free hydrochloric acid in the stomach contents." My own experience in examining urines in the laboratory of this hospital leads me to think that this enterogenous formation of oxalic acid from excessive use of sugar, and perhaps even from excessive use of other carbohydrates, is far more common than is generally appreciated. Patients who are guiltless of partaking of such exogenous sources as rhubarb, spinach, etc., may show considerable oxaluria.

A case which came under my notice in May, 1944, may be of interest in this connexion. H. B., aged 48, a plumber in the employment of this hospital, noticed in March, 1944, that every evening after about 4 p.m. his urine became very red. His morning urine was normal in colour. This state of affairs continued for about three months, during which time he began to feel listless and lacking in energy, so that he became alarmed, and finally on May 4 presented himself at the accident dispensary of the hospital. He was cystoscoped, but no calculi were seen. Cystoscopy was again done on May 13, and a pyelogram taken, with negative findings. On account of his occupation he was sent to me for count of R.B.C., W.B.C., etc. There was no evidence of plumbism, but on examination of his urine I found oxalate crystals, as well as blood, present. I questioned him as to his diet, and found he was taking what seemed to me to be excessive quantities of sugar and other carbohydrates, as well as a good deal of strong tea. I advised him to modify his diet regarding these particulars, and gave him a little potassium citrate for a short period, asking him also to include a fair amount of ordinary vegetables (free from oxalic acid) and vegetable broths in his daily menu. After about four days haematuria ceased and has never since returned, and examination of urine on several occasions subsequently showed absence of oxalates, while his general health has returned to normal. It is true that his use of strong tea laid him open somewhat to exogenous oxaluria, but I think his excessive carbohydrates contributed largely to his condition. In the same way I would consider that the sugar content, no less than the cocoa content, of the chocolates used by Lieut.-Col. Black's patients is to be looked on with suspicion; oxalic acid might be formed from excessive sugar through sheer inability from any cause to oxidize glucose—to go no further with explanations. It is well known that diabetic patients frequently exhibit oxaluria. Neville's findings of oxaluria in cases of vitamin B deficiency are intelligible on this basis—oxidation of carbohydrates being necessarily slowed down under such a condition. Bacterial action is also a possibility in formation of oxalic acid from sugar.

I agree with Lieut.-Col. Black that it is useless to try to control oxaluria by reducing the calcium intake. Indeed, if sources of oxalic acid—exogenous and endogenous—are not avoided, reduction of the calcium intake may be a serious mistake, as in that case calcium may be abstracted from the bony framework in order to neutralize the oxalic acid. Oxalic acid, not calcium, is the primary sinner. But if oxalic acid for any reason tends to be introduced in excess, I would think it good therapy, in order to avoid formation of the insoluble calcium oxalate, to provide the system with a rational amount of sodium and potassium salts, which will tend to sweep away the oxalic acid in soluble form. A reasonable proportion of non-oxalic-acid-containing vegetables in the diet should help materially in this direction. Quite possibly the non-appearance of blood in H. B.'s urine in the morning hours was due to the well-known tendency of the system to be more alkaline after sleep and warmth. There may be, perhaps, some risk of running into the opposite danger of formation of phosphate crystals if excessive vegetables are taken, but all virtue, we are told, is a mean between two vices.—I am, etc.,

Royal City of Dublin Hospital. E. HARVEY.

Intravenous Pentothal in Placenta Praevia

SIR,—If Dr. J. Campbell (May 5, p. 642) reads the article by Majors S. O. Aylett and A. F. Alsop in the *Journal* of April 21 (p. 547) he will find that these surgeons describe pentothal as being "an ideal anaesthetic for abdominal operations in shocked patients." On the other hand, Crooke, Morris, and Bowler (*Journal*, Nov. 25, 1944, p. 683) prefer cyclopropane and oxygen, an anaesthetic which I also recommended in my letter. Evidently these latter observers are not favourably impressed with pentothal in cases where shock exists, which shows that experiences differ. Perhaps our favourable impression of pentothal in these exsanguinated cases can be accounted for to some extent by the glucose-saline which is given intravenously throughout the operation at the same time as the pentothal. Although the fluid administered in this way is probably beneficial, yet in those cases of retained placenta where shock is often present and manual removal is necessary pentothal is given without the saline; and so far we have seen no evidence in this institution that this form of treatment has been associated with increased shock.—I am, etc.,

County Maternity Hospital, Bellshill. S. J. CAMERON.

Barotrauma

SIR,—The correspondence on barotrauma has been followed with close interest. Some interesting discussions and important observations have been made. Whether one uses the term "otitic barotrauma," "tubo-tympanic pressure syndrome," "aural barotrauma," "anisobaric otitis," or, to keep in the fashion of mutilating the King's English, merely O.B., the fact remains that the condition is of great importance in aviation, both Service and civil.

I cannot agree that the condition is an inflammation, seeing that an acute inflammatory process is one which may proceed to pus formation. Such a sequel has not been reported, except when the area has been secondarily infected. Passive hyperaemia or congestion, yes; but inflammation, no.

It is interesting to note the percentages of visible auto-inflation mentioned by McGibbon. A recent survey of 2,500 cadets, who had been fully instructed in Valsalva's manœuvre and who had practised auto-inflation by this method before ascending to altitude in a decompression chamber, showed that only 32 (1.28%) had any subjective or objective symptoms of barotrauma. Those affected showed all the clinical stages of the syndrome: (1) Hyperaemia of the tympanic membrane with slight retraction relieved by auto-inflation at ground level (3=0.12%). (2) Moderate retraction of the membrane, hyperaemia of the mallear region with occasional small bullous formation in the posterior quadrant (21=0.84%). (3) Gross tympanic retraction, congestion of the membrane, serous or haemorrhagic bullae or exudate into the middle ear with residual deafness at ground-level (8=0.52%). No case of rupture of the tympanic membrane was observed.

It will be seen from these figures that auto-inflation by Valsalva's method, if correctly performed, is a reasonable prophylactic against barotrauma. The use of a Politzer bag while flying is excellent in theory but not in practice. Not only would it be an additional item of equipment, but it is not always successful, as may be seen when endeavouring to inflate the middle ear by politzerization in severe cases of barotrauma.

The answer to the problem is to avoid, so fâr as possible, the onset of the condition. This may be done by teaching aircrew (and passengers) the simplest effective method of auto-inflation and to "ground" anyone unable to ventilate the middle ear satisfactorily, whether due to barotrauma or to upper respiratory infection. If the condition should then arise and be diagnosed, the term "otitic barotrauma," although it may not be terminologically exact, does describe the syndrome and rolls off the tongue as easily as "tubo-tympanic pressure syndrome" or any other such designation.—I am, etc.,

M. E. GORDON, Fl. Lieut.

Newer Concepts of Breast-feeding

SIR,—I have read Dr. M. Witkin's article (March 31, p. 441) and the varying, though in most respects diametrically opposed, views of Dr. R. O. Barber (April 21, p. 566), Mr. Eric Coldrey, and Miss Isabel Wilde (April 14, p. 530) with interest. I consider satisfactory breast-feeding and any constructive aid thereto to be of paramount importance, and would like to put forward the following observations.

Taking only mothers who are keen to feed their babies, I would say that breast-feeding fails *(a)* because of "trouble" with one or both breasts, and *(b)* only in a minority of cases because there is insufficient milk. By "trouble" I mean primarily engorgement and the cracked nipple, the latter often being due to the baby being presented with an engorged breast which it cannot possibly "get on to" in the proper manner, this resulting in a chagrined chewing of the nipple which is sooner or later bound to produce a crack. I view engorgement as a complication which is unfortunately common, which is avoidable, and which ought to be avoided at all costs; I am certain the following regime does this and provides a sound approach to satisfactory breast-feeding.

The expectant mother should be shown by some competent person how to express her breasts, and she should do this twice a day for at least the last fortnight of her pregnancy. This prevents the ducts getting blocked by inspissated secretion, and, if an emollient such as arachis oil be used, keeps the areola and nipple pliable. I am assuming that the days of the nail-brush, however soft, and the bottle of methylated spirit are dead and gone for ever. I would like to insert here my abhorrence of such "hardening" agents as the much-used tr. benz. co. in the treatment of cracked nipples; I have found ung. hydrarg. ox. flav. excellent for this purpose, it being both an emollient and a mild, bland antiseptic.

Next, I am quite certain that both breasts should be used at each nursing. Five minutes at one breast, ten minutes at the other, then finishing with a further five at the original breast I consider to be the ideal arrangement. Dr. Barber states that "it is not until the babe has been to the breast for two minutes that the milk begins to flow": this just is not true. I can state as a fact that, if questioned, three out of every five nursing mothers with breast-feeding established experience what is termed (at least by the ladies of Lambeth) the "draught"—that is, the feeling of the breast filling up and in many cases the passive secretion of quite copious quantities of milk at times when the babe is due to come to the breast. In view of this I firmly believe it wrong to empty one breast and leave the other.

One problem I have often encountered is when the babe for some reason (e.g., after a difficult forceps delivery) is not considered fit to be taken to the breast for forty-eight hours or so after delivery. How often are the wretched mother's breasts left unattended for these forty-eight hours, with resulting engorgement and the sequelae depicted above? In such cases both breasts should be expressed at such times as the babe will be coming down, so that when it arrives it finds soft, pliable breasts with milk secretion, partially at least, already established, instead of a pair of hard, hot, painful balloons.

I disagree with Dr. Coldrey if by his concluding paragraph he infers that he says to his mothers: "Here's your babe, now feed it." Breast-feeding is, I know, a natural biological and physiological function, but the ignorance of most primiparae is immense, and I think it is a matter which, if we are to increase our most unsatisfactorily low percentages of fully breast fed babies, needs a very great deal of skill, patience, and experience.—I am, etc.,

St. Thomas's Hospital. MICHAEL PALLOT, D.R.C.O.G.

Women in Labour

SIR,—I feel that a sense of proportion must be reached in endeavouring to make labour painless. There is a danger, partly due to the publicity campaign for analgesia and partly due to labour being made to appear more pathological by insisting on hospitalization, that labour will become more painful, and therefore will require more analgesia. I am, personally, very insistent upon analgesia being given where necessary, but I feel that there is less required where the patient has been prepared by a calm conduct of the antenatal period. The power of the mind on sensitivity to pain is very strong, and, incidentally, too much "fussing" antenatally can make a patient apprehensive and therefore more sensitive to pain. It would be an advantage if, in the hearing of the mothers, the term "contraction" were used instead of the word "pain," the usual reference to "good pains" being calculated to upset a certain number of patients.

I fully endorse Dr. Florence McClelland's view (April 28, p. 607) that there is no universal analgesia for every case, and agree that a resident anaesthetist should be included on the staff of maternity hospitals. If hospitalization is to become the routine—and in view of the lack of home helps I feel that it is a necessary evil—the accommodation in hospitals must be radically altered. Every maternity hospital should have one or more "first-stage" rooms, so furnished that there is an atmosphere of a home and not the stern barrenness of hospital. By this I mean no tiled walls, many comfortable chairs, and recreational interests. There is no more distressing case than the patient who comes into hospital too early in labour and who has a prolonged labour solely due to the psychological inhibitions of hospital atmosphere on the uterine contractions.—I am, etc.,

Liverpool. JOHN HAMILTON.

Institutional Maternity Service

SIR,—Dr. Laura Hutton (May 5, p. 639) has made a useful contribution. There can be no question that "hygiene and asepsis have been allowed to outweigh all else in the modern development of maternity technique." She has done well to raise the issue of neonatal psychology. I venture to make the following observations.

1. The more we get away from the natural and the obvious, the more do we encourage an artificial attitude towards motherhood. Our changing social life may make institutional maternity frequently, or even generally, desirable, but let us refrain from pretending that this is a progressive step for which no price has been paid. We are converting an experience of rich emotional possibilities into a cold-blooded surgical episode, and we have no right to do so unless the change can be justified by convincing statistical proof rather than mere scientific theory. So far such proof seems to be lacking.

2. Breast-feeding is favoured and indiscriminate artificial feeding discouraged by all the highest authorities. Their grounds for doing so are chiefly physiological. But the psychological benefit to both mother and child is no less important.

3. The vogue of "rolling new-born babies into tight little mummies" is neither confined to institutions nor is it new. Swaddling clothes have been used for thousands of years and are still used in many countries. Dr. Hutton is no doubt correct in her psychological interpretation of the effect. But it seems to me that this also is a question of discrimination. The baby with an aggressive temperament will endure much environmental stimulation without damage to character development. He should be free from the beginning. But the infant of sensitive and apprehensive temperament needs security first of all. The mother's arms are the natural agents of this security. Failing them, I am prepared to believe that such infants benefit from habitual constriction—of course within

physiological limits. But it is to expect too much of nurses and mothers to base a technique on such close observation and fine differentiation. Let us not, however, accept either system—free or swaddled—as an invariable rule or as a universally progressive step.—I am, etc.,

London, W.1. H. CRICHTON-MILLER.

Organization of Research

SIR,—The letter by Dr. G. Arbour Stephens (April 14, p. 535) implies that there is considerable risk that anyone who does original work may lose credit for it by submitting it to a central organization. In practice, however, most original work has to be disclosed, in its early stages, to one of the bodies that finance research. If the filtering of ideas is to be feared under these circumstances, I have not encountered an instance in twenty-one years of full-time research. In practice I have always found that research workers discuss their ideas readily among themselves, without any thought of ulterior motives. Undoubtedly there is a standard of honour in such matters that gives the best possible protection against unjust claims.—I am, etc.,

P. R. PEACOCK,
Glasgow Royal Cancer Hospital. Director of Research.

Social Study of Hospital Treatment

SIR,—My attention has just been drawn to the interesting account by Dr. Malcolm Brown and Mrs. Freda Carling April 7, p. 478) of the after-care of patients who had attended the Radcliffe Infirmary.

The medical care of the discharged hospital patient, as the Oxford survey shows, is of such importance to-day that your eaders may be interested in a similar study, though wider in cope, undertaken by the Syracuse University College of Medicine in the United States. The study was initiated in July, 1940, and involved all patients discharged from the medical wards of the University Hospital up to February, 1942. It was undertaken after a preliminary survey had revealed that 90% of the cost of service on the general medical wards at the University Hospital was for chronic illness, and that only a third of these patients were receiving satisfactory medical supervision after discharge.

The hospital appointed an "extramural" resident (Dr. Frode ensen) to familiarize himself with the medical aspects of these patients and relevant emotional, social, and economic factors, nd to continue the medical supervision of the patients in their homes after discharge. At the beginning of the experiment the hospital social service department assisted in the provision of social service, but it soon became manifest that the volume of this kind of work was far too heavy a burden on the already verworked hospital social service department, and a special ocial investigator was appointed (Margaret A. Thomas, M.A.). The number of patients involved was 902.

The main finding was that because of proper care in the home many patients could be discharged from the hospital earlier and ehospitalization was greatly reduced. The saving in hospital costs was about three times the cost of the experiment, or, viewed in another light, sufficient hospital facilities were eleased to permit the acceptance of several hundred additional patients. Of even greater importance was the better medical care received by the patients.

The story of this experiment was published by the Common Wealth Fund last year under the title of *Medical Care of the Discharged Hospital Patient,* by Frode Jensen, M.D., H. G. Weiskotten, M.D., and Margaret A. Thomas, M.A. Because of the demands of the military service for younger graduates in medicine, the programme was temporarily discontinued in 1942, but there is little doubt that the service will be continued as soon as conditions permit, not only because of its value to the patient but also because of the economic saving it effected.

It is interesting to note that this experiment in medical care as originally undertaken as the result of a teaching exercise introduced in the curriculum of Syracuse University College of Medicine in 1930. This exercise is still in effect to-day. At that time, because certain faculty members believed medical ducation was becoming too institutionalized and that there was o great a tendency to stress disease rather than the patient uffering from the disease, a programme was introduced into the undergraduate curriculum which placed on each student the responsibility of making a complete study of at least one patient who had been assigned to him during his service in the medical wards of the hospital. The study required the personal investigation by the student of the home and the living and working conditions of the patient, careful consideration being given to the hereditary, environmental, social, and economic factors which might play a significant part in the patient's illness or recovery.—I am, etc.,

MARGARET A. THOMAS.

Shall We Nationalize Medicine?

SIR,—In her criticism of my letter (April 14, p. 535) pointing out the possible advantages of a national medical service, Dr. Alcock (April 28, p. 610) implies that she is in favour of maintaining the *status quo.* The fact remains, however, that the public do, apparently, desire such a service, and as the doctors were made for the people and not vice versa it is difficult to see how we can deny them their wish. The point I wished to make was that if a national medical service is to be instituted, despite all arguments to the contrary, then it is incumbent upon us to see that the conditions are made as favourable as possible, and that the state of partial slavery which has hitherto existed is not perpetuated. I consider that limitation of working hours and the dissociation of surgery premises from the home should be insisted upon in any agreement with the Government.

With regard to the patient, I cannot agree with Dr. Alcock that he would be worse off than at present. From personal experience in five different counties of England I have come to the conclusion that the patients of a single-handed doctor are often greatly inconvenienced by such occurrences as the illness of the doctor or his prolonged detention at midwifery cases, etc.

I entirely agree that it would be most undesirable to curb a doctor's potentialities by unduly limiting the size of his practice and paying him a fixed salary. For that reason I would propose a basic salary, plus a capitation fee for each patient. As regards those men who really feel that they are not being true to their calling unless they are always on duty, I can see no serious reason why they could not be allowed to indulge in their most admirable desire.

I am not a pessimist, nor the cynic that Dr. Alcock implies, but I have seen a great deal of very real distress among the members of our profession; and I do think the time is ripe for us to realize that the desire for reasonable working conditions is by no means incompatible with the maintenance of high ideals and a deep interest in one's work. Whatever his youthful standards may be, there comes a time in almost every doctor's life when he is physically and mentally incapable of living up to them, and the sooner we confess that we are men and not supermen the better for everybody concerned. Let us give full scope to our potentialities by all means, but at the same time let us refrain from turning our lives into mere tests of endurance, which can end only in the dissatisfaction and pity of our patients and the distress of ourselves and our families. Martyrdom is a thing of the past, the age of common sense and moderation has arrived.—I am, etc.,

Blackpool. H. DAKIN.

"It Can Be Done"

SIR,—In 1943, when I published a paper urging the obsolescence of ether and chloroform in anaesthesia, much obloquy was poured on my head for suggesting the possibility of using anything else in "pitching destroyers" or "desert tents," etc. I was exceedingly interested to read Major Rex Binning's account of 120 abdominal operations with pentothal–cyclopropane in forward areas during the Middle East campaigns, published in the *Journal* of May 6, 1944 (p. 620), particularly as I had repeatedly offered to design a portable cyclopropane outfit for field use previously. I was further greatly interested to read the paper by Majors Aylett and Alsop (April 21, p. 547) describing 56 consecutive abdominal casualties anaesthetized with pentothal alone in the forward areas in the present campaign in Europe, with, I venture to suggest, an uncommonly low mortality rate.

I feel that these papers go far to vindicate the main theme of my paper in the *Lancet* of Dec. 11, 1943: "Ether is now best avoided wherever possible, and in future should be eliminated altogether from our techniques"; and to confound my chloroform-and-ether addicated castigators of the subsequent correspondence. May I heartily congratulate the authors of the above papers on their skill, their progressive attitude, and their determination to improve the technique of anaesthesia. *It can be done.*—I am, etc.,

Park Prewett Hospital, Basingstoke. F. BARNETT MALLINSON.

Nursing in the New Health Services

SIR,—Large posters declare the dearth of nursing service. The following remedies, among which "two-tier nursing" is the chief innovation, may commend themselves to the profession.

1. The sole passport required from applicants is a *sense of vocation.* Many young women seem in their element when nursing. They display a spirit of succour which finds a natural expression in tireless tender care and is absolutely reliable and trustworthy. But often, sad to say, this is lacking in hospital and nursing home alike. Is not this to be expected when the authorities put the emphasis on scholastic qualification and make the school certificate a *sine qua non*? Surely the indication is to welcome to the profession all who are "born nurses," whether endowed with scholarly gifts or no, and give them a corresponding training and status.

2. Entrants would then be sorted by their interviewer according to their scholastic standard into those without and those with school certificate. The former would only take a short course and become *assistant nurses,* while most of the latter would, presumably, take the long course and become *fully trained nurses.*

3. Definitions of training.

(a) Assistant Nurse

Although an innovation, this new rank is but equivalent to making a permanent peacetime feature of the "nursing auxiliary." Moreover, to those of us in the know, it is obvious that only by tapping some such additional sources can we recruit the numbers needed to implement proposed reforms like the reduction of the twelve-hour day. After a preliminary dozen demonstrations in first aid and home nursing, their training would be entirely practical. It would consist of twelve months' medical and surgical ward work, culminating in a *viva voce* examination. On passing this, they would obtain the certificate of qualified assistant nurse. During training they would have all their domestic needs free and be paid, say, £25–£50 a year as pocket money.

Status: They would continue in the less exacting hospital services and domiciliary nursing, receiving a salary starting at, say, £100 a year, with five-yearly increments.

(b) Fully Trained Nurse

i. Preliminary course: About six months would be spent in introductory study of elementary anatomy, physiology, hygiene, disease, healing, ward procedures, practical demonstrations, and ending with an examination.

ii. Two years' practical nursing: This would be an entirely practical and clinical course, to which the nurse could devote her undivided energy and enthusiasm, having completed her lectures already. It would include casualty, out-patient, and, mainly, ward work, but exclude theatre, apart from accompanying patients and watching a good variety and number of operations on, say, twenty-five of those she will nurse. Pocket money should be the same as that for the assistant nurse: say, £25–£50 a year and all domestic expenses found—namely, board, lodging, laundry, and uniform. The training would conclude with an examination mainly practical and oral. Their hospital record would, as with assistant nurses, be taken into account by the examiners.

iii. Status and salary. She would have the title of "fully trained nurse" and a salary starting at, say, £150 a year, rising with experience.

(c) Nursing Specialists

Postgraduate training would be required for more responsible or specialized branches of nursing—e.g., to qualify for such posts as ward sister, theatre sister, as well as midwifery, public health, fevers, tutor, etc. Remuneration would be at an appropriately higher rate.

(d) Male Nursing Personnel

Theatre orderlies: It is to be noted that theatre training would become a postgraduate concern in the nursing profession. Only the minority with a bent for the work would take it up as it was not compulsory. A sister would still run the theatre, but the routine work, including the job of clean-nurse, would be handed over to men—male orderlies. They have, by contrast with average women, a natural aptitude for technical and mechanical procedures and have proved a success where, as at the London Hospital, the system has existed for years.

Ward orderlies: In wards also there may well be a limited number of openings for orderlies in the heavier jobs and, particularly, in male urinary work and chronic defaecatory disorders. Now is the opportune time for standardizing male orderlies.

(e) Elimination of Waste on Ancillary Services

The time has come for saving the wastage of nursing personnel on such ancillary posts as laundry, linen, housekeeping, home-sister, etc., wherein nursing training and talent are superfluous and a domestic science qualification is wanted.

The foregoing proposals may appeal to the profession, and, it is hoped, to the General Nursing Council for early consideration. It is most encouraging to find a layman so influential as Lord Auckland pressing, in your issue of May 5 (p. 646), for a higher standard of practical training for nurses.—I am, etc.,

Bristol. A. WILFRID ADAMS.

U.C.H. and Sir William Gowers

SIR,—May I correct your correspondent, Mr. Herbert Brown, who in the *Journal* of May 5 (p. 645) writes: "At the time my hospital training began antiseptic surgery existed in only two London hospitals—University College and King's." Howse (later Sir Henry), to whom I was dresser in 1878, on his appointment as assistant surgeon at Guy's Hospital in 1870 went at once to Edinburgh to study under Lister. When he came back to Guy's he immediately adopted antiseptic methods for his patients there, and his fellow assistant surgeon, Davies-Colley, did the same. In 1874 Howse became full surgeon with sixty beds. Strict Listerism was enforced in all his wards, and by this time the other assistant surgeons at Guy's had adopted antiseptic surgery.—I am, etc.,

Oxford. W. HALE-WHITE.

The Services

Surg. Lieut. M. D. Dawson, R.A.N.R., has been mentioned in dispatches for great devotion to duty and fortitude in the care of the wounded while serving in H.M.A.S. *Australia.*

Surg. Cmdr. E. R. G. Passe and Surg. Lieut.-Cmdr. S. C. Suggit, R.N.V.R., have been awarded the R.N.V.R. Officers' Decoration.

Col. (local Major-Gen.) W. E. Tyndall, C.B.E., M.C., late R.A.M.C., has been appointed a D.M.S., and granted the acting rank of Major-General.

Capt. J. C. Portnuff, R.C.A.M.C., and Capt. S. McClatchie, I.A.M.C., have been awarded the M.C. in recognition of gallant and distinguished services in Italy.

Capt. C. H. K. Daly, R.A.M.C., and Capts. B. Nair and D. N. Vora, I.A.M.C., have been awarded the M.C. in recognition of gallant and distinguished services in the field.

The following awards and mentions have been announced in recognition of gallant and distinguished services in North-West Europe:

M.C.—Capts. H. I. C. MacLean and C. H. Watts, R.A.M.C.

Mentioned in Dispatches.—Brig. (Temp.) H. L. Garson, O.B.E., M.C., T.D.; Brig. (Acting) R. H. Lucas, C.B.E., M.C.; Col. (Temp.) B. J. Daunt, O.B.E.; Lieut.-Cols. (Temp.) J. C. Anderson, K. H. Clark, M. de Lacy, T D., A. W. Gardner, J. A. D. Johnston, M.C., H. B. Lee, W. R. Logan, T.D., and H. Sissons; Majors (Temp.) I. Aubrey, M.C., A. W. Box, D. A. G. Brown, T. J. Brownlee, J. A. Elliot, E. E. Evans, M. C. Fulton, M.C., I. C. Gilliland, J. M. Henderson, S. T. Henderson, J. Kerr, J. M. Leggate, W. R. McCrae, W. Michie, R. O. G. Norman, I. D. Paterson, G. F. Petty, S. F. Raistrick, N. L. Russell, L. B. Wevill, and E. G. Wilbraham, M.C.; Capts. I. H. Baum, C. J. Champ, J. Clark, F. W. Dickson, J. P. Gannon, H. L. Gardner, T. Gass, E. G. Hardy, G. F. Houston, R. T. Kiddie, K. Misch, A. B. Robertson, T. H. Sansome, G. D. Scarrow, and A. Young; Lieuts. R. A. Condie and E. J. Rogers, R.A.M.C.

DEATHS IN THE SERVICES

Surg. Rear-Adml. JAMES LAWRENCE SMITH, C.B., R.N.(ret.) died at Waterlooville, Hants, on April 28, aged 83. He graduated M.B., C.M. at the University of Aberdeen in 1883 and entered the Royal Navy in 1884. For his services (Suakim, 1884–5) he received the Egyptian medal with clasp, and the Khedive's bronze star, and he later attended Prince Henry of Battenberg in his last illness. He was promoted fleet surgeon in 1900, deputy surgeon-general in 1912, and surgeon-general in 1916. In the following year he was made an Officer of the Legion of Honour, and he retired in 1919, having then been a member of the B.M.A. for thirty years. Adml. Smith received the M.V.O. in 1898 and was created a Companion of the Bath in 1918.

Obituary

LAURENCE CHRISTOPHER PANTING, who died on May 4, was for many years a leading surgeon in Cornwall. He was born in Staffordshire in October, 1869, son of the Rev. Laurence Panting, and from Shrewsbury School went up to Balliol College, Oxford, with an open scholarship, in 1888. He took his clinical course at Guy's Hospital, where he held a number of resident posts after graduating M.B., B.Ch.Oxon in 1895. He proceeded M.D. in 1900, obtained the F.R.C.S. in 1909, and the M.R.C.P. three years later. Settling in practice at Truro, he was elected surgeon to the Royal Cornwall Infirmary in 1902. During the last war he was surgeon to the Anglo-Serbian Unit and then to the County of Cornwall R.N. Auxiliary Hospital. On returning to civil life he was appointed surgical specialist for West Cornwall under the Ministry of Pensions. Mr. Panting was also honorary consulting surgeon to the Newquay, the Fowey, the St. Austell, and the Helston Cottage Hospitals, and to the Cornwall County Tuberculosis Sanatorium. He joined the B.M.A. in 1905 and was chairman of the West Cornwall Division 1924–6.

GEORGE ALGERNON FOTHERGILL, who died at the age of 76 at East Grinstead, gave up medicine many years ago to work as an artist. He was educated at Leamington College, at Uppingham School, and at Edinburgh University, graduating M.B., C.M. in 1895. He began the study of art at Uppingham, and at Edinburgh gained first-class honours in practical anatomy, and a medal in histology from the Royal College of Surgeons. During the latter part of the last war he served as M.O. of the 1st Cavalry Brigade at Aldershot with the rank of temporary lieut., R.A.M.C. Dr. Fothergill was an all-round athlete in his youth, and many of his pictures illustrated sporting subjects. He became well known as a painter in water-colour, a pen-and-ink draughtsman, a lithographer, and a designer of book-plates. His *Stones and Curiosities of Edinburgh and Neighbourhood* was illustrated by himself, and he published a number of essays, poems, and drawings. He exhibited at the Royal Scottish Academy, the Walker Art Gallery, Liverpool, the Leeds Corporation Art Gallery, and the Dudley Gallery in London. His collection of lithographs, engravers' proofs, etc., was acquired by the Corporation of Darlington.

Dr. WILLIAM BARBER BUTLER, formerly of Hereford, died on May 2 in retirement at Beaulieu, Hants. He studied medicine at the London Hospital, where he won scholarships in anatomy, in physiology, and in medicine, and qualified M.R.C.S., L.R.C.P. in 1894. Before settling in Hereford he had been resident accoucheur and house-physician at the London Hospital. He served for many years as surgeon to the Hereford General Hospital and Dispensary and retired from practice in 1929. He joined the B.M.A. in 1908, held office as honorary secretary of the Worcester and Hereford Branch in 1922–8, and as chairman of the Hereford Division in 1923–4.

Major GEORGE LEVERSTONE ALLEN, M.A., registrar of the School of Physic, Trinity College, Dublin, died on April 29, within a week of his eighty-eighth birthday. It was characteristic of him that he was at work regularly in his office in the School until two months before his death, and that he then left his desk with the greatest reluctance. It is given to few men to work hard and continuously for over seventy years, but Major Allen was an exceptional man. He enlisted in the Army when he was seventeen, and, after some years in the ranks, was commissioned in the Army Medical Service as a lieutenant (quartermaster). He saw service in almost all parts of the world and retired with the rank of captain in 1912, but was recalled during the last war and finally retired in 1918 with the rank of major. In 1913 he was appointed assistant registrar, and in 1926 registrar, of the School of Physic. He was distinguished physically for his activity and erect carriage and mentally for his wonderful memory and scrupulous accuracy. Until very recently his beautiful handwriting showed no trace of tremor. His urbanity was seldom ruffled, and his courtesy and willingness to help were extended to all who entered his office, from the most senior member of the staff to the most junior student. He knew every student who passed through the School and was respected and loved by them all. His colleagues will miss his experience, knowledge, and wise guidance. His passing will be mourned by the staff and students of the School and by medical graduates of Dublin University scattered over the world.—J. W. B.

Medical Notes in Parliament

Infantile Paralysis Outbreak in Mauritius

Col. STANLEY reported on May 2 that an outbreak of infantile paralysis occurred in Mauritius in March and 1,071 cases were notified up to the end of April. The following steps were taken to deal with it. Medical and nursing staff were immediately lent by the Governments of Kenya, Tanganyika, and Uganda, while the authorities of Oxford University made available the services of Prof. Seddon, who went to Mauritius by air accompanied by a research specialist, Dr. MacFarlan, from the Medical Research Council, and a masseuse. A special orthopaedic hospital had been opened under Prof. Seddon's immediate supervision. Two medical officers lent by the Army and R.A.F. respectively were co-operating in research work. Instructional advice for the people of the island had been widely issued. The outbreak appeared to be abating. Cases for the week ended April 28 decreased to 20 compared with 280 cases notified in the week ended March 24.

Sale of Practices

On May 3 Mr. STOREY asked whether the Minister of Health had any statement to make on the sale and purchase of medical practices in relation to the Government's proposals for a National Health Service.

In a written answer Mr. WILLINK stated that the Government recognized, as indicated in the White Paper, that a case could be made for the total abolition of the sale and purchase of publicly remunerated practices, and particularly of practices conducted in publicly provided health centres. The Government also recognized, as indicated in the White Paper, that the abolition would involve great practical difficulty and was not essential to the initiation of the new service. The Government felt that firm decisions, dealing with the practical difficulties fairly in the interests of all concerned if sale and purchase were to be abolished, could be reached only after some experience had been gained of the working of the new service and all the relevant facts had been ascertained. The Government did not propose, therefore, to make any alteration in the present custom in the forthcoming Health Services Bill, but proposed that a full inquiry into the whole question should be instituted by a committee appointed for that purpose after the new service had come into operation and experience of its working had been gained.

Meanwhile, to remove any present uncertainty, the Government wished to make it clear that if the sale of practices as a result of the inquiry he had mentioned be abolished or restricted by law, doctors affected would receive all proper compensation, on the understanding that (as indicated in the White Paper) the new service could not be allowed, by itself increasing values, to increase the amount of compensation payable. The Government also recognized that, pending the inquiry, many doctors would be returning from the Forces and entering new civil practices under the existing conditions of practice exchange." They were anxious that these men and women should not be prevented or discouraged from doing so by inability to find purchase money, and were discussing with the profession how this could best be secured.

Penicillin Supplies

Mr. WILLINK told Mr. G. Griffiths on May 3 that there was not yet enough penicillin for all restrictions upon its use to be removed. Penicillin could not be supplied on a doctor's prescription either for insured or for private patients. It was available only through hospitals. In most cases it should be administered in hospitals by staff specially trained in its use. Supplies were sufficient for all urgent cases likely to benefit from such use.

Health and Food in India

Mr. AMERY told Mr. Sorensen on May 3 that the incidence of cholera in Bengal as a whole had during the past year been below normal. He had seen recent press reports of a cholera epidemic in Calcutta and had asked for a report. Smallpox had been not very greatly above normal and very much below the corresponding figure for last year. Malaria, which had been for some time above the average, had recently been improving.

In reply to Mr. Fraser on the same date, Mr. Amery said the food situation in Malabar and Northern Madras had given rise to some anxiety, but the Government of India had been able to alleviate the situation by internal movement of "foodgrains." The Government of Madras had introduced systems of rationing which were reported to be working satisfactorily. He had had no report of any epidemic of cholera in Madras.

Silicosis among Slate Miners

Mr. Tom Smith told Prof. Gruffydd on May 3 that the number of cases of underground workers in slate mines in North Wales certified by the Silicosis Medical Board for total disablement or suspension from the industry since Jan. 1, 1940, when these workers were first covered by the Compensation Scheme, was 85. As figures were only available from the beginning of 1940 and machines were in use before that time it was not possible to say definitely what the effect of machines had been on the incidence of silicosis. Wet drilling or other appropriate methods of allaying dust had now been adopted in place of dry drilling. These and other precautionary measures being taken should in time result in a decreased incidence of the disease.

Returned Prisoners of War

In a reply on May 3 to Sir E. Graham-Little Sir James Grigg said prisoners of war returning from Germany underwent a full examination by a medical board during their leave. Any who were considered to be unfit for further service would be discharged on medical grounds. Those who were not recommended for discharge reported to a unit at the end of their leave where there were special facilities for examination by medical and other experts. Some prisoners would be sent to physical development centres to improve their physical condition, and the extension of these arrangements would, if necessary, be considered. Moreover the soldier's medical category would be subject to review in the light of his further progress. A returned prisoner would be retained in this country for at least six months, and thereafter he would be sent abroad only if a further medical examination showed that he was fit for this service.

Tuberculous Service Patients

On May 8 Sir Leonard Lyle asked the Secretary of State for War whether, in view of the increasing number of Service personnel who had contracted tuberculosis during their period of service, and who, in consequence, were discharged from the Service before they could be admitted to sanatoria, he would make a new regulation so that these men should not be discharged until at least eight calendar months had elapsed from the date of their first absence from duty on account of their disability. Sir James Grigg replied that until civil sanatoria were prepared to accept serving soldiers as patients he could not do what Sir Leonard Lyle wanted. This question was still being pursued.

Replying to further questions, Sir James Grigg said that these men had to be discharged because civil sanatoria would not take them as military patients. As soon as such sanatoria were prepared to take them as military patients the men could get exactly the same treatment as other soldiers. It was a question whether civil sanatoria could be persuaded to take them not as civil but as military patients. Dr. Summerskill asked why the Minister was not prepared to establish military sanatoria to remedy this injustice, and Sir James replied that, as Dr. Summerskill ought to know as well as most people, hospital accommodation had been arranged in this war in the main under an emergency hospital system and not a system of a series of military hospitals.

Colonial Medical Students in Britain

Colonel Stanley on May 9 assured Mr. Sorensen that there was no restriction on the number of West Africans who could apply for training in British medical schools and for training as nurses. Under war conditions, however, training institutions had been obliged to limit the number of Colonial medical students that could be accommodated. In regard to nurses, students had hitherto come to this country only by private arrangement, but steps were being taken to expand facilities for such training here. The number of West African medical students at medical schools in this country was understood to be 76 (including 12 Government scholars). There were also 11 medical students doing preliminary studies. There were believed to be about 10 girls being trained as nurses.

Married Women Doctors in E.M.S.

On May 10 Dr. Summerskill inquired whether the Minister of Health knew that under the conditions governing appointments in the E.M.S. a married woman doctor could not claim leave with pay on account of childbirth, whereas she was entitled to leave with pay on account of illness or accident; and whether he would take steps to remedy this injustice. Mr. Willink said he knew this. Married women enrolled as medical officers in the Emergency Medical Service were subject to the leave conditions applicable to all married women employed in the Civil Service in a temporary capacity. There would be no grounds for making a special exception in favour of E.M.S. officers.

Cost of Public Vaccination

Mr. Viant asked on May 11 what was the total cost of vaccination carried out during the Glasgow smallpox outbreak of 1942 and of vaccination carried out during the Edinburgh epidemic of the same year. Mr. Johnston replied that from estimates provided by the corporations of Glasgow and Edinburgh the principal items in the cost of vaccination during the smallpox outbreaks in question were:

		£
Glasgow:	Calf lymph, dressings, etc.	5,699
	Vaccination fees	10,469
		16,168
Edinburgh:	Calf lymph, dressings, etc.	5,944
	Vaccination fees	2,994
		8,938

He added that no Government grant was paid towards this expenditure, but lymph to an estimated value of £5,927 (not included in the figures above) was supplied free through the Government Lymph Establishment.

Smallpox at Indian Airfield.—Sir Archibald Sinclair stated on May 2 that recently there had been an outbreak of smallpox in India at an airfield used by transport aircraft. For their own protection and that of others Service personnel were not allowed to proceed by air to this airfield unless they had been vaccinated shortly before. Vaccination was, and remained, voluntary, and no one had been vaccinated against his will.

Hospital Beds.—Mr. Rostron Duckworth inquired on May 3 whether, in view of the cessation of enemy air attacks, the beds in hospitals reserved for potential casualties would be at once returned to ordinary civil use.

Mr. Willink answered that the beds now reserved in certain hospitals in the Emergency Hospital Scheme were for all classes of patients for whose treatment he was responsible, including Service casualties and sick. No beds were specifically reserved for air-raid casualties.

Medical Advice in Military Detention.—On May 8 Sir James Grigg informed Mr. Turton that no soldier serving sentence in detention barracks was or had been released from so doing on the certificate of a psychiatrist alone. Medical advice, however, was one of the considerations on which the appropriate military authorities remitted or suspended sentences of detention.

Sickness among Bus Drivers and Conductors.—Statistics furnished to the Ministry of War Transport by the London Passenger Transport Board show during the year 1944 a sickness rate for central buses of 6.4% among drivers, 7.3% among male conductors, and 13.1% among women conductors. For country buses the equivalent figures were 3.3%, 6.2%, and 8.2%. For trams and trolley-buses they were 5.9%, 10.5%, and 17%. For railways under the L.P.T.B. the sickness rate for all operating grades was 6.7%.

Notes in Brief

Disabled men in receipt of 100% pension for total blindness arising out of the present war, including the Navy, Army, R.A.F., and Merchant Navy, number 300; for the last war the number was 1,800.

Mr. Churchill announced on May 10 that a basic petrol ration, freely at the disposal of private owners of motor-cars and motor-cycles, would be introduced in 30 days. An increased allowance would be given to cars and motor-cycles used for professional purposes.

Universities and Colleges

UNIVERSITY OF EDINBURGH

The Sixth Sharpey-Schafer Memorial Lecture, on "The Absorption and Excretion of Water, and the Antidiuretic Hormone," will be delivered by Prof. E. B. Verney, F.R.C.P., F.R.S., on Friday, June 8, at 5 p.m., in the Anatomy Class Room, University New Buildings, Teviot Place, Edinburgh. All interested are invited to attend.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The Council has decided to institute monthly subscription dinners in the College for Fellows and Members of the College and members of the specialist associations linked with it through the Joint Secretariat. They will be held on the evening of the Wednesday preceding the second Thursday of the month, and the first of the series has been arranged for Wednesday, June 13. Applications will be dealt with in the order in which they are received and must reach the Secretary of the College in Lincoln's Inn Fields, W.C.2, at least a week before the date of the dinner, accompanied by payment of the inclusive charge of £1 1s. for each dinner. The Council's object is to give those associated with the College opportunities of meeting socially more often. If it is found that the opportunity of dining n the College is much appreciated arrangements will be made for hese dinners to be held at shorter intervals. It is intended in the plans for restoration and development that facilities for lunching and dining in the College shall be greatly increased.

The following candidates were successful in the recent Primary Fellowship Examination conducted by the Royal College of Surgeons of England:

H. M. Bradmore, D. M. Brooks, W. Burnett, Muriel Crouch, M. P. Durham, . A. W. Edwards, V. G. Griffiths, S. W. G. Hargrove, M. Kaye, L. P. Le Quesne, A. B. McCarten, D. A. Macfarlane, Doreen Nightingale, K. W. E. Paine, A. J. Partridge, R. E. Renaud, J. M. H. Ross, H. O. Thomas, P. C. Watson, Margaret . Yeoman, J. Zimmermann.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

At a quarterly meeting, held on May 1, with the President, Dr. A. Fergus Hewat, in the chair, Dr. James Ronald (Stirling) was introduced and took his seat as a Fellow of the College. Drs. Cyril Hocken Tewsley, C.M.G. (Auckland, N.Z.), Munir El Gazayerli Alexandria), Bryce Ramsay Nisbet (Kilmarnock), Albert Arthur Huse (Birmingham), and Ronald Haxton Girdwood (Edinburgh) were elected Fellows of the College.

Prof. J. A. Nixon was appointed Dr. Alexander Black Lecturer or 1945.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

At a meeting of the President and Fellows of the Royal College of Physicians of Ireland, held on May 4, the following Members were elected Fellows of the College:

Vincent Cornelius Ellis, M.D., James Cyril Gaffney, M.D., Patrick Aloysius McNally, M.D., John Norman Parker Moore, M.D.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At the monthly meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, with Mr. William A. Sewell, President, in the hair, Jane Hyslop Merry, M.B., Ch.B., was admitted a Fellow of Faculty *qua* Physician and William Malcolm Gibson, M.B., Ch.B., was admitted a Fellow of Faculty *qua* Surgeon.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the chief features of the returns were an increase of 122 notifications of measles, and 70 of scarlet fever; dysentery notifications were down by 37.

Diphtheria notifications were maintained at the level of the preceding week; the local variations of note were increases in Staffordshire of 10, and in Worcestershire of 11, and a fall of 18 in Northumberland. There was little change in the returns for whooping-cough. The rise in scarlet fever was mainly due to increases of 60 and 20 notifications in Lancashire and London espectively. The notifications of measles were up in Monmouthshire by 152, Surrey by 134, Derbyshire by 130, Northamptonshire by 208, and in Lancashire by 89; they were down n London by 256, Southampton by 152, Gloucestershire by 140, and in Warwickshire by 118.

There were slightly fewer cases of dysentery. The largest returns were Lancashire 61, Gloucestershire 47, Kent 41, Staffordshire 40, London 32, Yorks West Riding 32, Middlesex 28, Warwickshire 15, Hertfordshire 12, Worcestershire 12, Suffolk 12, Devonshire 11.

In *Scotland* diphtheria was up by 18 cases, scarlet fever by 20, and whooping-cough by 20; there were 96 fewer notifications of measles, and 9 fewer of dysentery. But dysentery increased in Edinburgh from 30 to 53 cases, and in Aberdeen from 21 to 34; the other large returns were Glasgow 44, and Dundee 14.

In *Eire* small decreases were recorded for most of the infectious diseases, the chief exception being a rise of 13 for measles. Eight cases of typhoid were reported from Donegal, Glenties R.D.

In *Northern Ireland* the only changes in the incidence of infectious diseases were a rise in diphtheria of 8, and a fall in measles of 11.

Diphtheria among Canadian Troops

The Canadian National Defence H.Q. announced that an outbreak of diphtheria among Canadian troops on the Western Front reached a peak of 118 cases per 100,000 in January, and had fallen to 35 per 100,000 by March. The outbreak did not reach serious proportions, due to the Canadian Army's policy of compulsory immunization.

Week Ending May 5

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,351, whooping-cough 1,050, diphtheria 504, measles 13,139, acute pneumonia 518, dysentery 469, paratyphoid 7, typhoid 3.

No. 17

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended April 28.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	56	3	18	3	1	71	14	32	3	1
Deaths		1	1				2	1		
Diphtheria	564	24	126	104	22	628	29	163	91	29
Deaths	7	—	2	2	—	5	—	5	3	1
Dysentery	486	32	188	3	—	218	37	79	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	2	—	—	—	—	3	—	—	—	—
Deaths		—					—			
Erysipelas			32	7	1			42	4	4
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				16					4	
Deaths	43	8	6	4	4	49	12	8	10	4
Measles*	16,023	1058	341	65	23	2,055	207	559	214	19
Deaths	8	1	—	2	—	2	—	—	8	—
Ophthalmia neonatorum	59	5	15	—	—	80	5	17	—	—
Deaths										
Paratyphoid fever ..	3	—	2 (1A, 1B)	2 (B)	—	4	—	2 (B)	—	1 (B)
Deaths	—	—	1	—	—	—	—	—	—	—
Pneumonia, influenzal†	530	29	3	9	4	711	49	11	10	6
Deaths (from influenza)	12	2	1	—	1	7	—	5	—	—
Pneumonia, primary ..			174	31				205	30	
Deaths		25		11	10		31		16	17
Polio-encephalitis, acute	—	—				2	—			
Deaths		—					—			
Poliomyelitis, acute ..	5	—	2	—	—	9	—	1	1	—
Deaths		—					—			
Puerperal fever		1	11		—		5	15		—
Deaths										
Puerperal pyrexia‡ ..	128	13	17	2	1	164	10	27	1	—
Deaths		—					—			
Relapsing fever ..	—	—			—	—	—			—
Deaths										
Scarlet fever	1,426	71	212	13	34	1,764	120	213	24	66
Deaths	2	—	—	—	—	2	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	3	—	—	13	—	9	—	2	6	7
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	1	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough* ..	1,190	65	201	39	24	2,397	223	241	70	27
Deaths	4	—	3	1	—	16	5	6	5	2
Deaths (0–1 year) ..	304	40	40	29	23	367	57	61	39	37
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4,057	576	536	190	129	4,314	640	565	211	149
Annual death rate (per 1,000 persons living)			12·2	12·3	§			13·0	13·8	§
Live births	6,587	701	906	396	252	7,798	927	1018	638	310
Annual rate per 1,000 persons living ..			18·1	25·6	§			20·7	—	§
Stillbirths	186	21	30			250	23	38		
Rate per 1,000 total births (including stillborn)			32					36		

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* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

The following films will be shown by the Scientific Film Association, in the last programme of its present series, on Wednesday, May 23, at 5.30 p.m., and again at 8 p.m., at the Royal Society of Medicine, 1, Wimpole Street, London, W.: "Killing Farm Rats," "Rabies," "Microscopic Observations of Living Tissue," "The Effect of Thymectomy on a Case of Myasthenia Gravis," and "The Effect of Centrifugal Force on Fighter Crews." Admission will be by ticket only, and those who have not already done so should apply immediately to the honorary secretary of the Medical Committee, Dr. S. J. Reynolds, 14, Hopton Road, London, S.W.16.

A meeting of the Medico-Legal Society will be held at 26, Portland Place, W., on Thursday, May 24, at 5 p.m., when Dr. Edward Glover will read a paper on "The Social and Legal Aspects of Sexual Abnormality."

A meeting of the Clinical Society of the Royal Eye Hospital will be held at the hospital, St. George's Circus, Southwark, S.E.1, on Friday, May 25, at 5 p.m., when a talk will be given by Dr. T. H. Whittington on alternating strabismus.

The Royal Sanitary Institute (90, Buckingham Palace Road, S.W.) announces the following sessional meetings: At Swansea Guildhall, Saturday, May 26, at 11 a.m., paper on "Reconstruction and Housing Proposals of Swansea," by Mr. J. B. Bennett; at Usher Art Gallery, Lindum Road, Lincoln, Saturday, June 9, at 10.15 a.m., papers on "The Influence of Housing Needs on the Planning Scheme," by Mr. R. L. Stirling, and "The Water Undertaking and its Contribution to the Nation's Health," by Mr. D. Whiteley; at Royal Institution, Colquitt Street, Liverpool, Friday, June 22, at 10.45 a.m., paper on "Public Health and the Social Services," by Dr. C. O. Stallybrass. In the afternoon a paper on "Post-war Housing" will be read by Mr. L. H. Keay.

The British Orthopaedic Association is meeting at Horton Emergency Hospital, Epsom, on Friday, June 1, and Hill End (St. Bartholomew's) Hospital, St. Albans, on Saturday, June 2.

A meeting of the Medical Society of the L.C.C. Service will be held at the North-Western Hospital, Lawn Road, N.W., on Wednesday, June 6, at 3 p.m., when there will be a clinical and pathological demonstration of puerperal sepsis and gastro-enteritis.

At a Court of the Directors of the Society for the Relief of Widows and Orphans of Medical Men, held on April 11, with Dr. R. A. Young, president, in the chair, the audited accounts for the year ended December 31, 1944, were presented and approved. The chairman brought to the notice of the directors the following personal item of interest: The first secretary of the society, the father of the present secretary, held office for 37 years, and his son has been secretary for 40 years, making a combined total of 77 years' service. The society has been in existence for 157 years, thus the last two secretaries have held office for practically half that period. The annual general meeting will be held on May 23, at 5 p.m. A new list of members has been printed, and any member may obtain a copy on application to the secretary at 11, Chandos Street, Cavendish Square, W.1. Membership of the society is open to any registered medical man who, at the time of his election, is residing within a twenty-mile radius of Charing Cross. Relief is granted only to widows and orphans of deceased members. Full particulars may be obtained from the secretary.

Dr. Edwin J. Cohn, professor of biochemistry at Harvard University, has been chosen as the first recipient of the Passano Foundation award. The Foundation was established in 1944 by the Williams and Wilkins Company, medical publishers, of Baltimore, to aid the advancement of medical research, especially research that bears promise of clinical application. Dr. Cohn is distinguished for his work on the fractionation of blood. Beginning in 1919 with a study of blood and blood proteins his research has yielded a group of five principal fractions of blood plasma.

Sir Raphael Cilento, M.D., Director-General of Health and Medical Services for Queensland and honorary professor of tropical and social medicine in the University of Queensland, has been appointed to take charge of U.N.R.R.A. antimalarial work in the Balkans.

The Ex-Services Welfare Society (Temple Chambers, Temple Avenue, E.C.4) will hold its 9th Annual Medical Conference at the Waldorf Hotel, Aldwych, W.C., on Friday, June 1, at 10.30 a.m., under the chairmanship of Lord Horder. Important post-war problems will be discussed.

Miss Charlotte Purnell, O.B.E., M.S., who died on June 20, 1944, at Amman, Transjordan, aged 75, was for 20 years a medical missionary of the C.M.S. in the Near East, and later conducted an English mission hospital at Amman. By her will she left £1,000 for that hospital.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square London, W.C.1. Telephone: EUSTON 2111. Telegrams: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association. Telephone: EUSTON 2111. Telegrams: *Medisecra Westcent, London.*

B.M.A. Scottish Office: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Pyelitis in Child of 2

Q.—*A well-developed infant aged 2 years had acute pyelitis 6 weeks ago. She was well in 2 days on sulphathiazole, which was given for 4 days in the hope of ensuring complete cure. She also had limited alkali. Nine months ago she had a similar attack, which responded to the same treatment. Now her urine shows a trace of albumin, a few pus cells, and B. coli. There is no external evidence of congenital deformity. Can I try a further course of sulphonamides and alkali before G.U. investigation? Is sulphamerazine the most suitable? If so, how much, and for how long?*

A.—In view of the short period of treatment given for the last attack it would be worth while to try a longer course before resorting to other measures. There is not enough information about the action of the newer sulphonamides on urinary tract infections to lay down any hard-and-fast rules about the choice of drug, and in any case different strains of organism vary in their sensitivity. A *B. coli* infection will usually respond to sulphanilamide, and, where this fails, sulphathiazole may succeed. A dose of 0.25 gramme of either drug 4 times a day should be adequate for treating a urinary tract infection in a child of this age: this treatment should be continued for a week, and alkali, as suggested, should be given in addition.

Analgesia in Midwifery

Q.—*What is the best and safest method of ensuring analgesia in midwifery? Recent discussion on this point has left me in rather a haze.*

A.—Although there is still no completely satisfactory analgesic for use in midwifery, there are several which are reasonably effective and safe. The results obtained with each method depend to a large extent on experience in their use, and each observer tends to adopt some particular method and to become expert in modifying it to suit individual cases; hence the various claims and opinions expressed. For the first stage of labour the older analgesics—morphine (with or without hyoscine) and chloral and bromide—still deservedly retain their popularity, although many barbiturates, such as nembutal, pernocton, seconal, are employed as alternatives. Neither morphine nor barbiturates, however, should be given within four to six hours of the birth of the child, and should therefore be used with caution in multiparous patients in whom labour is progressing rapidly.

Of the newer methods I would suggest that the inquirer try pethidine, 100 mg. intramuscularly, together with seconal gr. 1½, or scopolamine gr. 1/150, to be given when the cervix is about two fingers dilated. The dose of pethidine can be repeated in two or three hours if necessary. For details on the use of pethidine reference should be made to three articles in the *Journal*: 1944, **1**, 176, 179; **2**, 498. For analgesia at the end of the first stage and during the second stage of labour gas and air, administered by Minnitt's or other similar apparatus, still has the first claim for consideration from the standpoint of safety, non-interference with the progress of labour, analgesic properties, and relative simplicity. But again some experience in its use is necessary before the best results are obtained.

Breast Milk and the Diet

Q.—*Is there any scientific proof—as distinct from midwives' superstitions—that certain substances in normal household diet (particularly fruits and vegetables, tea and coffee) and common laxatives (e.g., phenolphthalein, senna, or cascara) have any deleterious, or indeed any pharmacological, action on the infant, when ingested by the lactating mother? To what extent, in fact, can the breast milk be modified in any direction by the mother's diet?*

A.—There are several interrelated questions here which can be dealt with under three headings:

(*a*) *The Secretion of Drugs in Human Milk.*—There is ample proof that this occurs. The late Eric Pritchard used to say that the mammary gland was not nearly such an efficient filter as the placenta, and, in consequence, drugs can get through more readily. The list ncludes arsenic, aspirin, bromides, mercury, iodides, salicylates, and, more recently, the sulphonamides. Of the alkaloids, morphine and atropine are generally included. Other substances vouched for are alcohol and nicotine. Observations have been made not only on he analysis of milk for these substances, but also for the effects on he infant.

(*b*) *Have such Drugs or Substances any Effect on the Infant?*—Bromides given to the mother will produce a rash in the infant as well as drowsiness. Organic arsenicals are said to have produced udden death. The relation between phenolphthalein given to the mother and green stools in the baby is seen sufficiently often to uggest cause and effect. But babies vary in their susceptibility. A test "dose" of sour fruit (e.g., unripe plums) to a ward of ying-in mothers will produce green stools in only some of the infants. Some lactating women can eat anything they like, even to the more exotic foods such as lobster, without any apparent trouble in the baby. Others have to be more careful, as certain articles seem to cause infantile upsets. The same would appear to apply to common axatives.

(*c*) *Modifications in Composition of Breast Milk.*—As regards the average percentage of the main constituents of milk, little can be done to alter them by diet. Indeed, even starvation seems to mean only less milk, not a qualitative alteration. The superstition about he milk being "too weak" (not confined to midwives, but widespread among doctors) dies hard. Total solids vary very little. Occasionally, an over-fat milk can be rendered less rich by reducing he mother's fat intake. But the constituents other than protein, fat, and carbohydrate—i.e., the minerals and vitamins—probably do vary and can be varied according to a mother's diet.

Calciferol and Toxisterol

Q.—*Does toxisterol exist, and if so, does it occur in the natural sources of vitamin D, such as cod-liver oil?*

A.—Toxisterol does exist. It is one of the many sterols formed by irradiating ergosterol with ultra-violet light. The first product of irradiation is calciferol, which by further irradiation is converted into lumisterol, tachysterol, and toxisterol. Over-irradiation of ergosterol produces toxisterol. Toxisterol does not occur in cod-liver oil and natural sources of vitamin D. As its name implies, it produces toxic reactions and has a low antirachitic potency.

Psychological Causes of Insomnia

Q.—*On Sept. 30, 1944, p. 458, a question was asked about nembutal for sleep. The reply stated that this was practically innocuous, but that it did not get at the causes of insomnia. I wonder how tranquillity can be obtained by those of us who throughout our lives have worried unduly—or perhaps not unduly but enough to prevent sleep.*

A.—The most common psychological cause of insomnia is, of course, that one has "something on one's mind"; in other words, it is due to the perseveration of some unsolved problem (reference may be made to the reply on sleep-walking, *B.M.J.*, Jan. 27, 1945, p. 139). In ordinary and sporadic instances of insomnia, such as most people suffer from on occasion, it is best to wake oneself right up, if not fully awake already, and ask oneself what one is worrying about. Even if we cannot solve it at the moment we may at any rate see what it is and defer solution till the morning.

But most insomnia is not so simple as that; for the mind tends to push away unpleasant things and may succeed in doing so, entirely repressing and forgetting them. At night, the worry returns when our vigilance is relaxed in sleep. The clearest instance is that of people who wake up at a certain time every night, say at 3 a.m., irrespective of external stimuli. This is always found on analysis to be due to the fact that at that precise moment the patient once had some unpleasant experience or problem: one man wakened to find he had dysentery; another to realize his wife no longer cared for him. We go to sleep to escape the problems of the day; we wake up to escape the problems of the night.

The link between the physiological and psychological is instanced in what we may term psychosomatic insomnia: worry affects the gastric secretions and produces indigestion, and the indigestion produces the insomnia.

Chronic insomnia is usually due to the persisting problems and worries of our lives which we repress, and of which we are unaware. It is in fact precisely of the same nature as neuroses and must be regarded with the same seriousness as disorders like agoraphobia, requiring radical treatment. In such cases we are unaware of the object of anxiety, and tend to transfer our worry to insignificant things; or, because we cannot sleep, this anxiety gets transferred to the sleep itself, and we begin to worry whether we shall sleep or not; and that worry then appears to be the one which keeps us awake, and a very real worry it is. But the fundamental trouble lies deeper, and needs thorough psychological investigation. Perhaps the most common cause is where there have been dreads and fears in early childhood, say from illness, against which fear an attitude of self-sufficiency, success, ambition, and achievement is set up *as a barrier*. So urgent is it to get on that the personality is in a perpetual state of strain and tension. The investigation and treatment are usually long, but if successful are preferable to being doped all one's life.

Short of radical treatment, a form of self-hypnosis is often valuable—namely, with eyes closed, and slightly turned upward, to gaze fixedly at one of the spots or lights from the retina, and whenever our attention wanders to bring it persistently back. Hypnosis is essentially a phenomenon of attention, and if we can keep our attention fixed on the spot by effort of will, we exclude the worry and by tiring our attention go to sleep. But persistence is very necessary.

Peat Baths

Q.—*Are there any spas or other places in this country where peat baths are given as I have seen them given abroad? Is there any firm that prepares peat for home baths?*

A.—Peat baths are given in this country on an extensive scale at Buxton, Harrogate, and Strathpeffer on the same lines as at Continental spas. It may be of interest to mention that Dio Cassius, writing at the time of Tacitus the Roman historian, records that the Picts used peat baths on primitive lines, presumably for the treatment of rheumatism induced by the climate of our islands, so that originality in the use of the method does not belong to the Continental spas. So far as the writer is aware no firm supplies peat prepared for baths; it would probably be expensive and unsatisfactory without special arrangements for heating the peat.

Record Number of Caesarean Sections

Q.—*How many Caesarean sections for pelvic disproportion may be safely carried out before sterilization must be done to prevent the danger of future pregnancies? Is there any available information on the "record" number of Caesarean sections carried out on one patient?*

A.—Each Caesarean section entails the ordinary risks of a major operation. When the operation is repeated the likelihood of adhesions increases, the abdominal wall becomes scarred and weakened and so does the uterine wall—involving danger of ruptured uterus in a subsequent pregnancy. The occurrence and importance of these factors vary in different patients, so the number of operations which can "safely" be carried out also varies. Apart from the question of safety, the wishes of each patient should be carefully considered in reaching a decision—as should other factors, such as whether the other children have survived. Most women consider—and their views are supported by most obstetricians—that when they have suffered the discomfort, inconvenience, and risks of three operations they have "done their duty," so sterilization is usually carried out at the third section. But this is a practice based on general principles and experience rather than any absolute indication, and need not be adhered to strictly in any given case.

Five or six Caesarean sections on the same patient are not very uncommon, but the published "record" appears to be held by the patient whose ninth operation (eight upper segment and one lower segment) was carried out and reported by D. J. McSweeney (*Amer. J. Obstet. Gynec.*, 1940, **39**, 155). She had also had two other abdominal operations—appendicectomy and cholecystectomy—yet at the time of the ninth section, and at the age of 38, she asked not to be sterilized because she was anxious for further children. However, by the time she was 45 there had not been any more pregnancies. According to McSweeney the previous highest number recorded was seven.

X Rays for Perionychia

Q.—*Is there any satisfactory treatment for (non-purulent) perionychia of the fingers?*

A.—Perionychia often responds to small doses of *x* rays, say 50 *r* (180 kV, H.V.L.=1.0 mm. Cu) every fifth day for six weeks.

Treatment of Warts

Q.—*There appears to be a large increase in the incidence of warts. The treatment recommended varies from x rays to nitric acid and incantations. I shall be grateful for suggestions for rational treatment of a case which, in spite of local applications and x-ray treatment, is still extremely painful to the small girl who is suffering from it. Is the condition contagious?*

A.—It is assumed that the wart is on the sole, where treatment is made more difficult by the thick horny layer in which the wart is embedded. A 20% salicylic acid plaster applied exactly to the wart—and removed from time to time—held in position by elastoplast, often succeeds. Local analgesia and the curette are also effective, or prolonged freezing with CO_2 snow may be tried; this, however, requires practice and experience. The condition is probably contagious, the bathroom floor and mat providing the link.

Prognosis in Hodgkin's Disease

Q.—*Does complete recovery from Hodgkin's disease ever occur, and if so, after what interval, during which the patient is free from signs and symptoms, can it be assumed to have taken place? If complete recovery is possible, in what percentage of cases does it occur?*

A.—There is no evidence that complete recovery from Hodgkin's disease ever occurs. About 80% of the subjects die within three years of the onset of symptoms, and only about 5% live more than five years. In any large series of cases there will be a few with a duration up to ten years, and survival for twenty-five years has been recorded. It is not possible to make an accurate prediction in the individual patient. Even though the patient has been completely free of symptoms for months or years, the disease may suddenly reappear in an acute and rapidly fatal form.

Intramuscular Injection of Iron

Q.—*In the treatment of microcytic anaemias, is there a physiologically effective preparation of iron for intramuscular injection?*

A.—No, there is not. Iron is one of those substances which are much more toxic by injection than by mouth, and the minimum effective dose (25 mg. Fe a day) is very close to the maximum tolerated dose. Immediately after the injection of this amount of iron the patient experiences unpleasant symptoms such as feelings of warmth, nausea, vomiting, palpitation, and precordial constriction. It is conceivable that a preparation might one day be found from which the iron is gradually released, as the active arsenic is released from neoarsphenamine, but the intense physiological activity of iron and the absence of channels of excretion do not make the prospect very hopeful.

LETTERS, NOTES, ETC.

Possible Contagiousness of Cancer

Dr. J. H. DOUGLAS WEBSTER (London, W.1) writes: The expert answering the question on this subject (March 31, p. 468), who says that "cancer is no more contagious than broken legs," seems to base this verdict (the orthodox one) on the observation that a chicken sarcoma does not spread to chickens in the same pen; and on the scepticism statisticians have about "cancer houses." But should not a distinction first be drawn between "closed" and "open" cancers? A cancer shut off in an otherwise normal organ (as breast or liver) cannot be contagious: but may not an open cancer (of skin, lip, cervix, or rectum) possibly be contagious? In patients occasional infection of the opposite lip or labium has been observed; and infection of an abdominal or breast scar during operation (as in a stitch-hole) has often been noted. Patients with skin cancer sometimes apparently infect themselves by scratching: I have now a patient with multiple skin cancers of the face, probably due to this cause. Then I know of two instances of lung cancers in husband and wife; one of a wide ulcerated abdominal wall sarcoma where the husband after months of helping with the dressings had a histologically similar spindle-celled sarcoma of the foot; a rectal case in which a young maidservant had apparently become infected from her mistress by using her enema syringe—confirming two similar instances noted by Bland-Sutton (from Macewen, *Tumours*, 1922 ed., p. 268); and there are probably more uterine cervix and penile cases than "chance" would account for (Leighton, 1932; Desaive, 1933). There are also the two striking instances, almost certainly infective, detailed in my book *Periodicity and Cause of Cancer* (1940, p. 109).

For contagion to be possible an abrasion on the skin or mucous membrane would seem necessary (as scratching, or rough use of an enema syringe), but given such an opportunity can *all* open cancers be considered 100% non-contagious? There may be only a decimal percentage involved, but is it scientific to ignore this possibility? In any case is it wise to draw rigid conclusions about a disease the cause of which is not yet known? Should cancer prove in the end to be a virus disease (see Oberling's recent *Riddle of Cancer*), open cases of cancer should be considered *possible* sources of infection, though to a much less degree than many other virus diseases, as warts.

John Knyveton's Diary

Prof. MILES PHILLIPS (Carmarthen) writes: I am interested in your reply to the question on the probable origin of the *Diary of a Surgeon in the Year 1751–1752.* I would venture to amplify it by quoting a note written by myself in December, 1941, on the fly-leaf of my own copy of this book: "I have no doubt that this *Diary* is an artefact, largely based on the *Memoir of my own Life, written in 1779,*" by Thomas Denman, M.D. (1733–1815), and on the *Continuation* of that *Memoir*, signed B, and written, no doubt, by his son-in-law, Matthew Baillie. Convincing evidence of this is to be found by comparing statements on pages, 4, 5, 6, 147, 313–16 of the *Diary* with statements on pages lix, lxviii–lxxii, and lxxvi–lxxviii of the *Memoir* and its *Continuation*, which are to be found in the seventh edition (London, 1832) of Thomas Denman's *Introduction to the Practice of Midwifery*. The mind of a reader of the *Diary* is somewhat prepared for the possibility, by a reference in the "editor's note," to "this being an age of impudent literar allusions."

Dr. J. F. BLACKETT (Bath) writes: I have made the followin additional criticisms of Knyveton's Diary (April 21, p. 579): the are, of course, of little importance except from the point of vie of establishing authenticity. "The Village of Hestley, Kent" (p. 9) is not mentioned in the gazetteers I have been able to consult In England, Sept. 2, 1752, was followed by Sept. 14, to adjus to the Gregorian Calendar; and the dates Sept. 3–13 inclusive o pages 270 to 283 had no existence. The change, however, may no have been observed by ships at sea. If Aug. 30 (p. 269) was Sunday, as it was, and the change to the Gregorian reckonin ignored, then Nov. 7 (p. 306) would be Saturday, not Sunday a stated—and so would Nov. 14 and 21 (pp. 307 and 309). In Englan they were Tuesdays.

Malaria and Syphilis

Brig. T. E. OSMOND (Ashford, Middlesex) writes: Whils being the last person to question your omniscience in most matters I cannot agree that "there is no evidence that malarial infectio has any therapeutic effect on a *Treponema pallidum* infection" (*B.M.J.*, April 28, p. 618). Surely the well-known effect of induce malaria on G.P.I. gives the lie to this. Your inquirer might b interested to read an article by A. A. Rosenburg (*J. Lab. clin. Med.* 1945, **30**, 149), who claims to be able to distinguish between positiv serum reactions due to syphilis and malaria respectively by precipitating syphilis reagin with ammonium sulphate.

⁂ Is not the emphasis on "infection"? And is not the successful treatment of G.P.I. by malaria due to its pyrogenic effect?—ED., *B.M.J.*

The Examiner's Attitude

Dr R. G. BLAIR (New Buckenham) writes: The letter from Mr. H. I. Deitch (March 31, p. 470) on the examiner's attitud prompts me to support the writer's views from a different angle For the past fifteen months it has been my lot to study specialists opinions in many hundreds of different cases. The gross difference of opinion expressed by specialists on many individual cases leav me with the impression that if either specialist were being examine by the other for a higher degree he would be ignominiously failed I have long felt that our system of examination as a qualifying process leaves much to be desired, and I would suggest that the furthe we get from purely clinical diagnosis, and the more we depend o mechanical aids to investigation, the greater will be the margin o our inexactitudes.

19th General Hospital

Col. JAMES O'GRADY writes from Stoneacre, Swinton, Manchester: Please allow me to bring to the notice of past and present member of 19th General Hospital the fact that an Old Comrades Associatio is in process of formation. I should be glad if any officers, nursing officers, warrant officers, or other ranks, who are interested, and ar or have been on the strength of the unit, would send me a postcard giving rank, name, and present address; I will then forward a form of application for membership.

Corrections

We must apologize to Dr. P. Ellinger for errors made in sending his letter "Detection of Nicotinic Acid Deficiency" (May 12, p. 678) to the press: 2nd paragraph, line 12, should have read, "Najjar in his latest paper *did not* propose . . ."; ante-penultimate line of 2nd paragraph, "Nicotinamide is *not* considered"; 3rd paragraph, 7th line from end, "nicotinamide" should have read "nicotinamide methochloride"; the last line but one of the 4th paragraph should have read "(20 to 50% of the values found in healthy people) were . . ."

Dr. R. CRUICKSHANK writes: May I correct some ambiguities in the report on my remarks at the R.S.M. on penicillin in urinary infections (*Journal*, May 12, p. 674). (1) The last sentence of paragraph 2 should read, "and therefore reliance must *not* be placed . . ." (2) In the table, the sensitivity of coliform organisms should be 15–30 units, not 30–60. The word "ratio" should be omitted. The point of this table was to show that with a daily dosage of 100,000 units of penicillin a urinary concentration of 30–40 units per c.cm. could be obtained, and therefore penicillin could be used in the treatment of urinary infections due to *Str. faecalis*, *B. proteus*, and some of the coliform organisms. In my concluding remarks I said I had recently visited a Canadian hospital in this country where they were using highly purified penicillin, and it was the custom there to use procaine as the patients objected if the local analgesic were omitted. Omission of the night doses could be done in the treatment of more localized infections, but not in septicaemic conditions.

Mr. HERBERT BROWN (Worthing) writes to correct two errors in his letter of May 5 (p. 645): (1) he entered U.C.H. in 1881, not 1880; and (2) was house-physician to Ringer in 1886, not 1881.

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THE INTEGRATION OF MEDICINE*

BY

F. M. R. WALSHE, M.D., D.Sc., F.R.C.P.

In the course of discussions upon the future and development of medicine two themes recur with melancholy iteration—namely, that specialism is an evil, and that it is inevitable. For this dilemma in which it seems generally agreed that we find ourselves no one proposes a remedy, or lights the path we must follow if we are to discover one. In his Harveian Oration of 1931, before the Royal College of Physicians, Sir Robert Hutchison spoke with insight into our situation when he said, "Specialism is inevitable; but though favourable to the accumulation of facts, it is bad for the philosophy of knowledge. There is too little speculation and too little use of the imagination; and most scientific literature is barren in ideas." Therein he put his finger upon a malady of modern science.

Yet whether the remedy the Harveian orator proposed is one we can adopt is open to question, for he went on to say that "it might be a good thing if there were a close time in laboratory work, say for five years, to enable us to digest the vast accumulation of knowledge we already possess and to think out new lines of advance." Yet I doubt if in the present climate of opinion, five years of research inactivity would increase interest in the use of the intellect, while, on the other hand, if we could stimulate this interest, a five-year truce with facts would be neither necessary nor desirable. The average modern scientific worker, paradoxical as the suggestion may seem, is more apt to be a man of action than of thought. He tends to distrust ideas. He has not always learned to achieve a harmony of observation and of general thought. His output of facts is necessarily reduced if he pauses to think about them. It may then easily be said of him that he is not making "discoveries" as fast as he should. In any case we cannot dam the stream of research effort, even if we do see too much of it losing itself in the sands.

It is significant that it is in medicine, and not in its so-called ancillary sciences where the situation is not essentially different, that an acute consciousness of the dilemma I am considering should first have dawned. Reasons for this are easily found. Let us take the case of physiology as example. This is now busily exploiting the harvest of technological advances in all fields of science, and is adapting to the solution of its own problems the methods which these sciences—physics, chemistry, and biochemistry—are so richly providing.

It has thus come about that a given physiological problem, such as the nature of cerebral cortical function, may now be approached from so many angles that it assumes the appearances of, and is too readily taken to be, many disparate and unrelated problems. All effective communication in thought ends to be broken between the users of the different exploraory techniques, and information accumulates while generalization wilts and dies. To use an expression familiar to readers of war reports, the physiologists are "fanning out" into the unknown, and in this active stage of their advance fail adequately to realize that co-ordination of thought and aim must be retained if physiology is to be a coherent body of knowledge. Let me take again, as an example, the problem of localization of function in the cerebral cortex. Over fifty years ago Hughlings Jackson, the clinician who discovered the *fact* of localization of function within the cortex, being a man of ideas, also made some penetrating generalizations as to the *nature* of this localization. The era of experimental study of this problem opened very shortly afterwards, and has since been pursued with ingenuity, with eagerness, and by an increasing number and variety of techniques—the most modern ones being of great refinement and delicacy. Yet there has been no comparable development of thought upon the subject, and a crude notion that sees in the cerebral cortex a mosaic of sharply delimited localizations of fragments of function has survived virtually unaltered since the pioneer experimental investigators first bent their energies to the task of discovery. During all this time Jackson's interpretation and synthesis of the facts have scarcely influenced thought. It is not that this interpretation has failed to generalize the facts, it is simply that it has largely failed to excite the interest of research workers. The taint of ideas that clung to it, and the bend sinister of its clinical pedigree, have together provided the experimentalist with an excuse not to think about it.

Nor is this preoccupation with the collection of information the only factor in the disorderly state of knowledge on this and allied subjects. As Trotter has pointed out, and abundantly exemplified, in more than one of his penetrating addresses, physiologists commonly, and naturally enough, pursue their science for its own sake. Theirs is therefore by definition a liberal profession, while that of a physician is a useful one. I make this distinction in no invidious sense, but in the sense employed by Newman in his lectures on "The Scope and Nature of University Education," where he says, "That alone is liberal knowledge which stands on its own pretensions, which is independent of sequel, expects no complement, refuses to be informed (as it is called) by any end, or absorbed into any art in order duly to present itself to our contemplation." This quality, which physiology as a branch of liberal knowledge shares with such physical pursuits as cricket and fox-hunting—as Newman also points out—is not shared by medicine, whose activities have an end other than themselves: namely, the health and well-being of the community.

I do not wish to be taken as implying that the fruits of physiological research are not useful—indeed, we know that they are not rarely potent weapons in our hands—but as emphasizing that this last result is, when it happens, fortuitous, and is not one that the physiologist as such intends or is interested in. In short, in medicine we have to apply our knowledge, however garnered, to well-defined ends, to the prevention and cure of illness and, as a corollary to this, to the training of the doctors of the future. It is this that brings home to us, whether we will or not, the dangers inherent in the unceasing expansion and differentiation of the field of knowledge. As has been aptly said, once we seek to go beyond the basic elements of medicine as we know it, we tend to know more and more of less and less. Thus it happens that those responsible for the training of our successors too often find themselves imparting unrelated categories of information and partial and often conflicting generalizations culled from different fields of medicine, and it is becoming nobody's business, and seems less and less within anyone's capacity, to teach medicine as a whole, or to build into a coherent body of knowledge the several contributions of the specialists.

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* Being an abridgment of the Annual Oration of the Medical ociety of London, May, 1945.

It is therefore because ours is a useful rather than a liberal profession that we have been forced to face the situation created by the accumulation around us of more, and more diverse, information than we can digest and assimilate. Hughlings Jackson was clearly aware of this, over 50 years ago, when he said that "we have multitudes of facts, but we require, as they accumulate, organizations of them into higher knowledge; we require generalizations and working hypotheses. The man who puts two old facts into new and more realistic order deserves praise as certainly as does the man who discovers a new one. There is an originality of method." But in this, as in much else, Jackson was before his own time and ours; and thus it is that physiology, true to its nature as a branch of liberal knowledge, sees no reason why it should not continue to browse at will upon the rich pastures of uncropped knowledge, giving no thought to any philosophy of knowledge, while medicine, faced by its ultimate purpose, has clamant responsibilities in the ordering of the knowledge at her disposal, and in the maintenance of a balance of activity and thought, that she dare not continue to evade. Medicine, then, has come to see that the unending additions to knowledge call urgently for a corresponding measure of integration. Yet we must try to strike a fair balance in this matter. Let it not be thought that I am making odious comparisons between physiologist and physician. We are both in the same boat, and in medicine we need not flatter ourselves that it is primarily out of any intellectual disquiet, or out of a divine discontent with the chaos of information that lies around us, that we have been brought to realize our dilemma—namely, the necessity and the evil of specialization. We are as innocent of any philosophy of knowledge as the physiologist. Our concern arises because much that is implied in the term "specialism" has come to be an obstacle to the teaching and practice of medicine.

Nevertheless, by whatever channel this awareness of the disorderly state of our science has reached us, we are at least generally agreed that we cannot indefinitely go on as we are, and that something must be done to bind the broken foundations of medicine and to make it something more than a congeries of ingenious techniques and unrelated fragments of knowledge. This, at any rate, however gained, is something gained.

Integration Keeps Pace with Differentiation

The thought that I am trying to develop will be familiar to many of you. It is summed up in the aphorism so familiar to neurophysiologists, "Integration keeps pace with differentiation." This is a fundamental principle in the evolution of the nervous system, and I cite it because I believe it to have a vital meaning for us in my present connexion. We owe its original formulation to the now disregarded genius of Herbert Spencer, from whom it was taken, and so fruitfully employed, by Hughlings Jackson. Derived anew from this latter source, it became a guiding inspiration in Sherrington's monumental contributions to experimental physiology, and its influence may be seen in the title he gave to his classic work of 1906, *The Integrative Action of the Nervous System.* Yet it is not so much with integrative action of the nervous system in respect of the organism as a whole that I am now concerned as with the development within that system, as it becomes progressively more differentiated, of structures and functions designed to control and to unify the several parts and to make them into a harmonious whole. In short, integration does, as an observed fact, keep pace with differentiation in the evolution of that system.

This conception is capable of a wider meaning than that given to it by the physiologist. I submit that it expresses something inherent in scientific thought and constantly found in truly scientific endeavour.

Let us now replace the term "differentiation" by "observation" and the term "integration" by "interpretation and synthesis." Observation leads to the increase and differentiation of information, while interpretation and synthesis are its integration into ordered knowledge, and I suggest that in the process of scientific thinking interpretation and synthesis must keep pace with observation if a coherent body of knowledge is to be forged. From this we pass easily and naturally to the notion that there is a rhythm in scientific thought, the two elements observation and interpretation alternating.

The feeling that there is such a natural rhythm in thought, a cycle in which observation and interpretation alternate, is widely implicit in our literature in respect of all branches of knowledge. It finds expression in such a statement as that of Lord Acton, "The main thing to learn is not the art of accumulating material, but the sublimer art of investigating it." While in Matthew Arnold's essay on *The Function of Criticism* we read, "The grand work of literary genius is a work of synthesis and exposition, not of analysis and discovery." Coming to our own field, we find Abraham Flexner writing: "Data of one kind or another are not so difficult to obtain; but generalization is another matter. . . . The two processes—the making of hypotheses and the gathering of data—must go on together, reacting upon each other." But the notion gets its fullest and most explicit formulation in a passage from the first volume of Arnold Toynbee's *Study of History*, which I have already quoted elsewhere, and do so again, to reinforce the cogency of my theme with the authority of this erudite thinker on history. He says:

> "Scholarship makes its progress by a rhythmic alternation between the two activities—the collection of materials and their arrangement, the finding of facts and their interpretation—just as a physical organism lives and grows by an alternation between eating and digestion. The old fable of the belly and the members points the moral that neither activity is superior or inferior, prior or posterior, primary or parasitic, but that each is inseparable from the other as a part of the same whole, and complementary to the other as a phase in the same recurrent process. For the alternation perpetually recurs in virtue of the very nature of thought. When the mind is employed in finding facts, its sheer success inhibits it sooner or later from fact-finding uninterruptedly and *ad infinitum*. Sooner or later it finds itself so formidably beleaguered by the mass of facts which it has gathered round it that, until it has sorted them out and arranged them in some kind of order, it can no longer sally out into the Universe to gather more. Then the mind changes its activity perforce and employs itself for a season in making syntheses and interpretations. Yet now, once again, its sheer success inhibits it from working uninterruptedly and *ad infinitum* at bringing order out of chaos. Sooner or later, it finds that it has reduced to order all those materials which it had collected in its last fact-finding reconnaissance. Fresh facts must now be found before the process of synthesis and interpretation can be carried further. . . . No collection of facts is ever complete, and no synthesis or interpretation ever final. . . . This rhythm is native to thought in all its different channels. In the channel of Physical Science, we have seen that thought has recently passed out of a fact-finding phase into the next phase of synthesis and interpretation."

Thus Toynbee, and, *mutatis mutandis*, what he has to say of the study of history applies to medicine and the sciences ancillary thereto. In a remarkable foreword to his book on anaphylaxis and immunity, Maurice Arthus, with a true French fire and clarity, tells us how this balance is to be achieved; and how vital to science it is. This foreword has recently been translated into English under the title of *The Philosophy of Scientific Investigation* by Sigerist, and published by the Johns Hopkins Press. He says:

> "The experimentalist must ponder and meditate deeply over the problems raised. . . . In order to make some progress in the experimental sciences one must meditate a great deal. I have repeatedly mentioned," he goes on, "the necessity of controlling the facts observed, of discussing the interpretations proposed and the meaning attributed to them, in order to accept as true and valid only what has stood the indispensable test of scientific criticism. This presupposes a special mental attitude which, unfortunately, is hardly developed in the schools, colleges, or perhaps even in the universities—namely, critical sense. This is the tendency of the mind to seek the true value of facts and results, of methods and of concepts."

It should not be necessary for me to labour this point any more, yet I believe that few would contend that during our time either medicine or its ancillary sciences have consistently honoured these principles of scientific thought, or have conformed to this rhythm of which Toynbee speaks as "native to thought in all its different channels." We have in fact, with some brilliant exceptions, been far too readily satisfied with fact-finding, and too little regardful of those intellectual instruments by which facts are interpreted and generalized. The work of Hughlings Jackson was such an exception, and another that stands out in my mind is that of Sherrington in the field of physiology. I can yet recall the feeling of exaltation with which, as a student of physiology over thirty years ago, I first read his *Integrative Action.* Here were new facts of observation in rich abundance, and how beautifully coordinated! With what logical precision the exposition of them advanced from step to step, and with what penetrating scientific imagination was their significance revealed! This perfect rhythm of observation, interpretation, and synthesis, which is the hall-mark of scientific genius, has characterized all Sherrington's work and has made of it a unified whole, a brilliant chapter in the story of the nervous system.

In the clinical field we see the same brilliant qualities informing the studies of Trotter and Davies on cutaneous sensibility. Here, within the brief scope of two papers, we find as complete a harmony of observation and interpretation and as finished a piece of medical research as modern medicine has to show. A comparable trend is seen in Head's work on sensation, a rhythm of observation and interpretation and a continuity of thought over a long-sustained research; and if the observations in some details have since proved fallacious and the interpretation sometimes unduly abstract, the whole is an impressive example of the normal rhythm of scientific thought with its own elements of grandeur.

To sum up this stage of my thesis, therefore, we see that as new facts increase in number and diversity, the need for their interpretation and synthesis increases in corresponding degree. By these means we forge those general principles that keep knowledge coherent, and make of it truly scientific knowledge.

One is sometimes asked what, precisely, one refers to by principles of medicine, and I admit that the term is apt to be used without due definition. Let me tax your patience by yet another example from the field of neurology. The generalizing mind of Hughlings Jackson, surveying the wide range of phenomena of disease of the nervous system, discerned that the totality of these phenomena could be subsumed under four headings, that the functions of the nervous system could react to damage in but four essentially different ways, whatever the aetiology of the pathological process concerned. He thus was able to formulate four corresponding generalizations. He then went further, and, taking the phenomena of nervous disease as a whole, he saw that these constituted an orderly reversal of the natural evolution of function in the nervous system, whether considered phylogenetically or ontogenetically. He was thereupon able to formulate a further and wider generalization—namely, a general principle of dissolution of function in the nervous system. Although seventy years have elapsed since this was expounded—years rich in new knowledge of relevance to the problem—it still provides a generalization of wide validity and great usefulness. Thus, however discouraging the therapist may find diseases of the nervous system, we have in neurology a coherent body of knowledge more closely based upon anatomy and physiology than any other branch of medicine, saving only cardiology, which has a body of general principles of a like order. Such a consummation should be our aim over the whole field of medicine.

No one will deny that there are dangers inherent in the use of generalizations—for example, the tendency to fit the new facts into the procrustean bed of theory, where knowledge may become rigid and die. Abstract thinking has indeed been described as "a major vice of the intellect," and no one has spoken more cogently of its dangers than Trotter. Nevertheless, he has also told us that ideas keep science fresh and living, and when properly used are in no danger of ceasing to become the nimble servants of truth. Therefore, even though the intellectual instruments of abstract thought and generalization may turn in our hands, we must yet use them if we are to advance.

Now, those of you who may be ready to accept the point of view I am trying to advance may still ask me how we are to apply it. How are we to reduce the vast accumulation of facts to some sort of order, to elicit general principles, and to build a coherent science and art of medicine? From the very nature of things we shall never achieve finality, but at least we can try to tidy up as we go along.

I believe, in brief, that we must be imbued with a vivid realization of the fact that scientific thought and activity make up a rhythm of which observation on the one hand, and synthesis and interpretation on the other, are the elements, and that the mere eliciting and recording of factual details is by itself not science, and does not become so until the cycle is complete. In other words, we need a wholesome respect for ideas as an integral part of scientific thought. I cannot help thinking that if in every centre of original work, clinical and laboratory, workers were constantly aware of the principle that integration of knowledge should keep pace with its differentiation, we should find many fewer disjointed and apparently purposeless observations swelling the monstrous bulk of scientific literature. I sometimes doubt whether one is justified in recording in print a new observation unless one also seeks to indicate what it holds, and to apply the inductive process to it. One should not fling a raw fact on to paper in public, as a keeper flings a chunk of raw meat to a tiger. I believe that in medicine we have a unique advantage in this respect over the purely experimental scientist, in that medicine, while becoming increasingly an experimental, has long been and must continue largely to be an observational science. In its observational aspect it deals with a supremely difficult material under conditions that make constant demands upon intuition and judgment. Nature is not interested in scientific method, and the experiments she provides for us in the guise of disease and injury we have to take as we find them; we cannot subject them to the necessary but artificial simplification that is the essence of a good experiment. We are therefore forced to think, to synthesize, and to interpret our evidence to a point rarely necessary in the designed laboratory experiment. While, therefore, we must welcome the increasing role of experiment in the study of medicine, we must be on our guard not to be infected by the distrust of ideas characteristic of much experimental work, but continue to use the intellectual assets which experience of clinical observation gives every good doctor.

I confess that I have inflicted many quotations upon you, a fault which one filling the role of orator should never commit, but my object in doing so is to emphasize, as clearly as I am able, that my thesis is no new one, no private bee buzzing in my bonnet, but one that has often been maintained and exemplified by those whose labours in the realms of observation and ideas have shone most brightly before us.

Tasks Involved in Rebuilding of Medicine

If you have followed me so far, you will probably agree that there is one simple way in which each of us can contribute to the integration of medicine—by seeing that in any addition we may be able to make to the sum of medical knowledge we tidy up as we go along and conform to the natural rhythm of scientific thought, and that we try to build our fragmentary contribution into the general body of relevant knowledge.

A second task involved in the rebuilding of medicine is to ensure, as and when the human resources are available, that those who hold key positions in centres of medical education and research shall be men interested not only in research and routine teaching but also in general ideas.

This may prove no easy task, for such men are rare, and the trend of values hitherto has not been such as to encourage them to follow their bent. You cannot find them by offering professorships, as some suppose, but you can always offer them full opportunities when you find the men. Encouragement must begin when they are young, and before they become moulded or resigned to the ephemeral patterns of current orthodoxy. The young worker must be allowed to retain his intellectual independence and to pursue the problems he has found for himself—as the best men do find them for themselves; he must also be allowed some vestige of freedom by the editors of those scientific journals in which his work reaches the world, in developing his ideas, so that his papers are not reduced by the editorial blue pencil to those drab sequences of experimental protocols that for too many appear the ideal of a scientific paper. An editor should be "no envious Juno sitting cross-legged over the nativity of any man's intellectual offspring," as Milton says; and whoever believes that the censorship of ideas survives to-day only in the totalitarian State imagines a vain thing. The original sanctions may have gone and a censorship's formal existence have ceased, but the itch to suffocate the infant idea burns in us all in greater or less measure.

I may seem to have wandered far from my opening theme —namely, the evil and the necessity of specialism in medicine —but I believe that in fact I have not done so. The danger of specialism is not so much that a man devotes his major activity to a restricted field of knowledge in medicine, but that he is so apt to become absorbed in its details, and still more in those of the complex instruments that are now so freely at his disposal, that he unwittingly cuts adrift from the general body of medicine and goes off on a voyage of his own.

There are in truth no irrelevances and no contradictions in nature, nor can there be in any coherent body of knowledge. The specialist, therefore—and I use the term in its strict and not in its journalistic sense—must cling fast to the foundations of medicine, for only thus can he integrate his contributions to knowledge and orient them, and avoid the multiplication of those conflicting *ad hoc* hypotheses with which medical and allied literature are littered.

So, too, the teacher of medicine has a like obligation to interpret so far as possible and to keep a lively interest in general ideas. This applies with greater force to the academic than to the purely clinical teacher, who has a major responsibility in handing on the art and the techniques of medicine.

Last, there are our textbooks. It has now become the almost universal practice for a textbook of medicine to be the algebraical sum, if not often the integration, of the knowledge of a body of specialists. There is a danger inherent in this plan, forced upon us though it may be, for it demands in the editor of such a compilation gifts of detailed knowledge and of generalization that few can hope to possess. In these circumstances, also, an editor has to have a clear idea as to the circle of readers he is providing for, as to the particular want he desires to satisfy. What is best for the student is not necessarily adequate for the follower of higher studies, and what the latter requires is not the diet for the student. Too often we see an attempt made to make the best of both worlds, with the result that neither is wisely catered for. Of all textbooks it may not unfairly be said in our day that they are more interested in facts than in ideas, and an urgent task before us is some recasting of them. It is significant of the trend of current thought that whereas formerly textbooks of medicine claimed to expound the "principles and practice" of medicine, no modern work of the kind makes even a titular claim to concern itself with principles.

Finally, there is a pseudo-integration of medicine against which we are not always sufficiently on our guard. This is exemplified in the numerous doctrines of those who see their own specialty everywhere in medicine, who have their own touchstone by which all the phenomena of illness are to be assessed. They measure every man's corn by their own bushel, and are obsessed by this or that cult of ideas and are always proselytizing. They make up those cohorts of hobby-horse riders who cavort noisily to and fro across the field of medicine, throwing up little but dust into our eyes.

The Role of General Education

Now if this notion of what is requisite to advance in medicine has validity it must presuppose an adequate general education as a foundation. If those who come after us are to be equipped to observe and describe accurately and interpret logically and imaginatively, their training to these ends must begin while they are still young, and their school education should not be based upon short-sighted utilitarian considerations, or be of what I may call a polytechnic order, but should include as its very foundation a thorough training in the use of that noble instrument for the expression of thought and feeling, our mother tongue, in the expansion of that instrument by the right use of analogy, and in its logical employment.

In brief, what I am invoking are the three arts of grammar, rhetoric, and logic. If we lack a command of language we cannot hope to produce, formulate, or entertain general ideas or make even the simplest essays in abstract thinking.

Now, those who are familiar with the aims and methods of the mediaeval university will recall that these three arts, composing what was called the trivium, formed the basis of university education. It may perhaps be argued that in the Middle Ages, the ages of scholastic philosophy and of theological disputation, these three arts tended to be followed as an end in themselves, that the training in clear exposition and thought was what I have already called a liberal education with no end other than itself, and that it led to mere logic-chopping and to no advance in natural knowledge. Some of this may be true; I express no view upon it, and I am not proposing the revival of these arts merely as an entertaining and stimulating variety of mental gymnastics. I put them before you as an essential preliminary to that clarity of thought and expression that is one of the weapons of scientific advance, of the tools with which we pursue natural knowledge. From which it follows that the greater our command of language, the more clearly and deeply we can think and express our ideas. I submit, therefore, that a command of language, and its logical use, are vital preliminaries to any scientific training.

Some may ask me where rhetoric comes in. In its original and its mediaeval sense it refers to the expansion and condensation of discourse by analogy and figure of speech. Wherever we find lucid and vital English, there we find rhetoric. What a text of lovely and illuminating rhetoric are the psalms, for example. Rhetoric has its place in the expression of those ideas we derive from the study of facts, nor can we teach without it.

In short, what I am proposing is that a humane education is an invaluable asset to any youth embarking upon the study of medicine. I am aware that I raise the banner of a forsaken cause when I say this; but nevertheless, twenty-five years of clinical teaching have fully persuaded me that when I find a clinical clerk who can stand up and read at a ward visit a case history that is a well-ordered, lucid, and fluently expressed account of the patient and his situation, that student will almost invariably be found to have had a sound education, and not a mere course of instruction of the polytechnic order, a utility education. This is why we must all deplore the practice of turning boys over to premedical subjects exclusively, or almost exclusively, directly they jump the hurdle of the school certificate. Too often they come to us semi-articulate, their budding ideas imprisoned behind the bars of an inadequate command of expression. It is between the ages of 14 and 18 that the capacity for pursuing a line of thought and for abstract thinking develops, and it is then that the adolescent should find himself provided with the necessary instruments of speech. "Give me," says Milton, "the liberty to know, to utter, and to argue freely." If we changed this by saying "Give me the literacy to know, to utter, and to argue freely" we should not really be altering the sense, for it is the capacity to express it that gives liberty to thought.

Conclusion

What I have had to say is somewhat remote from the medicine that presents itself to us in our daily lives. Yet as we grow older the urge to lift our eyes from the details of the little plot in which each of us labours becomes ever stronger, and we are impelled to look round upon the wider field of natural knowledge as a whole. Some may even feel the pull towards some philosophy of knowledge, towards those common truths to which all science must be obedient. Man does not live by facts alone, but craves also for generalizations, and the desire for some philosophy of knowledge burns, if with varying intensity, in all of us.

Looked at in this spirit, how untidy and in places how overgrown the field of medicine seems to be; in other places how bare, how precariously balanced the whole upon the uncertain foundations of biological knowledge! So it must remain until we develop a wider and deeper consciousness of what constitutes ordered knowledge, and by what cycle of thought it is to be achieved.

Yet to feel some discontent with medicine as we find it does not imply any lack of pride in its achievements, nor any diminished sense of privilege in seeking to serve it. If one is a critic, it is, I trust, in the spirit expressed by Milton when he says, "For he who freely magnifies what hath been nobly done, and fears not to declare as freely what might be done better, gives ye the best covenant of his fidelity."

ON THE DIFFERENCE BETWEEN THE SEXES IN DISPERSION OF INTELLIGENCE

BY

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It is a striking fact, though it is in no way surprising, that in mean performance on intelligence-test scales there should be no difference between boys and girls. On the other hand, and especially in view of this first result, it is one of the oddest facts in the whole field of human biology that boys should be more variable than girls. Furthermore, as will be shown, the difference is not merely a small one, considerable though the academic interest of this would be; it is a large difference with important practical implications. Gifted boys are more numerous than gifted girls, the discrepancy increasing as we pass further away from the average performance of the whole population; till, actually, the performance of the cleverest boy in each 1,000 boys is equalled by only one girl in each 2,000 girls; thus at this level highly intelligent boys are twice as numerous as girls. All this is, however, exactly counterbalanced at the other end of the scale, dull boys being more numerous than dull girls and very dull boys correspondingly much more numerous. In other words, girls tend to be grouped closer to the average for the whole population, while boys tend to spread further over into extremes of brightness or dullness. In the planning, therefore, of such things as the provision of facilities for higher education, a greater percentage allotment should be made for boys than for girls. Similarly, greater provision for boys is needed in special classes and schools for the backward and, to the extent that mental deficiency depends upon intellectual retardation, much more in institutions for mental defectives.

Existence of the Difference

The sex difference in dispersion of intelligence is an empirical observation: so far as I know, nothing analogous has been demonstrated, and it is difficult to think of any convincing biological explanation. In these circumstances it has been naturally and rightly felt that strong evidence should be forthcoming before so curious a finding should be accepted.

From the early days of accurate mental measurement indications of the difference began to appear, though by no means invariably in all studies. It is easy to see why results should have been conflicting. In the first place, relatively large numbers are required in order to detect a difference in variability—considerably larger than those required in order to detect a difference in means; from this point of view most samples were very small. In the second place—and this is much more important—it is very difficult to secure a random sample of intelligence-test results. Bias in the sampling of school-children tends especially to affect the extremes; hence the sex difference in dispersion is particularly liable to be artificially minimized. For example, my colleagues and I (Roberts, Norman, and Griffiths, 1935) have shown that the omission of private-school children from a complete group considerably diminished the difference. For these reasons, Winsor, writing as late as 1927, could still conclude, after a careful review of the literature, that the evidence was insufficient.

Not until the appearance of that magnificent piece of work, the survey carried out by the Scottish Council for Research in Education (1933), was all legitimate doubt at an end. In this survey both the difficulties mentioned above were admirably countered. The numbers tested were vast, being no fewer than 87,000; and every effort was made to secure completeness of sampling, the aim being to test a complete annual age group throughout the whole country. It is true that some unavoidable bias remained, but in excellence of sampling no less than in numbers this group was a great improvement on its predecessors.

A good verbal group-test was applied, the results being as follows:[*]

Difference in Mean Performance between Boys and Girls

	No.	Mean Score
Boys	44,210	34·506
Girls	43,288	34·411

Difference = 0·095±0·105

The difference is less than its standard error, so that, even using such large numbers as these, it is impossible to decide whether boys or girls have the higher average performance.

The variances tell a very different story:

Difference in Variance between Boys and Girls

	No.	Variance
Boys	44,210	253·747
Girls	43,288	225·605

Difference = 28·142 ± 1·885

This very large difference is no less than 14.9 times its standard error.

The existence of the difference is abundantly demonstrated, but two important points must be considered: it is demonstrated using this particular test and for this particular sample; is there any reason to anticipate that using another scale or another sample the same result might not be obtained?

First, as regards the test, good scales designed to measure general intelligence correlate so highly with each other that it is, to say the least, extremely unlikely that the sex difference would not appear whichever was used. Direct proof, however, is not lacking. The Scottish investigators retested a sub-sample of 1,000, using the Stanford-Binet scale. A certain lack of randomness in the sampling complicates interpretation, but it was shown that the difference is clearly apparent on the Binet scale also.

My colleagues and I used a different verbal group-test, the advanced Otis, in our survey of school-children at Bath, as described in a series of papers (Roberts *et al.*, 1935, 1937, 1938a, 1938b; Roberts, 1940). Our results are as follows:

Difference in Mean Performance between Boys and Girls

	No.	Mean
Boys	1,742	100·743
Girls	1,606	99·790

Difference = 0·953 ± 1·187

Difference in Variance between Boys and Girls

	No.	Variance
Boys	1,742	1296·38
Girls	1,606	1066·26

Difference = 230·12 ± 53·75

Just as in the Scottish survey, there is no significant difference in mean performance but a very large difference in variability, this being 4.3 times its standard error.

As regards the sampling, it has already been mentioned that the Scottish group was carefully selected; such bias as there was could not affect the magnitude of the difference materially, and in any event would tend to diminish and not to increase it. The Bath group is, of course, much smaller, but even greater care was taken to ensure completeness. The aim was to ascertain and test every child whose time of birth fell between certain dates, and whose home was within the boundaries of the city on a given date. As described in the papers quoted, this aim was very nearly attained.

It can be safely concluded, therefore, that any good test of general intelligence applied to any good sample will show the difference in dispersion between the sexes; boys and girls do not differ in mean performance, but boys are quite certainly more variable.

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[*] All calculations in this paper on the Scottish survey results are based on the tables given on pages 61 and 62.

Size of the Difference

The reality of the difference between the sexes has been demonstrated, but the available information permits us to take the further step of making a useful estimate of its magnitude. How much more variable are boys than girls? The ratio of the variances in the Scottish survey is (using Sheppard's adjustment for grouping) 245.414/217.272 = 1.130. Boys are therefore 13% more variable than girls.

The numbers included are large enough to provide a high degree of accuracy of estimation. The odds are 1 in 20 that the true value lies outside the range 11.2 to 14.7%; they are 1 in 100 that the true value lies outside the range 10.7 to 15.2%. These limits are, however, once again subject to the provisos: on this test and in this sample.

In the Bath experiment the ratio of the variances is 1294.30/1064.18 = 1.216. Boys are thus 21.6% more variable than girls; but as the numbers are smaller than those of the Scottish survey the limits of error are much wider. The odds are 1 in 20 that the true value lies outside the range 11.7 to 31.5%, and 1 in 100 that it lies outside the range 8.6 to 34.6%. The results of the two surveys do not conflict significantly.

There are several factors which point to the conclusion that the Scottish figure is somewhat too low.

1. *Errors of Measurement.*—Verbal intelligence tests have relatively high reliability, and it is unlikely that the elimination from the variances of that part which is due to errors of measurement would raise the figure from 13% to more than about 14.5; nevertheless, such effect as there is must have lowered the difference between the sexes.

2. *The Composition of the Sample.*—Sampling was not quite complete, and a relatively small loss at the extremes would lower the difference appreciably. The Bath survey, in which the sampling was practically complete, does in fact indicate a higher value.

3. *The Nature of the Test.*—Good tests of general intelligence measure something which shows a wider dispersion among boys than among girls. It could reasonably be anticipated that different scales, highly though they all intercorrelate, vary somewhat in their efficiency in measuring that something; it is also to be expected that they contain in varying degree extraneous elements displaying no difference between the sexes. To say more would be pure speculation, but it can fairly be concluded that any given test will be imperfect, and to the extent that this is so the sex difference will be reduced.

Reviewing the available evidence, one might make two estimates of the amount by which the variability of boys exceeds that of girls. The most likely figure is perhaps about 17%. Because of the important practical consequences that follow, however, it seems preferable to select a conservative value—one which we can feel is almost certainly not too high. In view of the factors which must have tended to lower the ratio found in the Scottish survey, the figure of 13% would seem to provide this safe minimum.

Consequences of the Difference

The estimation of the difference has been considered in some detail. It is an important figure because we are unlikely to obtain a better one for a good many years to come. The dislocation of populations in most countries will make the task of sampling too difficult; and even in the United States it will be a long time, in all probability, before investigators can turn their attention to a new survey on an adequate scale. As we have seen, the figure of 13% for the greater variability of boys is conservative; it is extremely unlikely to be too high, though it may well be somewhat too low.

Accepting this figure, we can calculate the ratio of boys to girls in different portions of the range of intelligence. In the middle of the distribution—among, say, the 80% of persons nearest to the mean of the whole population—the disproportion is relatively small; but outside these limits it becomes considerable, and increases as more extreme fractions are considered. Thus the brightest 10% of boys are matched by 8.65% of girls; similarly for the dullest 10%. The brightest (or dullest) 5% are matched by just over 4% of girls. Beyond the level which cuts off the brightest (or dullest) 1% of boys there are three boys for every two girls. Beyond the extreme limit which cut off at each end of the scale one boy in every 1,000 boys, boys are twice as numerous as girls. Table I shows the percentage (or number per 10,000) of girls who correspond in intelligence to the brightest or dullest 10%, 9%, etc., of boys.

TABLE I

Cleverest (or Dullest) Boys per 10,000 Boys	Number of Girls of Corresponding Mentality per 10,000 Girls	Boys per 100 Girls
1,000	865	116
900	770	117
800	676	118
700	583	120
600	492	122
500	402	124
400	314	127
300	228	132
250	186	134
200	145	138
150	105	143
100	67	149
70	45	156
50	31	161
30	17·4	172
20	11·1	180
10	5·1	196

The comparison can be made in a different way. In a population composed of equal numbers of each sex how many boys and how many girls will be included in the brightest or dullest 10%, 9%, etc., of children of both sexes? These comparisons are given in Table II.

TABLE II

Cleverest (or Dullest) Children (%)	Numbers included per 10,000 (5,000 of Each Sex)		Boys per 100 Girls
	Boys	Girls	
10·0	534	466	115
9·0	483	417	116
8·0	432	368	117
7·0	380	320	119
6·0	328	272	121
5·0	276	224	123
4·0	223	177	126
3·0	169	131	129
2·5	142	108	132
2·0	115	85	135
1·5	87	63	138
1·0	59	41	144
0·7	42·2	27·8	152
0·5	30·6	19·4	158
0·3	18·8	11·2	168
0·2	12·7	7·3	174
0·1	6·5	3·5	186

What will sometimes be of interest is not the relative proportions among all those lying beyond a given limit, but among some section of that group. For example, one might wish to know the proportions of boys and girls in that portion of th range lying between the 90th and 95th percentiles—i.e., th children who are brighter than 90% of the population and duller than 5%. Any such figures can be obtained by difference from Table I or II. Thus from Table II the 500 childre out of each 10,000 who lie between the 90th and 95th percentiles will be composed of (534–276) = 258 boys and (466–224) = 242 girls—a proportion of 107 boys to 100 girls. Table III shows some examples for successive portions of the range.

TABLE III

Successive Portions of Brightest (or Dullest) 10%	Number per 10,000 (5,000 of Each Sex)		Boys per 100 Girls
Percentiles	Boys	Girls	
90–95 or 10–5 ..	258	242	107
95–98 „ 5–2 ..	161	139	116
98–99 „ 2–1 ..	56	44	127
99–99·5 „ 1–0·5 ..	28·5	21·5	133
99·5–99·8 „ 0·5–0·2 ..	17·9	12·1	148
99·8–99·9 „ 0·2–0·1 ..	6·2	3·8	163
99·9+ „ 0·1– ..	6·5	3·5	186

Space does not permit the provision of graphs from whic could be read off the proportions in any part of the rang It is hoped, however, that Tables I and II give enough deta to provide immediate answers to most practical questions

Proportions deduced on the assumption of equal numbers of boys and girls, as in Table II, will be only slightly in error if applied to populations showing the sex ratios commonly encountered.

The consequences of the sex difference in regard to such practical matters as the planning of accommodation are evident. If, for example, it were decided that a particular kind of secondary education was to be provided for the brightest 10% of children, the allocation should be for 10.7% of boys and .3% girls. If facilities for a particular type of higher education were to be offered to the cleverest 5%, this should comprise 5.5% of boys and 4.5% of girls; if the figure for another purpose were 2%, the allocations should be 2.3 and 1.7. If university scholarships of some special kind were available for 1% of the population, we should expect, if performance were proportional to mental endowment, to find a ratio of boys to 2 girls among the successful candidates. If, following Galton, we term the one person in a thousand of surpassing intelligence a "genius," we can expect to find that at this level men are nearly twice as numerous as women.

It should be stated, however, that while there is some risk of allocating to girls too high a proportion of special educational facilities, there is no risk at all, certainly not for many years to come, that opportunities for adult achievement will be vailable for women on too generous a scale. It will be ufficient to quote Terman (1940). More than 20 years ago he nitiated the researches embodied in successive volumes of *enetic Studies of Genius*. An attempt was made to include he most gifted Californian children of their time; the sample f some 1,400 corresponded to about one-half of 1%. A ollow-up after 16 years was designed to discover what use ad been made of these outstanding gifts. So little chance on he average had the girls had, however, that Terman was forced o confine his analysis to the boys. It would probably be true o say that the greatest reservoir of unused high intelligence our community is to be found in its female population, and hat this loss is not exceeded by that due to any other cause, ot even excepting social and economic handicaps.

At the other end of the scale, the dullest section of the opulation, matters are somewhat more complicated. The first omplication is due to the occurrence of idiots and imbeciles. These are not to be regarded as part of the normal distribution f intelligence; they are the pathological dwarfs of mental ature, and have been excluded from the calculations of this aper. Their frequency is about 4 per 1,000 among children school age. The figures in the tables therefore include only hose mental defectives who correspond more or less to the eeble-minded group. To these figures must be added the 40 r 10,000 idiots and imbeciles; among them, too, there is ome excess of boys, though for different reasons.

The second complication relates to the concept of mental ficiency, which implies a failure in social adjustment rather an simple intellectual retardation. Of those who on account mental backwardness are potentially certifiable only a inority are in fact certified or need to be certified. Thus the rovision for boys and girls respectively in colonies for mental efectives cannot be deduced simply from the distribution of telligence levels. To mention two important differences etween the sexes which affect certification, there are the egitimate babies born to the girls and the greater tendency the boys to come into conflict with the law.

With these reservations, which do not affect the provision of rely educational facilities for the backward, we may consider e effect of the difference between the sexes in dispersion of telligence. Say, for example, it were decided that special hools (or certification under the Mental Deficiency Acts) ould be provided for the dullest 5% of children, and that ilities for special teaching were desirable for the next 5%, n the allocations for this second less-dull group should be % for boys and 4.8% for girls. Suppose that the next 4% ere regarded as suitable for special schools, then these would ed to provide accommodation for boys and girls in the ratio 13 to 11. If the lowest 1% are regarded as equivalent to ose feeble-minded children whose backwardness is such that y may require certification (all these figures, of course, are ected simply as hypothetical examples), then there will be cluded in this fraction 3 boys to 2 girls.

Nature and Origin of the Difference

It is inconceivable that anything in our educational system could be responsible for a big difference in variances combined with an identity of means. It is almost as difficult to imagine that such an effect could be due to any differential influences operating during pre-school life. The source of the difference in variability between the sexes must therefore be inborn; I doubt whether any other possibility would occur to educational psychologists.

It can be concluded that the difference is almost certainly genetic, but beyond that the little that can be said is pure speculation. We know that the heterogametic sex—that characterized by the XY-chromosome pair—diverges more from the common pattern than does the homogametic sex possessing two X-chromosomes. Thus in mammals (the opposite is true in birds), if males are castrated early in life, then development is greatly modified and in bodily characteristics they tend to resemble the female rather than the male. On the other hand, early castration of the female produces much smaller changes. The male is the more highly specialized form, and the higher death rate at practically all ages may be an indication of the cost that this entails. Is a greater dispersion a consequence of the greater specialization? I am not aware of any clear indication of this in regard to physical measurements. For example, Pearl (1940) lists a large number of coefficients of variation. Using this criterion, 60 studies which included both sexes show that males were more variable in 29 instances, females in 31. Of course, in physical measurements interpretation is greatly complicated by the difference in means; it is the identity of the means which makes the analysis so straightforward in the case of general intelligence. Is it to the advantage of the species that in regard to intelligence males should be more and females less variable? It may be so, though it is difficult to see why.

There is little to be said, therefore, except that the difference exists; that a reasonable estimate can be made of its extent; that the practical consequences are of considerable importance; and that the difference, whatever may be the underlying reasons for its existence, is almost certainly genetic. It is to be hoped that future studies will reveal in more detail the mental qualities in which the sexes differ in variability, together with those in which they do not. The study of mental growth may well be facilitated by using our knowledge of this curious phenomenon.

Statistical Appendix

The fitting of the normal curves to the data for the boys and girls of the Scottish and Bath surveys is shown in Table IV.

TABLE IV.—*Fitting of the Normal Curves, Scottish and Bath Surveys*

	Scottish Survey		Bath Survey	
	Boys	Girls	Boys	Girls
n	44,210	43,288	1,742	1,606
s_1	176,867	172,767	36,144	33,016
s_2	819,755	787,189	840,216	747,194
s_3	4,145,957	3,896,169	21,061,212	18,163,630
s_4	22,252,871	20,448,001	558,389,232	467,905,502
S_2	112,179	97,658	90,280	68,454
S_3	−31,132	−25,110	−118,420	−11,662
S_4	653,926	531,877	12,173,174	8,426,730
k_1	4·000,61	3·991,11	20·748,6	20·557,9
±	0·007,576,0	0·007,219,2	0·172,53	0·162,96
k_2	2·537,5	2·256,0	51·855	42·651
±	0·013,746	0·012,895	1·574,1	1·464,2
k'_2	2·454,1	2·172,7	51·772	42·567
k_3	−0·704,23	−0·580,11	−68·097	−7·275,1
k_4	−4·523,9	−2·981,4	−1064·60	−197·46
k'_4	−4·515,5	2·973,1	−1064·59	−197·45
g'_1	−0·183,18	−0·181,14	−0·182,81	−0·026,20
±	0·011,649	0·011,773	0·058,638	0·061,066
g'_2	−0·749,74	−0·629,80	−0·397,19	−0·108,97
±	0·023,298	0·023,545	0·117,21	0·122,06

Notation: Fisher's *Statistical Methods* (1941).
Units of Grouping: Scottish Survey, 10 points score; Bath Survey, 5 points Otis I.B.

In the published tables of the Scottish survey, the grouping is coarser than is desirable; the effect of this should not be serious, however, and the deductions to be drawn are very unlikely to be materially affected.

A further point about the Scottish figures is that raw scores have been used, uncorrected for age differences. The range of age was 12 months. Trial shows, however, that the variation due to differences in age is very small indeed compared with the variation between children at fixed age. Furthermore, owing to a (non-significant) difference in the regressions, the ratio of the variances when adjusted for age variation does not differ, up to the number of figures used in this paper, from the ratio calculated using the raw scores. Accordingly it seemed simpler to avoid this complication.

The all-important point is the normality of the distribution of general intelligence, for upon this assumption depend any further deductions. It is well known that the frequency distributions yielded by any good intelligence scale are substantially normal. Group-test results, however, are apt to show departures, especially at the extremes. This is to be expected, for in a group test the same set of questions is used for all children, and even at the optimum age of 11 the test tends to be either too difficult to sort out the very dull at one extreme, or not difficult enough to sort out the very bright at the other; both effects are often seen simultaneously. It will be observed that there is a moderate degree of negative skewness in the frequencies of the Scottish survey—this applying to both sexes. This is also true of the boys in the Bath survey; very poor results on the advanced Otis scale, however, were less numerous among the girls, and the tendency to artificial bunching together is so little marked among them that the skewness is negligible. All the distributions are leptokurtic; this is doubtless to be attributed to a failure to spread out the children efficiently at both ends of the scale. Once again the Bath girls show a smaller departure from normality than do the boys.

There is reason to suppose, however, that these departures from normality are due to the construction of the tests and not to any underlying departure from normality in the distribution of general intelligence—at least, until very extreme limits are reached. Well-designed individual scales, which provide for each child a series of tests adapted to its mental abilities, would probably reveal a closely normal frequency curve. The Bath group provides evidence in regard to the lower end. In this group the dullest children on the Otis scale, amounting to about 23% of the whole group, were retested individually on the Stanford-Binet scale, as described in the fourth paper of the series dealing with the Bath experiments (Roberts *et al.*, 1938b). There was no significant departure from normality down to an I.Q. of about 45, which is three and a half standard deviations from the mean—a point outside the range discussed in this paper.

Convincing, even if indirect, evidence regarding the other extreme is provided in Vol. 1 of Terman's *Genetic Studies of Genius* (1925). The figures in Chapter 3 seem to me to give a clear indication that we are taking no undue risk in basing our calculations on the assumption of normality up to the 0.001 point. Terman's whole group of 1,444 included 831 boys and 613 girls, or 136 boys per 100 girls. Terman estimated that his group was about 0.5% of the population sampled. Using the estimate of this paper, the expected number of boys per 100 girls among the brightest 0.5% is 158. Apart from the fact, however, that the brightest 0.5% could not be separated off with complete efficiency, there was undoubted bias in the sampling, as is discussed at some length by Terman. In the light of present knowledge it seems clear that this must have minimized the difference considerably. To give one example, private schools were omitted; and if the effect of this is the same in the United States as it is in this country, it would lead to a heavy disproportionate loss of bright boys.

It is the differences within the sample itself, however, which provide the convincing evidence. Stanford-Binet I.Q.s are given for 1,024 children. Dividing them according to I.Q., the results are as follows:

Stanford-Binet I.Q.	Boys	Girls	Boys per 100 Girls
144–	221	207	107
145–154	206	172	120
155+	132	86	153

Results are also given for 370 children found at high-schools. The overall proportion of boys is much higher, but, once again, within the group the disproportion increases with rising score.

Terman Group-test Scores	Boys	Girls	Boys per 100 Girls
194–	83	53	157
195–204	122	53	230
205+	46	13	354

Whatever the effect of bias in sampling, therefore, upon the composition of the whole group, it is evident that within this highly selected sample of very gifted children the disproportion in numbers of boys and girls increases sharply as intelligence rises, exactly as would be deduced if the consequences of normal dispersion hold up to these extreme limits.

The observed distributions of the group-test results are quite markedly leptokurtic. This has a substantial effect on the variance of the variances; accordingly the estimates of the fourth cumulants have been used in calculating these.

If two series of measurements having the same mean bu different variances are added together it is impossible for al three distributions to be strictly normal. Even at the 0.00 point, however, this leads to a discrepancy of only 3%, so tha the values of Tables I and II are not appreciably affected.

Summary

It is one of the most curious facts in human biology that i regard to general intelligence boys should be considerably mor variable than girls. This is all the more remarkable because ther is no difference in average performance. Girls tend to be groupe closer to the mean for the whole population, boys to spread furthe out into extremes either of brightness or of dullness. Not much ca be said as to the nature and origin of the difference except that is almost certainly inborn. The available data, however, leave n room for doubt as to its reality; furthermore, they are sufficient t yield a tolerably close estimate of its size. Adopting a conservati figure, it is found, for example, that the brightest (or dullest) 1,00 children in every 10,000 will be composed of 534 boys and 466 girls the brightest (or dullest) 100, of 59 boys and 41 girls. At the extrem limits considered, the brightest (or dullest) boy in every 1,000 bo will be matched by only one girl of similar mentality in every 2,0 girls. The consequences in regard to planning both for the brig and for the dull are of considerable practical importance. Tabl are provided from which can be read off the corresponding propo tions of boys and girls to be expected in different portions of th 10% at either end of the range of mentality.

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There is not to be any change in the superannuation provisio for nurses and midwives in the service of local authorities, bu separate fund is to be set up for those in the employment voluntary hospitals and approved organizations where the Rushcl and Taylor salary scales have been adopted. This is, briefly, main recommendation of the joint subcommittee for England a Scotland, which has been considering superannuation for nu and midwives (Cmd. 6603, H.M. Stationery Office; 9d.). nurses and midwives to whom the Fund applies must belong, those who are now contributors to the Federated Superannuat Scheme may elect to remain in it. [This latter scheme, which ca into operation for voluntary hospitals in 1928, will remain availa for nurses outside the scope of the new Fund, such as those private practice.] Provision is made for interchangeability v local government schemes, and the benefits recommended under new fund are on a similar basis: minimum qualification fo pension to be ten years' contributing service; retirement compuls at age 60, with the option of retiring on or after 55 on comple of thirty years' service; pension to be based on the average sa and emoluments of the last five years of service and to be at rate of 1/60th for every year of contributing service, subject t total maximum of 40/60ths of such average service; pensions to payable on permanent incapacity on the same basis as for age, v a minimum of 20/60ths and subject to the completion of ten ye contributing service; all salaried service since joining the Feder Superannuation Scheme to rank as contributing service

OBSERVATIONS ON LIGATURE OF THE PATENT DUCTUS ARTERIOSUS

BY

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These remarks are based on the experience gained in 14 cases in which ligation of a patent ductus arteriosus has been performed. Twelve cases were uncomplicated by infection and in only two was endocarditis present. In 10 cases the patients were females, and the ages varied between 5 and 31 years. In the non-complicated cases the patients were all slightly stunted in growth and the majority were breathless on exertion, but only one showed any signs of cyanosis.

Method

The operative technique was similar in all cases. The approach was that described by Gross. The patient is placed on his back with a small sandbag under the left shoulder and upper part of chest, with arm extended above the head, thus allowing a slightly left lateral approach to the mediastinum. An incision is made along the second intercostal space, curving upwards to the axilla. It is found that splitting the pectoralis major rather than cutting it across gives sufficient access. The pleural cavity is opened through the second space and the second costal cartilage divided obliquely close to the sternum; in most cases the internal mammary artery is not interfered with, but if it is injured it can easily be ligatured. After the pleura is opened a single rib-spreader is introduced; the lung collapses away from the mediastinum and is lightly packed off with a gauze roll. In only one case were adhesions found between the lung and mediastinal pleura, and these were readily separated. On the mediastinal wall the phrenic nerve can be seen shining through the pleura, and an incision is made in the pleura parallel with the nerve and about an inch below it. There is a marked difference in the access to the operative area in children and adults: in the latter the arch of the aorta is much higher and is situated more deeply, thus increasing the difficulty of the operation; while in children the arch and pulmonary conus are immediately beneath the second space and the operative area is readily accessible.

After making the pleural incision it is advisable to clean the inner surface of the pleura on the lower side before increasing access to the mediastinum, as by doing so any small veins that may be present are separated, and these, falling away into the lax tissue, cause no further trouble or, if they have to be dealt with, can be picked up more readily and ligatured.

Blunt dissection backwards and upwards towards the arch of the aorta discloses the recurrent laryngeal nerve tightly winding round the aorta, and running more from right to left than is realized. This landmark immediately indicates the upper and posterior point of the ductus, and by working down to the pulmonary artery the left edge of the ductus is defined. The anterior and the right edge are more difficult to dissect out; at first sight there appears to be no space between the pulmonary artery and the inner surface of the arch of the aorta, but by slow blunt dissection a space is determined and the right border of the ductus defined. There seems to be considerable variation in the upward prolongation of the pericardium at this point, and in several cases fluid was present in the pericardium. When this occurs the pericardium, which is thin at this point, tends to bulge slightly into the operative area and obscure the view. In one case the pericardium was punctured and fluid oozed into the mediastinum throughout the operation.

The ductus itself, when defined, is very short and runs much more antero-posteriorly than one expects. Gentle traction with a finger on the pulmonary artery helps very considerably to define the ductus, allowing the operator more readily to free the posterior surface. This has to be done with great care by gently passing curved forceps behind it, as it is at this point that the ductus may be torn. In one of my cases this apparently happened towards the end of the dissection, but I was able to place the ligatures round the ductus, which stopped the bleeding.

When the ductus has been defined, pressure on it stops the very marked thrill of which the operator has been conscious throughout the proceeding. It is stated that the flow of blood through the ductus is from the aorta to the pulmonary artery; one would therefore expect that the amount of pressure to obliterate the ductus would be similar to that required to obliterate any artery. This, however, is not so: very light pressure, such as suffices to obliterate a vein on the back of the hand, is all that seems necessary, suggesting that the pressure in the ductus must be low and the blood flow may be from the pulmonary artery to the aorta, this being permitted by the eddy in the concavity of the arch. In one case the ductus was so thin that blood could be seen through the wall, and the flow appeared to be from the pulmonary artery to the aorta; but this point requires further investigation.

The ductus being freed, an aneurysm needle is passed and, contrary to Gross's views, I prefer to pass it from left to right. Care has to be taken that the recurrent laryngeal nerve is kept away from the ligatures, which is usually quite easy as the nerve is wrapped so closely round the aorta. No. 8 silk is used as ligature material, and it is waxed so that it runs easily. The moment the first ligature is tied the thrill disappears; in one case the ductus was so large in diameter and short in length that after tying the second ligature the first was found to be quite slack, and it had to be removed and another placed in position.

The incision in the mediastinal pleura is then sewn up and the lung re-expanded by positive pressure. A catgut suture is passed through the cut ends of the costal cartilage with a cutting needle—approximating the cut edges of the cartilage and preventing the unsightly appearance of an overlapping cartilage—after which the intercostal space is closed with sutures.

The rest of the wound is sutured with care, as unfortunately this particular incision tends to heal with an unsightly scar. In the last cases I have made the skin incision curve downwards almost to the nipple and then upwards to the anterior axillary line, and the subsequent scars have been less unsightly. The left upper arm is lightly bandaged to the side of the chest wall for 24 hours to prevent movement of the pectoralis major.

The convalescence of the uninfected cases was uneventful with the exception of one (Case 12). A radiograph on the third day usually showed the pressure of a small pneumothorax at the apex, and in some cases a little fluid. Both these were rapidly absorbed, and the patients were allowed to sit up in about 14 days; children were allowed up earlier.

Case 12 requires special note. This patient was an undersized girl of 5½ who was in hospital for some little time before operation and had her adenoids removed about three weeks before the ductus was tied. The operation was uneventful and the child was allowed up on the sixth day. On the tenth day she had a temperature of 102°, which persisted without any apparent cause. A blood culture showed a pure growth of *Staph. aureus*. She was transferred to the penicillin ward of the Middlesex Hospital, and after treatment the temperature fell; subsequently it rose again, and a fresh blood culture produced a staphylococcus that was resistant to penicillin, and she eventually died. This case calls for a serious review of the procedure, but after careful consideration of all the facts I do not think that the operation can be held responsible; if anything, the argument for ligation is strengthened, as these patients with a patent ductus appear to be liable to start an endocarditis after an infection that is of little or no consequence in the normal person. The two infected patients both died. In one sulphonamide drugs had little or no effect; in the second they controlled the temperature for short periods only and eventually ceased to act.

It is too soon to say what the ultimate fate of these cases may be. One of the children is now taking up tap-dancing as a profession; the young male (Case 1) has been accepted for the Services. The others have lost their breathlessness on exertion, and the earlier ones that have recently been reviewed have improved in general health and physique.

It would seem that there is a case for the tying of an uncomplicated patent ductus. The risks attending such a persistent deformity have not yet been accurately assessed, but that there is a definite risk of infection which has a grave prognosis is unquestionable. Apart from this, however, the tying of the ductus restores the patients' circulation to normal, breathlessness disappears, there is a marked improvement in their appearance, and a noticeable change for the better occurs in the mental condition. The last-named improvement is noticeable in the youngest patients, who from rather "solemn little owls" become bright and cheerful children.

Notes on Cases

Case 1.—Male aged 16. Admitted 2/12/41; discharged 23/5/42. Rejected by medical board on discovery of albuminuria and an abnormal heart. No symptoms. No evidence of circulatory inefficiency. Continuous murmur to left of sternum in pulmonary area. B.P. 140/75. Albuminuria was transient, and was never detected after the operation. A patent ductus was ligated on 14/3/42.

Case 2.—Girl aged 18. Admitted 5/5/42; discharged 12/7/42. Referred from medical board for morbus cordis. Harsh murmur and thrill throughout cardiac cycle in 2nd and 3rd left interspaces. B.P. 120/70. No evidence of circulatory failure. E.C.G. normal. Considered to be a case of uncomplicated patent ductus. Ligated on 2/6/42; uneventful convalescence.

Case 3.—Married woman aged 26. Admitted 15/6/42. Died. Known to have had congenital heart disease all her life. Activities always reduced. Pyrexial illness and increasing dyspnoea dating from tooth extraction two months before admission. Examination showed incipient circulatory failure; heart enlarged; murmur of patent ductus and loud systolic at apex. Early finger-clubbing. Positive blood culture of non-haemolytic streptococcus. Diagnosis: subacute bacterial endocarditis on a patent ductus; this was ligated on 19/6/42. Within a month after operation there was evidence of aortic valve involvement. Deterioration was rapid and death occurred two months after operation. Necropsy revealed extensive vegetation on the pulmonary artery and on the pulmonary valves.

Case 4.—Girl aged 10. Admitted 9/7/42; discharged 8/8/42. Complained of asthma since age of 4. Known to have had congenital heart disease since 6 months old. Pale and under-developed child. No symptoms or signs of inefficient circulation. Characteristic patent ductus murmur and thrill in 3rd left interspace. Ligation on 26/7/42.

Case 5.—Married woman aged 31. Admitted 28/8/42; discharged 31/10/42. Many years' history of dyspnoea on slight exertion, activities being considerably limited. Heart not enlarged; systolic thrill and continuous murmur in pulmonary area. B.P. 120/85. No circulatory failure. Radiograph revealed enlarged pulmonary artery. E.C.G. normal. The patent ductus was ligated on 29/9/42. Convalescence was uneventful.

Case 6.—Spinster aged 25. Admitted 9/9/42; discharged 23/10/42. Rejected from military service because of presence of patent ductus arteriosus. She had experienced rather more dyspnoea than is normal on exertion, but there were no other symptoms suggestive of her disease. The ductus was ligated on 24/9/42, after which the typical murmur entirely disappeared. Convalescence was uneventful.

Case 7.—Girl aged 9. Admitted 3/11/42; discharged 6/12/42. This girl had not experienced any abnormal symptoms, but was pale, slight, and asthenic, weighing only 3 st. 12 lb. A typical machinery type of murmur was heard in the pulmonary area together with a thrill. She had a low diastolic pressure. B.P. 120/55. An E.C.G. showed a normal curve, and a radiograph slight prominence of the pulmonary artery. The patent ductus was ligated on 19/11/42, after which all physical signs disappeared. Convalescence was uneventful.

Case 8.—Girl aged 12. Admitted 2/3/43; discharged 18/4/43. This patient complained of palpitations and breathlessness on mild exercise. The symptoms were relatively slight and she always felt well apart from breathlessness. At school she took part in swimming and physical training. She was well built. Her heart was normal in size. B.P. 135/70. Murmur was hardly a continuous one in the pulmonary area, being scarcely audible in diastole. No thrill was palpable. Ligation of the patent ductus was done on March 23, after which she had an uneventful convalescence, apart from a small hydropneumothorax. There were no abnormal physical signs in the heart.

Case 9.—Girl aged 21. This patient was admitted with a history of prolonged inactivity due to dyspnoea and exhaustion on exercise for at least seven years. She was well built, and examination showed no signs of heart failure. There was a loud continuous murmur in the pulmonary area accompanied by a thrill. No other signs of an additional congenital lesion were observed. The patent ductus was ligated on 6/4/43; the murmur was quite inaudible afterwards, and her convalescence was uneventful.

Case 10.—Boy aged 6½. This boy was quite fit on admission, but was small for his age. He had been followed up for some time on account of patent ductus arteriosus, but there was no evidence of disability from this. Examination revealed a characteristic to-and-fro murmur, but there was no thrill over the 2nd left interspace. Ligation of the ductus was carried out on 13/8/43. His convalescence was completely uneventful, and the heart sounds were subsequently normal. This case is particularly noteworthy for the extremely small amount of disturbance which the operation caused. The boy was up and running about within a week.

Case 11.—Boy aged 5½. The patient had had dyspnoea on exertion for a period of about a year and failed to grow. He was an undeveloped child—height 43½ in., weight 35½ lb.—slow in speech but mentally normal. Pulse 110, regular rhythm; no clubbing; typical murmur running right through systole and diastole, best heard in pulmonary area; slight right-sided hypertrophy. Temperature normal; no evidence of infection. Radiograph showed very slight dilatation of pulmonary artery but no general enlargement. Ductus ligatured on 18/3/44: small ductus, about 1/4 in. The murmur had gone entirely after operation. On the evening of operation there was a small pneumothorax on the left side, and the next morning some surgical emphysema on the left side of the chest. These signs soon cleared up. Discharged on 30/3/44, symptom-free, left lung well re-expanded.

Case 12.—Girl aged 5½. Admitted 27/8/43 with an uncomplicated patent ductus arteriosus. Owing to the presence of some pharyngeal sepsis, adenoidectomy was performed on 24/9/43. After this she was very well, and was considered fit for operation. On 12/10/43 the ductus was ligated and found to be about 1/3 in. in diameter. Immediate post-operative convalescence was good, but on the ninth day she had sudden pyrexia, which subsequently proved to be due to a *Staph. aureus* septicaemia. This failed to respond to sulphathiazole and later to penicillin. She subsequently died on 24/12/43. No necropsy was performed.

Case 13.—Girl aged 20. Admitted 7/2/44. Was known to have had a patent ductus since shortly after birth. She had been well until about three weeks before admission, when she had an attack of "pneumonia." As her temperature did not settle she was seen by Dr. Morland, who diagnosed a septic infarct. On admission a blood culture gave a profuse growth of *Str. viridans*; after a blood transfusion and a course of sulphathiazole her temperature appeared more controlled. The ductus was ligated on 8/3/44, and after two days her temperature, which had been 103°, was again controlled by sulphonamide drugs. When these were discontinued the temperature rose again and she had a further infarct. Her condition then slowly got worse; she had infarcts in the kidneys and later in the brain.

Case 14.—Boy aged 7. Admitted 30/10/44. This boy had previously been seen, in consultation with Dr. Sheldon, when he was running a temperature thought to be due to endocarditis; but there was no growth on blood culture and his temperature reacted to a course of sulphonamides. He subsequently had his tonsils removed after a prophylactic course. It was decided that in view of his previous illness he should have his ductus ligatured; this was done on 4/11/44, and he was given a further course of sulphathiazole before and after operation. The ductus showed no evidence of old infection. He made an uneventful recovery, and was discharged on 21/11/44.

Dr. M. D. Nosworthy was the anaesthetist for all these cases. The anaesthetic was closed cyclopropane and ether. Blood-pressure readings and pulse rates were taken by him during the operation; no consistently demonstrable changes in pulse rate or blood pressure were recorded when the ductus was tied.

I wish to thank Dr. East, Dr. Sheldon, Dr. Maxwell, Dr. Cedric Shaw, Dr. Courtney Evans, and Dr. Andrew Morland, who have sent me the cases recorded; also Dr. Brigden, who has collected most of the case notes.

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The May issue of *The World's Children* (Save the Children Fund, 20, Gordon Square. W.C.1; 6d.) includes descriptions of various phases of child life—in China (by Jessie Booth), Nigeria (the Rev. E. A. Odusanwo), on the canals of Britain (by Ruth Layton), and in Cairo (Jeanne Marie Small). Dr. E. H. M. Milligan puts forward an idea for a "child international" to unite all child welfare organizations in Britain and the world, and the editor pleads for greater development of child education through the film, as was attempted in France before the war and is now being encouraged in the U.S.A.

PSYCHOTIC BATTLE CASUALTIES

BY

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Neurosis arising from battle stress has been repeatedly investigated in the last five years. Psychosis precipitated in the same way is rarer but more interesting, and has largely escaped attention. The object of this article is to classify cases of psychosis induced by stress of battle, and to give examples which, though psychotic, differ from the classical types of psychosis both in their clinical forms and in their duration, which is temporary.

Cases admitted to the psychosis ward of a British psychiatric hospital in Normandy during a period of fierce fighting have been classified as follows:

			No. of Cases
1. Psychoses of classical type, unrelated to battle stress			11
2. Psychoses precipitated by battle stress, but clinically indistinguishable from Group 1			36
3. Temporary psychoses precipitated by battle stress and differing from recognized types:			
A. Reactions to stress and fear:			
(i) Showing confusion	35	52	91
(ii) Showing regression	5		
(iii) Acute anxiety states	12		
B. Reactions to awareness of failure to tolerate the stresses of battle	17		
C. Reactions to death of comrades	22		
Total			138

Discussion is confined to cases in Group 3, of which the following typical examples are given.

A. Reactions to Stress and Fear

(i) *Showing Confusion.*—Tpr., aged 29; service 4 years. The family history was negative, and the personality stable prior to Army service. He had seen much service as a tank driver in the Middle East. In 1942, after severe battle stress, he suffered from "loss of memory" for a week. On account of this and otitis media he was transferred to the fitters' workshop. In Normandy he was again employed as a tank driver. He continued duty for a month, taking part in several attacks before he broke down.

On admission he was confused and disorientated. He showed no fear, but was euphoric, irritable, easily annoyed, and was rambling and garrulous. He completely misinterpreted objects and events about him, to conform with his belief that he was still in the midst of a battle. His memory was very poor for both past and recent events. During the first week he gradually improved, becoming orientated and recovering his memory almost completely. He eventually became willing and fit to return to his earlier employment as fitter.

(ii) *Showing Regression.*—Pte., aged 25; service 9 years. This man passed down the line of evacuation and was admitted in a stuporous state, clutching a doll in his arms. He lay curled up in bed like a child, clinging to the doll as a drowning man to a straw. If approached or addressed he showed extreme terror, and tried to hide under the bedclothes. On the fifth day he became lucid and accessible. He stated that a mate who had been killed had obtained the doll for his children. The psychotic withdrawal was replaced by symptoms of an anxiety state.

(iii) *Acute Anxiety States.*—Pte., aged 27; service 9 years. This patient had had an unhappy childhood: his parents had separated, and he had been reared by a drunken foster-mother. His previous personality was stable. He had been employed as a mess waiter, but in the invasion was used as an infantryman. He had been in action for four weeks since D day, when a shell landed on the edge of his trench. He broke down into a state of terror and confusion.

On admission he was in a condition of extreme terror, believing that a Messerschmitt was after him all the time. He interpreted every sound as an approaching plane or shell. His pupils would then dilate; sometimes he tried to run away, and at other times would bury himself in abject terror beneath the bedclothes. After three days of gradual improvement he became lucid. The condition was then one of acute anxiety: he was easily startled, and complained of headache aggravated by noise.

B. Reactions to Awareness of Failure to Tolerate the Stresses of Battle

Sgt., aged 21; service 4 years. There was nothing relevant in the family or personal history. He had volunteered, and had served in Iceland. He had been in action in Normandy for five weeks. He had felt increasingly anxious, and finally became panicky and uncontrollable; he was also depressed, with a strong suicidal tendency.

On admission he gave a clear account of himself, except for a period of two days when he had been in a field dressing station in a confused and depressed state. He was miserable, solitary, and self-reproachful. He asked to be left alone, as he considered himself unworthy of attention when so many better men than he had been killed. With the help of treatment he became much less depressed during the next few days, but remained in a state of moderate anxiety.

C. Reactions to Death of Comrades

Tpr., aged 20; service 2 years. There was nothing relevant in the family or personal history. He had served satisfactorily as a tank driver in Normandy for eight weeks. Then his tank, going far forward on a reconnaissance, was hit, and the tank commander was killed by an 88-mm. shell. The patient, after further severe stresses, was rescued: he was then stuporous.

On admission he was depressed and semi-stuporous, with some agitation. He was almost mute, but it could just be ascertained that he thought he was responsible for his tank commander's death, and that he could hear accusing voices. During the subsequent week he improved considerably, but remained mildly depressed. He tended still to blame himself, and lacked self-confidence.

Discussion

Cases in Group 3 do not fit readily into any established classification of psychoses. These patients are considered psychotic because they show a marked detachment from reality, together with various combinations of other typical characteristics, such as confusion, mutism, delusions, hallucinations, psychomotor retardation, flexibilitas cerea, depression, or elation.

The cases differ from the classical forms of psychosis in several ways: they usually arise in men with good family and personal backgrounds; the condition is precipitated by severe and usually prolonged stress; the prodromal symptom is a sense of increasing anxiety, but this is not always present. The content of delusions, hallucinations, or emotional disorder is derived from experience immediately before the breakdown, and is less fixed and more accessible to reasoning than in the typical psychotic. The most notable difference is in the duration: the psychotic manifestations improve steadily, and disappear with striking suddenness at the end of three to seven days. Symptoms of neurosis, usually an anxiety state, are subsequently presented, often after a lapse of a day or two, during which the patient has no complaints and appears contented. This group thus forms an interesting link between the psychoses and the neuroses.

Treatment for the first few days consisted of rest, reassurance, and just enough sedation to ensure sleep at nights. During the day, especially as improvement occurred, every effort was made to restore contact with reality and to correct misinterpretations of surroundings. In the stage of recovery the patient was encouraged to recall his battle experiences fully. Where necessary, an intravenous injection of pentothal sodium was used to facilitate this abreaction of traumatic incidents.

Summary

A series of 138 psychotic casualties arising in the Battle of Normandy have been classified.

Attention is drawn to a psychosis of short duration and distinctive clinical form which was present in 91 of these cases.

The special features of this psychosis are: (*a*) sudden onset after battle stress in men with good family and personal histories; (*b*) typical psychotic detachment from reality, with other psychotic manifestations such as confusion, delusions, and hallucinations; (*c*) rapid recovery from the psychotic state, usually within one week; (*d*) subsequent development of neurosis.

Treatment consisted initially of rest and reassurance. Later, the traumatic battle experiences were brought back into full consciousness.

I wish to thank Col. R. J. Rosie for permission to publish this report on cases seen in the hospital under his command.

C. M. Tinsley (*Arch. intern. Med.*, 1945, **75**, 82) states that pneumococcal endocarditis occurs in about 3% of all pneumococcal infections and is responsible for about 5 to 10% of deaths due to pneumococcal infections. The aortic and mitral valves are infected in 36 and 33% of the cases respectively. Purpura, splenomegaly, and infarction are less common than in subacute bacterial endocarditis. The disease is usually rapidly fatal.

ACUTE INTESTINAL OBSTRUCTION DUE TO DRIED FRUIT

A REPORT OF TWO CASES

BY

ALEXANDER LYALL, M.D., Ch.M.Glas., F.R.C.S.Ed.

Surgeon, Royal Infirmary, Greenock

The impaction of a foreign body is a rare cause of acute intestinal obstruction—according to Handfield-Jones and Porritt (1943) in 0.3% of the cases. The following cases, which were due to the ingestion of dried fruits, are worth recording.

Case I

A soldier aged 37 was admitted to hospital with signs of acute intestinal obstruction. Abdominal pain had begun about 24 hours previously. It was not very severe at first, but had latterly increased in intensity, and when seen by us the patient was having very marked attacks of intestinal colic, with much effortless vomiting. Dehydration was present, and an intravenous saline drip was started.

Operation was carried out two hours after admission. The abdomen was opened by a right paramedian incision in the lower region. There was a small quantity of clear fluid in the peritoneal cavity. The small bowel was very distended and the dilated loops were followed down to a point about 5 feet from the ileo-caecal valve. At this point there was a mass of firm material completely blocking the lumen of the gut. The bowel beneath was contracted and empty. With some difficulty the foreign material was pushed along the ileum and finally through the ileo-caecal valve into the colon.

The patient made an uninterrupted recovery, and three days later passed the foreign body. It consisted of a piece of vegetable-like material measuring 1½ in. by 1 in. by 1 in. The pathologist could not identify the exact nature of the vegetable, but the patient admitted, when questioned, that he had been eating dried fruits on the evening before the onset of the pain and that he had swallowed some of the pieces without chewing them very well, as he had been very hungry.

Case II

A cookhouse boy in the Merchant Navy, aged 16, was admitted to hospital in a comatose condition, and died soon after admission. The history stated that he had not felt very well when he arose that morning and had taken no breakfast. In the forenoon, about 7½ hours before his death, he had developed severe abdominal pain, which came in spasms and caused him to roll about his bed. When seen by the medical officer some hours later he had slight diffuse abdominal tenderness, but there was a point of extreme tenderness in the lower abdomen just to the left of the midline. The patient had vomited fairly large quantities of clear fluid. When seen by us the boy was comatose and showed signs of extreme dehydration. There was moderate abdominal distension. Preparations were quickly made for intravenous therapy, but he died before these were completed.

A post-mortem examination was carried out the next day. The body was that of a well-nourished youth. The abdominal cavity contained a quantity of slightly blood-stained material. The stomach and small bowel showed extreme dilatation. This distension was followed down to a point 6 in. above the ileo-caecal valve, where there was a mass of hard substance completely blocking the lumen. On opening the bowel two large pieces of apple were removed. One of them measured 3 in. by 1 in., and showed four small tooth-cuts which went through only a part of the thickness of the substance. The other piece measured about 3/4 in. square, and had no tooth-markings. The small intestine above the obstructed area had some blood-stained material in it, but in an upward direction the contents became whitish yellow in colour right up to the stomach, which contained a little grey material and much gas. The other organs of the body showed no abnormality.

Careful examination of the foreign bodies confirmed that they were pieces of dried apple which had swollen in the intestinal tract. Inquiries showed that the boy, who assisted the cook, had access to dried apple, which was being used at that time.

Comment

These two cases show the danger attaching to the ingestion of dried fruits without thorough mastication and unless they have been properly cooked. In the first the patient appeared to have "bolted" an excessively large piece of the cooked material. In the second case it seemed to be impossible for the boy to have swallowed such a large mass, and our inquiries showed, in fact, that there had been no official meal of the dried apples for some days beforehand; this suggested that he had actually eaten the untreated dried apple from the store, that he had found difficulty in chewing it, and that the fruit had become greatly swollen in the presence of the moisture in the intestinal tract and caused complete obstruction. The early collapse and death suggested that the obstruction had probably started primarily much higher in the small intestine than the position of the foreign matter suggested at necropsy. The very acute nature of the process was shown by the blood-stained material in the peritoneum.

REFERENCE

Handfield-Jones, R. M., and Porritt, A. E. (1943). *The Essentials of Modern Surgery*, 2nd ed., E. and S. Livingstone, Edinburgh.

Medical Memoranda

A Series of Unrelated Pathological Conditions in One Case

The findings in the post-mortem examination recorded below are unusual enough to warrant publication.

CASE HISTORY

The patient, a woman aged 49, had had no occasion to consult a doctor for eight years, but immediately before death, which was sudden, had complained of a pain between the scapulae. At necropsy the body was well nourished, but the general appearance was of a woman of 60. Externally there was nothing to indicate the cause of death. On opening the thorax the pericardium was seen to be full of blood. There was a tumour pushing up the diaphragm on the right side: this protuberance was about 3 in. in height from the level of the rest of the diaphragm, and its base was about 9 in. in circumference. There was a similar but smaller upward bulge of the diaphragm on the left side. On opening the abdomen these tumours were found to be herniae of the liver covered by a thin sheet of muscle. They were not neoplasms, but were protuberances of normal liver tissue.

The pericardium was then opened, and a small aneurysm of the ascending and transverse portion of the aortic arch was found to have ruptured into it. There was no free blood in the pleural cavities. The aneurysm was of the dissecting type, and had separated the coats of the aorta as far as a point about 2 in. above the diaphragm.

On opening the heart a well-marked degree of mitral incompetence was found: the endocarditis was evidently ancient history, for the lesions on the valve cusps were firmly fibrosed and organized. The heart muscle was hypertrophied and firm, without signs of dilatation. The aorta was atheromatous; the innominate, left carotid, and subclavian openings were all dilated and rigid; while the coronary vessels were atheromatous, dilated to double the normal size, and projected from the cut surface of the heart muscle.

The abdominal organs showed chronic venous congestion and the spleen was enlarged. The left renal vessels were dilated, the vein admitting a lead pencil with ease. The right kidney was small, but the vessels supplying it were also enlarged in relation to its size. Finally, there was a diverticulum of the jejunum about 12 in. below the duodeno-jejunal junction.

Microscopically the spleen showed replacement of pulp by fibrous tissue. The Malpighian bodies were prominent. There was well-marked endarteritis obliterans. The kidney showed a similar condition of the blood vessels, with degeneration of the Henle and convoluted tubules.

GAVIN DUNLOP, M.D.
Worksop. J. J. MCCARTHY, M.B., B.Ch.

Oranges causing Alimentary Obstruction

The following two cases of alimentary obstruction caused by oranges may be of interest.

CASE I

A silicosis pensioner aged 56 was admitted to this hospital on Jan. 21, 1945. He gave the following history. At 8 a.m., 14 hours before admission, he was seized with an attack of colicky abdominal pain. This passed off, but recurred at intervals of a few minutes during the day. He had a normal motion in the morning. He ate some dinner, but immediately vomited it. He did not vomit again until after admission. The pain spread across the middle of his abdomen from right to left.

On examination the tongue was furred and the breath rather offensive. T. 98°, P. 80, R. 24. The patient did not look ill. The abdomen was slightly distended; there was tenderness over the whole of the right side of the abdomen. Guarding was generalized except in the left iliac fossa. Peristalsis was vigorous, with loud borborygmi. There was no rectal tenderness.

A diagnosis of small-bowel obstruction was made and laparotomy performed. On opening the peritoneum a little free fluid was found. The small intestine presented, engorged and distended. The whole of the jejunum and about a foot of the ileum were thus affected; the rest of the bowel was collapsed. At the junction of the two portions was felt, within the lumen, a semi-solid body containing a few hard lumps; it was about 1 in. in diameter. It was milked down to a healthy part of the ileum and removed by opening the bowel. The cause of the obstruction was seen to be a white object, which opened, revealing itself to be the pith of half an orange with some pips. The patient made an uneventful recovery.

CASE II

A pit engine-man aged 66 came to the out-patient department on Dec. 18, 1944, with the story that for a week he had been able to swallow fluids only. Solids would stick when half swallowed and were regurgitated. He had lost some weight and complained of weakness, and his appetite was poor. No previous history of dysphagia; no voice changes.

On examination he was rather thin—in keeping with his story of a week's starvation. There were no signs of anaemia, and no cervical glands were palpable; the thyroid was normal; laryngoscopy showed no signs of disease. Respiratory and other systems appeared normal. A barium swallow revealed a hold-up at the lower end of the oesophagus, rather suggestive of malignancy. There was no dilatation of the proximal part. Oesophagoscopy on Dec. 29 revealed a white foreign body lodged at the lower end of the oesophagus, which appeared inflamed. As it was too large to pull through the tube the oesophagoscope and mass were withdrawn together. On close examination the foreign body was seen to consist of the rolled-up pulp of half an orange. The oesophagoscope was then passed easily to the cardiac orifice. Apart from some inflammation at the level of the obstruction, the oesophagus appeared normal.

Next day the patient was able to take an ordinary diet with scarcely any discomfort. A barium meal shortly afterwards revealed a suspicion of either malignancy or ulceration at the cardiac end of the stomach. Since discharge the patient's condition has been satisfactory.

Our thanks are due to Dr. H. M. N. Calder and Mr. R. S. Venters, respectively, for permitting us to publish these cases.

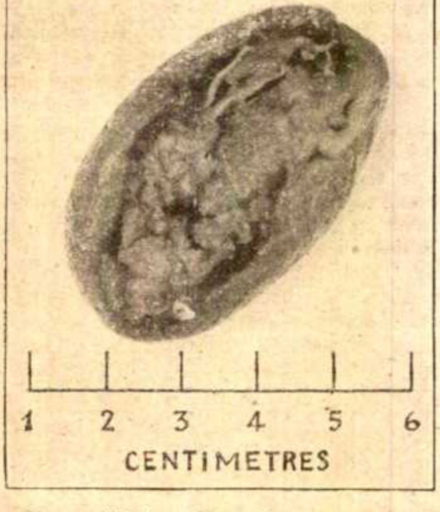
ALWYN S. JONES, M.B., Ch.B.
S. W. VIVIAN DAVIES, M.B., B.Ch., B.Sc.
Whitehaven and West Cumberland Hospital.

Intestinal Obstruction by a Foreign Body

In view of the recent importations of dried fruits from abroad there is quite a risk of intestinal obstruction following the ingestion without mastication of large morsels and their subsequent swelling in the alimentary tract. Although the present case relates only to an ordinary orange, the further possibilities of such cases should be kept in mind.

CASE REPORT

A woman aged 60 was admitted on the evening of Feb. 24, 1945, to the Derby City Hospital with a history of acute epigastric pain and continual vomiting since 11 p.m. the day before. Her bowels had last acted the previous morning. Examination revealed no distension of abdomen, but faeces in the rectum and a moist tongue. There was a small mass to the left and above the umbilicus, probably omentum in a para-umbilical hernia. This did not seem sufficient cause for her acute distressing symptoms, and after being placed on intravenous glucose-saline a laparotomy was performed. There was an obstruction due to an oval-shaped mass in the ileum about 2 feet from the ileo-caecal valve. This was removed and the intestinal wall repaired. The para-umbilical hernia was found to have spontaneously reduced itself. Examination of the mass (see Fig.) showed it to be half an orange.



The patient has artificial teeth, but they are not used because she cannot "master them." She vigorously denies swallowing part of an orange, but admits to sucking a half of one about 26½ hours previous to the appearance of symptoms.

I wish to thank Sgt. Fayres for taking the excellent photograph.

City Hospital, Derby. LEON RADCLYFFE, M.B., B.S.

Sulphonamide-resistant–Penicillin-sensitive

Just as bacteriological findings elucidated the treatment of empyema and explained the disasters after draining streptococcal effusions, so the dawn of penicillin with new rays of hope may help in cases of appendicitis where the streptococcal nature of the infection is known early enough and cultures show the sensitivity to sulphonamides and penicillin. This point is illustrated in a case of streptococcal subphrenic abscess following perforated gangrenous appendicitis recently admitted under my care.

CASE REPORT

A schoolgirl aged 16 was admitted to the Gloucestershire Royal Infirmary on Dec. 3, 1944, with the following history: On Nov. 30 she slipped in the mud when playing netball, and in the afternoon complained of severe pain in the right loin. This was followed by sickness during the night. The doctor called in suspected contusion of the right kidney. On the morning of Dec. 3 her condition was obviously serious and she was transferred to hospital. On admission her temperature was 101.8° and pulse 106, and the tongue was furred. She was tender in the right iliac fossa and the right loin and was resistant. Acute appendicitis was diagnosed, and an operation was performed immediately.

A muscle split incision revealed foul-smelling pus. The appendix was felt retrocaecally, but was not disturbed, and a wide drain was introduced. A course of sulphathiazole was given for five days, but her temperature remained between 100° and 102° and her pulse rate varied from 104 to 136 for two weeks. There was little discharge from the wound, but a faecal fistula developed, which closed after 10 days. There were no signs at the base of the right lung to suggest an abscess below the diaphragm and no collection could be felt either in the abdomen or in the right loin. There was, however, tenderness over the last rib. An *x*-ray examination with a portable apparatus was inconclusive. Sulphadiazine, 2 g. four-hourly, was administered at this stage, but though tolerated well did not influence the case clinically.

On Dec. 20 subphrenic abscess was suspected so strongly that exploration was decided upon. The twelfth rib was resected and an abscess between the liver and the diaphragm was evacuated by separating the liver from the thoracic wall. This was drained with a split tube. On Dec. 22 there was no improvement in her general condition, as would have been expected after drainage, but this was explained by Dr. E. N. Davey's report on the cultures of the pus—a growth of *Str. viridans*, which was sulphonamide-resistant but penicillin-sensitive. Dr. Davey advised immediate treatment with penicillin locally and systemically. This was carried out under his supervision.

The abscess cavity was injected with 2,500 units of penicillin four-hourly, and a solution of penicillin in saline (100,000 units per 1/2 litre) was introduced into the outer side of the thigh intramuscularly daily for 4½ days. On Dec. 23 her condition was critical, her pulse rate being 140, and she refused fluids.

The next afternoon there was a dramatic improvement in her condition. She was eager for her food and had obviously turned the corner. Her progress has been steadily maintained. Cultures from the wound on Dec. 24—48 hours after giving penicillin—grew a light growth of *Str. viridans*. After a further 48 hours the cultures were sterile.

COMMENTS

The knowledge that the cultures were sulphonamide-resistant and penicillin-sensitive undoubtedly saved this patient's life, for without it the permission to use penicillin would not have been granted. The effects of the penicillin were not obvious for 48 hours. It is clear, therefore, that there is no time to lose, and penicillin should be available immediately.

DR. E. N. DAVEY'S COMMENTS

This case stresses the importance of making a bacteriological examination of pus in all cases of infection, no matter how obvious the type may appear. The foul-smelling pus at the primary operation no doubt suggested a coliform infection, but, in view of the finding of streptococci in the subphrenic abscess, it raises the question as to the exact nature of the appendicular infection at the outset.

The necessity for the bacteriologist not only to report the nature of the organism but also to assess the sensitivity of the microbe to sulphonamides and to penicillin is also made evident, so that time and useless application of these new methods of treatment may be saved.

A difficulty in the application of penicillin treatment seems to be to ascertain when it is safe to discontinue its use. In this case we were guided (1) by the clinical improvement as shown by the return of pulse and temperature to normal; (2) by the fall of the leucocyte count from 16,600 per c.mm. (85% polymorphonuclears) at the time of the subphrenic abscess, collected on Dec. 16, 1944, to 8,600 per c.mm. on Dec. 27, 1944; and (3) by rendering the discharge from the wound sterile.

My thanks are due to Dr. Cairns Terry, physician, and Dr. E. N. Davey, pathologist, to the Gloucestershire Royal Infirmary, for their co-operation in this case.

ARNOLD ALCOCK, M.B., B.S.,
Surgeon to the Gloucestershire Royal Infirmary.

Reviews

THE FOETAL CIRCULATION

The Foetal Circulation and Cardiovascular System, and the Changes that they Undergo at Birth. By Alfred E. Barclay, D.M., F.R.C.P., Kenneth J. Franklin, D.M., F.R.C.P., and Marjorie M. L. Pritchard, M.A. (Pp. 275; illustrated. 50s.) Oxford: Blackwell Scientific Publications. 1944.

The larger and more important section of this book consists of a collation of the authors' researches carried on during the last seven years at the Nuffield Institute of Medical Research, Oxford. The technique adopted was a novel one. A foetal lamb near full term was delivered by Caesarean section. With respiration prevented, an intravenous injection of a contrast medium such as thorotrast or perabrodil was immediately made and the course of the latter in the foetal circulation was demonstrated by cineradiography. That recording was begun in some cases in less than thirty seconds after delivery speaks highly for the team's speed and dexterity. The results of their observations fall into two groups: the actual course of the foetal blood flow and the circulatory changes which occur at birth. With regard to the former, the authors confirm the view which was first enunciated clearly by Sabatier some 170 years ago and which since then has been a matter of such frequent controversy. The blood reaching the right atrium from the inferior (or posterior) vena cava passes for the most part through the foramen ovale (the via sinistra in the authors' idiom), while only a small portion of it reaches the right ventricle. In contrast to this, the blood returning through the superior (or anterior) vena cava passes in its entirety through the tricuspid orifice. Further, this method showed the rapidity with which at birth the foramen ovale, the ductus arteriosus, and the ductus venosus are functionally closed. Four minutes suffice for the ductus arteriosus, five to twenty-five minutes for the ductus venosus after ligation of the cord, while in just over five minutes after the first respiration the foramen ovale is no longer physiologically patent.

A criticism that many anatomists are likely to make of this part of the book is that the introduction of several fresh terms for old familiar ones—e.g., "crista dividens" for the annulus ovalis or "pars libera viae dextrae" for the Eustachian valve—is unnecessary and, indeed, unwarranted. Changing the names of the old landmarks does not help the wayfarer to follow the new paths more easily. The latter chapters of the book deal with the comparative anatomy and physiology of this subject and give a full and critical account of all that is known about the cardiovascular system in the human foetus.

The make-up of the whole volume with its wealth of illustrations is something of a luxury to the wartime reviewer, and the authors are to be most heartily congratulated both on the completion of their outstanding researches, in spite of the encroachment of war activities, and on writing such a very clear account of them.

SURGERY OF THE UROGENITAL TRACT

Urological Surgery. By Austin Ingram Dodson, M.D., F.A.C.S. (Pp. 768; illustrated. 50s.) London: Henry Kimpton. 1944.

The main theme of this book, as its title suggests, is the surgery of the genito-urinary tract, but the diagnosis and pathology of urological diseases are also considered. To help him in dealing with the subsidiary subjects the author has obtained contributions from various experts. Despite this, *Urological Surgery* can be looked upon as being a book on operative surgery, and a book which is to a great degree the expression of its author's personal experience. He makes no claim for originality in the various operative techniques he describes, which have been chosen because he happens to have found them the most satisfactory in his work. Because he writes from personal experience, he writes convincingly and with admirable clarity, and it is the clarity of the descriptions which makes *Urological Surgery* a valuable addition to the large library of books on this subject which has already come from across the Atlantic. As is to be expected of such a work, it is profusely and splendidly illustrated. Miss Helen Lorraine's drawings of the various stages of an operation—for example, nephrectomy—make surgery appear so simple that a reader [illegible] er- [illegible] ous [illegible] level of ex [illegible] kidney and of [illegible] n that of the prosta [illegible]

The most [illegible] hole book are perhaps those [illegible] esection of the prostate, and, s [illegible] ng from personal experience, it wou [illegible] he does not make much use of this p [illegible] of relieving prostatic obstruction. It would [illegible] een more helpful if the author had given more [illegible] ation concerning the pre-operative and post-operative [illegible] tment of prostatectomy. But apart from minor defects this must be looked upon as a very successful book, and one that can be highly recommended to surgeons requiring an up-to-date guide to the surgery of the genito-urinary tract.

THE ANATOMIST OF MELANCHOLY

The Psychiatry of Robert Burton. By Bergen Evans in consultation with George J. Mohr, M.D. (Pp. 129. $2.00 or 13s. 6d.) New York: Columbia University Press; London: Oxford University Press. 1944.

In the speed and turmoil of modern life we have all too little time to study the wisdom of the ancients and yet there is still a lot to be learnt from them, obscured though that wisdom may be by outworn theories and superstitions. The modern physician and psychiatrist may indeed be excused for shrinking from the task of exploring the digressions and complexities of the early 17th century divine. But if they read this fascinating, short, and well-written study they may well be tempted to dip into the pages of the old melancholic to see how many of the most modern and in some respects the most startling theories in psychiatry have been thought of before by someone of the first intelligence. Such a discovery does much to convince the reader of the truth of such theories, for all good intellects are sure to catch glimpses of truth, distorted as these may be by contemporary beliefs and lack of relevant knowledge.

A great deal of the *Anatomy of Melancholy* is autobiographical, though the inclusion of symptoms of very diverse mental illness, especially of the psychoneuroses, prevents it from being a description of what we understand as melancholia. There is little extant about Robert Burton's life from outside sources, but the authors depict him as a man full of resentments, continual self-depreciation, cloaking discontent and aggressiveness, with mingled gaiety and depression, based on possibly hereditary taints, deprivation of love in childhood, and frustration especially in his sexual life, which were the three main causes of "melancholy" according to Burton himself. As is pointed out in the conclusion, Burton differed from his contemporaries, and his followers for two or even three hundred years, in realizing that these conditions were mainly of psychological rather than physical origin, that treatment involved a finding of the cause, was assisted by an emotional bond between patient and physician involving trust and respect by the former for the latter and kindness for the former by the latter. If only attention had been paid to him Pinel's reforms might have been antedated by 200 years. The *Anatomy* is not a medical textbook, its author was not a doctor, but he was a wise man with an understanding heart.

Members of the medical profession owe a debt to Mr. Bergen Evans and Dr. Mohr for affording them the best sort of relaxation—that of very pleasantly learning more about their own subject.

BOOKS FOR NURSES

Operative Surgery Described for Nurses. By O. Stanley Hillman, M.S., F.R.C.S. Second edition. (Pp. 263; illustrated. 7s. 6d.) London: Faber and Faber. 1944.

101 Clinical Demonstrations to Nurses. By Hamilton Bailey, F.R.C.S. (Pp. 136; illustrated. 10s. 6d., plus 6d. postage.) Edinburgh: E. and S. Livingstone. 1944.

Two books for the nurse's library have recently been published. The first—*Operative Surgery Described for Nurses,* by Stanley Hillman—is really a second edition, though as the first appeared as long ago as 1927 a good deal of fresh material has been added to cover the changes in surgical technique which have occurred in the interval. Thus we now find descriptions of operations upon the sympathetic nervous system and of such innovations as pinning the neck of the femur and cardio-omentopexy. The accounts of operations are brief but sufficiently detailed to enable the nurse to take an intelligent interest in the wide range of procedures which she is likely to see carried out in the operating theatre. There are some 50 line drawings to help her to visualize many technical details that might otherwise have been overlooked. It is not meant to be a practical guide for the theatre nurse and does not therefore contain lists of the instruments used, but it is a good introduction to operative surgery. Nurses can certainly turn to it with every confidence.

The second volume—*101 Clinical Demonstrations to Nurses*, by Hamilton Bailey—follows the lines of his similar book for medical students and consists of photographs of typical cases of well-known diseases with a brief description of the main features illustrated. The photographs, some of which are in colour, are well chosen and the reproduction is satisfactory. They cannot fail to convey to the nurse a clear impression of some of the common diseases met with in her work.

Notes on Books

The Nursery School Association of Great Britain has issued a pamphlet on *Planning the New Nursery Schools* (University of London Press, Malham House, Bickley, Kent; 2s. 6d.), which owes its origin to a special committee. It is full of useful information, but would have been even more valuable if the committee had included in its membership an experienced school medical officer or a physician with expert knowledge of the young child in health and disease.

Dr. DONALD PATERSON'S *Sick Children: Diagnosis and Treatment* (Cassell and Co., Ltd.; 16s.) has enlarged its shape and size for a fifth edition, and this indicates the completeness of the revision. New matter on penicillin, the rhesus factor, coeliac disease, and epidemic jaundice is included, and many other sections, including that on gastro-enteritis, have been revised.

Preparations and Appliances

A LIGHT "WELL-LEG" TRACTION SPLINT

Major A. C. BREWER, F.R.C.S., R.A.M.C., writes:

Battle casualties with fracture of the upper third of the femur are notoriously difficult to treat in the field. The present "Tobruk plaster splint" is by no means ideal, and a spica is not only difficult to apply without special apparatus but also unsatisfactory for travel. A wound which is high in the thigh makes it difficult to apply the fully ringed Thomas splint necessary to the "Tobruk" method. It is essential that the patient in a Tobruk plaster should reach a satisfactory base within ten days owing to the incomplete reduction and fixation of the fracture. To overcome these several disadvantages the following appliance is described.

Description.—Two half Thomas rings are joined together 8 in. from their axes into a simple rod. The material used is 1/4 in. round metal as in the Thomas splint. The rod is flattened and notched from a distance of 22 to 40 in. A crossbar fits on the primary rod and is secured in place by a simple wing-nut (see Fig. 1). The whole weighs 3¾ lb., as distinct from 5 lb. for the Thomas splint.

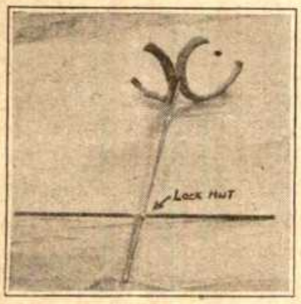


FIG. 1

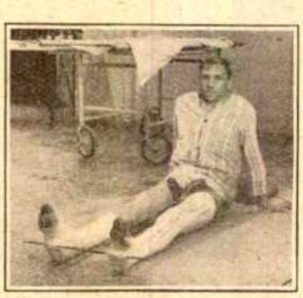


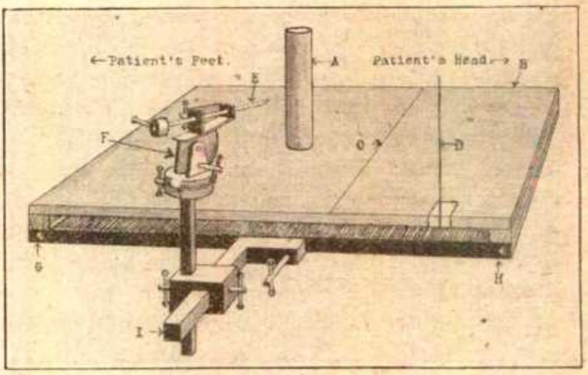
FIG. 2

Method of Application.—The wound is dealt with on general principles. Both legs are then placed in padded plaster below the level of the knee. The feet are secured to the crossbar with plaster. Traction to reduce the fracture is applied to the crossbar, the "well leg" giving the required length. The lock-nut is screwed tight. Wool padding is applied around the thigh on the injured side and the plaster completed well up to the groin. The knee is slightly flexed by the assistant as the plaster hardens. A pillow is placed beneath the knee of the "well leg." Fig. 2 shows the appliance on a patient with a fracture of the mid-femoral shaft. It will be noted that the patient can easily sit up in the appliance. For transportation the splint crossbar is secured to the stretcher bar by means of a few plaster turns.

MECHANICAL JIG FOR ACCURATE INSERTION OF SMITH-PETERSEN NAILS

Mr. G. S. STORRS, F.R.C.S., surgeon to the Fracture Clinic, Bedford County Hospital, writes:

The apparatus clamps on to an orthopaedic table (Shropshire horse) and provides a perineal post (A), a buttock support (B), and a drawer which slides beneath B to enable antero-posterior films to be slid under the patient. The stainless-steel parts make up into the guide proper and can be fixed on to either side of the support. The head-piece (F) is adjustable in two planes, horizontal rotation and vertical tilt, and each adjustment is calibrated in degrees. A chisel-pointed guide wire sheath (E) slides through the head-piece. The head-piece can be raised or lowered, slid inwards or outwards along the projecting arm of the L-piece (I), or moved longitudinally by sliding the L-piece between the points G and H. Winged bolts will lock all the adjustments.



Technique.—The anaesthetized patient is put in position on the support, the fracture reduced, and the legs fixed to the traction bars of the table in abduction and internal rotation. Six dental needles (as skin markers) are inserted in a double row 1 in. apart parallel to the outer border of the shaft of the femur below the greater trochanter. Using two x-ray units antero-posterior and lateral films are taken. The line for insertion of the nail is marked on the films joining the centre of the head of the femur to the head of the best-situated dental needle. The angle of insertion is measured in both films, using the shadow of the transverse wire (C) in the antero-posterior film and of the vertical wire attachment (D) in the lateral film as base lines from which the angles are measured.

The stainless-steel parts are boiled and the head-piece is set to correspond with the two measured angles. The head-piece is then aimed at the selected dental needle and all locking bolts are tightened. A small incision is made and the guide-wire sheath is slid through the head-piece and pushed through the muscles and its point impacted into the cortical bone with a tap with a hammer and the sheath is locked in the head-piece, when it will be found to be perfectly rigid. A long 2.5 mm. guide-wire is inserted through the sheath and drilled into the bone. Antero-posterior and lateral films will show the wire in correct position in the bone, and the operation is completed in the usual manner.

It is claimed that the instrument is highly accurate, thanks to sound mechanical construction. It is in fact a precision tool. I am extremely grateful to a local engineering firm for the excellent construction of the apparatus to my designs and for presenting it to the Bedford County Hospital, where I have used it most successfully for the insertion of more than 24 nails.

British Schering Ltd. announce that after having been unobtainable for rather more than three years, "Uroselectan B," the original iodoxyl contrast medium in intravenous pyelography, is again in full supply. This product, formerly German-owned and made in Germany, is now British-owned and made in England.

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TRINITROTOLUENE

Trinitrotoluene, which is the symmetrical trinitro derivative of toluene, was first made in the laboratory by the German chemist Hepp in 1880, and was first put to use as an explosive by the Germans in 1902. We can group explosive charges broadly into three divisions: initiators or detonators, of which the two most important are mercury fulminate and lead azide; intermediates, for which tetryl is usually used; and the main explosive charge, for which, until recently, a T.N.T. mixture was always employed. Contact with T.N.T. causes yellow discoloration of the skin, nails, and hair; its vapour and dust irritate the mucous membranes and bring on sneezing, sore throat, and irritable cough. Dermatoses include a superficial erythema which may become thickened, papules, and itchy eczema (especially in uncovered parts of the body); vesicles may sometimes be formed. Skin rashes are commoner in women than in men. Gastro-intestinal symptoms include pain, nausea, vomiting, loss of appetite, and diarrhoea; tenderness below the right costal margin has been thought to indicate involvement of the liver. The most serious sequels of T.N.T. poisoning are jaundice and toxic hepatitis, which may end in yellow atrophy of the liver; they have a mortality rate of 25 to 30%. The most conspicuous findings in T.N.T. anaemia are reduction of the red blood cells and of the haemoglobin, which may be associated with fragmentation of the red blood cell, stippled cells, reticulocytosis, and eosinophilia. Relative lymphocytosis appears to be the most common change of the white blood cell picture. Cyanosis of the lips and ears, frequent in cold weather, may be due in part to the formation of a chromogenic pigment derived from T.N.T. and in part to the formation of methaemoglobin and sulphaemoglobin. Effects on the nervous system largely result from anoxia and consist of dizziness, headache, fatigue, and sleepiness, but in severe cases may include delirium, convulsions, and coma. Signs of peripheral neuritis and pain in certain muscle groups are not infrequent. Vasomotor irregularities, palpitation, oppression in the chest, and bradycardia have been reported, as well as urinary symptoms such as lumbar pain, urgency of micturition, albumin, and casts. In women menstrual irregularities occur.

At first T.N.T. was thought to be a non-toxic substance, and Prosser White[1] showed that dinitrobenzene was more toxic to animals; but in the last war the first fatal case occurred as early as February, 1915. So many workers were poisoned that on January 1, 1915, toxic jaundice was made a notifiable disease; as a result 181 cases with 52 deaths were notified in 1916 and 189 cases with 44 deaths in 1917; the greater knowledge of the danger and the introduction of preventive measures reduced the notifications in 1918 to 34 cases with 10 deaths. In the same period there were 15 fatal cases of aplastic anaemia. Similar observations were made in Germany and the U.S.A. Koelsch[2] concluded that pure, recrystallized T.N.T. does not possess the toxic properties of the crude material, that serious toxic effects from fairly pure material are exceptional, and that the degree of contamination was the decisive toxicological factor. Voegtlin and his co-workers in the field of experimental pathology[3] observed that susceptibility varied in different animals, guinea-pigs and rabbits being less sensitive than cats and dogs. In England the Medical Research Council promoted much work, as a result of which Moore[4] thought that the usual route of absorption was through the skin; Webster[5] developed a valuable chemical test for demonstrating the presence of T.N.T. derivatives in the urine, and Panton[6] showed that toxic jaundice and anaemia appeared to be separate pathological states. Anaemia might occur without jaundice, while only 17% of the jaundiced patients became anaemic.

During the present war only 99 cases of toxic jaundice, of which 23 were fatal, had been notified up to the end of 1943, while nine cases of toxic anaemia had occurred before February, 1942. It seems certain that this smaller incidence is not entirely due to preventive measures, although these have been most efficiently carried out. The lower incidence of toxic manifestations after the installation of exhaust ventilation confirms the view of Von Oettingen[7] that the principal portal of entry is through the lungs and not the skin, as was thought by Moore. Our relative freedom from serious trouble in the present war may be due to the improved manufacturing methods of to-day, which produce a T.N.T. practically free from isomers, whereas in the last war these were present in considerable quantities. Improved diet may also have played a part. Himsworth and Glynn[8] showed that rats treated with α-T.N.T. and fed on a high-fat diet developed necrosis of the liver; while ill effects were slight or absent in animals fed on a high-carbohydrate or a high-protein diet. Himsworth[9] has suggested that T.N.T. combines with amino-acids, forming a combination which cannot be used by the body; thus a state of conditioned amino-acid deficiency may arise, and in such a state the liver may be damaged. Von Oettingen[7] was unable to injure the liver in experimental animals. Different animals metabolize T.N.T. through different chemical derivatives, and he suggests that some of these amino derivatives produced in the organism may have a more injurious effect on the liver than others. The occurrence of toxic hepatitis in T.N.T. workers might be explained on a basis of a greater production of the more toxic metabolites. Channon, Mills, and Williams[10] attempted to obtain information on the fate of T.N.T. in the body by means of experiments on rabbits. The presence in the urine of animals fed on α-T.N.T. of 2 : 6 dinitro-4-hydroxylaminotoluene, 2 : 6 dinitro-4-aminotoluene, and 2 : 4 dinitro-6-aminotoluene (which may be estimated accurately by spectrophotometric methods[7]) points to some reduction mechanism. T.N.T. may also be oxidized: experiments with trinitrobenzyl alcohol in attempts to establish the origin of the red pigment indicate the probable existence of such a mechanism, since only α-T.N.T. and 2 : 4 : 6 : trinitrobenzyl alcohol would cause excretion of red pigment. Present knowledge of detoxication mechanisms suggests that the glucuronides of T.N.T. urine must arise from T.N.T. oxidation products. they are probably trinitrobenzyl glucuronide, or dinitroaminobenzyl glucuronide, or a mixture of both. The hydroxylamine derivative provides an example of the making of a more toxic product in a detoxication mechanism, and it is a powerful former of methaemoglobin *in vitro*. Since the first stage in the biological reduction of T.N.T. is the formation of dinitrohydroxylaminotoluene, there is produced a very reactive compound which may be harmful to the blood and may poison some of the enzyme systems. The hydroxylamine can be detoxicated by conversion into the relatively non-toxic dinitroaminotoluenes, and its poisonous effects will depend on the rate at which this conversion occurs. Although the conversion takes place *in vivo* it is by no means complete, for the hydroxylamino and the amino compounds are excreted in the urine in roughly similar amounts. The formation of dinitrohydroxylaminotoluene may therefore partly explain the toxic action of T.N.T. Doses of T.N.T. up to 150 mg./kg. are eliminated in 24 hours; larger doses require up to 48 hours; 47% of the T.N.T. administered is excreted as glucuronides and 30% as aromatic amino compounds. The aromatic amino compounds include not only dinitroaminotoluenes but possibly dinitroaminobenzyl alcohol conjugated with glucuronic acid. Trinitrobenzylglucuronide is also a likely constituent. The red 2:2′:6:6′-tetranitro-4′:4-azoxytoluene isolated by previous workers is not a metabolic product; it is absent from freshly voided urine and is formed from dinitrohydroxylaminotoluene during the extraction procedures. Rimington and Goldblatt[1] have shown that workers handling aromatic nitro and amido compounds have a greatly increased urinary coproporphyrin excretion, and this change is also found in T.N.T. workers.

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[1] *Lancet*, 1901, **2**, 582, 769.

[2] *Zbl. Gewerbehyg.*, 1918, **6**, 15, 26, 53, 66, 88.

[3] *Publ. Hlth. Rep. Wash.*, 1919, **34**, 1307; *Hyg. Lab. Bull.*, 1920, No. 126, Washington; *J. industr. Hyg.*, 1921, **3**, 239, 280.

[4] Spec. Rep. Ser. M.R.C., 1917, No. 11.

[5] *Lancet*, 1916, **2**, 1029; Spec. Rep. Ser. M.R.C., 1921, No. 58.

[6] Ibid., 1917, **2**, 77.

[7] *U.S. publ. Hlth. Bull.*, 1944, No. 285, Washington.

[8] *Clin. Sci.*, 1942, **4**, 421.

[9] *Proc. roy. Soc. Med.*, 1945, **38**, 101.

[10] *Biochem. J.*, 1944, **38**, 70.

Little clinical work has been possible on T.N.T. poisoning during the present war, but during the Russo-Finnish war Noro[12] observed that in Finnish T.N.T. workers reticulocytosis was not very great during the period of actual exposure, but that it became more evident when the worker left contact with T.N.T.; this suggests that reticulocytosis was a reparative phenomenon which is to some extent inhibited by T.N.T. In order to establish the early effects of exposure to T.N.T. Higgins, O'Brien, Stewart, and Witts[13] examined a number of Oxford students who volunteered to work in a filling factory during their vacation. The chief subjective complaints were nausea with variable loss of appetite, diffuse abdominal pain, vomiting and diarrhoea, fatigue, and irritation of nose and throat. The symptoms came on after an initial period when there was an increased sense of well-being accompanied by a voracious appetite. There was evidence of haemolysis in over 85% of the students, with a fall in haemoglobin, red cell, and haematocrit readings. There were also an increase in reticulocytes, bilirubinaemia with urobilinuria, and a marked erythroblastic response in the marrow. As Noro found, the reticulocyte response was not maximal until a few days after exposure had ceased. This suggests that T.N.T., in addition to a destructive action on the circulating red cells, also affects the bone marrow.

GAMMA GLOBULIN

The story of how human blood has been harnessed to the war effort will prove to be among the most fascinating tales of our generation. In the early days of the war blood banks and improved methods for the preservation of whole blood were successfully established. Then, with the emphasis on shock, harvesting of the plasma proteins became important, and large-scale methods of freezing and drying plasma and serum were evolved. Meanwhile in America before the war, but accelerated by the war, methods for the fractionation of the plasma proteins were being steadily developed in the department of physical chemistry at Harvard under the direction of Prof. E. J. Cohn. The methods themselves were revolutionary in their utilization of new physical and chemical processes: high-speed centrifugation, electrophoresis, diffusion, viscosity, and precipitation at iso-electric charges have all been used for the separation of different protein fractions with the least possible damage to the constituents. The story has lately been summarized by Cohn[1] himself, while various chemical, immunological, and clinical aspects are described in a special symposium[2] on the subject.

Plasma has been conveniently divided into five fractions: I is largely fibrinogen; II and III contain gamma globulin, the iso-haemagglutinins and Rh antibodies, and prothrombin; IV is mostly alpha and beta globulin; and V is albumin, which constitutes nearly 60% of the total proteins. Indeed, the fractionation of plasma on a large scale was first undertaken in order to obtain the albumin in concentrated form for the treatment of shock. Having a small, fairly regular molecule, albumin contributes 80% of the osmotic pressure of plasma proteins and can be prepared as an iso-viscous 25% solution which osmotically is four times as concentrated as plasma. Besides its value in shock, concentrated albumin may be used in the treatment of hypoproteinaemia, oedema, and (because of its low salt content) as a diuretic. Of the other proteins thrombin supplied in a matrix of fibrin, called fibrin foam, has been used as a haemostatic in neurosurgery and in controlling bleeding from oozing surfaces and in haemophilia. Being composed entirely of human proteins, fibrin foam is absorbed with the minimum of reaction. Again, fibrinogen has been worked up like a plastic to prepare fibrin films which, with the properties of a rubbery sheet,

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[11] *Lancet*, 1940, **1**, 73.
[12] *Acta med. scand.*, 1941, Suppl. No. 120.
[13] *Brit. J. industr. Med.*, 1945, **2** (in the press).

[1] *Science*, 1945, **101**, 51.
[2] *J. clin. Invest.*, 1944, **23**, 417 *et seq.*

have been used as dural substitutes and in the prevention of meningo-cerebral adhesions.

Probably the most important derivative of plasma will be the gamma globulin, which contains a large part of the natural antibodies of the blood. Gamma globulin constitutes about 11% of the plasma proteins, and the greater part of this globulin has now been fractionated in practically pure form from the combined II + III fraction. The concentration of antibody as judged by the estimation of the diphtheria and streptococcus antitoxin and influenza virus A antibody is 15 to 20 times that of the natural pooled plasma, and its content of certain antibodies equals or exceeds that of convalescent serum. There has been remarkable uniformity in the potency of different pools from various regions of America. Gamma globulin has already been used on a large scale for the prevention and attenuation of measles in familial contacts and in institutions; analyses indicate that a dose of 2.0 to 2.5 c.cm. will protect 80% of young, susceptible, and intimately exposed children, with marked attenuation in the remainder. Where attenuation only is desired the recommended dosage is around 0.5 c.cm. In other words, results equal to those obtainable with convalescent measles serum have been achieved with one-quarter to one-half the dosage of that rather rare commodity. Although the gamma globulin now issued cannot be used intravenously, progress has been made with the removal of the depressor substance which precludes intravenous therapy, and it seems likely that such a preparation will be useful for the treatment of early cases of measles and other infections. Meanwhile there are other obvious fields for its prophylactic use. Thus Stokes and Neefe[3] tried it in summer camps for boys and girls where a widespread epidemic of infectious hepatitis was occurring, with reasonable hopes of success since the incubation period is long and the infecting agent is presumably present in the blood during the pre-icteric stage of the disease. Among 29 boys injected with doses equal to 0.15 c.cm. per kilo of body weight, 4 (13.3%) developed hepatitis without jaundice, whereas among 130 controls 90 (69%) became infected, and two-thirds of them had jaundice. Of the inoculated girls 3 out of 16 (18.7%) developed hepatitis with scleral jaundice only, while 82 of 116 controls (70%) became infected. The better results obtained among the boys were attributed to the injections being given earlier in the incubation period in that group. The authors remarked on the apparent absence of the "hepatitis agent" in gamma globulin used for large-scale prophylaxis of measles, and this finding, if corroborated, may be another argument for the fractionation of human plasma. Further clinical experience and improvements in the methods of assay will show whether gamma globulin will be useful for the prophylaxis of other virus and bacterial infections—e.g., chicken-pox, mumps, pertussis. Some of the natural antibodies seem to be concentrated in other fractions. However, the proven value of this derivative of human blood will act as an incentive to blood donors to carry on into civilian life the magnificent work they have done in response to the demands of war. It is to be hoped that our chemists and biophysicists will soon be given opportunities to develop this new field.

FOOD CONTROL

The long controversy over preservatives in food ended with the passing of the Public Health (Preservatives, etc., in Food) Regulations of 1925. Many experts had advocated that the use of particular preservatives should be forbidden, but the Ministry of Health adopted in these regulations the much sounder plan that all preservatives (except the common types like sugar or vinegar) should be prohibited except those specifically permitted for indicated foods and only in amounts which must not be exceeded. It was never suggested that the last word had been said, but the principle was established that nothing might be added unless specifically authorized and under defined conditions as to the preservative to use, its quantity, and the food to be preserved. Under war conditions the conserving of food supplies became urgent, and the central authorities concerned—i.e., the Ministries of Health and of Food—had to face the question of relaxing certain requirements if it could be shown that it favoured the conserving of more food and was not harmful to the consumer. Obviously such decisions are not easy, involve the balancing of various opposing factors, and demand an intimate knowledge of the conditions of food preparation and preservation. This need accounts for the rather bewildering number of Orders that have been issued—some allowing certain relaxations, others cancelling relaxations previously permitted. One of the latest is Regulation 60 CAA of the Defence (General) Regulations, 1939, and is a good illustration of the way in which preservatives are being controlled. It allows oranges to be imported in wrappers treated with diphenyl; meat and dehydrated vegetables may contain sulphur dioxide, and margarine and bacon borax; jam may contain more sulphur dioxide than in the original Regulations—i.e., up to 100 parts per million. Two sections of the Order relax certain requirements of the Public Health (Condensed Milk) Regulations, 1923, and there are requirements as to preserved eggs and their markings.

While the changes are not in themselves of much importance, this new Regulation illustrates very well the complexities of food production, preservation, and sale under modern conditions. These various Orders will no doubt be revoked or amended when the war is over, but the need for food control will still remain. Many people clamour for the removal of control and for unrestricted freedom. But food conditions are so complicated that if all controls were removed the state of affairs would be chaotic. The Ministry of Food, being wise enough to obtain and use expert advice, has done a sound bit of work not only in feeding the people but in improving the qualitative dietary of all. Some of this work, such as school meals, school milk, special foods for babies and expectant mothers, should continue; there is also a need for scientific control over food production and conservation. In these fields we now have a volume of accurate knowledge, which, however, needs scientific application and some measure of control.

A FLUORESCENT GUIDE TO LOCAL CIRCULATION

The diagnosis and still more the prognosis of peripheral vascular disease is a complicated matter which needs the accurate plotting of skin temperatures, oscillometric determinations, and often arteriography after injection of thorotrast or other x-ray-opaque solution, and the effects of blockage of the sympathetic innervation or of intermittent venous occlusion. A relatively simple method which gives a direct insight into the nutrition of the tissues is therefore welcome, especially when it has been thoroughly tested in over 1,000 patients without untoward reactions. A 5%

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[3] *J. Amer. med. Ass.*, 1945, **127**, 144.

fluorescein solution is injected intravenously, and its arrival in the tissues under examination demonstrated by its fluorescence under ultra-violet rays. Fluorescein absorbs the invisible ultra-violet and converts it instantaneously into a visible yellow-green light; the method thus requires only a dark room and a mercury-vapour lamp with an appropriate filter to give an ultra-violet beam of wave-length 3,600 Å.U., at which fluorescein shows its maximum fluorescence. The lamp can be directed on to any part of the patient, and the fluorescence of suspected areas of deficient circulation can be rapidly compared with the normal. In the common type of diabetic gangrene, for example, there is a marked decrease in fluorescence of both limbs and an entirely non-fluorescent distal gangrenous area, indicating that amputation should be done at a high level; but in a second type the general fluorescence of the limb is almost normal, and around the area of gangrene there is a zone of hyperfluorescence, indicating a vascular demarcation reaction of the surrounding tissue which will prevent further spread of the gangrene, so that amputation is not required. The hyperfluorescence is mainly due to increased capillary permeability, and it is thus possible to distinguish the reddish-blue discoloration of a foot due to commencing inflammation (incipient gangrene) from that due to stasis —the former being *hyper*fluorescent, and the latter *hypo*fluorescent. In acute embolism the test permits the exact establishment of the level of blood supply in the skin and how far a procaine block of the sympathetic chain will improve the collateral circulation. In two of Lange and Boyd's cases[1] they were able to show that the embolus, though it had caused coldness and blanching, had not led to complete vascular occlusion, since the tips of all toes were fluorescent; and the subsequent clinical course bore out their contention that gangrene would not occur. The test is valuable in establishing an immediate prognosis of frostbite, and it will show in chronic ulcers whether skin grafts will "take."[2] For studies of capillary permeability and for physiological rather than pathological investigations Lange and Krewer[3] have introduced a refinement by which the amount of fluorescence can be objectively determined, and their "dermofluorometer" is essential in the examination of coloured people, since skin pigmentation interferes with visual observation of the fluorescence.

CLINICAL EFFECTS OF VIBRATING TOOLS

Pneumatic tools were first used in the French mines as early as 1839; now they are used extensively in many industries: in shipbuilding for riveting and caulking, in foundries for fettling, in road-making and stone quarries, and in scaling boilers. The to-and-fro motion of these tools can also be converted to a rotary one, and they can be used as drills. Similar tools are made in which the power is generated by electric or other kinds of motor instead of by compressed air. Vibrating tools have been reported as giving rise to several clinical syndromes—white fingers; arthritis of wrist, elbows, and shoulders; the formation of areas of decalcification in the bones of the carpus; and injuries of the palmar aponeurosis and the ulnar nerve. Arthritis has mostly been found in miners in the Northern French, Belgian, Rhineland, and Westphalian mines,[4 5] where a heavy tool is used. In England pneumatic tools are rarely used in the mines, but Hunter, McLaughlin, and Perry[6] in a recent survey found little evidence of arthritis in riveters, caulkers, or fettlers, though they found six cases of arthritis of elbow among twelve scalers. These figures are small, and no conclusions should be drawn from them until more scalers have been examined. Dupuytren's contracture and ulnar paresis can undoubtedly result from the pressure of these tools on the palm of the hand, but such occurrences are rare. Large bruises are commonly found on the back of the hands of riveters who work on the under side of ships; they are caused by the hand being constantly knocked against the knee when the tool is used in an inverted position. Brailsford[7] found on *x*-ray examination small areas of decalcification in the bones of the carpus of pneumatic-tool workers, and confirmation of this has been given by McLaren.[8] Such areas are probably due to repeated trauma and not to the vibration of the vibrating tools. They certainly occur in men who have never used these tools; but an investigation is needed to find out how frequent are these decalcified areas in the carpus in the general population. Hunter, McLaughlin, and Perry[6] found them most frequently in "holders up," 18 out of 28; whereas in the users of vibrating tools they occurred in 45 out of 78 riveters, 18 of 36 caulkers, and 51 of 108 fettlers.

The most important of the syndromes from which these workers suffer is a vascular disturbance which produces a local anaemia in the fingers, making them stiff and awkward; and in severe cases the symptoms may prevent the men from working or cause them to seek other employment. Maria Seyring[9] in Germany reported that 92 out of 189 fettlers complained of white fingers; 61% of the men who had been on the work for more than 10 years had the syndrome. It occurs mostly in the left hand in right-handed workers and in the right hand in left-handed workers. The hand which holds the tool bears the brunt of the vibration, and Hunt[10] suggested that this vibration was the fundamental cause of the trouble. He emphasized that the body and handle of the tool vibrate less than the striking end. Cold is undoubtedly a precipitating factor, but the striking end of the tool is always hot from friction, and the cold air escapes through the exhaust, which is directed away from the man's hand. Hunter, McLaughlin, and Perry[6] found the condition in 74% of men who used tools with a stroke speed between 2,000 and 3,000 a minute, and they thought this was a critical frequency; but they pointed out that these men also worked with cold metal—they were caulkers and fettlers. Riveters, who use tools with a vibration speed under 2,000, drive red-hot rivets; the syndrome was present in 23 out of 43 cases. The symptoms are not accompanied by constitutional changes which would prevent a man attending at his place of work. There is, nevertheless, a disability which will stop him working until the circulation returns to his hand; and when the syndrome of white fingers has been established it tends to recur on exposure to cold for some years after the worker has given up the use of vibrating tools. Junghans[11] demonstrated arteriovenous thrombosis histologically, and Barker and Hines[12] by means of thorotrast have shown obstruction to the ulnar artery; but only two cases[13 14] of gangrene of the fingers are mentioned in the literature.

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[1] *Arch. intern. Med.*, 1944, **74**, 175.
[2] Lange, K., *Surgery*, 1944, **15**, 85.
[3] *J. Lab. clin. Med.*, 1943, **28**, 1746.
[4] Holtzmann, F., *Zbl. Gewerbehyg.*, 1926, **13**, 235.
[5] Rostock, P., *Mschr. Unfallh.*, 1934, **41**, 73; *Med. Klinik*, 1936, **32**, 341.
[6] *Brit. J. Industr. Med.*, 1945, **2**, 10.
[7] *British Medical Journal*, 1936, **2**, 657.
[8] *Lancet*, 1937, **2**, 1296.
[9] *Arch. Gewerbepath. Hyg.*, 1930, **1**, 359.
[10] *Quart. J. Med.*, 1936, n.s. **5**, 399.
[11] *Arch. klin. Chir.*, 1937, **188**, 466.
[12] *Proc. Mayo Clin.*, 1944, **19**, 345.
[13] Teleky, L., 1938. Occupational and Health Supplement, No. 2, Geneva.
[14] Bennett, G. A., Waine, H., Bauer, W., 1942. *Changes in the Knee-joint at Various Ages.* Commonwealth Fund, New York, 68.

The Moynihan Lecture for 1944 (delayed on account of the exigencies of military service) will be given on Thursday, June 7, at 3 p.m. in the Riley Smith Hall of the University Union, Leeds, by Brig. J. A. MacFarlane, M.B.Toronto, F.R.C.S. (Hon.), F.R.C.S.Ed., Consulting Surgeon, Canadian Army Overseas. Subject: "The Management and Results of War Wounds of the Abdomen, 1944." Members of the medical profession are cordially invited to be present.

THE EPIDEMIC OUTLOOK IN EUROPE*

BY

KNUD STOWMAN, M.D.

Chief of the Epidemiological Information Service of U.N.R.R.A.

During the more than five years of destruction and privation, accompanied by forcible or voluntary displacement of a large fraction of a populous continent's inhabitants, there has been no pandemic of first magnitude. Gratifying though this is, the fact must not be taken to mean that the epidemic situation is as satisfactory as it was before the war, nor as indicating a favourable outlook for the first years of transition to stable peace. The absence of real disasters may be traced to the low endemic level of most diseases during the years preceding the war, in conjunction with the advance of preventive medicine and the application of its principles on a large scale. On the other hand, caution against over-optimism is dictated by the disastrous aftermath of World War I.

During the four years of World War I Europe witnessed a rise in the endemic level of infectious diseases, and there were various pestilential outbreaks, such as that of cholera in Galicia in 1915, which caused over 17,000 deaths. A devastating typhus epidemic broke out in Serbia in 1915, causing 150,000 deaths in six months, and there were severe typhus epidemics in Egypt. Moreover, typhus caused several hundred thousand deaths in Rumania during the winter of 1917–18. There were extensive smallpox epidemics in various countries. Nevertheless, it was after the cessation of hostilities and following the disintegration of established government over wide areas that typhus, relapsing fever, cholera, malaria, dysentery, and typhoid fever swept across Eastern Europe, leaving millions of victims, and made serious inroads also in Southern and Central Europe. Whether directly due to conditions of war or not, it was at the time of the Armistice that the influenza pandemic struck, causing in less than half a year twenty million deaths throughout the world.

With World War II entering its final stage, civil administration is now in a fluid state in many areas and refugee movements are gathering momentum. These conditions, propitious to the propagation of epidemics, are likely to grow worse during the current year. They will further complicate the return to their native countries of millions of prisoners of war, shanghaied labourers, forcibly displaced people, and other uprooted men, women, and children, in themselves constituting grave potentialities so far as epidemics are concerned.

Appreciation of the problems at hand may be based on: (1) the trend of epidemic diseases in recent years in areas for which fairly accurate epidemiological data are available; (2) fragmentary information regarding the areas where no precise records of recent date exist; and (3) various estimates of displaced persons. The last-mentioned problem, which has other angles than the epidemiological, will not be dealt with in this summary.

Recent Trend of Epidemic Diseases

It may be said at once that among the five pestilential diseases covered by the International Sanitary Conventions only louse-borne typhus presents an immediate and grave danger to Europe. *Cholera*, which is a serious problem in Asia, has not appeared within recent years west of India and Afghanistan. *Yellow fever* seems hardly to have spread during the war, and has not been observed north of the North African desert belt. It should be added, moreover, that had no precautions been taken, the extension of these diseases would probably have been different.

Plague.—So far as we know, plague has not been introduced into any European port during the war. Nevertheless, this may happen at any time, as it did after World War I, because several large ports in North Africa and the Near East have become infected. The most important near-by foci are in the Suez Canal zone and at Dakar. Although they are quiescent at present on account of the season, these foci may flare up again. Meanwhile infection has spread to other ports, such as Haifa and Jaffa in Palestine, Ferryville in Tunis, Algiers and Oran in Algeria. The old plague centres in Morocco, especially at Casablanca, and in the Azores have also shown renewed activity in recent years. The outbreak in the Suez Canal zone from Nov., 1943, to Sept., 1944, was the worst on record, 712 cases being reported, as against 359 in 1917. There were over 500 plague cases at Dakar in 1944, which is equal to the number notified in 1931, the worst year since 1920.

Smallpox.—Europe has remained practically free from smallpox during the war except for the 1944 outbreak in Sicily and Southern Italy, and an extension of the Near East epidemic into European Turkey and the neighbouring parts of Greece. The latter epidemic, which was of the classical type, has now come to an end. The Italian epidemic, the first case of which appeared in March, 1944, has centred at Palermo and at Naples and the vicinity. Although there have been some 1,500 cases all told, the epidemic is apparently not of prime importance, because all cases have been of the mild type. Only six deaths were reported, all among debilitated children. In this connexion it may be of interest that mild-type smallpox seems to have gained ground in French North Africa, while the classical type still prevails in the Near East. In the Iberian Peninsula, where smallpox was widespread during the early years of the war, there are now only sporadic cases of variola minor. The most encouraging element in the whole epidemic situation is that there were only 3 cases of smallpox in 1944 (7 cases in 1943) among the more than 200 million inhabitants of Continental Europe outside the Soviet Union and the Mediterranean peninsular areas. In 1919 there were nearly 50,000 cases of smallpox in this area.

Typhus.—Typhus presents a far greater danger than smallpox. In certain areas severe epidemics are already under way, and in much larger areas the danger is potential because for several years there has been an insidious spread of sporadic infection throughout Central Europe. It should also be remembered that North Africa and the Near East are just emerging from an epidemic wave extending from Morocco to Iran, which has been among the worst on record in several of the countries. The Soviet Union was the principal sufferer from typhus after World War I, but has apparently succeeded in keeping this disease under close control during the present conflict. The publication of records was discontinued, however, a couple of years before the outbreak of the war. In Poland typhus is known to have been on the increase during the German occupation, but numerical indications are not available for the last four years.

There are three main epidemic foci of typhus in South-Eastern Europe: the Rumanian, with centre in Bessarabia and Eastern Moldavia; the Sub-Carpathian, with centre in Sub-Carpathian Ruthenia and extending into North-Eastern Hungary; the Croatian, with centre in Bosnia and probably extending into Serbia. All of these foci were in rapid evolution in the spring of last year, and there was a serious epidemic in Croatia and Bosnia, extending late into the summer. Information for recent winter months is not available for the Sub-Carpathian area. An epidemic reminiscent of the World War I disaster has broken out in Rumania. Unofficial information gives 30,000 cases in Moldavia alone, and the epidemic is likely to increase up to April or May. So far, this is undoubtedly the most serious epidemic outburst of any disease during the war. In recent years the epidemic level has been rising also in Bulgaria and Greece, and typhus was epidemic in Turkey in 1943. On the other hand, the typhus epidemic which visited Spain in 1941 and 1942, causing over 11,000 cases, has now been reduced to an endemic level. The outbreak in and around Naples during the winter of 1943–4 (somewhat over 1,000 cases all told) was brought under control in the course of a few months, and at present there is hardly any typhus in Italy. In Germany, where typhus was formerly unknown, there were over 5,000 cases in 1943, mostly among foreign workers. The cases were spread over the entire area of the Reich as far west as the Rhineland. Information for recent months is not available, but present conditions obviously favour the spread of infection. The typhus-free area of the European continent now consists only of the three Scandinavian countries, Finland, Switzerland, and, aside from relatively rare sporadic cases, the Netherlands, Belgium, and France.

With the exception of an outbreak in Tunis in March and April, 1944, and the tick-borne cases in Spain, *relapsing fever*, which followed on the great typhus epidemics of 1919–21, has not been heard from during the present war.

The above-mentioned diseases specially dealt with by the Sanitary Conventions—namely, cholera, yellow fever, plague, smallpox, and typhus—are international quarantine diseases not merely because they are the most dangerous, but also because they are of limited geographical extension and their introduction into uninfected areas is consequently feared. Various other epidemic diseases, such as typhoid fever, diphtheria, scarlet fever, and influenza, are numerically more important in Europe, but they are normally endemic in all countries. International transmission thus becomes of importance only when they develop particularly virulent strains locally or attain an unusually high incidence.

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Scarlet Fever.—Scarlet fever has spread almost as much as diphtheria, and with few exceptions its incidence is from two to five times the pre-war level. Nevertheless, there has been no explosive epidemic comparable to the diphtheria outbreaks in the Netherlands and Norway. There seems to have been no change in type or gravity of the disease. A heavy increase of measles has also been noted, especially during the earlier years of the war.

Influenza.—The only important epidemic disease which seems to have remained unaffected by the war is influenza. The usual winter waves have come and passed, the most recent reaching its peak during the early part of the winter of 1943–4. In spite of abnormal living conditions none of them attained the gravity of the three or four most serious inter-war epidemics. The change from influenza B to influenza A reported to have taken place in England between the 1942–3 outbreak and that of 1943–4 does not seem to have had any visible effect upon the mortality. Nevertheless, the danger of major epidemics cannot be entirely disregarded.

Endemic Diseases

In addition to the epidemic perils, the increasing incidence of endemic diseases, such as malaria, syphilis, and tuberculosis, must be carefully considered. *Malaria* is the leading cause of morbidity large part of the Mediterranean basin, and it is reported to med epidemic proportions in Greece during the last couple areas of high endemicity in the Balkans and in Italy s time returned to their lamentable pre-control must be counted on, especially in view *lciparum* infection predominates in tries, while further north *vivax* extend northward into

inland, France, increased eace

Reports of Societies

THE VITAMIN B COMPLEX

A joint conference of the Biochemical Society and Nutrition Society was held on April 28 at the London School of Hygiene and Tropical Medicine. Prof. R. A. PETERS, who presided during the morning session, opened the proceedings with an expression of sympathy for the starving people in North Holland, and of the desire of all nutrition workers to give active help. After referring to the pioneer work of Eijkman and other Dutch investigators, Prof. Peters spoke of his own early work and that of Dr. Harriette Chick, of the Lister Institute, in the first steps towards the differentiation of the various members of the vitamin B complex. He emphasized that the labels vitamin B_1, B_2, B_3, etc., were originally adopted for the immediate convenience of the workers concerned. If the terminology had been changed in the light of additional knowledge it must not be implied that the original conclusions were necessarily at fault.

Dr. L. J. HARRIS, with Dr. E. KODICEK, in an introductory survey of the vitamin B complex, showed how, nearly 20 years ago, it had been found, mainly in work with rats and pigeons, that when sources of the original "water-soluble B" were heated until their antineuritic properties were lost certain other nutritive properties remained. This led to the postulation of two vitamins. The heat-labile factor was described as vitamin B_1, and has since been isolated and synthesized in the form of aneurin. The second factor was termed vitamin B_2. It soon found that riboflavin, a yellow fluorescent substance from milk whey, and now known to be very widely living tissues, could restore growth in animals ficient in vitamin B_2. The responses were it became obvious that other factors tment of concentrates of vitaorbents some factors were to the filtrate. The plex was now *-stable,* vin, In 1934, however, it attracted interest from a different direction, when Warburg and Christian showed that nicotinamide was present in the coenzyme involved in the oxidation of hexosemonophosphate. Later Euler and his colleagues also obtained nicotinamide from cozymase, the coenzyme of alcoholic fermentation. It was left to Elvehjem to prove that nicotinamide cured the disease " black tongue " in dogs, which was analogous to pellagra in man. As with aneurin, research had revealed that nicotinamide intervened in metabolism at numerous points. It was concerned not only with carbohydrate but with protein metabolism, its general role being that of an intermediary capable of receiving hydrogen from various substrates activated by different enzymes and of passing it on to other substrates activated by other enzymes. Riboflavin was isolated from yeast by Warburg and Christian as a conjugated flavoprotein, which was called " yellow enzyme." Soon afterwards Kuhn, György, and Wagner-Jauregg obtained riboflavin from milk, and found that it had growth-promoting action in animals. Numerous flavoproteins had been described, and might be regarded as a special class of dehydrogenases. One of their numerous roles was to act as " diaphorases " in facilitating the oxidation and reduction of coenzymes containing nicotinamide. Less was known of the part played by other B_2 vitamins in enzyme systems, but pyridoxine was concerned in the decarboxylation of amino-acids.

Less Familiar Members

Dr. F. A. **ROBINSON** followed with an account of the recently characterized members of the vitamin B_2 complex. Pyridoxine, and the related bacterial agents pyridoxal and pyridoxamine, pantothenic acid, *p*-aminobenzoic acid, the anti-anaemia factors α and β pyracin, xanthopterin, the monkey vitamin M, and several other less familiar factors were mentioned. It seemed probable that the distinction of the better-known vitamins—aneurin, riboflavin, and nicotinamide—from the lesser-known members of the vitamin B complex was more real than might be supposed. Present evidence suggested that the animals only showed specific deficiency symptoms in the absence of the first three vitamins. The others might be required only for the well-being of the intestinal flora. Inositol and choline, apart from their effect on bacteria, were known, however, to help in preventing an undue accumulation of fat in the liver, and might therefore be considered as a separate lipotrophic group.

Dr. B. C. J. G. **KNIGHT**, discussing growth factors and growth inhibitors for micro-organisms, emphasized that the wide distribution in nature of similar enzymatic systems supported the conception of the fundamental unity of all biochemistry, whether studied in yeasts, bacteria, fungi, protozoa, or higher animals. Thus it was now almost a commonplace occurrence that nutrients first found to be necessary for bacteria should later prove to be essential for higher animals, or vice versa. Usually when an organism did not need a certain substance as a nutrient the reason lay in its ability to synthesize this substance for itself. In building coenzymes I and II different micro-organisms were known which required ammonia, nicotinic acid, nicotinamide, or nicotinic riboside as a starting-point. The study of the action of growth inhibitors had furnished information of great biochemical interest. Woods discovered that the bacteriostatic action of sulphonamides was prevented by *p*-aminobenzoic acid, which was a naturally occurring metabolite. *P*-aminobenzoic acid was soon found to be a growth factor for several bacteria. Fildes concluded that growth inhibitors were substances which resembled essential metabolites sufficiently to compete with them in enzyme systems or in other ways, but which could not fill the specific role of the metabolite. The bacteriostatic action of the sulphonamides must therefore be ascribed to their interference in the metabolism of the chemically similar *p*-aminobenzoic acid. Many other examples of inhibition were now known; thus riboflavin was inhibited in its action by iso-riboflavin and mepacrine, aneurin by the related pyrithiamin.

Dr. F. **BERGEL** recalled that Williams in America had recently designated certain vitamins, including aneurin, riboflavin, and nicotinamide, as " major " vitamins, whereas the lesser-known B vitamins were termed " minor." The division was at least in line with the production of more characteristic and specific lesions in the absence of the " major " vitamins.

Synthesis and the Intestines

Dr. B. S. **PLATT** described the brewing of Kaffir beer, which in his belief had great value in maintaining the health of the natives. Clear beer, as brewed in this country, contained no aneurin, though it was a good source of riboflavin. The unclarified native beer was rich in all members of the vitamin B complex. In the West Indies the steps taken to improve nutrition included the provision of 80% extraction flour " ennobled " with 3% of food yeast. More information on the synthesis of the vitamin B complex in the human intestines was urgently required. It was important to realize that the products of bacteria were greatly influenced by the substrate. Thus bacteria which produced toxins, indol, or proteolytic enzymes when cultured upon proteins produced only lactic acid when cultured upon carbohydrates. After a heavy meal rich in carbohydrate the alcohol content of the blood, so far as could be judged from methods of estimation at present available, might sometimes be increased to levels consistent with advanced inebriation, suggesting that alcohol might possibly be produced in the intestines.

Dr. **LUCY WILLS**, speaking of her work on the vitamin B_2 complex and anaemia, said nutritional macrocytic anaemia was an important disease in India and other tropical countries. Clinical and experimental investigations, however, had shown that the missing nutrient was not Castle's extrinsic factor if defined as a substance which reacted with the intrinsic factor of the stomach to form the liver principle. In uncomplicated cases of nutritional anaemia in man and monkeys which had received no previous treatment with fractions of the vitamin B_2 complex highly purified liver extracts were inactive. The curative factor was present in crude liver preparations and in autolysed yeast extracts, but had not so far been identified. Since it was effective when administered parenterally it was unlikely that the intrinsic factor of the gastric juice was involved.

Dr. F. **PRESCOTT** questioned whether the vitamins synthesized in the human intestines were efficiently absorbed or were for the most part excreted in the bacterial debris of the faeces. He recalled that milk protected against pellagra, though little different from maize in its nicotinic acid content. This suggested that its good influence was due to its effect on the intestinal bacteria. It was an interesting point that the mental symptoms caused by the suppression of the intestinal bacteria with sulphaguanidine should resemble those characteristic of pellagra.

Dr. L. J. **HARRIS**, who presided during the afternoon session, commented on the extent and importance of recent developments in research on the vitamin B complex. A remarkable feature had been our familiarity with five members of the complex—namely, nicotinic acid, riboflavin, *p*-aminobenzoic acid, choline, and inositol—before their significance as vitamins had been recognized. Other vitamins, however, such as aneurin, with its bridged iminazole and thiazole rings, turned out to be chemical " novelties " with highly unusual structures. More knowledge on human requirements for B vitamins and on methods for the clinical recognition of the results of deficiency was urgently needed.

A national conference on maternity and child welfare has been arranged by the National Association of Maternity and Child Welfare Centres and for the Prevention of Infant Mortality, on behalf of the National Council for Maternity and Child Welfare. It will be held at Friends House, Euston Road, N.W., on Thursday and Friday, June 28 and 29, and the Minister of Health will give his presidential address at 10.30 a.m. on Friday. The subjects for discussion are: (1) nutrition as it affects the well-being of expectant mothers and of children; (2) the importance of maintaining the unity of the maternity and child welfare services; (3) the State and the parent in relation to the child. Tickets, 3s. each for one day, 5s. each for two days, may be had from the secretary, Miss M. R. Lovelock, Carnegie House, 117, Piccadilly, London, W.1. A clinical course for medical practitioners attending the conference has been arranged by the Maternity and Child Welfare Group of the Society of Medical Officers of Health for the morning and afternoon of Saturday, June 30. Particulars and tickets will be sent on application to Dr. Miriam Florentin, Town Hall, Church Street, Stoke Newington, N.16.

Correspondence

Dangers of Caudal Analgesia

SIR,—Dr. FitzGerald and Dr. Galley (May 12, pp. 677–8) are apparently enthusiastic advocates of continuous caudal analgesia in childbirth. The former, after attending the course in continuous caudal analgesia by Drs. Hingson and Edwards in Philadelphia, regrets that with one exception he can find no evidence of active interest in the method in any British hospital. Dr. Galley charges British obstetricians with prejudice, apathy, and conservatism in their attitude towards, and ill-informed criticism of, "newer methods of securing analgesia," by which, judging from the context, he apparently also means continuous caudal analgesia.

Dr. FitzGerald admits that the method "does somewhat alter the normal course of labour." This is putting it mildly, for the patient, besides being unable to empty her bladder, has no urge to bear down or use her abdominal muscles in the second stage of labour, and in consequence normal flexion of the head and rotation of the occiput are seriously interfered with, so that the second stage is prolonged and persistent occipito-posteriors and deep transverse arrests are common. FitzGerald, Thomson, and Brown found that the incidence of forceps delivery was increased to 70% compared with 12% in 1939 (before caudal). Siever from experience of 1,200 cases found that persistent occipito-posterior cases occurred in 12% compared with 4% before caudal. Hingson and Edwards report a similar experience. Infection at the site of injection is another risk. Hingson and Edwards have reported one death from this cause. Siever has had two such cases. One of the women got arachnoiditis; a laminectomy was done. The patient is "gradually recovering bladder function and the use of her legs, but the prognosis is guarded." As for the effect on the baby, in one of Siever's cases the foetus died *in utero* 5 minutes after the third injection. Within 2 minutes the foetal heart sounds became slow and gradually got weaker and stopped. In Siever's opinion this death and the deaths of three other babies in his series were due to the drug injected (metycaine).

The subject of continuous caudal analgesia in obstetrics was discussed very fully at a meeting of the Chicago Gynecological Society in October, 1943 (reported in the July, 1944, number of the *American Journal of Obstetrics and Gynecology*). In that discussion Huber mentioned 2 cases of his in which metycaine was given for Caesarean section. After 30 c.cm. of a 1.5% solution had been injected vasomotor collapse occurred. The blood pressure fell to 60/40 and so remained for 3/4 hour. The foetal heart sounds fell to 60. The baby after delivery proved to be not normal. At the time of the discussion it was 7 months old and very definitely abnormal. In another case of Caesarean section the patient also collapsed. The foetal heart sounds fell to 50 or 60 and remained so for 1/4 hour. After delivery it made one or two respirations and then could not be resuscitated. Baptisti—whose paper, by the way, every enthusiast for, or would-be user of, caudal analgesia should read—considered that though the risks of continuous caudal analgesia could be minimized by caution they could not be entirely eliminated. Among the risks he emphasized was intradural injection, with respiratory failure and sudden death. This might happen in the most experienced hands. Sudden death might occur apart from intraspinal injection. "A press campaign in the United States represents caudal anaesthesia as safe and painless childbirth. . . . The movement has to some extent stunned the medical profession to the point of clouding its judgment." Now "physicians are beginning to awake to actual facts . . . caudal anaesthesia is no safer to-day than it ever was. . . . The use of such a hazardous procedure *electively* to relieve the usually innocuous pains of labour is unjustifiable. Since the recent advent of continuous caudal analgesia four women have lost their lives because of the procedure *per se*. There have been other 'close calls' reported. . . . Never before has the human nervous system been subjected to the action of such prolonged concentrated anaesthesia. The absence of residuals and sequelae remains to be proved." Because of the death of the one-hundredth obstetric patient receiving caudal analgesia two minutes after injection the method was abandoned in Johns Hopkins Hospital, Baltimore, in 1940. "It seems strange," says Baptisti, "that the tragic accidents are so frequently delayed but apparently they eventually do occur."

An ideal analgesic in childbirth should be safe for mother and child. Judging from these reports continuous caudal analgesia is safe for neither. That is why it has never become popular among British obstetricians, not because its use calls for "increased time and skill from the obstetrician and anaesthetist" nor because of apathy, conservatism, and prejudice, as Dr. FitzGerald and Dr. Galley respectively assert.—I am, etc.,

Obstetrical Unit, U.C.H. Medical School, W.C.1. F. J. BROWNE.

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Skin Cover of Wounds

SIR,—Major-Gen. W. H. Ogilvie in his valuable survey of our experience of war surgery and the adaptation of this experience to civil practice (May 5, p. 619) is concerned in a statement of surgical principles. There is one principle, however, in the skin cover of wounds that he omits and which I believe deserves notice. It is that the skin cover of wounds must be generous enough to allow full functional recovery; particularly is that important in wounds of the extremities.

I am a little afraid, therefore, of the practical interpretation of his statement that "a certain amount of tension may be used to approximate the skin without danger." An unqualified application of this principle will lead to indifferent functional end-results. From the experience of mistakes I have made and observed, adequate skin cover is essential to good functional end-results. Recently I have seen three patients who had previously been treated by delayed suture of wounds of the popliteal fossa, sutured undoubtedly with "a certain amount of tension." The wounds had healed but the scars were responsible for a considerable deformity and great restriction to the function of the knee-joint. Only when these scars were excised and the knee fully extended was it possible to assess the true skin defect. Full return to function followed the making good of this skin defect by skin graft.

Nowhere in the body is the principle of adequate skin cover more important than in the treatment of wounds of the hand. For example, a wound on the dorsum of the hand, even with a considerable skin loss, may be closed by delayed or even primary suture with "a certain amount of tension" in dorsiflexion and extension of the fingers and it will heal, but the functional end-result of such a hand will be poor, and "making a fist" impossible.

One of the big lessons of this war, I would suggest, is the value of early and adequate skin cover to wounds of the extremities with skin loss, so that full function is quickly regained after healing. The importance of valuating the area of skin loss before closing the wound should be emphasized. For example, the popliteal fossa should be examined with the knee fully extended; the axillary wound with the shoulder in full abduction; wounds of the dorsum of the hand with closed fist and the wrist slightly flexed. If the wound edges under these conditions approximate, only then is suture preferable to grafting.—I am, etc.,

Birmingham Accident Hospital. WILLIAM GISSANE.

Treatment of the Recently Starved

SIR,—I would like to record my experience with a recently repatriated prisoner of war who was making very poor progress even on the double rations and sedulous care of his family. He had not been able to digest his food, which had caused him discomfort, flatulence, and nausea, and he had not been gaining much weight.

Some simple and well-known adjuvants to the digestive processes having made a vast improvement, I make bold to pass them on, as possibly other doctors faced with the same problem may be glad of the suggestions. I have given one 2½-gr. tablet of "taka-diastase" to be chewed during the meal. At the end of the meal a dose of the following mixture: glycerin. acid.

pepsin. ʒii; tr. zingib. et tr. gent. co. āā ♏x; aq. menth. ad ℥ss. Half an hour after the meal 2 tablets of "trypsinogen." gr. 5; at night a tablet of "veracolate," a preparation of ox-bile salts. I have told the soldier that he could eat whatever he felt inclined to take.

Having observed immediate and dramatic improvement in this man's comfort and a splendid gain in weight, I have felt it was well worth while bringing forward my experience, as there are thousands of soldiers recently freed who deserve the best we can give them. Fortunately I had by me plenty of the enzyme materials for my cases, but I understand that the supply is very limited, and if other doctors less well supplied were inclined to prescribe such treatment it would be impossible for them to do so. It seems illogical to expect glands which have lost capacity from long disuse to regain functional power without themselves being renourished, which is only possible if their part in the digestive process is done artificially. The supply of enzyme materials should, in my opinion, have a very high priority at the present moment.—I am, etc.,

Cirencester. J. H. GROVE-WHITE.

Transfusion Service

SIR,—As the result of blood donors' generosity during the war ample supplies of whole blood and plasma have been available for the treatment of civilian patients in hospitals, with the result that the staffs of hospitals have grown accustomed to unstinted supplies. On the basis of the past two years we have used at this hospital approximately 1,000 pints of blood and 1,000 pints of plasma annually, but the number steadily increases. This works out at 2.5 pints of each per occupied bed and the bleeding of approximately 4,000 donors per annum.

While it is possible that a substitute for plasma may be forthcoming, it is difficult to imagine a future when whole blood would not be required. Blood transfusion is one of the most valuable therapeutic measures available, but like other treatment it costs money and must be paid for. Questions to which would like an answer are these:

1. Can an adequate supply of blood donors be obtained without payment and/or pressure on relatives and friends of patients to supply blood?
2. How far should the personnel employed in bleeding, grouping, and administration of the service be on a voluntary basis?
3. Are we to continue to enjoy the valuable aid of the Ministry of Health in the processing of plasma and the supply of apparatus? Can we rely in the future on the help of special laboratories, such as the Galton Laboratory at Cambridge, to help in elucidating grouping problems?

These are questions which must be common to many transfusion officers, and now with peace in Europe demand an early and satisfactory solution.—I am, etc.,

East Suffolk and Ipswich Hospital. E. BIDDLE, Transfusion Officer.

Artificial Respiration

SIR,—Dr. E. Clark Noble (May 5, p. 643) points out the anger of delay in instituting artificial respiration. It would e well to stress the importance of the other two basic principles:

1. *Maintenance of a Clear Airway.*—I was recently called to patient recovering from an anaesthetic. He was black in the ace, the nurse pinning her faith to oxygen blown on to his ace. When the jaw was pulled forward the obstruction was relieved, and the patient breathed at once.

2. *Adequate Pulmonary Exchange.*—The choice of any one particular method of effecting this is of little importance compared with the skill of the operator. If the patient is dead no method will avail; if there is a spark of life it is probable any ethod, properly carried out, will be successful.—I am, etc.,

Nuffield Department of Anaesthetics, Oxford. R. R. MACINTOSH.

Civilian Mass Radiography

SIR,—The stimulus of your leading article (April 14, p. 521) ould bring in sufficient accounts of the working methods of me of the civilian units to furnish material for a résumé on is subject. The work now being done may not then appear ite as haphazard as was suggested originally.

There is little doubt that the best practical use for a mass radiography apparatus allotted to a large county area, such as Lancashire or the West Riding of Yorkshire, is that outlined by Dr. Lissant Cox (April 28, p. 605)—i.e., that the mass radiography service should act as a diagnostic outpost and work in the closest co-operation with the tuberculosis dispensaries in the several areas. It is clearly impossible for a constantly moving outfit in a large district to do its own follow-up work —e.g., when cases discovered at factory "A" are due for a three-monthly check, the unit may be at factory "B" 50 miles away, and so on.

This unit is operated on similar lines with certain modifications devised by Dr. F. Ridehalgh, its medical director. Here the weekly clinical session held at the factory is a joint one, where the medical officer of the mass radiography service and the tuberculosis officer of the local area see the cases together. If it is not possible to come to a diagnosis at once, and if, as with these early symptomless lesions, further investigation and observation are necessary, the tuberculosis officer arranges for this at his own clinic. There is, therefore, no question of a "snap diagnosis" being made on the spot. Institutional treatment is not advised unless there is clinical indication of activity or radiological evidence of spread—i.e., after repeat *x*-ray examination. The situation is carefully explained to the examinees, and in our experience hardly any have demurred over attending the clinics for a periodical check.

The joint clinic provides the medical officer in charge of the unit with first-hand information of the line of action to be taken on all mass radiography cases passing into the care of the tuberculosis officer. The vital matter of follow-up of all possibly significant lesions discovered by mass radiography has always been provided for. The Leeds Tuberculosis Clinic sends to the mass radiography service periodic reports of all cases referred to them. When any radiological change is noted in the follow-up films, there is every facility for the inspection of these films and the case notes by the mass radiography medical officer. The tuberculosis authorities in the West Riding are proving equally co-operative.—I am, etc.,

MICHAEL G. MAGAN,
City of Leeds Mass Radiography Service. Assistant Medical Director.

Tuberculosis of the Lower Lobe

SIR,—I found Dr. Raymond C. Cohen's article on tuberculosis of the lower lobe (May 12, p. 662) of great interest, particularly his statements on middle-lobe lesions. He mentions the treatment of a number of cases of mid- and lower-lobe lesions by phrenic paralysis followed by pneumoperitoneum, and concludes: "The results so far have been very successful, particularly with middle-lobe cavities and cavities in the middle or periphery of the lower lobe."

In contrast to Dr. Cohen's finding, however, are those mentioned in an annotation on artificial pneumoperitoneum in the *Lancet* of April 28 (p. 534). Here it is stated that Rilance and Warring (*Amer. Rev. Tuberc.*, 1941, **44**, 323), in their 55 cases of artificial pneumoperitoneum with phrenic crush, noted that the best results were obtained in lower-zone cavities, next best in upper-zone cavities, and *worst in mid-zone cavities* (italics my own). Clifford-Jones and Macdonald (*Tubercle*, 1943, **24**, 97) agree with these findings.

There is, of course, an anatomical explanation in keeping with these clinical findings. In the book *Pulmonary Tuberculosis* by Kayne, Pagel, and O'Shaughnessy (Oxford University Press, 1939) it is stated (p. 393) that, "provided the pleura is free, paresis of the diaphragm curtails or even abolishes the ventilating function of the lower lobe of the lung but leaves the function of the upper lobe undisturbed. The position, however, is quite different when, as a result of an old inflammatory process, adhesions have obliterated the interlobar sulcus; for under these conditions paresis of the diaphragm has a very definite effect in limiting ventilation of both lobes of the lung. In view of these facts the old controversy as to the effect of phrenicectomy on lesions in the upper lobe has been brought to an end. An effect will be produced if the lobes are adherent and the interlobar septum obliterated."

In a chronic disease of such protean manifestation as pulmonary tuberculosis these conflicting opinions confuse one as to the value of a particular method of treatment. Permanent control of the disease is, of course, our ultimate objective, and symptomatic improvement alone, no matter how satisfying at the time, if of no great importance in the final analysis. We must therefore distinguish between temporary control of the disease and permanent arrest of the disease. Dr. Cohen mentions that "the results *so far* [italics my own] have been very successful," and one can only conclude that a further communication will be necessary to decide whether or not the final results were as successful.—I am, etc.,

Preston Hall Sanatorium,
nr. Maidstone.
GEORGE R. W. N. LUNTZ.

Prolapse of the Rectum in Women

SIR,—The article by the late Mr. Harold Chapple (May 12, p. 661) draws attention to the successful treatment of a rectal prolapse in a woman by operating from the abdominal approach. Dissatisfied with the outcome of various operations performed *from below* and following the recommendation of R. R. Graham (*Ann. Surg.*, 1942, **115**, 1007) I carried out a similar procedure lately on a single woman; an epileptic aged 38, who was still having severe fits and had suffered from rectal prolapse for years. Five inches or so of bowel protruded on straining, despite surgical treatment elsewhere three years before. The peritoneum of the pouch of Douglas was incised, the fascia covering the levator ani muscles was brought together by sutures deeply placed *in front* of the rectum, and the peritoneal pouch obliterated by a further tier of sutures above the first. The principle of the method is based on the assumption that a complete rectal prolapse is essentially a sliding hernia of the anterior wall of the rectum (Jeanell). Additional support was obtained by anchoring the colon to the lateral pelvic wall near the brim; this step was possibly unnecessary. To avoid injury to the ureters these were identified before placing the sutures. Shock was not a conspicuous feature of this operation, which was performed under general anaesthesia; and the after-course was uneventful; the bowels, with the aid of liquid paraffin, acted on the fifth day. It is too early to pronounce on the ultimate result, but the immediate effect has been very gratifying.—I am, etc.,

St. Andrew's Hospital, E.3.
J. R. M. WHIGHAM.

Women in Labour

SIR,—I fully endorse the remarks of Dr. John Elam (April 7, p. 495) on gas-and-air analgesia and on the apparent indifference to the suffering of women in labour which still exists among both doctors and midwives. General practitioners as a whole seem satisfied to rush, at the last possible moment, to arrive as the baby's head is about to be born and to administer a few drops of anaesthetic. Is the doctor's satisfaction shared by the patient? As a rule the only women fortunate enough to receive any analgesic are cases of abnormal labour. The penalty for a normal labour is having to go through hell unaided.

Perhaps doctors may justify their indifference by quoting Dr. Dick Read's doctrine that normal labour is painless, but the essence of Dr. Read's teaching is that doctors must take more time and trouble in instructing and measuring childbearing women. He would be among the last to claim that normal labour in the average unenlightened and unaided woman of to-day is painless.

For the present "lamentable state of analgesia in labour" Dr. A. H. Galley (May 12, p. 678) suggests five reasons: apathy, conservatism, prejudice, lack of apparatus or facilities, and lack of anaesthetists. I would like to add another: inability to do a rectal examination. When giving analgesics in labour it is essential to know how far on the patient is, and to be able, if necessary, to check subsequent progress. The objection that this requires extra P.V. examinations would be sound were it not that rectal examination is available, and is quicker, less dangerous, and may be repeated as often as necessary. With practice a P.R. is almost as informative as a P.V. without an anaesthetic, and I consider that to master the art of doing a P.R. is a necessary preliminary to safe and satisfactory analgesia.

Dr. J. K. B. Waddington (May 12, p. 678) comments on the difference between "the callous attitude" of some institutional midwives and the sympathetic co-operation of most domiciliary midwives towards relieving the pains of labour. Surely the reason is obvious? The relatives and friends of a patient confined at home usually abound in sympathy for her, and, though often exasperating to the nurse and doctor, their concern does result in extra consideration for the sufferer.

To give analgesics in labour necessitates an extra visit or two to the patient's bedside, but the grat tuce of the mother in itself is ample reward for the extra trouble. Anything really worth while requires extra effort. Surely the falling birth rate would be arrested and the willingness of women to have more than one baby would increase if, with help, labour ceased to remain in their memory as an unforgettable nightmare.—I am, etc.,

Reading.
K. D. SALZMANN.

SIR,—I should like to express my agreement with Dr. J. K. B. Waddington on the subject of women in labour. As a student I acquired a permanent dislike of obstetrics because of the callous attitude of the midwives towards the patients, and the consequent unnecessary suffering which I was forced to witness. The midwives would refuse to give even the simple analgesic mixture which they were allowed to administer without a doctor's permission. We students had many altercations with them on the subject; the commonest argument they used was: "Women have had children without anaesthetics for thousands of years." When we asked them whether they would apply the same argument to the reduction of fractures, for example, they had nothing to say. They are particularly unkind to the nervous type of patient with a rigid cervix and ineffectual, but often agonizing, pains, their attitude being, "Fancy making all that fuss over such little pains."

When I did my midwifery training the maternity wards were closed owing to the blitz, and any woman who remained in London had to have her baby at home. I remember asking the district midwife to show me how to use the Minnitt machine, which they were compelled to take out with them. She replied: "Oh, I don't believe in that; they have better pains without it. I just give them the mask without turning on the gas." The net result was that every woman, primiparae included, went through her labour from start to finish unaided.

Why do all women of the higher income levels employ doctors rather than midwives for their confinement? The reason is that they thus ensure at least some measure of relief from their pain. The great majority of women will continue to suffer until midwifery comes completely under the control of the medical profession instead of that of the Central Midwives Board.—I am, etc.,

London, W.8.
ANGELA HEFFERMAN.

SIR,—Having recently spent seven weeks in maternity hospitals as a midwifery student, I should like to confirm the strong criticisms which have been directed against the inadequate analgesic measures employed in labour. During my course I conducted twenty-six deliveries, and either assisted at or witnessed, thirty-two others—a limited but probably representative sampling. It came, indeed, as a profound shock to me, after the pious injunctions I had read in textbooks, to find that "analgesia in labour" was more often a polite fiction than a reassuring fact.

I am sure that administrative and economic difficulties are largely to blame. Six weeks of my studentship were spent in council hospitals which were obviously suffering from lack o staff. Yet my remaining week, passed in a world-famous voluntary maternity hospital, has no lurid or harrowing associations. The labour ward on the occasion of a delivery swarmed with nurses, each of whom had a definite duty to perform while the analgesia obtained seemed to be highly efficient though nothing more elaborate than the Minnitt machine was employed.

Unfortunately, lack of staff at one of the council hospital was combined with lack of apparatus, since the Minni machines were either absent or defective in mechanism. Stil more unfortunately, this want of staff and gear tended to breed in the midwives a "rationalization" of the circumstances, s that they would exhort the luckless mothers, more common in anger than in pity, to show a fortitude which should neve have been necessary. Any protest could be met by the conte tion that analgesia was superfluous because labour was "physiological process." So, I suppose, is cutting a wisdo tooth, but would any sane person deny the sufferer aspirin on that account?

I doubt whether one can justly accuse the average midwife of taking a wanton delight in the spectacle of pain (it surely goes without saying, of course, that no sadist should be allowed to practise medicine or nursing); but I am afraid midwives can very easily acquire the habit of excusing the lack of analgesic facilities on the pernicious and illusory principle that the pain of labour is something which should be endured for its own sake. This discredited metaphysical concept of the virtue of physical suffering *per se* is certainly one which should never find a place in the practice of medical science.

Finally, it is only right to mention that certain "difficult" women seemed to make the task of the midwife particularly arduous, and that the threshold for pain stimuli has a subjective as well as an objective component. She who yells most does not necessarily feel most!—I am, etc.,

London, S.W.10. J. A. FLETCHER.

Decay of Teeth

SIR,—Sir Edward Mellanby has maintained that the decay of teeth and rickets are one and the same problem. There is, however, much evidence against this being the case. Rickets has been reported on from North Indian districts unaccompanied by decay of teeth. Natives in general suffer from such decay only when they come to eat white flour and sugar in place of their own diet. There is said to be a district in Texas where there is no decay of teeth in people living there on the food grown in that district. It is reported that North Shields with a moorland water supply has much more tooth decay among its inhabitants than South Shields with a water supply taken from wells.

Where there is enough fluorine in the diet to produce slight mottling of the enamel there is little decay of the teeth. Fluorine is a natural constituent of the teeth, and the traces of it found in wheat are removed on separating off-white flour. The washing of wheat in the roller-milling process not only leads to fermentation of the germ and the need for separating this from flour but removes traces of those imponderable metals which are found in soil and are needed for health. The excessive cleaning of vegetables, peeling of potatoes, etc., must also remove these imponderables. The substitution of reservoir water for well water, while protecting us from disease such as typhoid and cholera, has also removed these imponderables, the need for which is shown by researches on domestic animals.

Much has been made of laboratory experiments which show
hytic acid present in whole wheat lessens the absorption
This last has, therefore, been added to wartime
her hand Scots have ever been a vigorous race
on oats and kale. The Russians' main
pickled cabbage, and they are the
Horses and fowl flourish on
an experience seems to
children of those
—suffer from
inter-

Clinical evidence shows that vast numbers of patients carry pulpless teeth with no signs of ill-health. It is, however, a fact that some pulpless teeth act as dangerous septic foci. Careful clinical and radiological investigation coupled, if need be, with consultation with the patient's physician and a pathologist should enable a dentist to separate pulpless teeth into two classes—one containing all the dangerous cases and another to which a "clean bill" can be given. It is quite true that if all pulpless teeth had been removed some people would be alive who are now dead; also if all tonsils and appendices were removed in childhood much serious trouble would be avoided.

The treatment of pulpless teeth that are judged suitable for retention is a matter of great importance, and unless a dentist is prepared to give the care indicated by the researches of Prof. Sprawson and others he should not undertake such treatment. Until the correlation between various kinds of ill-health and various classes of pulpless teeth has been settled by teams of expert workers, I feel that dentists are doing good service to the community by preserving a certain number of pulpless teeth on the lines I have indicated.—I am, etc.,

Reading. J. B. PARFITT.

Technique of Venepuncture

SIR,—I was much interested in the article by Dr. Mendelssohn and Prof. Witts on transmission of infection during venepuncture for withdrawing blood (May 5, p. 625). I have known Prof. Witts for many years, and have the greatest respect for his opinion, so I am sure he will not be offended if I suggest that his technique of venepuncture is faulty. He states that the tourniquet must be released before the needle is withdrawn, but I would maintain that this should never be done until the needle is taken out. With a proper technique no haematoma will result.

The method I have used for the last twenty years is as follows: The needle is inserted as usual, after distending the vein by means of a tourniquet, and the blood is drawn into the syringe by traction on the piston. The last few millimetres may be allowed to enter passively. A pledget of wool soaked in the skin-cleansing agent is then lightly held over the puncture area and the needle is withdrawn. Simultaneously firm pressure is made on the pledget of wool. Still holding this with one hand, the operator puts down the syringe and uses the hand thus released to unfasten the tourniquet. This is easily done, as the tourniquet consists of a piece of rubber tube with a spring clip attached to one end. The patient's arm is then flexed as far as possible and left thus for three minutes.

I may mention that I have used this technique to collect blood for sedimentation rate into an unsterile syringe for over fifteen years, during which time some forty to fifty thousand such estimations have been made, and there has so far (touching wood) been no single case of jaundice or resulting trouble of any kind. I think, on the other hand, that if unsterile syringes are used, two-piece glass syringes are to be avoided, as the plungers nearly always run too easily, even when they are new. We reserve these for dry-sterilizing and use them for other purposes than sedimentation rate. For the latter we use Record syringes that fit well. If the pistons run too easily the piece of spring-wire that encircles the piston in the groove in its centre is
nded to fit the bore more closely and thus act as a

numbers of cases have to be seen (as in
or tuberculosis) it is often a matter
ain the very large number of
for the necessary sedi-
bove technique, if
dles should
oven.

in 1930. They were vaccinating a group of boys at the Naval School, Greenwich. I do not know if a record of their work exists. I have used the multiple-pressure method on all occasions since that demonstration.—I am, etc.,

Ilford. JOHN SPENCER.

Soya Bean and Allergy

SIR,—Soya bean was originally used in the East to make a special sauce by a long process of fermentation. Years ago I obtained a big reaction to it in a Siamese patient who suffered from asthma. To-day it is imported by thousands of tons and is used in very many articles of food. In virtue of its whiteness it is the chief ingredient in salad cream, in wartime cream substitutes, especially in ice-creams. As a thickening agent it supplants wheat and cornflour in thick soups, gravies, and sauces. In the dry form it is found in many proprietary articles of food and may be in margarine.

Being in such general use soya bean should be on the list of common foods for which those treating allergy test their patients in the routine way. Recently I found a small chil suffering from an infantile eczema to be particularly sensi to this bean, responding with a very big reaction when test the scratch method. Unfortunately there is so much so in use that avoidance is impossible and desensitizatio carried out as for dust and other unavoidable pr

In conclusion I think we may expect sensiti bean to become of increasing importance.—I

London, W.1.

Flour in the Lo

SIR,—In reply to Dr. Kent-Jones that I am informed that forei dominantly in the form of fl chemically bleached before appreciable proportion of 1945). Wheat imported smaller proportion of remains the princip

Home-grown w our stock; wh stricted in Portsmouth public, a penny than sc

extraction which could contain no germ of the constituents of which the ger e.g., vitamins, protein, minerals, etc

The most authoritative experts port Dr. Cooper's contention very positive mischief in tak for the national loaf. A received exaggerated ad Bateman's letter in yo noted that Russian on a diet mainly

House of Comm

SIR,— ova (M

were less than 30 weeks pregnant when they had their first attack of pyelitis, and 13 over 30 weeks pregnant. In 30 of these 50 patients the urine was sterile after a course of sulphonamides; 3 had a recurrence—one at the 32nd week and two at the 36th week. In 20 of the 50 patients the urine was not sterile after a course of sulphonamides; one patient had a recurrence at the 32nd week of pregnancy. Presumably it was to this last group of patients that Dr. Eadie would have given the small doses of sulphonamides, but in this small series the recurrence rate was higher among those in whom the urine had become sterile than among those who still had infected urine, and in both groups the recurrence occurred after the 30th week.

During the years 1927 to 1944 inclusive there have been 284 patients admitted with pyelitis of pregnancy: 197 were less than 30 weeks pregnant and 87 more than 30 weeks pregnant when the first acute attack occurred.—I am, etc.,

Obstetric Hospital, London, W.C.1. GLADYS DODDS.

An Examination Paper for Nurses

SIR,—We wish to protest emphatically against the examina-ion paper on medicine and medical nursing treatment set in he recent final State examination by the General Nursing ouncil for England and Wales. In our view the examination aper was distinctly unfair for the following main reasons:

1. None of the questions concerned treatment or nursing.
2. Questions 2 and 3 required information about *investiga-ons* of the causes of haematuria and dysphagia. Such investiga-ons are highly technical, no part of a nurse's duty, and she ould never have to undertake the responsibility of advising r performing them.
3. A paper consisting of one obligatory and one alternative uestion cannot be regarded as a reasonable test of a nurse's nowledge of medicine and medical nursing, even if the ques-ons themselves were unexceptionable.

We feel very strongly that nurses should not be subjected to xamination papers of this kind, which clearly demand in-ormation that could reasonably be expected only from those udying for medical qualification.—We are, etc.,

C. H. WHITTLE,
L. B. COLE,
Hon. Physicians.
L. C. MARTIN,
Hon. Asst. Physician.
Lecturers to Nursing Staff.

L. J. OTTLEY,
Matron.
M. S. WELBON,
Sister Tutor.

Addenbrooke's Hospital,
Cambridge.

Rheumatism and Orthopaedics

SIR,—Having taken a very small part in the formulation of e scheme of training suggested for physicians interested to ake the study and treatment of rheumatism their life work, d which has been expanded by the committee of which r Adolphe Abrahams was the chairman, I am particularly erested in his report which you published (*Journal*, May 12). s an orthopaedist who has had a good deal to do with heumatism," perhaps I may be allowed to question the sdom of Sir Adolphe's suggestion for substituting the title "orthopaedic physician" for "rheumatologist." As he has own so well in the explanatory section of his article, the ord "rheumatism" is loosely used by laymen and doctors ke for almost any condition the cause of which is unknown. is certainly undesirable to have a group of specialists called heumatologists" who, knowing more and more about aetio-gical obscurities, are perhaps going to dabble in a multitude quasi-medical, quasi-surgical procedures. For—let me come ickly to the point—are we not really in need of more really od physicians: just simple honest-to-God physicians? The uble is that the physicians, who recently have become so utely aware of the seriousness of the problem of rheumatism this country, have been inclined to judge of what is being ne only by the standards of the large city general hospitals. rthermore, in these quarters there is a tendency to place due emphasis on the surgical aspects of the orthopaedist's rk. It is true that for convenience the growth of ortho-edics has been largely within the arm of medicine called surgery, but it is a true example of a surgical science which has had to take a broad medical outlook, and its whole history is one of care for the whole patient rather than of one small part. The big city hospitals have little idea of what has been done over the past thirty years in the great provincial orthopaedic schemes founded by Sir Robert Jones and maintained by his followers. It would be better to call us "orthopaedists," for surgery is a relatively small part of our job. In connexion with rheumatism we do know a good deal about the human problem involved, and, in fact, in the regional orthopaedic schemes we have a very important organization which has anticipated the Empire Rheumatism Council's "Plan for National Action."

These provincial orthopaedic schemes have been prepared to assume the long-term treatment of chronic joint disease, to provide continuity of treatment in a special service in both hospital and dispersed out-patient clinic, having teams of expert technicians in orthopaedic nursing, physiotherapy, training, and rehabilitation. This has been done with unity of control. The whole problem has been considered in all its aspects, providing for the care of the patient as a whole by psychological encouragement in hopeful surroundings, planning for the prevention and correction of deformity and the maintenance and restoration of function. The protection of active joint lesions has been given with suitable apparatus and the graduation of activity: in other words, true physiological rest, with a follow-up scheme after leaving hospital to ensure so far as possible that treatment is maintained. In this milieu a most important possibility for training can be provided, and the scheme must be expanded to fill the deficiencies, which generally are in the direction of more beds and more staff. In the orthopaedic hospitals, what is needed is the help of more general physicians. They do not need to dabble much in orthopaedics. We are fully capable of doing that. There is nothing in the services of such a physician which cannot be provided by an interested general physician, as those of us know so well who are fortunate in having available such people.

One of the diseases of modern life is to invent new names for old things that people have lost the understanding of. Laziness of mind and failure to utilize past lessons are largely responsible for the present excitement about "rehabilitation." Let us be very careful before starting a new fad of the "orthopaedic physician."—I am, etc.,

Exeter. NORMAN CAPENER.

Cataract Surgery

SIR,—In a review of a book on cataract (May 12, p. 665) the statement is made that surgery "can do little for many patients who suffer from severe decline in vision without reaching the stage where operation is either justifiable or feasible."

Surely such a pessimistic view of modern cataract surgery is not in accordance with present-day clinical experience. The statement indicates an undue scepticism of the possibilities of cataract surgery. Operation is always both justifiable and feasible in the case of a patient, who suffers from severe decline in vision, at any stage, and it is difficult to imagine any reason, apart from complications unconnected with the eye, why operation should not be undertaken in such patients. It is to be hoped that we have passed the day when patients with senile cataract are asked to wait until the cataract is "ripe" befc they can be relieved by surgery.—I am, etc.,

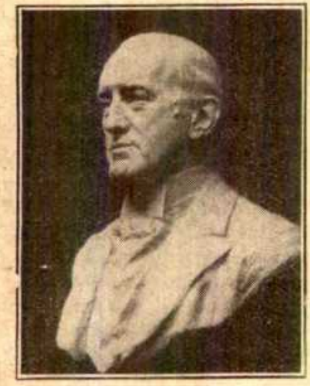
Edinburgh. H. M. TRAQUAIR, M.D., F.R.C

The Ministry of Food wishes to draw the attenti
the arrangements made whereby civilians who ha
from enemy or liberated countries and whose l
the result of an inadequate diet can obtain
On production of a medical certificate a
that he is suffering from malnutrition, th
to obtain 14 pints of milk a week and
a week, for one month. At the en
if necessary, be renewed for a fur
mission of a fresh medical cer
arrangements have been mad
Merchant Navy prisoners c

Obituary

SIR STANLEY WOODWARK, C.M.G., C.B.E., M.D., F.R.C.P.

Arthur Stanley Woodwark, who died on May 11, aged 70, was the third, and last survivor, of the six sons of the late George Woodwark, a North Riding man who had married a Norfolk lady, settled at King's Lynn, and become very prominent in the public life of that town and of Norfolk. Another of the brothers, the late Lieut.-Col. G. G. Woodwark, was for a time M.P. for the town. Four of the six were of gigantic stature, and Stanley, who stood six foot four or a little more, was the tallest of them all. He was born in 1875, educated at Felsted and St. Bartholomew's, whence he qualified as M.R.C.S., L.R.C.P. in 1902. He held resident posts at the Royal Free Hospital; and before that spent a short time as ship surgeon, during which he visited the Panama Canal works, then still under de Lesseps and his French company. He used to recall his amazement at seeing vast quantities of valuable machinery, not even uncased, hurled into a bottomless swamp in order that rascally officials could draw new commissions for further orders from rascally contractors. He first went into a partnership in general practice, but, conceiving that he had been unfairly treated by his senior, gave it up and decided to specialize in medicine. This meant going back to medical study: he took the M.B., B.S.Lond. with honours in both medicine and surgery in 1906, and the M.D. in 1909. He was casualty physician to St. Bartholomew's, medical registrar at King's College Hospital, and then was appointed assistant physician to the Westminster Hospital, where he was afterwards for many years a most efficient and popular Dean of the Medical School, and ultimately senior physician. In 1920 he became F.R.C.P.



While biding his time for consulting practice, Stanley Woodwark was a highly successful coach for examinations in medicine; when he epitomized his teaching in a *Manual of Medicine*, it soon ran through four editions. On the outbreak of war in 1914 he took a temporary commission as lieutenant in the R.A.M.C.; but not many weeks had elapsed when he was promoted in one jump to lieut.-colonel, at that time an almost unprecedented occurrence. Space forbids an account of his work at the War Office; it suffices to say that he ended the war as Colonel, Consulting Physician to the Army, C.M.G., C.B.E., with a recommendation for a knighthood (which led to nothing at the time). Both before and after the war, besides enjoying a wide consulting practice, he was much occupied in life assurance work for the Pearl and other offices, and was greatly in demand as an expert witness in compensation cases. His magnificent appearance, not diminished by his immaculate dress, combined with great care in getting up his facts and a strict impartiality in presenting them to the Court, impressed favourably both juries and judges alike.

In student days Woodwark had made some mark as librettist for concerts and pantomimes; in later years this facility bloomed into a talent for after-dinner speaking which put him in the top class of this difficult art; he was also a noted raconteur, with a pretty wit of his own. In 1911 he married Hilda, youngest daughter of the late Sir Richard Robinson. She survives him with two of their three sons and a daughter; it was generally conceded at the time that they were the handsomest couple in Harley Street, and their hospitality [illegible]here and at their country home at Cowden has been [illegible] many years. He was knighted in 1932 for all-[illegible]ices; was D.L. and J.P. for London; Knight of St. John of Jerusalem; consulting physician to the Roy Waterloo and the Miller Hospitals; Master of the Apothecari Company for 1941–3; Master of the Turners Company f 1943, and of the Barbers for 1942–4; and a member of counc of the Medical Defence Union. He had been examiner medicine both for the Conjoint Board and for the L.M.S.S. He was also President of the Institute of Hygiene, and Governor of the Foundling and Westminster Hospitals. N account of him would be complete without a reference to t Savage Club, where he will be greatly missed; even in th society his personality was an outstanding one. He had bee a member of the B.M.A. since 1907, but never sought electio to the Council. Lady Woodwark has been chairman council of the Ladies' Guild of the Royal Medical Benevole Fund after long service on the council and its committees.

S. INGLEBY ODDIE, M.B., C.M.

Samuel Ingleby Oddie, who died recently at the age of 76, w one of H.M. coroners for the County of London for 27½ yea until his retirement in December, 1939: he had then held near 30,000 inquests and, to use his own words, had taken a re interest in crime and criminals for nearly 50 years.

He qualified medically (M.B., C.M.Ed.) in 1891 and spe his first few professional years as a naval surgeon. Then entered private practice in Surrey, but found that it did n appeal to him. He left medicine and read law; he was amo the top six candidates in the Bar Final and was called to t Bar by Middle Temple in 1901. He quickly established hims in his new surroundings and achieved a substantial practice the common law and criminal side. Later he entered t chambers of Mr. (afterwards Sir) Richard Muir, who was o of the senior Treasury Counsel at the Central Criminal Cou Had Oddie desired to remain at the Bar he would certain have attained eminence: probably the best-remembered ca in which he was one of the counsel for the Crown was t prosecution of "Dr." Crippen for murder. But (as he hi self has told in his book of reminiscences *Inquest*) Oddie h always wanted to be a coroner. The chance came in 1912, a he was appointed coroner to South-West London and to t City and Liberty of Westminster; the Westminster appointme was made by the Dean and Chapter, and this was the l occasion of the exercise of the franchise, which had been exta for 800 years; the right has now disappeared.

As coroner, Ingleby Oddie became an outstanding examp of the right man for that office. His basic medical educati his appreciation and knowledge of everyday affairs, and (p haps above all) his experience in the actual practice of l gave him a background that placed him in a class by hims He realized that the duty of the coroner is not, as is someti wrongly said, merely to find the cause of death: it is to asc tain by evidence when and by what means the deceased ca to his death. When in court Oddie was alert; the proceedi never dragged. He had both clarity and strength of mind; hated subterfuge in any form; he did not hesitate to expr if his were the verdict, what he believed to be the facts. was popular among his colleagues and gave great service to Coroners' Society of England and Wales, being president fr 1925 to 1927—a period of importance in view of the com into operation of the Coroners (Amendment) Act, 1926, wh effected considerable changes in procedure.

This versatile, genial, and kindly man had a keen sense humour which he turned against himself at times. His o account of his departure from the scene of his private prac was that he set up his top hat on the garden path, took running kick at it, and left. Again, at the age of 63, he fou it necessary to have a tooth removed: before his dental appo ment he held one inquest, and this happened to be a death i dental chair; Oddie used to recount how this rare event him in a suitable frame of mind at once.

He had other interests apart from his professional dutie architecture, book reading, crosswords—and he was an acc plished croquet player. He was a good friend and a most en taining companion. Despite the twinges of ill-health since retirement (which was a matter of regret to him at the ti he well maintained his capacity for expression in letters to friends. He is survived by his wife and by his son, Ri Oddie.

W. B.

GARNETT WRIGHT, F.R.C.S.

r. J. B. **Macalpine** writes:

The sudden death of Mr. Garnett Wright removes one of the st beloved and capable of Manchester consultants, and severs a k with the Salford Royal Hospital which had lasted for nearly years. Having previously served a short time as honorary sur- on to the Ancoats Hospital, Manchester, he transferred to the lford Royal Hospital in 1910, and since 1918 had been its senior rgeon. Just before the commencement of the present war Wright ached the age of 60 years, and according to the rules of the hospital, hich provide for retirement by stages up to the age of 65, he had st one-half of his beds. With the altered conditions produced by ss of honorary staff owing to the war Garnett Wright shouldered resh the responsibilities of a whole surgical unit, and, though in e latter years the strain was obviously telling, he held manfully his post until within a day or two of his death. Only a month o he had bought a house in his native county (Cumberland) to hich he hoped to retire this summer.

Wright's principal operative field was the abdomen, though he was so interested and successful in the surgery of the thyroid. His rgery was essentially practical, sound, and direct, and his results ould probably stand comparison with those of the most successful. e had a flair for diagnosis, and even though he never acquired a despread practice his judgment and advice were much in demand colleagues and friends. Though anything but easy-going in his neral surgical work he acknowledged to a certain indolence in e matter of contributions to surgical literature, with the result that ough a handful of valuable papers have come from his pen much the results of his wide experience are not recorded. This is the re regrettable as his mind was pre-eminently accurate, observant, d trustworthy.

Garnett Wright will long he remembered for his kindly ways and ready help and advice when, as often, it was asked for. His und realistic help and counsel were frequently sought by members our profession not only in professional but also in personal airs, and his judgment was rarely at fault. Customarily gentle d generous to a degree, he could be brusque and forthright if a tter of principle appeared to be involved, he himself being one the most sincere and upright of men. He was a good committee- n and a wise liaison officer between the administrative and medical ards of the hospital: in the counsels of each his opinion carried ch weight. Even though we realized that his retirement was minent his passing leaves a blank not only at the hospital but in wide circle of affectionate and appreciative friends.

We regret to announce the death on April 18 at Wrington, merset, of Dr. H. C. **Bristowe**, son of Dr. John Syer stowe, at one time senior physician to St. Thomas's Hospital, ndon, and the author of a well-known textbook on medicine. bert Carpenter-Bristowe received his medical education at Thomas's Hospital, qualifying M.R.C.S., L.R.C.P. in 1888, d taking the M.B.Lond. in 1889 and the M.D. in 1890. After number of hospital appointments he started in practice at ington in 1892 and remained there until he retired in 1926. then took up work as a medical referee in connexion with tional Health Insurance. Dr. Bristowe had a fine record of rk for the B.M.A. He was on the Council from 1919 to 33, and his record of committee work is very extensive: the ntral Ethical Committee from 1920–31; Medico-Political mmittee, 1920–31; Maternity and Child Welfare Subcom- ttee, 1920–30; Post Office Medical Advisory Subcommittee, 3–31; Prison Medical Officers Subcommittee, 1925–7; the sistant Asylums Medical Officers Subcommittee, 1926–9; the cho-analysis Committee, 1927–9; the Mental Deficiency mmittee, 1930–2; and the Private Practitioners and Mental ess Treatment Committee, 1931–2. While playing no ticularly spectacular part he was always regarded as a sound iser and a good committeeman. In 1931 he convened the ugural meeting of the East Somerset Division, Bath and stol Branch, of the B.M.A., and was its first chairman. He s a Representative from 1917 to 1923, from 1925 to 1932, again from 1934 to 1936. For some years he was chairman the Somerset Local Medical and Panel Committee. Dr. stowe was much interested in Freemasonry and took a lead- part. Among the many offices he held were those in Grand in Somerset Provincial Grand Lodges; he was also a mber of the Somerset Masters Lodge and Past Master of the dge of Agriculture. In professional life he was highly arded by his patients for his wide knowledge and the care skill he gave to them, for behind an occasional brusqueness manner he was a very warm and kind friend who instilled at confidence.

We regret to announce the death on May 4, at 32, Oakley Street, Chelsea, of Dr. **Edmund Fairfield Thomas**, aged 61. He was M.D.Bristol, M.D.Brux. (Hons.), M.R.C.S., L.R.C.P., L.S.A., D.P.H. with honours. Though for long in general practice his chief interest lay in the prevention and treatment of tuberculosis, and he wrote a "History of the Anti-tuberculosis Movement in Wales" which appeared in the *British Journal of Tuberculosis* in 1911. He was one of the first school medical inspectors in Wales, and the first tuberculosis officer to be appointed in that country. He founded the first municipal dispensary for the treatment of consumption. During the 1914–18 war Dr. Fairfield Thomas served with distinction as a naval surgeon with the Dover Patrol and the Grand Fleet. He was a well-known and highly respected figure in Chelsea, and during the present war he rendered steady service in the air raids in the borough. He was an active Freemason and a Past Master of the Middlesex Hospital Lodge. Dr. Fairfield Thomas was an ardent worker for the B.M.A., of which he became a member in 1906, and was for many years the life and soul of the Chelsea Division. He was chairman of the Division from 1933 to the time of his death, and represented it at the Annual Representative Meetings 1921–6, again in 1930, 1932, 1941, and 1943. He leaves a wife and two sons, the elder of whom is continuing the practice.

On May 10, his 83rd birthday, Dr. **James Herbert Menzies**, of South Kensington, died in the house where he had carried on practice for a very long period of years; indeed, when he retired he was probably the senior in standing of any practitioner in that district. He was a brother of the late Dr. H. H. Menzies, of Westminster; both the brothers had been cricketers of more than common skill, though J. H. had not quite the same reputation as H. H., who was a Middlesex county player. He was trained at St. Bartholomew's Hospital Medical School, whence he became M.R.C.S., L.S.A. in 1884. Thereafter he did resident appointments at the West London Hospital before settling in general practice in Kensington. During the 1914–18 war Dr. Menzies held a number of part-time appointments in temporary war hospitals. A man of quiet disposition and very strictly upright and honourable principles, he gained the respect and affection not only of a wide circle of patients but of his professional colleagues as well. His impressive figure and dignified bearing will be much missed in the Hereford Square neighbourhood.

Dr. **Kenneth James William Craik** has died in Cambridge as the result of a cycling accident at the early age of 31. A brilliant psychologist, he had done valuable work on behalf of the fighting Services. He went to Edinburgh University from the Edinburgh Academy and graduated M.A. with first-class honours in philosophy in 1935. He gained the Hamilton Fellowship and in 1936 the Shaw Philosophical Fellowship, and then went to St. John's College, Cambridge, for a research course, leading to the Ph.D. in 1941 for his thesis in physiological psychology entitled "Visual Adaptation." He was elected a Research Fellow of St. John's in 1942, and during the war did research work for the Air Ministry and other Service Departments. In 1944 the Medical Research Council appointed him director of its Unit for Applied Psychology at Cambridge. Dr. Craik was the author of a book, *Nature of Explanation*, published by the Cambridge University Press two years ago, and of articles in the scientific journals, including a paper on "Specifications for Dark-adaptation Tests," published in the *British Medical Journal* of May 22, 1943. He was a Fellow of the British Psychological Society and a member of the Physiological Society. His untimely death robs science of a worker who had already done much for his country and for the application of psychological knowledge to particular problems.

Mr. A. P. Bertwistle writes: May I add to your obituary notice of Mr. **Lawford Knaggs** a few observations on the man. Your note dealt with his work. He was above all a gentleman whose rugged, gaunt exterior hid a heart of pure gold. In Leeds he always gave the impression of being a lonely man whose sole object in life was the curing of disease. In the last world war, no matter at what time of the night the convoys of wounded arrived he was there to welcome them with a smile of encouragement. His large hands were gentleness personified. A fellow student of mine, R. Graham, who broke his femur, declared that "Pa" Knaggs—as he was affectionately called—was the only one who could examine a fracture without pain. While his book on bone was a magnificent piece of work, a series of about half a dozen more articles on bone disease in the *British Journal of Surgery* were even finer. His command of the English language was perfect and he was scrupulously careful in his use of words. I, personally, shall miss him greatly, as no accounts of bone were published in *A Descriptive Atlas of Radiographs* without his approval.

Universities and Colleges

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Gift from the B.M.A.

As announced in the Annual Report of Council printed in the *Supplement* of May 12, the Council of the British Medical Association has contributed 1,000 guineas from Association funds to the Restoration and Development Fund of the Royal College of Surgeons. Since then the Secretary of the Association has received the following letter from Sir Alfred Webb-Johnson, President of the College:

> MY DEAR DR. HILL,
>
> I beg to acknowledge with thanks the receipt of your letter informing me that the British Medical Association is making a donation of one thousand guineas to the Restoration and Development Fund of the Royal College of Surgeons. This spontaneous gesture is very deeply appreciated by my Council, and it will be welcomed by all the Fellows and Members of the College.
>
> It is a great encouragement to us in our work to receive the support of your great Association, which is representative of the whole medical profession. The gift is welcome not only for the substantial help which it will give towards the objects we have in view, but also as further evidence of the cordial relations between the Association and our College. It has been one of the happiest experiences of my period of office as President of the College to have had such friendly relations and such fruitful co-operation with the British Medical Association.
>
> I would like you to assure your Council that my colleagues and I are deeply grateful for this gesture of friendship and for the Association's support of the high ideals for which our College stands.
>
> Yours very sincerely,
>
> ALFRED WEBB-JOHNSON.

Council Meeting

At a meeting of the Council of the College, held on May 10, with the President in the chair, Dr. R. A. Willis, who had arrived from Melbourne, was admitted as the first Sir William H. Collins Professor of Human and Comparative Pathology. The Hallett Prize was awarded to William Burnett, of the University of Aberdeen. The British Association of Urological Surgeons was added to the list of those specialist associations who enjoy the facilities of the joint secretariat at 45, Lincoln's Inn Fields.

Diplomas of Membership were granted to the 139 successful candidates whose names were published in the report of the meeting of the Royal College of Physicians of London in the *Journal* of May 5 (p. 647).

Diplomas in Medical Radiodiagnosis and in Medical Radiotherapy were granted jointly with the Royal College of Physicians of London to J. A. Ireland and L. M. Shorvon respectively.

Lister Medal

The Lister Medal for 1945, which is awarded in recognition of distinguished contributions to surgical science, has been granted to Sir Howard W. Florey, F.R.S., of the University of Oxford, for the outstanding importance to surgical science of his work on penicillin and its application. He will deliver the Lister Memorial Lecture later in 1945. This is the eighth occasion of the award, which is made by a committee representative of the Royal Society, the Royal College of Surgeons of England, the Royal College of Surgeons in Ireland, the University of Edinburgh, and the University of Glasgow.

UNIVERSITY OF GLASGOW

The King, on the recommendation of the Secretary of State for Scotland, has appointed Prof. William James Hamilton, M.D., D.Sc., to the Regius Chair of Anatomy at Glasgow University. After a distinguished career at Queen's University, Belfast, Prof. Hamilton went to Glasgow in 1930 as demonstrator of anatomy, and two years later was appointed lecturer. In 1935 he became lecturer at St. Thomas's Hospital Medical School, and since 1936 has held the Chair of Anatomy in the University of London tenable at St. Bartholomew's Hospital Medical College.

The Services

CASUALTIES IN THE MEDICAL SERVICES

Died.—Capt. James Alexander Harper, R.A.M.C.; War Subs. Capt. Clarence Wilfred O'Donoghue, R.A.M.C.

Missing, presumed killed.—Temp. Surg. Lieut. John Nairn Lennox, R.N.V.R.

Died of wounds.—War Subs. Capt. Thomas Joseph Seavers, R.A.M.C.

Medical Notes in Parliament

Alien Doctors

Answering Sir Walter Smiles on May 11, Mr. HERBER MORRISON reported that some of the foreign doctors admitte temporarily to this country had already returned. Others wer preparing to leave. He said the remainder still render valuabl service in this country, where, for the time being, there was a extreme shortage of medical man-power.

Sir WALTER SMILES suggested that, as numbers of Britis medical students had been sent to work in Europe, the Ministe should consider returning some foreign doctors to their nativ countries.

Control of Flies on Sewage Filter

On May 11 Sir JOHN MELLOR asked what reports th Minister of Health had received concerning the nuisance fro flies in the sewage filter beds of the Birmingham Tame and Re District Drainage Board. Mr. WILLINK replied that the mo recent report from the Drainage Board, received a little ove a week ago, was that the flies were not more numerous tha in recent years, though their emergence appeared to have bee accelerated by an early spell of warm weather. A group experts formed under the Department of Scientific and Indu trial Research in 1943 had directed extensive observations bo at the Drainage Board's works at Minworth and at a numb of other sewage disposal works. Much detailed informatic had been collected on the distribution and life history of fli in percolating filters and on their reaction to variations in suc factors as the composition and temperature of the settled sewa and the alternation of periods of operation and rest of t filters. Further investigation was in progress on the contr of the emergence of flies by chemical substances, and on alter tions in the construction and method of operation of filte The effect of treating the sewage at a greatly increased rate percolating filters was also being investigated. Measures we applied by the Drainage Board from time to time to allevia the conditions, including treatment of the sewage by gas liqu by salt, and by a number of chemicals, a large-scale applicati of bleaching powder and creosote, and an attempt to trap t flies by mechanical means. The problem was difficult, large because the larvae of the flies constituted an important eleme in the efficient operation of the filters. Control must therefo be restricted to the emergence of the adult flies without destro ing the biological life within the filters.

Poliomyelitis in the Army

On May 15 Sir JAMES GRIGG, replying to Mr. Rhys Davi said that the incidence of infantile paralysis in the Army sin the beginning of the war had not yet been worked out. T incidence of this disease was low, and from the general ma power viewpoint insignificant. Current statistics were not the fore maintained, and it would not be justifiable at present divert the limited statistical staff from more important wo to have this incidence worked out. It was, however, hop that details would eventually be published in the *Medical H tory of the War*. As the disease occurred in small spora outbreaks, and as the source and transmission of the vi were not yet known, it was not possible to say to what ext special preventive measures employed were responsible for cessation of an outbreak compared with, for example, natu or climatic conditions. No remedy for the disease as such known. The damage to the nerve cells attacked by the vi occurred at once and was irremediable. Once the infect process had been arrested, however, a very great deal co be done by physiotherapy and by orthopaedic surgery to educate partially affected muscles or muscles which deteriorated through inactivity. During the acute period i lungs were used to replace damaged respiratory muscles.

Tuberculosis Waiting List in Scotland

On May 15 Mr. MCINTYRE asked the Secretary of State Scotland how many patients suffering from pulmonary tub culosis were at present awaiting beds in hospitals in Scotl as a whole, and in Glasgow, respectively; and what steps proposed to take to bring an immediate end to this situati Mr. JOHNSTON in reply said that at March 31, 1945, 1, persons in Scotland suffering from pulmonary tuberculosis w awaiting admission to hospital. Of this number 1.142 were Glasgow. The Department had provided 758 beds from Government's Emergency Hospital Scheme, and the num of patients undergoing hospital treatment for pulmonary tu culosis in Scotland had already been increased by over 6 since the war began. Further beds could be made availa but there was a serious shortage of nursing staff and there w obvious difficulties in compulsorily directing girls to the serv

On this problem he was in constant touch with the Minister of Labour, and he hoped that this question and answer would draw public attention to the desirability of more volunteers being rapidly forthcoming for the nursing of tuberculous patients.

Availability of Penicillin

On May 15 Mr. SALT asked the Lord President of the Council whether he was aware that penicillin was now on sale at every drug store in the U.S.A. and was advertised for sale there as freely as cosmetics; and what steps it was proposed to take o ensure that in the early future facilities were provided in Great Britain for at least the partial development of British discoveries and inventions such as penicillin. Sir JOHN ANDERSON: It will be part of the responsibilities of the Department of Scientific and Industrial Research in the future o keep watch, with the help of other Departments, in specialzed fields such as medicine for promising results of British research which merit development in the national interest, and where such development appears to be lagging behind appropriate steps will be taken for its encouragement.

Mr. LEVY asked if the manufacture of this product was a monopoly in this country. Sir JOHN ANDERSON replied that he did not think there was any monopoly in the matter.

Deaths after Vaccination in Scotland.—Mr. JOHNSTON, replying to Mr. Viant on May 8, said that according to the records of the Registrar-General for Scotland two deaths were registered in 1943 as attributable to consequences of vaccination, the causes of death being post-vaccinal encephalitis and post-vaccinal myelitis, and the ges at death were 15 and 51 years respectively.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* during the week there was a general fall in the incidence of infectious diseases as follows: measles 2,884 fewer cases, whooping-cough 140, scarlet fever 75, diphtheria 0, dysentery 17.

Durham had 15 fewer cases of diphtheria, Glamorganshire 5, and Lancashire 14. In Lancashire notifications of whooping-cough fell by 37 and of scarlet fever by 58. The measles epidemic is subsiding in most areas of the country, and notifications were lower than last week by the following figures: Yorks West Riding 616, Surrey 264, Essex 263, London 243, Middlesex 202; there were increases of 189 in Kent, 79 in Cornwall, and 76 in Southampton.

For the second successive week there was a small decrease in the incidence of dysentery. The largest returns were Lancashire 54, London 51, Warwickshire 45, Gloucestershire 31, Kent 7, Hertfordshire 24, Yorks West Riding 21, Pembrokeshire 0, Staffordshire 20, Middlesex 17, Essex 14, Shropshire 14, Devonshire 12, Norfolk 11, Northumberland 11.

In *Scotland* whooping-cough notifications fell by 52 cases, those of diphtheria by 33, and those of dysentery by 15, while those for cerebrospinal fever increased by 12. Diphtheria is low at the lowest level for several months. Dysentery is still revalent, the largest returns being Glasgow 51, Edinburgh 39, Aberdeen Burgh 19, Dundee 11, Falkirk 10, Aberdeen County 10.

In *Eire* there was a fall of 31 in the notifications of diphtheria; 21 of the 73 cases were reported from Dublin C.B., and the other 52 involved thirty areas.

In *Northern Ireland* only 8 cases of diphtheria, a fall of 14, were notified. An increase of 16 was recorded for scarlet fever.

Scottish Vital Statistics

The preliminary review of the first quarter of 1945 shows a large fall in the birth rate, which was 16.9 per 1,000, the lowest ver recorded for a first quarter. The infant mortality was 68 per 1,000 births, and was the lowest rate for the first quarter of any year. The death rate, 14.6 per 1,000, was 0.7 above the rate for the corresponding quarter of 1944, but 1.9 below the five-years average. The marriage rate, 7.6 per 1,000, was .6 above the rate for the March quarter of 1944.

Typhus in P.O.W.

There are 8 or 10 cases of typhus or suspected typhus among prisoners of war returned to this country. The disease was contracted in Germany, and there have been no secondary cases. In any case of pyrexia of unknown origin practitioners should bear in mind the possibility of typhus.

Week Ending May 12

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,365; whooping-cough 99, diphtheria 413, measles 12,412, acute pneumonia 511, dysentery 343, paratyphoid 3, typhoid 4.

No. 18

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended May 5.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	50	7	30	1	1	72	6	25	2	1
Deaths		1	—				2	—		
Diphtheria	504	14	93	73	8	548	25	171	85	22
Deaths	9	—	4	1	1	12	2	1	1	—
Dysentery	469	51	173	1	1	259	30	91	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	1	—	2	—	—	4	—	1	—	—
Deaths		—					—			
Erysipelas			38	10	5			35	7	2
Deaths		1					—			
Infective enteritis or diarrhoea under 2 years				16					7	
Deaths	61	8	10	15	5	36	8	9	10	4
Measles*	13,139	815	355	68	21	2,035	213	454	166	11
Deaths	12	2	1	1	1	2	—	1	1	—
Ophthalmia neonatorum	62	5	14	—	—	98	3	23	—	—
Deaths										
Paratyphoid fever	7	—	2 (B)	—	—	4	1	14 (B)	2 (B)	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	518	27	8	2	3	680	49	2	4	2
Deaths (from influenza)	10	1	1	—	—	13	1	1	1	—
Pneumonia, primary			174	26				198	26	
Deaths		22		7	8		27		10	8
Polio-encephalitis, acute	1	—				2	—			
Deaths		—					—			
Poliomyelitis, acute	7	—	—	—	—	12	1	1	—	—
Deaths		—					—			
Puerperal fever		2	14		—		3	18		—
Deaths										
Puerperal pyrexia‡	116	11	19	2	—	151	11	12	1	3
Deaths		1					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,351	70	205	9	50	1,646	115	191	25	82
Deaths	1	1	—	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	3	1	4	6	1	5	—	3	19	2
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,050	46	149	52	23	2,432	247	187	43	13
Deaths	5	—	3	3	—	16	5	1	2	1
Deaths (0–1 year)	356	39	64	40	20	359	47	66	37	24
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4,280	568	589	244	130	4,233	635	571	183	133
Annual death rate (per 1,000 persons living)			13·4	15·7	§			13·1	11·9	§
Live births	6,376	666	854	399	276	7,211	869	1,002	563	294
Annual rate per 1,000 persons living			17·1	25·7	§			20·4	—	§
Stillbirths	190	11	35			234	26	32		
Rate per 1,000 total births (including stillborn)			39					31		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

The St. Cyres Lecture for 1945 will be delivered in the Barnes Hall of the Royal Society of Medicine (1, Wimpole Street, W.), on Wednesday, June 6, at 5 p.m., by Prof. J. Crighton Bramwell. His subject is "Coarctation of the Aorta." All members of the medical profession are invited to attend.

A general meeting of the Medical Society for the Study of Venereal Diseases will be held at 11, Chandos Street, W., to-day (Saturday, May 26), at 2.30 p.m., when "Treatment of Infective Arthritis, with Special Reference to Hyperthermia" will be discussed by Lieut.-Col. A. J. King and Majors C. S. Nicol, D. I. Williams, and J. Louden.

The meeting of the Nutrition Society to be held to-day (Saturday, May 26) at the London School of Hygiene and Tropical Medicine will be devoted to nutritional factors in wound healing. The chairman of the morning session will be Prof. H. P. Himsworth, and of the afternoon session Prof. J. R. Learmonth. Dr. D. P. Cuthbertson will open the discussion at 12 noon with a paper on dietary protein in relation to convalescence from injury. In the afternoon papers will be read on vitamin C and wound healing, the speakers including Drs. J. F. Danielli, H. B. Fell, E. Kodicek, P. D. F. Murray, and Geoffrey H. Bourne. Non-members are admitted to meetings of the society only by introduction of a member.

Mr. Eardley Holland's Chadwick Lecture on "The Importance of a Maternity Service in the Life of the Nation" (postponed from May 8) is to be delivered on Tuesday, May 29, at the Royal Society of Tropical Medicine and Hygiene, 26, Portland Place, W. Immediately before the lecture (at 2.15 p.m.) the Chadwick Prize of £100 and a gold medal is to be presented by the chairman of the Chadwick Trustees, Sir William J. Collins, to Surg. Capt. S. G. Rainsford, M.D., D.Sc., R.N., who will be introduced by the Medical Director-General of the Navy. Admission to all Chadwick Lectures is free, without ticket.

A meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine will be held at the R.A.F. Station, Halton, Bucks, on Friday, June 1, at 3 p.m., when an introductory address will be given by Air Marshal Sir Harold Whittingham, Director-General of Medical Services of the R.A.F. On the same day the combined summer meeting of the Sections of Laryngology and of Otology will begin at 1, Wimpole Street, W., at 10.30 a.m., with a demonstration of R.A.F. hearing tests for use in the selection of flying personnel. Papers will be read in the afternoon, from 2.30 p.m., and the combined meeting will continue its business on Saturday, June 2.

The Socialist Medical Association has arranged a meeting to be held at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., on Saturday, June 2, at 3 p.m., when Prof. J. A. Ryle will speak on "Health Problems of British India."

Lord Moran, P.R.C.P., will give an address on "Courage and Fear" before the Royal Institution (21, Albemarle Street, W.) on Friday, June 8, at 5 p.m.

The Association of Industrial Medical Officers has arranged a meeting at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., on Saturday, June 9, at 2 p.m., when private business will be discussed. At 2.30 p.m. Mr. S. H. Wilkes will speak on "Protection against Industrial Poisoning."

The January issue of the *Annals of Internal Medicine* is devoted to the epidemiology of acute respiratory infections conditioned by sulphonamides. The March issue of the *Journal of Pediatrics* contains a symposium on rheumatic fever.

Boots Pure Drug Company Limited announce that Sir Jack Drummond, D.Sc., F.R.S., chief scientific adviser to the Ministry of Food, has been appointed to the post of director in charge of the whole of the company's scientific research. Sir Jack Drummond has resigned the chair of biochemistry at University College, London, but will not take up his new appointment until the food situation has improved.

The freedom of the borough of Paddington was conferred last week on Sir Alexander Fleming, F.R.S., as a token of the high esteem in which he is held by the civic authority of the borough where he has carried out, at St. Mary's Hospital, his scientific researches and in which his discovery of penicillin was made.

From Dr. Ralph Pemberton, President of the Pan-American League against Rheumatism, Lord Horder has received a letter congratulating the Empire Rheumatism Council on the decision of the British Government to make, in post-war health policy, adequate provision for the treatment of rheumatic sufferers. Dr. Pemberton adds, "This will influence thought everywhere."

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to TH EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUAR LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiolog Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded f publication are understood to be offered to the *British Medical Journal* alon unless the contrary be stated.

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ANY QUESTIONS?

Lead Palsy

Q.—*Is there any explanation of the fact that the supinator longu muscle is not involved in radial nerve paralysis due to lead poisoning? Also, why are sensory nerve changes uncommon in this typ of poisoning?*

A.—The explanation is that the lesion in lead palsy is not in th peripheral nerve. Aub and his collaborators showed that the lacti acid liberated in muscles by their contraction leads in the presenc of lead phosphate to the precipitation of insoluble lead phosphate i the muscle cells, and selective muscular paralysis has been experimentally produced by fatiguing certain muscles. The conditio therefore is a toxic myopathy. In painters the extensors of th wrists and fingers, being most used, suffer most, and the supinato longus escapes.

Micturition

Q.—*In the erect posture the internal urethral orifice is situate in the most dependent part of the bladder. How can this be reconciled with the fact that in haematuria of bladder origin and i phosphaturia it is the urine which is passed at the end of micturitio which is most heavily blood-stained and most heavily laden wit phosphates respectively? One would expect deposits of blood o phosphates to be passed with the first fraction of urine voided. Wh is the explanation?*

A.—The probable though unproved explanation is as follows. A the bladder fills the base behind the inter-ureteric bar sinks an becomes the lowest part of the viscus; in this region, and partic larly to right and left of the middle line, debris tends to accumulat On micturition it is obvious that the urine most adjacent to th internal meatus is the first to be expelled. If a bladder is watch through a flushing cystoscope whilst it is being allowed to drain, will be seen that the superior part descends, the wall becomin convex into the cavity during this process. Thus the cavity gradually obliterated from above downwards—though of cour local contracture towards the mid-point also occurs. This mi point is the internal meatus, and when the bladder is almost emp the form of the cavity may be compared to the letter T, but o with the cross not horizontal. The stem represents the prostat urethra; the anterior part of the cross is the bladder lumen anteri to the meatus, and this is turned upwards; the posterior part of it the retromeatal region, and this is turned downwards. On cyst scopy the adjacent part of the bladder cavity lying behind the inte ureteric bar can be seen to be the last to empty. Stasis of contents may also be due to special fluid currents set up duri micturition, but so far as is known these have not been demonstrate

Erythrocytosis in Disease

Q.—*Erythrocytosis is said to occur in certain types of visce syphilis, and occasionally in pituitary basophilism. What is t explanation in each of these two disease processes?*

A.—Erythrocytosis has been described in a number of conditio in which there is enlargement of the liver and/or spleen—e. cirrhosis of the liver, tuberculosis of the spleen, and lymphadenom and visceral syphilis should probably be included in this group. T mechanism responsible for the erythrocytosis is not known, thou it is noteworthy that clubbing of the fingers may also occur. T explanation of erythrocytosis in pituitary basophilism is al unknown, and it has not been possible to reproduce the condition experimental animals.

Urticaria Again

Q.—*Are peptone injections of use in the treatment of urticaria?*

A.—Urticaria is usually considered nowadays to be an allerg manifestation due to a sensitivity on the part of the sufferer various drugs (aspirin, phenolphthalein, sulphonamides), enviro nental articles (feathers, dusts, animal hairs, powders, oils), foods r physical agents (heat, cold, light, friction). Formerly it was only onsidered due to a sensitivity to foods of protein origin, and when ood skin tests and dietary experiment and eliminations did not mprove the disorder, a protein product (peptone) was chosen for njection and given in increasing doses with the hope that it would ring about a non-specific desensitization. Now that the greater mportance of drugs, feathers, dust, animals, and physical agents s realized, their avoidance and specific desensitization offer a greater ope of cure.

Filtering Entamoeba histolytica from Water

Q.—*What type of filtration will remove cysts of Entamoeba istolytica from water?*

A.—I find this question a little difficult to answer. There is the ossibility that the questioner may be referring to the removal of ysts of *Entamoeba histolytica* either on a large scale, such as for ater supply, or on a personal or domestic scale. If the former, ny of the standard processes used for purification of water supplies, uch as sand filters worked at the rate of four inches per hour, the nore rapid mechanical filters, in which sulphate of alumina is used, r the Candy type of filter, would all be an efficient means of preenting the passage of cysts of *Entamoeba histolytica*. On the omestic scale any of the small filters, the basis of which is the use f infusorial earths, clays, porcelain, or combinations of porcelain ith clay, would be equally efficient. The efficiency of all these lters is mainly dependent on the pore size of the filtering material, nd the comparatively large size (5–20μ) of the cysts of *Entamoeba istolytica* makes it impossible for them to traverse an efficiently orking filter of any type.

Treatment of Inevitable Abortion

Q.—*What, in your opinion, is the best treatment for an inevitable bortion? I am frequently called to such cases and usually find an complete abortion with a very fair haemorrhage. Do you advise ttempting digital removal of the remains before sending to hospital r dilatation and curettage? Do you advise giving pituitary to these ses before removal of the debris?*

A.—For the uncomplicated case, put the patient to bed, protect e vulva with a sterile pad, give morphine or omnopon—partly to lieve pain and partly to allay anxiety—and allow the abortion to roceed without any local interference. The only indications for tive intervention are: (*a*) excessive bleeding, (*b*) infection, or) retention of part of the products of conception. In the last stance, and particularly if the whole placenta is retained, there is need for immediate exploration of the uterus unless haemorrhage r pyrexia supervenes. In the absence of such it is safe to wait ne or two days in the hope of spontaneous expulsion. During that ne pituitary extracts may be administered without risk—as they ay during the process of complete abortion or during operation r incomplete abortion. Oxytocin (5 units intramuscularly) is rhaps preferable to pituitrin.

Complete removal of all retained products of conception with y degree of certainty and safety requires digital exploration of the erus, the patient being anaesthetized and under hospital conditions. o carry out what would probably be a partial removal, before ansferring the patient, only increases the risk of infection and puts e patient to unnecessary discomfort; it is not very likely to allay eeding and might even increase it. Even vaginal examination ould be avoided if possible. It should be added that when the tient is exsanguinated and shocked blood or plasma transfusion ould be carried out before she is sent to hospital. Indeed the more serious cases of haemorrhage the whole treatment, cluding digital evacuation of the uterus, is probably best carried it without moving the patient from her home, but expert assistance d suitable equipment should be available.

Fibrous Nodules in Arthritis

Q.—*A patient with rheumatoid arthritis has several fibrous nodules the gluteal muscles. They are from 1/2 to 3/4 in. in diameter. ey are not tender in themselves but evidently transmit pressure to nder subjacent structures when the patient is in the sitting position. ft rubber pads strapped to the skin cause some relief but are fficult to keep in place. What treatment is recommended, and is y form of physiotherapy likely to be of use?*

A.—Fibrous nodules in the gluteal muscles are not common in eumatoid arthritis and are difficult to deal with; surgical removal worth consideration but is often difficult, and fresh nodules may pear in the same situations. It is most important to relieve essure and at the same time very difficult. I have not found any ysiotherapeutic methods helpful. Injection of iodolysin is somenes followed by disappearance of nodules in other parts, and a al would be justified. The injections should be made into the teal muscles in the vicinity of the nodules, with no attempt to nsfix them. After a few injections a long course of the same nedy should be given by mouth, with occasional intervals.

Vitamin B_1 for Neuritis

Q.—*Intensive treatment with vitamin B_1 is recommended for neuritis. Is it possible to do harm by excessive doses? What is the normal and what the maximum dosage?*

A.—It is doubtful if vitamin B_1 therapy is any more effective in the treatment of neuritis than the usual remedies, such as rest and physiotherapy, unless, of course, there is an underlying deficiency of vitamin B_1. It is possible to do harm by excessive doses. There is a delicate equilibrium between the metabolism of the B vitamins, and a massive dose of one has been observed to precipitate symptoms of a deficiency of one or more of the others. This was noted in 1941 by Sydenstricker (*Ann. intern. Med.*, 1941, **14**, 1499) and has been repeatedly confirmed. Large doses of vitamin B_1—e.g., 25 to 75 mg. a day parenterally—are recommended at first, and when the desired relief is obtained, maintenance doses of 3 mg. t.d.s. by mouth are given. Up to 100 mg. can usually be given in a single dose with safety, although in a few susceptible patients toxic effects with such dosage have been reported. If there is no improvement in a few days it is useless to continue treatment. Some source of the other B vitamins, such as brewers' yeast or wheat germ, should be prescribed as well if large doses of vitamin B_1 are given.

Addition of Sodium Citrate to Milk

Q.—*Sodium citrate is much used in treating babies and young infants to reduce the size of milk clots during digestion and in larger dose in urinary conditions. Is there any danger of alkalosis developing? If so, what are the maximum safe doses for (a) short and (b) long-continued treatment?*

A.—Assuming that the baby or young infant is normal, without vomiting or diarrhoea, and that sodium citrate is being added to the milk in the proportion of 1 to 2 grains for every ounce of *whole* milk, then there is no danger of alkalosis. (If the milk is boiled, as it should be, the addition of citrate makes very little further difference to the size of the clot or to digestibility, and is really no longer as useful a method as it was once thought to be.) In the treatment of urinary conditions there is certainly a danger of alkalosis—especially if sickness and diarrhoea are present. The value of alkaline administration in urinary infections lies almost entirely in producing a sudden change from an acid to an alkaline reaction in the urine. For this purpose, the usual adult dose of 30–60 grains of citrate two-hourly until the urine is alkaline, and then four-hourly for another 48 hours, can be adapted to a child's weight: i.e., a 7-lb. newborn baby gets 1/20 of a 10-stone adult's dose; an infant of 6 months gets 1/10 adult dose; and so on. On this short and sharp regime the danger of alkalosis is small.

Long-continued use of alkalis has surely now been replaced by sulphonamide treatment, and the last part of the question does not really arise. If big doses *are* used for more than a few days, the plasma bicarbonate should be estimated. It should be remembered that citrates act precisely as carbonates or bicarbonates in the tissues, and are therefore just as likely to cause alkalosis. Their merit is that they do not neutralize gastric juice and are said, therefore, not to produce as much digestive upset. If free diuresis occurs with citrate therapy, as it should, there is a risk of chloride loss, which predisposes towards alkalosis. Long-continued use of citrates should, therefore, be accompanied by a daily dose of sodium chloride—again based upon an adult dose of 120 to 240 grains daily.

INCOME TAX

Storage of Car during Active Service

R. M. ceased civil practice on joining the Forces. Circumstances have required him to lay up his car (so that it may be available for professional use after demobilization) at a cost of £12 a year. Can he claim any deduction for that expense?

*** The Income Tax Acts do not provide any *general* provision for the allowance of expenses; they proceed by defining certain classes of income liable to tax and then providing for the deduction of expenses in assessing the incomes. Thus deductions are permitted for repairs in the Schedule dealing with income from property, for necessary expenses in Schedule E, for ordinary current expenses in Schedule D, etc. R. M. is in this difficulty—the £12 a year expenditure is not incurred in connexion with any income for *which he is assessed*; it is incurred to keep in stock, so to speak, an asset for use in the future. We are not aware of any provision in the statutes on which he can base a claim to have it treated as a subject for allowance against the tax he suffers on his official pay or on any other income he may have. He has a right of appeal against the assessment of tax on his pay, which he can exercise by giving notice to the War Office Assessor of his wish to do so. But it seems to us hopeless to contend that the £12 in question is expended wholly, exclusively, and necessarily in performance of his duties as an officer in the R.A.M.C., and that is the proposition he would have to substantiate. (In the case quoted by R. M. the owner of the car was continuing to carry on his civil practice.)

LETTERS, NOTES, ETC.

Unilateral Flush after Food

Dr. F. PARKES WEBER (London, W.1) writes: The case so interestingly discussed under the above heading among "Any Questions?" (May 12, p. 687) resembles the "auriculo-temporal syndrome," except for its extreme mildness and for the fact that it is not connected with scarring in the parotid region. In fully developed examples of the auriculo-temporal syndrome the flushing at the side of the face on eating is accompanied by local sweating. The exact mechanism of the autonomic nervous disturbance which causes the remarkable flushing and sweating on eating is not absolutely certain, but apparently in cases like the one under discussion there is some *developmental* peculiarity in the local autonomic nervous apparatus which causes a disturbance similar to, but less severe than, that caused by the parotid scars in true cases of the auriculo-temporal syndrome (F. P. Weber, *Med. Pr.*, 1944, **211**, 199).

Musculospiral Palsy

Mr. A. R. PARKES, F.R.C.S.Ed. (Glasgow) writes: In the issue of April 14 there is a paragraph entitled "Musculospiral Palsy." Surely the answer to the question is that the patient would seem to have had a partial lesion of the *ulnar* nerve, probably a transient physiological block. The symptoms described are far more consistent with interruption of conduction in the ulnar nerve than in the radial. Moreover, it is more common to get pressure on the ulnar nerve (in the forearm) than on the radial when sitting in a deck chair.

*** Our adviser writes: It is true that an ulnar palsy causes semiflexion of the ring and index fingers, but the patient with an ulnar palsy does not usually complain that these fingers "get in his way," because there is hyperextension at the metacarpo-phalangeal joints. In the case reported the patient also complained that he could not strop his "cut-throat" razor because "he could not turn it over"—i.e., supination of his forearm was also weak. The supinators are supplied by the musculospiral, and only a musculospiral lesion could cause weakness of supination and inability to extend the ring and little fingers.

Portraits of William Harvey

Mr. WILSON STEEL, Sub-Librarian, University of Glasgow, writes: My attention has just been drawn to the article in your issue of Nov. 18, 1944 (p. 669), in which Mr. Geoffrey Keynes deals with the portraits of William Harvey. May I point out, a little late in the day perhaps, two matters of fact upon which Mr. Keynes has gone wrong. Talking of the portrait in the Hunterian Collection in the University of Glasgow he says that the landscape background contains "many buildings, the two most conspicuous of which can be identified as probably the dome of the old College of Physicians and Trajan's Column," and adds that the Roman association has "no particular relevance to Harvey." In point of fact the background of the portrait is simply a view of Rome and not a composite landscape dictated by the artist's fancy. The dome adjacent to Trajan's column is easily identifiable as belonging to the Church of S. Maria di Loreto and not as that of Wren's old College of Physicians, to which it has not the faintest resemblance. In the matter of relevance we learn from the *Dictionary of National Biography* that Harvey visited Rome in 1636 and dined at the English College on Oct. 5 of that year.

Diet and Dental Health

Dr. A. LIVINGSTONE (Southampton) writes: I have read with the greatest interest recent articles in your journal and in others which at first sight "debunk" the value of vitamin C in preventing or curing gingivitis. In *Nature* for June 17, 1944, there is a letter pointing out the essential need for manganese in the diet so that the body may make or utilize (or both) vitamin C. This leads me to observe that, as has so often been pointed out, our grandmothers were right; when their dentures gave them sore mouths they sucked a lump of alum, preferably "iron alum," from the ironmonger's. ("Iron alum"—Potassium ferric sulphate. Pale violet crystals, efflorescent in dry air. *Practical Chemistry*, Bruce and Harper, London, 1911.) These alums probably contained traces of manganese as an impurity (*Pharmacopeia*, White and Humphrey, London, 1909). Ingestion may have enabled the old ladies' digestive tract, especially in the region of the jejunum, to make or utilize vitamin C; the sore mouth was really subliminal scurvy. Further, there appears now to be a distinct cycle of events. Boils and "colds on the lip" are, certainly in this neighbourhood, becoming very frequent. The shortage of fruit and consequently of vitamin C, the shortage of potassium and manganese in crops grown on soil old and tired and certainly short of these elements, are leading to a sugar intolerance, the pancreas being disturbed through lack of vitamin C. Tooth structure is affected as shown by caries rapida. No attention appears to have been paid to the tooth pastes used by the Forces. Some considerable clinical experience, borne out by others of my profession, shows that the tooth pastes containing "ricinoleate" in very many cases profoundly irritate the gum margins: in many cases they appear to cause an allergy. I have been informed by a senior officer of the W.R.N.S. that the only tooth paste that was available in the nearest canteen for some time contained "ricinoleate," and practically every one of the girls had inflamed and bleeding-gums, which did not respond to treatment with vitamin C There is also a clinical slow deterioration in the normal condition of the gums after the long-continued use of tooth pastes containing borates and perborates. I understand that boric acid inhibits the growth of cells and tissues, and it is forbidden to add it as a preservative to foodstuffs. In tooth pastes it appears to lead to failure to replace the epithelium of the gums, which become excessively thin and bleed on the slightest touch; even chewing food will cause haemorrhage, as in serious cases where "ricinoleates" are used. Would it not be possible for the Ministry of Health to issue a formula for common table salt containing a sufficient supplement of the trace elements? Lastly, the following is a formula for a tooth powder which gives traces of potassium if not rinsed away after the surplus has been spat out: sod. bicarb. ʒij; calc. carb praecip. ʒij, pot. chlorate ʒij, sod. chloride ʒij, ol. limonis m x I am much obliged to Mr. Graham Clift for helping to run the "iron alum" to earth.

A Prolonged Case of Pulmonary Tuberculosis

Dr. JOHN J. LAWS writes: Pulmonary tuberculosis is notoriously variable in its course. While many cases terminate fatally after a longer or shorter period, others are more chronic; and still others heal with fibrosis, leaving scars still visible at necropsy many years after. Even the most chronic cases, however, tend to go one way or the other in course of time, so that it may be of interest to give some account of a case in which the disease still showed mild activity when the patient died of senile changes at 90, it having been present for at least 24 years, and probably more than twice tha time. The patient entered a mental hospital at the age of 66, suffering from persecutory delusions. These did not markedly affect hi general conduct, and he was able to lead a fairly reasonable institution life, often in parole villas. He had—on admission—a histor of having had treatment for pulmonary tuberculosis in different hospitals for many years. One of his chief symptoms had been intermittent haemorrhages—the first 30 years before. So that one can probably assume an age of onset somewhere between 35 and 40 His story after admission was very similar to that before: occasional bouts of cough and pyrexia, and haemoptyses at irregular intervals These, though never very copious, were usually severe enough to warrant a period of rest in bed. Physical examination revealed signs of a chronic right-sided lung lesion. At no time were tubercle bacilli found in his sputum, though search was frequently made X-ray examinations during his 16th and 22nd years in hospital confirmed in general the physical findings—"Fibroid tubercle bot apices—especially right." At post-mortem there was a small are of fibrosis at the right apex containing several small cavities—none larger than a small bean. At the base of the right middle lobe there was a slightly more active lesion—one or two cavities fille with stiff caseous material. A further small fibroid lesion was present at the left apex. No other tuberculous lesions were found; but th heart and kidneys showed marked arteriosclerotic changes, the latte especially being very shrunken and contracted. Microscopic examination of sections from the most active-looking pulmonar lesions showed a typical tuberculous reaction, with giant cells and scattered acid-fast bacilli. I wish to thank Dr. F. G. L. Barne medical superintendent of Long Grove Hospital, Epsom, for permi sion to publish this case.

Epilepsy and Menstruation

Surg. Cmdr. H. LOVELL HOFFMAN, R.N.V.R., writes: I note that th induction of an artificial menopause in so-called "menstrual epilepsy was recently mentioned in the *Journal* ("Any Questions?" March 1 p. 396). I have no detailed notes, but I remember one of n patients who was so treated. This woman assured me that she never experienced fits except in association with menstruation. She ha always been free of attacks during her pregnancies. As she wa aged about 34 and had several children it was decided, after consultation with a gynaecologist, that the production of an artifici menopause was justified and this was carried out with radium. Th periods stopped and so did the fits, the patient being delighted wi the result. Some months later she informed me that she had ha but one slight seizure while mildly intoxicated at Christmas! Th menopause was not permanent, and both periods and fits gradual returned. As I left the hospital shortly afterwards I unfortunate lost touch with the patient. In many women fits occur more ofte just before or just after menstruation, but there are also attacks other times. It is rare to see a case, such as that quoted, in which fits occur only in association with the periods. If the relationsh is less definite or other obvious factors, such as age and number of children, are not so favourable, I doubt if this method of treatment is justified.

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CLINICAL FEATURES OF THE POLIOMYELITIS EPIDEMIC IN MALTA, 1942-3

BY

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AND

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In Nov., 1942, when the siege of the islands had just been raised, Malta and its small neighbour Gozo were still further stricken by a serious outbreak of poliomyelitis, the first of any note in their history. Between Nov. 15, 1942, and the first week in June, 1943, there were 426 cases in the civilian population, almost all in children under the age of 5 years (Fig. 1).

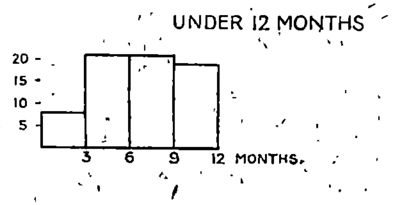

FIG. 1.—Diagram showing the age incidence of cases.

At the same time 57 Service cases occurred, the victims being without exception men from the United Kingdom. The epidemiology of the outbreak has been discussed elsewhere by Seddon, Agius, Bernstein, and Tunbridge (1945). Bernstein, Clark, and Tunbridge describe the clinical features of the Service cases in this issue, at p. 727; the present paper is concerned with those of the civilian outbreak.

The occurrence of such an epidemic in a community where conditions are otherwise normal is no light matter. In a small island that had been subjected to prolonged and ferocious aerial bombardment, and that had hardly recovered from a food shortage verging on famine, the provision of adequate accommodation and treatment for over 400 cases of poliomyelitis was a task requiring exceptional resourcefulness and determination. Satisfactory accommodation was found within a remarkably short time in the new but uncompleted Government hospital (now known as St. Luke's), though for several months there was a shortage of equipment and of physiotherapists. Improvised wooden splints for the legs and calico slings for the arms were applied under the direction of Prof. E. Debono, and the supervision of these small children was so strict that a complete review of all cases made in March and April, 1943, revealed only two in which there was very slight contracture. While the epidemic was in progress there was insufficient time for taking detailed histories of onset; furthermore, at that time many of the mothers were so distraught that it was impossible to obtain coherent stories from them. During February and March, when the state of emergency was coming to an end, one of us obtained detailed histories of onset in all except a very few cases. This information, together with the shorter notes made at the time of admission, gives a fairly clear picture of events during the active phase of the disease. In the spring of 1943 all but five of the survivors were re-examined and the muscle power charted according to the system of notation recommended by the Peripheral Nerve Injuries Committee of the Medical Research Council. This work was most laborious. In older children accurate muscle examination requires time and patience; in infants it is exceedingly tedious, and the results cannot always be regarded as strictly accurate. In every case of doubt a low rather than a high grading was given, and it may well be that the effects of this epidemic will prove less serious than the original forecast suggests. By early March, 1943, only 160 children were in hospital; in the case of out-patients living in towns remote from St. Luke's Hospital the detailed examinations were made at district dispensaries and, as a last resort, in the homes of patients whose parents lacked the means or the inclination to bring their children to a clinic. Under such conditions accurate work was not always possible.

Clinical Features of the Acute Disease

Onset

In some cases the illness was so mild that during the acute phase the child was not put to bed at all; indeed, the symptoms were often so vague that the disease was completely overlooked. In others it was mistaken for some other condition such as paralytic chorea, diphtheria, or meningitis. However, close questioning usually elicited a history of some general disturbance. In a few cases the onset was very acute, with convulsions that seemed to threaten life; it is probable that this was the state of affairs in the case of three patients who died at home. The duration of the acute illness varied between 1 and 17 days, though in most cases the general disturbance lasted for not more than four days. The detailed figures are as follows:

In 59 cases	duration 1 day	In 9 cases	duration 8 days
„ 73 „	„ 2 days	„ 5 „	„ 9 „
„ 55 „	„ 3 „	„ 9 „	„ 10 „
„ 46 „	„ 4 „	„ 1 „	„ 11 „
„ 18 „	„ 5 „	„ 4 „	„ 12 „
„ 16 „	„ 6 „	„ 1 „	„ 13 „
„ 17 „	„ 7 „	„ 8 „	„ 14–17 days

In 10 cases there was no systemic disturbance.

Fever

Out of 396 cases 245 were pyrexial at some time during their illness, there being low fever (below 101°) in 159 and high fever (above 101°) in 86 cases. Rigors were observed in 18 cases. It is probable that fever was present in a greater number than is indicated by these figures, but our information is incomplete. The duration of fever varied; in 159 cases it lasted for not more

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than 24 hours, which leads us to suspect that it passed unnoticed in many more. In 56 cases the duration was 2–3 days; 7 cases, 3–4 days; 11 cases, 4–5 days; 12 cases, more than 6 days. Twenty children were afebrile throughout. In a few cases the febrile disturbance disappeared, to reappear at about the time when paralysis developed. The febrile disturbance was present usually at the onset of the disease, though in a few it developed after the paralysis had appeared.

Pain

In view of the youth of most of the patients it is difficult to give the actual incidence of pain, and it may well be that the figures presented here are rather too low. In the very young pain manifested itself in various ways. A child would refuse to have his napkin changed, resented fondling or handling of any kind, and wished to be left alone. In several cases the child would not tolerate being bathed. In one case the mother noticed the child scratching the limb which later became paralysed; there was no local skin lesion. In two cases children complained of a pricking sensation in the limb about 48 hours before the development of paralysis.

The site of pain did not as a rule correspond with the distribution of the subsequent paralysis. For example, pain in the back was followed by facial or deltoid paralysis; pain in the face by paralysis of the lower limbs; pain in one lower limb by paralysis of an upper limb; pain in one lower limb by paralysis of both; and pain in the shoulders by facial palsy. In one case severe orbital pain was followed by paralysis of one lower limb. In another, suprasternal pain was followed by difficulty in swallowing, then by facial palsy. Headache occurred in 72 cases, and was unassociated with any particular kind of paralysis; the cases of cranial nerve palsy were usually unassociated with headache. Pain occurring in a limb which subsequently became paralysed was observed in only 28 cases.

The severity of the pain did not correspond with the extent or severity of the subsequent paralysis. Indeed, many children who complained bitterly of pain escaped with less paralysis than those who did not. In one case pain was severe for three days and nights; both lower limbs became paralysed and yet recovered completely. In a few cases the pain was recurrent and of short duration; in one it moved from limb to limb in a manner that was suggestive of acute rheumatism. On the whole pain was not an outstanding feature in this epidemic. In 96 cases the child cried intermittently as if in distress, and in 57 the crying was no more than a whine or a whimper. In 56 cases the pain was limited to one part of the body, and in 28 it appeared in the part which later became paralysed. Sixty-six children seemed to be sore all over and greatly resented handling; but this was the nearest approach to the characteristic muscle tenderness in acute poliomyelitis that was seen.

Nervous System

(*a*) *Somnolence* was noticed in 150 cases, and in some it was pronounced, the child having to be wakened for his feed, perhaps only to fall asleep again during the course of it. Many of the babies were extremely lethargic. Some children slept at unusual hours or were late in waking up. During the period of sleep or drowsiness a number of children (107) exhibited jerking movements, which were the occasion for considerable alarm. One hundred children had restless nights, though this feature corresponded fairly closely with the incidence of fever. In 6 cases there was a reversal of the sleep rhythm, the child sleeping by day and being restless at night.

(*b*) *Delirium* was noticed in only 20 cases, and occurred generally at night; 13 children had convulsions. Four children lost consciousness for periods of up to 12 hours.

(*c*) Seven children and one adult complained of *vertigo;* one child said repeatedly that he felt like a drunken man, and an adult made a similar complaint. Another child complained that the bed was spinning round, and said he felt dizzy and was going to fall; the vertigo was accompanied by vomiting. In two cases vertigo was aggravated by changing the child's position in bed or by raising the head from the pillow. In one of the cases of vertigo there was a cerebellar disturbance. One child could not tolerate street noises.

(*d*) *Stiffness of the back* was remarkably infrequent; it was observed in only 7 cases. Spasmodic contraction of muscles followed by paralysis occurred in only one case. Tremors and involuntary movements were present in 7.

(*e*) Thirty-eight patients were very *irritable,* even to the extent of throwing things at those who attended them; in 22 cases there was a noticeable change in temperament. Two patients were extremely apprehensive; one of them—the adult who died—was sure long before the end that his illness would be fatal. A rather similar fear seemed to be present in the minds of other children, who complained bitterly when left alone.

(*f*) *Loss of speech* occurred in 6 cases, in three of which there was facial palsy; one child in this group presented typical cerebellar symptoms and signs.

(*g*) *Twitching of the eyelids* was noticed in 11 cases, and strabismus in 2. One case developed bilateral ptosis. Nystagmus was not seen in any of the cases.

(*h*) *Paralysis.*—Except in the 10 cases in which there was no general disturbance it was difficult to determine the exact date of onset of the paralysis; the child was already ill, perhaps in bed, and neither the parents nor the child could say when the diminution in muscle power started. In addition to these 10 cases there were 9 in which a general disturbance followed the paralysis. In most cases the paralysis appeared fairly soon after the onset of the general disturbance; in dealing with such young children it was, unfortunately, impossible for us to be more precise. There were, however, several interesting exceptions. In 12 cases the paralysis developed a number of days after the general disturbance was over, when some children were actually going about again; in 10 the paralysis came on when the child had been up for two days, and in 2 it did not appear until after two weeks. In 13 cases there was, similarly, a general illness followed by apparently complete recovery; then there was a second period of malaise, at the end of which paralysis developed. One case was especially dramatic. A child was ill for a few days, and apparently had recovered completely; eight days later he was taken ill at 3 p.m., and 11 hours later died of respiratory paralysis. It is of course possible that the initial disturbance was not due to poliomyelitis, and it has recently been suggested that certain infections, particularly of the intestine, pave the way for entry of the virus by the alimentary portal.

In a number of cases there was an initial weakness of the limbs, which appeared to be of a temporary nature but later gave place to severe and long-standing paralysis. The weakness was revealed by unsteadiness, with frequent falls, which was often present for some time before the appearance of frank paralysis. In no instance was there an irregular spread of paralysis affecting one limb after another. In three cases the paralysis was ascending and fatal.

The results of examination of the cerebrospinal fluid will not be enumerated, as although lumbar puncture was performed on most cases admitted to hospital the information gained was of no special interest.

A number of children were vaccinated against smallpox or received injections for one reason or another a short time before the onset of poliomyelitis. The four vaccinated cases were inoculated at the usual site in the upper limb, and the subsequent paralyses were as follows: (*a*) vaccination in left upper limb—paralysis of same limb; (*b*) vaccination in left upper limb—paralysis of right upper and both lower limbs; (*c*) vaccination in left upper limb—paralysis of left lower limb; (*d*) vaccination in left upper limb—paralysis of face, left upper and lower limbs. One child was receiving intramuscular injections for whooping-cough; both upper limbs had been injected, and he developed paralysis in one. Five children were receiving antimony compounds intravenously or intramuscularly for leishmaniasis, but in no case could the site of injection be correlated with that of the subsequent paralysis. There is therefore no conclusive evidence that the virus was accidentally introduced by injection.

Alimentary and Respiratory Systems

Anorexia was almost constant, and 12 children complained particularly of thirst. Salivation unrelated to teething was noticed in 14 cases; it was not followed by one form of paralysis rather than another. Dysphagia was present in 5 cases. Vomiting occurred mainly at the onset of the illness, and was observed in 117 cases; it occurred only once in 99, twice in 11, three times in 2 cases, and repeatedly in 2 others. Late and persistent vomiting occurred in 4, retching and vomiting in 3 cases, the retching being a marked feature throughout the acute phase of the illness; retching in the absence of vomiting occurred in 4 cases. Abdominal pain without difficulty in micturition was noticed in 42 cases; it was never persistent, and was easily relieved by hot fomentations; 108 children suffered from constipation—usually obstinate and relieved with difficulty; diarrhoea was present in 5 cases, diarrhoea and tenesmus in 1 case.

An initial coryza was noticed in 80 cases, 6 children had sore throats, and in 28 a cough was present; hoarseness of the voice or cry was observed in 4 cases.

Urinary System

Several children suffered from retention of urine; in other cases the child took a long time to start or complete the act of micturition. In only one case was catheterization necessary.

None of the visceral symptoms that have been described were apparently due to local disturbances, and it was therefore not unreasonable to regard them as manifestations of the ingravescent disease; it was of interest, perhaps of importance, to determine whether symptoms referable to one particular system or body level were followed by paralysis of characteristic distribution. The results of this inquiry were as follows:

	Cases
Gastro-intestinal symptoms followed by paralysis of	
Face	10
Lower limbs	108
Face and lower limbs	2
Upper limbs	16
Respiratory symptoms followed by paralysis of	
Face	2
Upper limbs	5
Lower limbs	50
Gastro-intestinal and respiratory symptoms followed by paralysis of	
Upper limbs	6
Lower limbs	26

Difficult micturition was followed indifferently by paralysis of the upper or lower limb.

Thus it may be concluded that there is no obvious relation between the mode of onset of the disease and the distribution of the subsequent paralysis.

Oedema of the eyelids was a presenting sign in 2 cases; both were sent in with a diagnosis of nephritis, and in neither was any evidence of kidney damage detected subsequently. In 3 cases swelling of joints was an early but transient phenomenon.

Causes of Death

Fifteen patients succumbed to the disease, death being due to respiratory paralysis in 14 and to convulsions in 1; death rate, 3.5%. Twenty-three children died from intercurrent disease, the actual causes of death being the same as those commonly found in the 0–5 years age group in Malta. It is possible that in several cases the paralysis was a contributory cause of death, but even if all fatalities are included the total death rate of 9.0% is not high in an epidemic of some magnitude; it has been suggested elsewhere (Seddon *et al.*, 1945) that this is evidence in favour of the virus being native to Malta rather than imported from another country. By contrast, the death rate among the Service cases was 19.3%, all but two of the fatalities being due to respiratory paralysis; two late deaths were attributed to cerebral anoxia.

Distribution of Paralysis

The original distribution of paresis or paralysis in all the cases is shown in Table I. It will be noticed that the lower limbs alone were affected in 219 cases (51%), and in association with paralysis of other regions in 120 cases, bringing the total of lower-limb paralyses to 339 (79.5%). The upper limbs were involved alone in 45 (10.5%), and with others in 50; cases with upper-limb paralysis thus total 95 (22.3%). The abdominal and spinal muscles were affected in 102 cases (23.9%); all except four had paralysis elsewhere. Facial paralysis occurred in 47 cases (11%); 29 of them showed no other abnormality. The spinal segmental involvement is shown in Fig. 2.

TABLE I.—*Distribution of Muscular Paresis or Paralysis (426 Cases)*

Lower limbs	57
One lower limb	162
Lower limbs; abdominal and spinal muscles	40
One lower limb; abdominal and spinal muscles	33
Upper limbs	3
One upper limb	42
One upper limb and one lower limb	16
One upper limb and both lower limbs	7
Both upper limbs and one lower limb	1
Both upper limbs and both lower limbs	1
One upper limb and both lower limbs; abdominal and spinal muscles	12
Upper and lower limbs; abdominal and spinal muscles	8
One upper limb and one lower limb and spinal muscles	2
One upper limb; abdominal and spinal muscles	3
Abdominal and spinal muscles	4
Facial muscles	29
Generalized weakness	6

NOTE.—Facial paralysis occurred in 18 cases with paralysis elsewhere, so that the facial muscles were affected in 47 cases, or in just over 11% of cases. The sixth cranial nerve was involved in two cases in association with paralysis of the lower limbs. One of these also had a facial palsy. The incidence of respiratory paralysis is not shown; there were 15 cases among the 426.

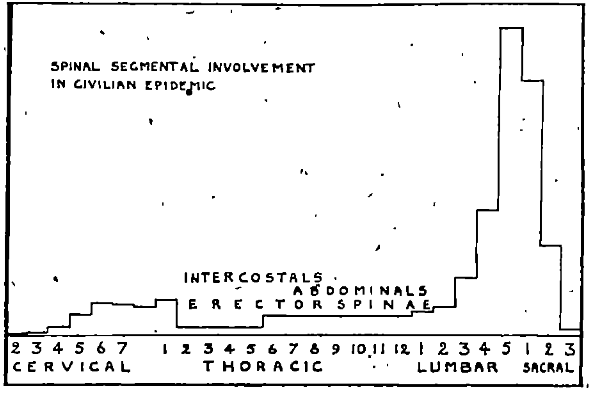

FIG. 2.—Spinal segmental distribution of paralysis in civilian cases, showing great lumbo-sacral predominance. (Reproduced by courtesy of the Editors of the *Quarterly Journal of Medicine*.)

Treatment

At first the only physiotherapists available were one masseuse and one voluntary assistant. An after-care sister from the Wingfield-Morris Hospital, Oxford, went out with one of us (H. J. S.) at the end of Feb., 1943, and remained in Malta until the end of August. The Army generously permitted the masseuse in charge of the military cases to spend nearly half of her time at the civil hospital, and thus, with the assistance of junior medical officers and V.A.D.s who were given special courses of instruction, it was possible to build up a physiotherapy service which, although admittedly inadequate, was entirely effective in preventing deformity and in providing muscle re-education for such children as were old enough to co-operate. In spite of the language difficulty it was remarkable how intelligent youngsters of 3 or 4 could be taught to carry out exercises appropriate to their individual needs.

Since most of the children were under 5 years of age plaster-of-Paris proved unsuitable for splinting the lower limbs. It was necessary to provide durable splints that would not rust. Thanks to the generosity of Air Vice-Marshal Sir Keith Park, the Air Officer Commanding, we were able to obtain sheet duralumin, from which simple but very effective splints were made. They were even lined with spongy rubber sheeting salvaged from German aircraft. For cases of paralysis of the trunk muscles Bradford frames made of gas-piping were used, the patient being supported by canvas slings and held securely by a linen jacket. Owing to the pressure of work we had at first to be content with plaster-of-Paris and light wire splints for use in paralysis of the upper limb.

The provision of a swimming-pool was not thought to be desirable. It would have been available for only a limited number of patients, it would require an abundant supply of water and fuel—there was a shortage of both—and it would have been necessary to install some form of water-disinfecting plant. Scabies and impetigo were rampant at that time. A suspension apparatus was nearly as satisfactory. Five of these appliances were made, being constructed in such a way that they could be taken to pieces and transported to a clinic by car. The woodwork was done by the carpenter at St. Luke's Hospital, and the springs and other metal fittings were supplied by Col. H. D. Tanner, of the Royal Engineers.

It was estimated that at least 150 children would require some kind of permanent apparatus. A workshop for the supply of "irons" is now in being; the materials necessary for making a start were sent out by the Crown agents, with a supply of boots, of which there was until recently an almost complete dearth.

Recovery

Table II shows the recoveries that were complete by Sept., 1944, while in Table III are details of the recoveries in the cases that still show signs of paralysis of another part of the body.

TABLE II.—*Complete Recoveries*

Distribution of Paralysis	Recovered Within (Months)									Total
	1	2	3	4	6	9	12	15	21	
Lower limbs	2	4	17	1	1	2	1			28
One lower limb	2	6	30	2	1	4	9		1	55
Lower limbs; abdominal and spinal muscles			3		2	3	1			9
One lower limb; abdominal and spinal muscles	1	1	3		2	2	1			10
Upper limbs			1							1
One upper limb	1	4	9			1	4			19
Upper and lower limbs; abdominal and spinal muscles					1					1
One upper and one lower limb	1		1							2
One upper and both lower limbs			1				1			2
Facial muscles	4	3	13				1			21*
Abdominal muscles ..			1					1		2
Generalized weakness ..		2								2
Total	11	20	79	3	7	12	18	1	1	152

* Four other cases of recovery from facial paralysis are not specified in the able but are included among those which recovered from paralysis elsewhere.

TABLE III.—*Partial Recoveries*

Recovery of	Within (Months)									Total
	2	3	4	6	9	12	15	18	21	
Lower limbs		2								2
One lower limb		2	4	3		5	1			15
Upper limbs	1									1
One upper limb	2	1				3		1	1	8
Lower limbs and spinal muscles				1	1					2
One lower limb; abdominal and/or spinal muscles		1		2	4	3				10
One upper and one lower limb								1		1
One upper limb; abdominal and/or spinal muscles						3				3
Abdominal and/or spinal muscles			1	3	7	18	4	1		34
Facial muscles	2	3				1				6
Face and one lower limb ..							1			1
Face; one upper and one lower limb						1				1
Face; upper limbs and spinal muscles						1				1
Total	5	9	5	9	12	35	6	3	1	85

Of the 388 survivors 152 (39.2%) made a complete recovery within 21 months (Table II); and of the 152 about two-thirds (110) recovered within the first three months—which happened to be the period when the provision of physiotherapy was very meagre. This early and unassisted recovery cannot be explained in terms of axonal regeneration; it must represent the return of function in comparatively normal anterior horn cells whose activities had been merely suspended by the disease. There is another peak in the 9–12 months period, when 30 more cases made a complete recovery; but the table suggests that in spite of adequate physiotherapy, such as became available four months after the outbreak of the epidemic, there is not much to be hoped for in the cases still paralysed after 12 months unless a still later peak is found indicating recovery due to axonal regeneration. It may well be that the 30 cases that recovered in from 9 to 12 months were those in which deliberate muscle re-education was required to complete the restoration of function. A more recent, though admittedly incomplete, review of the cases in Jan., 1945, 26 months after the outbreak of the epidemic, is not encouraging; there have been no spectacular improvements since the twelfth month.

The main peak of partial recovery in the cases which still show some paralysis (Table III) was between 9 and 12 months, which suggests that in the more severely paralysed patients physiotherapy may play an important part in bringing about such recovery as occurs.

No fewer than 102 patients suffered from abdominal or spinal paralysis, or both, usually in association with paralysis of other parts of the body. Fortunately only 21 patients have failed to recover good power in the abdominal and spinal muscles, and it is to be hoped that the incidence of structural scoliosis will be low.

The high incidence of facial paralysis—47 cases—was a remarkable feature of the epidemic; in 10 some degree of paralysis is still present and the prognosis must be regarded as bad. In the 29 cases in which there was no associated paralysis the diagnosis of poliomyelitis was based on (1) the absence of other causes, (2) the presence of the same kind of general disturbance as was observed in children suffering from paralysis of the limbs, and (3) the occurrence of the facial paralyses during the epidemic period. The recovery rate was much the same in those cases in which other parts were paralysed as it was in those in which facial involvement occurred as an isolated phenomenon.

A Plan for the Future

It was suggested to the Secretary of State for the Colonies and to the Malta Government that an orthopaedic service should be established to provide not only for the long-term care of the victims of the epidemic but for cripples of every kind. This proposal was received with enthusiasm, and in July, 1943, two more masseuses from England went out to Malta, where, under the guidance of Prof. P. P. Debono, professor of surgery in the Royal University of Malta, they established a physiotherapy department at the Bugeja (Central) Hospital in addition to taking over the work already started at St. Luke's. It is planned to train several Maltese girls at physiotherapy schools in this country, and during their time of training and for some time after they return to Malta the physiotherapy staff will be augmented by two more physiotherapists sent out from Britain.

Mr. A. J. Craig, a Maltese surgeon with experience of general and orthopaedic surgery in this country, has recently been appointed to take charge of orthopaedics in the Maltese Medical Service: he is now organizing his department, and has also been proposed for the post of Lecturer in Orthopaedics in the Royal University. The junior surgeon who was placed in charge of the cases of poliomyelitis from the time of the epidemic until Oct., 1944, is now in this country gaining further experience in general and orthopaedic surgery. In due course he will return to Malta as assistant orthopaedic surgeon. The orthopaedic workshop will form part of the permanent organization.

Conclusions

The clinical aspects of the Malta epidemic presented few unusual features. There are, however, one or two points to which attention should be directed.

One of the earliest and, apparently, most constant signs described by other observers is stiffness of the neck and back, so that the patient is unable to approximate the chin to the bent knees. This phenomenon is sometimes referred to as the "spine sign," but its diagnostic significance is evidently doubtful, since not only may it be absent in most cases of poliomyelitis, as in our series, but it may occur in any condition associated with meningeal irritation. The lack of any definite correlation between the prodromal subjective and objective phenomena on the one hand, and the distribution of the eventual paralysis on the other, is as striking as it is unfortunate; not only is the clinician deprived of a valuable pathfinder, but he may even be thrown off the scent by having al his attention directed away from the silent paralysis by the clamour of symptoms such as pain in another part, vomiting etc. This state of affairs may furnish one explanation for the "missed cases" in an epidemic.

In most disease processes the value of pain as an early localizing symptom is well recognized; it was therefore disturbing to find that the site of pain gave little or no indicatio as to the site of the subsequent paralysis. Muscle tendernes was also inconspicuous. The same was true of the viscera symptoms: there was no more likelihood of a patient developing paralysis of the lower limbs after a gastro-intestinal upse than after a prodromal respiratory disturbance. The occurrenc of paralysis of the lower limbs in four out of every five of ou cases is in keeping with the findings reported by most othe observers.

A curious feature of the epidemic was the high incidenc of facial paralysis. It was invariably unilateral, and in th majority of cases disappeared during the first three month Persistence of the paralysis after that period was accompanie by reaction of degeneration in the affected muscles, and th prospect of recovery must be extremely poor. This was als our experience with regard to paralysis of any part of the body. The largest number of recoveries took place during the first three months after onset—at a time (as it happened) when little physical treatment was available. A second though much smaller peak in the recovery rate, which occurred during the 9–12 months period, may have been due in part to the influence of treatment. Although the part played by physiotherapy seems to be small, in that no known treatment can bring about regeneration of grossly damaged anterior horn cells, the prevention of contractures and the maintenance of joint mobility are of great value. When recovery is slow and imperfect the importance of muscle training is especially noteworthy. It is therefore only in the early and complete recoveries that physical treatment seems superfluous.

The care of the victims of this epidemic was and still is the work of a team. In addition to those whose names appear in the text we express our thanks to Prof. A. V. Bernard; to the resident medical staff of St. Luke's Hospital, especially to Dr. O. Azzopardi and Dr. V. Zammit-Tabona; to the physiotherapists, Mrs. K. J. Bell, Miss E. J. Charter, Miss P. Empson, Mrs. M. T. Ensoll, and Miss M. B. Quinton; and to the Reverend Mother Superior and her devoted staff of nurses.

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ACUTE ANTERIOR POLIOMYELITIS AMONG SERVICE PERSONNEL IN MALTA

AN ACCOUNT OF AN EPIDEMIC

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An account is given of the clinical pathological, and therapeutic findings in a series of 57 cases of acute anterior poliomyelitis occurring among Service personnel during the Malta epidemic of the winter of 1942–3. The epidemiological findings of the outbreak have been fully discussed elsewhere by Seddon, Agius, Bernstein, and Tunbridge (1945). Only 4 out of a total of over 400 cases were recorded among the adult Maltese population and none at all among the Maltese troops. The apparent immunity of the Maltese troops is the more striking because they were often working side by side with United Kingdom troops.

Of the 57 cases 2 were from the Royal Navy, 27 from the Army, and 28 from the Royal Air Force. The incidence was proportionately higher among the R.A.F. than among the Army personnel, being 4 to 1. The duration of service in Malta bore no relation to the disease. The average duration among affected personnel was over 12 months (Table I). The four cases with less than one month's service in the island arrived after the onset of the epidemic. The average duration of the disease before admission to hospital was 3.6 days, with a range from 12 hours to 15 days.

TABLE I

Duration of stay in Malta:		Period of service:	
1 month and under	4	Minimum	2 weeks
1 to 6 months	7	Maximum	5⅔ years
7 „ 12 „	4	Average	Over 12 months
13 „ 24 „	31		
Over 2 years	11		

The Preparalytic Stage

In only two instances was information regarding the preparalytic stage not available. In two further cases no paresis developed, and in five additional cases the exact duration was difficult to assess as there was in each instance a history of illness followed by a period of normality lasting 3 to 12 days before the return of symptoms and the onset of paralysis. The average duration of the preparalytic stage in the remaining 48 cases was 3.4 days (Table II).

The proportion of non-paralytic cases was unusually low, and undoubtedly some cases were missed. On the other hand, the medical officers and all the troops were aware of the prevalence of anterior poliomyelitis, with the result that almost all those complaining of headache and fever during the peak period of the epidemic had a routine examination of the cerebrospinal fluid on admission to hospital. By this procedure the diagnosis was established in the two recorded non-paralytic cases.

TABLE II.—*Duration of Preparalytic Period*

12 cases	24 hours or less	6 cases	4 days
6 „	2 days	7 „	5–7 days
11 „	3 „	6 „	8 days or more

(Average 3·4 days)
5 cases with uncertain preparalytic period (2 or 10, 5 or 14, 3 or 15, 1 or 4, 3 or 10 days);
2 cases, no paresis; 2 cases, data not available

Symptoms.—In 36 cases the onset was sudden and dramatic, the patient presenting some of the symptoms and signs of meningeal irritation. Headache was the most prominent initial symptom, and was recorded in 45 cases (Table III). No new symptoms were observed, nor was there a constant clinical picture applicable to the majority of cases.

TABLE III.—*Preparalytic Symptoms in 53 Cases*

Headache	45	Anorexia	8
Muscle weakness	26	Vomiting	6
Pain in back	21	Lassitude	6
„ neck	14	Urinary symptoms	5
„ limbs	13	Abdominal pain	4
Malaise	14	Dysphagia	3
Sore throat and coryza	13	Weakness of eyes	2
Shivering attack	11	Miscellaneous	5

Signs.—Pyrexia was noted in 43 cases on admission to hospital, and ranged from 98.8 to 104° F. The fever lasted from 48 hours up to eight days, save in six cases in which the development of secondary infection, respiratory or urinary, prevented an accurate assessment of the duration of pyrexia attributable to the primary disease. Neck rigidity was observed in 20 cases, neck stiffness in 17, Kernig's sign and the spine sign in 12.

The Paralytic Stage

Twenty-six patients complained of weakness of a limb or other part of the body before admission. Muscle tenderness was noted in 30 cases, but in only six did it present with any degree of severity longer than 10 days after the onset of the paralysis. The degree of muscle tenderness bore no relation to the severity of the muscle paresis. In the present series the degree of paralysis was by no means maximal within 24 hours of onset (Table IV).

TABLE IV.—*Cases with Delayed Spread of Paresis*

	Cases		Cases
2 days	2	6 days	1
3 „	3	9 „	1
4 „	3	10 „	1
5 „	2		

(In 8 cases delayed 4 days and over)

The spread of the paralysis was descending in 10 and ascending in 3 cases. In 15 cases the development of the paralysis was not continuous, but was of the "jumping"-variety, with an interval of at least 12 hours between the jumps. Included in the jumping cases were nine of the descending and three of the ascending type of spread. Accurate assessment of the extent and the degree of paralysis in the initial stages was often a matter of considerable difficulty. In our experience neither the degree of loss of power nor the degree of alteration of the reflexes was of itself an adequate guide to the severity. Some cases with absence of reflexes in the early stages made a dramatic recovery of power, and vice versa. Further, despite repeated and careful examination, muscles apparently unaffected initially, or even after 10 days, showed definite weakness three to five weeks later. The latter feature is of considerable clinical significance and necessitated keeping the patients in bed for at least four, preferably six, weeks. However trivial the initial paralysis may seem, it is only by keeping the patient in bed for such a period that the extent of the paralysis can be fully assessed and the development of deformity minimized.

Case 14.—Sgt. H., aged 21. Admitted to hospital with a two-days history of headache and pain in the neck. The next day he developed weakness of the muscles of the right shoulder, mainly of the right deltoid. Cerebrospinal fluid: 88 cells per c.mm. (polymorphonuclears); protein, 50 mg. per 100 c.cm. No further muscle weakness was recorded during the first three weeks of the illness. Allowed up after one month, when he complained of weakness of the legs. Examination showed weakness of the abdominal, hip flexor, and quadriceps muscles of both legs.

The final distribution of the paralysis for all patients is given in Table V.

TABLE V.—*Distribution of Paralysis*

Cranial nerves:		
Alone	3	14 (24·5%)
With others	11	
Respiratory system (Fatal cases, 11)	16	(28%)
Arms:		
Alone	7	35 (61%)
With others	28	
Legs:		
Alone	3	38 (66·7%)
With others	35	
Trunk:		
Alone	2	28 (49%)
With others	26	
Sphincters:		
Bladder	10	12 (21%)
Bladder and rectum	2	

Respiratory paralysis was observed in 16 cases. The initial symptom was an inability to take a deep breath, and was always complained of by the patient before the detection of any weakness of the respiratory muscles on physical examination. The earliest sign was a weakness of the cough reflex. In at least four cases death was due to central rather than peripheral failure. Patient No. 6 died six and a half months after the onset of the disease, and during the last 12 hours of life had a series of convulsions, each of some minutes' duration, and completely unaffected by the continuous use of the Drinker respirator; necropsy showed no evidence of cerebral abscess or embolus. Analysis of the cases revealed that the later the development of respiratory symptoms after the onset of the disease the greater the prospect of recovery.

Cranial Nerves.—An unusual feature was the presence of nystagmus in 10 cases. In the non-fatal cases the nystagmus rapidly disappeared and was not present after six weeks. In two of the early cases, although nystagmus was observed and recorded, it was not then considered to be due to the virus infection—e.g., Case 26, with diagnostic C.S.F. findings, had nystagmus and a mild degree of weakness of the dorsiflexors of the right ankle and slight diminution of the right ankle-jerk as the only abnormal physical signs. The following cranial nerves were involved: 7th (3 cases), 4th and 6th (2 cases), 12th (1 case). Three patients complained of dysphagia and one case of diplopia. In the civilian cases there was also a high incidence of cranial nerve lesions—11% had facial palsy.

Sphincters.—Retention of urine occurred in 12 cases. In eight the retention was of short duration, lasting only from 36 hours to six days. Suprapubic cystostomy was performed in one of the remaining cases; catheterization was necessary in a further two, and in the remaining case hesitancy still persisted after three months. Two cases had incontinence of faeces in addition to retention of urine.

Recovery.—The rate and degree of recovery varied considerably. Owing to the exigencies of the Service it was impossible to record the final disposal of every case, but in all save seven it was possible to assess the degree of paralysis after three months. Table VI classifies the cases according to the severity of the paralysis.

TABLE VI.—*Severity of Cases: Review Three Months after Onset*

	Non-paralytic	Slight	Moderate	Severe	Fatal	Total
Royal Navy	—	2	—	—	—	2
Army	2	6	2	11*	6	27
Royal Air Force	—	6	8	9	5	28
Total	2	14	10	20	11	57

* Two severe cases are likely to prove fatal within one year.
Non-paralytic = Positive symptoms and C.S.F. findings; no paralysis.
Slight = Mild paralysis; fit for full duty within three months.
Moderate = Definite paralysis, but ultimately should have no serious disability.
Severe = Cases likely to have permanent disability.

Diagnosis

During the epidemic cases of infective hepatitis, undulant fever, enteric fever, fibrositis, infective neuritis, sciatica, pleurisy, coryza, disseminated sclerosis, diphtheritic polyneuritis, cerebral abscess, and hysteria were sent to hospital labelled anterior poliomyelitis. By contrast one or two cases were missed, and were referred to hospital only when the paralysis was fully established. The cerebrospinal fluid findings, together with the clinical history and the distribution of the paralysis, were adequate for establishing the diagnosis. During an epidemic of acute anterior poliomyelitis in a subtropical climate great difficulty may be experienced initially in differentiating between sandfly fever, benign lymphocytic meningitis, and a non-paralytic case. The high percentage of lymphocytes on initial examination of the cerebrospinal fluid in the present series of cases suggests that it is necessary to exercise caution in making a differential diagnosis in the above conditions purely from the cytological examination of the cerebrospinal fluid.

Once paralysis is established difficulty may arise in a mild sporadic case in differentiating between muscular dystrophies, localized neuritis of shoulder-girdle distribution (Spillane, 1943), and acute anterior poliomyelitis.

Three cases were of special interest in that the diagnosis was a matter of considerable difficulty.

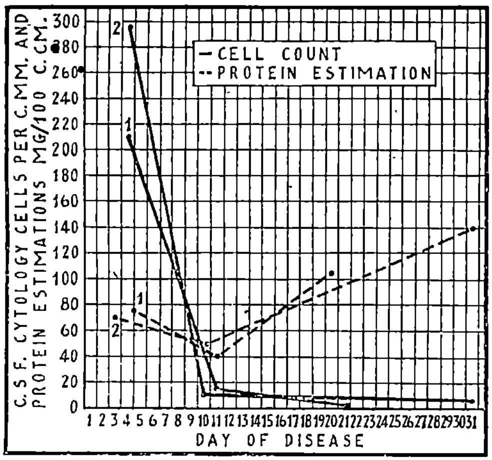
Case 15.—Pte. S., aged 26. Admitted to hospital for dental treatment while convalescent from enteric fever. Five days after admission he developed bronchitis, and five days later weakness of the right serratus anterior was observed. The diagnosis of anterior poliomyelitis was discussed, but was considered unlikely by the physician in charge and by the surgical specialist. Lumbar puncture was not performed. A plaster abduction splint was applied, and while in the splint the patient complained of weakness of the right elbow and wrist. Removal of the plaster after three weeks revealed weakness of both serratus anterior muscles, the spinati, right triceps, and extensor muscles of right wrist. Prof. H. J. Seddon examined the case and agreed finally with the diagnosis of anterior poliomyelitis.

Case 55.—P/O. T., aged 23. Contracted syphilis seven months before admission. He was having antisyphilitic treatment, and had received nine injections of arsenic. He piloted his plane two days before admission, and the following evening complained of weakness of the right leg; a diagnosis of transverse myelitis, ? syphilitic, was considered. The next day, on admission to hospital, flaccid paralysis of the right leg and weakness of the left leg, with no sensory changes, were observed, and the cerebrospinal fluid showed 170 cells (lymphocytes and monocytes) per c.mm. and 200 mg. protein per 100 c.cm.; second day in hospital, paralysis of both legs and weakness of lower abdominal muscles; third day, paralysis of the left half of the diaphragm (blood Kahn ++); fourth day, all abdominal muscles and left half of chest paralysed, and he was placed in a Drinker apparatus; fifth day, paralysis of both sides of diaphragm. Death occurred on the seventh day. Necropsy revealed oedema of the brain with flattening of the gyri, no naked-eye evidence of haemorrhages into the spinal cord, congestion of the lungs, right-sided heart failure, and slight enlargement of the spleen. The micro-anatomy of the nervous tissues is not yet available. There was no microscopical evidence of any syphilitic changes.

Pte. C., aged 27.—On admission, after a history of one day's pain in the limbs and in the neck, this case presented the physical signs of a transverse myelitis, the upper level of the sensory loss being D 9. Wasting of the whole of the erector spinae muscles and of the muscles of the left arm, with a distribution typical of anterior poliomyelitis, developed after admission. The blood Kahn reaction was repeatedly negative and there was no history or clinical or pathological evidence of a syphilitic infection. Brig. D. MacAlpine at first thought the case might be one of anterior poliomyelitis, but in view of the progress of the patient it was later diagnosed as transverse myelitis, and is not included in the present series.

Pathology

Cerebrospinal Fluid.—Lumbar puncture was performed within 24 hours of admission, and in 24 cases was repeated at least once after 7 to 10 days. In 21 cases lumbar puncture was performed on at least three occasions—on admission, at 7 to 10 days, and again 14 to 21 days after the onset of the disease. No definite relation existed between the cell count, the protein content, and the severity of the disease. The cell count was high in the majority of cases. The cells were mainly lymphocytes and monocytes, but in a few instances the polymorphonuclears predominated. In the 11 fatal cases the count upon admission ranged from 100 to 900 cells per c.mm. On the other hand, two severe cases had initially a count of only 40 cells per c.mm. In the series only three cases had a normal cell count upon admission, and in one of these the protein content was raised. In the two non-paralytic cases the cell counts were 112 and 200 respectively—lymphocytes and monocytes predominating. Repeated examination of the cerebrospinal fluid confirmed the findings of previous workers that the cell-count steadily falls, reaching normal limits in 10 to 21 days, whereas the protein content remains raised or continues to rise for 2 to 4 weeks. In a few instances the protein content fell to within normal values after 10 to 13 days, then rose again. This suggests that the finding of a normal cerebrospinal fluid between the 10th and 14th days in a suspected case of acute anterior poliomyelitis does not necessarily exclude the diagnosis (see Graph).



Graph illustrating the fall of the cerebrospinal fluid protein content and the cell count to within approximately normal limits between the 10th and 14th days of the disease in certain cases.

Leucocyte Count.—Examination of the white-cell count was not made as a routine, and the data available were too limited to permit of any conclusions.

Post-mortem Examination

Necropsies were made in all fatal cases—11 adults and 1 child; the latter is excluded from this report. In nine cases death occurred during the acute stage of the illness, and in the remaining two cases after four and a half and six and a half months respectively from the onset of the disease. The spinal cords and brains from four cases were preserved intact and sent to the Central Laboratory, G.H.Q., Cairo, for micro-anatomical and virus examination. Faeces and urine from one fatal case were also sent. In the nine cases in which death occurred during the acute stage the brain was described as oedematous or congested, and the gyri as flattened. Medullary haemorrhages were reported in six cases, pontine and mid-brain haemorrhages in three.

Cardiovascular system: Right-sided dilatation of the heart and congestion were reported in eight cases. Lungs: Congestion was reported in seven cases, collapse in three, bronchopneumonia in three, and pneumonic consolidation with acute abscess formation in one case. The spleen was enlarged and friable in five cases. The liver and kidneys were stated to be congested in five cases. Tardieu spots were reported in four. The principal finding in the two patients dying after the acute stage was right-sided heart failure. In one the lungs were healthy, and in the other there were mild bronchopneumonic changes. The brains showed no macroscopic evidence of congestion, oedema, or haemorrhage.

Treatment

Ward Management.—All doubtful cases were admitted to one ward, where full precautions were taken. The staff wore masks and gowns; the patients had individual crockery, and all faeces and urine were disinfected. Once the diagnosis was established the cases were transferred to another ward. A portion of the latter was set aside for the treatment of cases with respiratory paralysis. At the end of 10 days all cases not requiring the use of the Drinker apparatus were transferred to a convalescent ward, where no further precautions were taken concerning the possible spread of the disease.

Serum Therapy.—Serum was not used in the early cases, the work of the Rockefeller Institute and the Australian Commissions having led us to believe that its use was of little value. Serum, however, was forwarded from the Middle East, and 13 cases received convalescent serum in doses varying from 20 to 150 c.cm. The dosage used was 10 c.cm. intravenously and 40 c.cm. intramuscularly daily for three days. No serum reactions were observed.

Sulphadiazine.—In addition to the serum 10 cases received sulphadiazine. The dosage advised by Brig. MacAlpine was 3 g. twice daily for four days and then once daily for two days. The 3-g. dose was dissolved in 10 c.cm. of distilled water and injected slowly over a period of three minutes. Of the 10 cases only three had the full course. Four cases developed frank haematuria after the administration of 9 to 12 g.; one case had red cells in the urine after 18 g.; one case developed severe vomiting after 12 g.; the remaining patient had to be placed in the iron lung, and died before the completion of the course. Of the 10 patients receiving both serum and sulphadiazine two died. The number of cases treated was too small to be of statistical significance, and owing to the development of complications only three had a complete course. No dramatic improvement seemed to follow the use of this therapy, but, in view of the long preparalytic period in some cases, we feel that it is worthy of a more extended trial.

Respiratory Paralysis.—The serious therapeutic problem during the early stages was the treatment of respiratory paralysis. In these stages of the epidemic sufficient mechanical respirators were not available and respiration was maintained manually. None of the recognized methods of artificial respiration (Schäfer, Silvester) was tolerated by the patients. The only effective method was rapid pressure and release (30+ per minute), applied centrally with the palm of the hand on either side of the lower end of the sternum. One of us (R. E. T.). on observing this, reprimanded the orderly for using an unsound method, as he considered that any benefit derived from such a procedure must be psychological rather than physiological. Further experience suggested that this supposition was untrue, for the unorthodox method did relieve cyanosis, which the orthodox methods failed to do because they distressed the patient. We consider that the reason for the anomaly was the painful character of all movement of the chest on account of the tenderness of the affected muscles.

Through the generosity of the civil Government three iron lungs of the Nuffield pattern were lent to the Army. Lieut.-Col. Tanner, R.E., constructed three respirators of the Drinker type, incorporating several minor modifications which made for greater efficiency. Several Bragg–Paul respirators were sent to the island upon the instructions of the War Office. As a result of the experience gained in the epidemic we found that the Drinker type of artificial respirator did relieve cyanosis—even when all other methods had failed—induced physiological respiration, and gave the patient comfort and confidence. whereas little benefit was derived from the use of the Bragg–Paul type, either in the acute stages or in the treatment of cases still requiring the use of artificial respirators after three months. Oxygen was administered in the cyanotic cases, the B.L.B. apparatus being used.

Sepsis.—Respiratory and urinary sepsis were treated with full courses of sulphapyridine and sulphathiazole. For the lung infections postural drainage was attempted, but in the acute stages of the disease proved too distressing to the patient. The local treatment for infection of the bladder consisted of alternate washouts with oxycyanide of mercury (1 in 10,000) and boric acid solutions.

Muscular Paralysis.—The problem from an orthopaedic standpoint consisted in retaining the muscles in a neutral position during the acute stage, in providing varying forms of splintage to prevent stretching of the paralysed muscles and contracture of their antagonists, and in giving suitable remedial treatment in the convalescent stage pending evacuation of the cases from the island.

Acute Stage.—The neutral position adopted was the supine, with a low pillow just raising the shoulders to avoid stretching the abdominal muscles (as in many cases these particular muscles were affected), but not high enough to stretch the paravertebral groups. The head was similarly supported. The upper limbs were placed in the hips-firm position, the fingers resting lightly on the abdomen just above the iliac crests, with a reasonable degree of abduction of the shoulders maintained by means of sandbags. The legs were placed together and extended, with the feet supported at a right-angle with a foot-board or with short back splints. Behind the knees a low pillow was placed, giving about 10 degrees of flexion—a position in which there is very little risk of stretching the quadriceps and which avoids the graver danger of the development of genu recurvatum. The legs and feet were further protected with a bed cradle. This position was assumed by all patients except those whose respiratory paralysis necessitated the use of an iron lung, in which provision for the best posture for the arms is absent. An iron lung of the Drinker pattern constructed locally was furnished with an adjustable foot-rack, and a second one was projected in which abduction of the arms could have been accomplished, but the epidemic subsided before the machine was completed. It is noteworthy that all patients who had been treated in the iron lung either developed contractures in the pectoral groups of muscles or experienced discomfort in them during the passive abduction. The neutral position was maintained until the pain and tenderness had gone and the convalescent stage was reached.

Treatment in the Convalescent Stage

All the muscles of each patient were investigated methodically, and as nearly as possible in the clinical examination the power of each individual muscle was assessed and classified according to the M.R.C. nomenclature at 7-day to 10-day intervals. The majority of cases showed paralysed muscles or muscle groups, occurring in all limbs and the trunk indiscriminately. All the cases in which the trunk and lower limbs were affected were maintained in the neutral position, and, where possible, were permitted use of the arm—either unsupported, if the muscles had escaped paralysis, or suitably splinted according to the muscle groups involved.

A notable feature of many cases was paralysis of the abdominal muscles, including the lateral abdominals, the asymmetrical affection of which is so potent in producing a gross scoliosis unless preventive measures are undertaken. Two such cases, in which there was no respiratory paralysis, were immobilized in plaster jackets preparatory to evacuation from the island. Plaster beds would have been preferable, as physiotherapy could have been continued, but they are difficult to adapt for air travel. No patients with lower-limb weakness were allowed to walk save where such weakness was confined to the anterior tibial group, and for these a short walking calliper with drop-foot springs was supplied.

In some patients the paralysis was confined to muscles of the shoulder girdle, and these were given abduction splints. One patient whose main weakness showed in the rhomboids derived considerable benefit from wearing a figure-of-8 bandage, applied as in the treatment of a fractured clavicle. Arm weakness in the patient kept in the supine position on account of trunk and lower-limb paralysis was countered by maintaining abduction at the shoulder with light metal trough splints or plaster splints slung to a transverse bar at the head of the bed. Wrists were supported by short cock-up splints combined, in cases showing paralysis of the intrinsic muscles of the hand, with a knuckle-duster attachment; where the long finger extensors were affected the splint was continued to finger-length. If the thumb was also affected the digit was held into the palm to avoid stretching the muscles of opposition. In one patient the intrinsic muscles of the foot were involved and the toes began to assume a clawed position. For this deformity a pair of wooden sandals were supplied with four slits cut out at the front end, and the proximal phalanges of the toes were bandaged to the intervening prongs.

No limb was completely immobilized, and during the convalescent period light massage and appropriate active exercises were given daily. No active movements were carried out until muscle tenderness had completely subsided, and only such passive movements were used as were unavoidable during nursing. Once active movements had been started particular care was taken to stop them short of fatigue.

All the patients, with the exception of those who required treatment in the iron lung, carried out gymnastic exercises for all muscle groups in warmed water in a specially constructed seven-feet-long pool (funnel-shaped to provide the maximum of room for exercise in the minimum of water in order to economize in fuel for heating and to reduce the rate of heat loss) furnished with rigid head-rests and a supporting pelvic sling on a crane. These water exercises were performed three times weekly, and were very popular with the patients because they seemed to be effortless, a rough idea of progress could be measured by the patients themselves, and the much greater excursion of voluntary movement while in the water was psychologically stimulating.

For those patients who had respiratory paralysis—and in all of them the paralysis of the remainder of the trunk and the limbs was widespread—a suspension frame for the carrying out of active exercises was constructed to imitate the effect of a swimming-pool so far as was possible. The upper limbs were supported on a light metal trough, with troughs for the upper arm and forearm, leaving the shoulder and elbow free, while the wrist was supported by chaining wooden hand-grips to the forearm troughs. These troughs were suspended from the frame by selected cords, attached to the frame by springs made of coiled piano wire. Resistance to the movement was minimal, and the springs afforded considerable resilience to such movements as could be executed. An extension of the frame enabled the lower limbs to be treated similarly, and the active pressing down of the lower limb against the supporting springs proved to be particularly good for exercising the gluteal muscles. In one case a further addition to the frame was a hand-pulley device for exercising the feet by pulling down the hinged foot-pieces of the lower-leg troughs against the counter-springs.

Discussion

The most striking feature of the epidemic was the almost complete absence of cases among the adult Maltese population. This fact, coupled with the high incidence among Maltese infants, would be compatible with the view that the strain of virus responsible for the epidemic was one for which the adult Maltese had some degree of immunity, but not the adults from the United Kingdom. The above facts are also of interest in the elucidation of the origin of the epidemic. Before the outbreak Malta had been besieged, and contacts with the outside world were limited to the movements of a small number of Service personnel. As a result the question of the epidemic having been introduced by the Service had to be considered. Prof. Seddon, after a careful analysis of all the cases, concluded that there was no evidence to support the view that the epidemic was introduced by Service personnel.

The case incidence was high—approximately 150 per 100,000—but the mortality rate was not abnormally high either for the epidemic as a whole or for the adult cases. The unusual clinical features were the high incidence of cranial nerve lesions in both the civilian and the Service cases and the presence of nystagmus in 10 of the latter (17%). Further, in view of the recent controversy concerning the early treatment of acute anterior poliomyelitis, the frequent finding of selective muscle weakness as late as the fourth week after onset suggests that the age of the subject should be taken into consideration before generalizations concerning therapy are made. As a result of the experience gained in the epidemic described, we consider that for an adult case a minimum period of six weeks' absolute rest is advisable.

Treatment of the patient with respiratory paralysis raised many problems. Of the 16 cases with respiratory paralysis 13 were treated in a mechanical respirator. Of the 13 so treated 10 died, and two further cases have such a serious degree of paralysis that they are likely to succumb to a secondary respiratory infection within two years. The distressing appearance of such patients often leads the physician to make frantic demands for a mechanical respirator on misguided humanitarian grounds. In a considerable proportion of cases, more particularly those in which the paralysis begins within five days of the onset of the disease, the respiratory failure is central in origin and no form of artificial respiration is of avail. Morphine, used judiciously, would seem to be the treatment of choice for such cases.

The mechanical respirator, however, has a value in the treatment of cases in which the paralysis is peripheral. In our experience the later the onset of the respiratory paralysis the more likely was it to be peripheral in distribution. In the treatment of respiratory paralysis two varieties of mechanical respirator were used—the Drinker cabinet respirator and the

Bragg–Paul pulsator. In our series the former proved to be the only effective method of artificial respiration. We attribute the failure of the Bragg–Paul pulsator to: (*a*) the limited area of application, which prevents the machine from completely dominating the respiratory action; (*b*) the tenderness of the affected muscles, which induces spasm; (*c*) inability of the machine, when it cannot dominate respiration, to adapt itself to the constantly varying respiratory rhythm; (*d*) the faulty principle of the pulsator, in that inspiration is not purely passive; (*e*) the noise made by the bellows, which is such that the patient tends to expire when he should inspire. Although the Drinker respirator was of value, the constant use of the apparatus required the continuous attention of skilled mechanics and an unfailing supply of electricity. Further, since cases with respiratory paralysis often had widespread muscle involvement the long-continued use of the ordinary type of cabinet respirator prohibited the treatment necessary for prevention of contractures of the upper limbs.

In view of the above facts and the difficulty of transporting artificial respirators it would seem advisable to centralize treatment. It is our considered opinion that for a small outbreak it would be preferable to transfer patients in the initial stages, if necessary by air, to a centre adequately supplied with respirators and full physiotherapeutic facilities rather than to transport respirators.

Summary

The clinical and pathological findings and the early treatment of a series of 57 adult cases of anterior poliomyelitis occurring among Service personnel during the Malta epidemic 1942–3 are described.

There were 11 deaths—a mortality rate of approximately 19%.

In 2 cases no paralysis was noted. In 26 (45%) cases there was no serious final disability.

In 14 (24%) cases the cranial nerves were involved; in 16 cases there was respiratory paralysis; and all the deaths resulted from respiratory paralysis, despite the use of a mechanical respirator of the Drinker cabinet pattern; in 12 (21%) cases there was disturbance of the sphincters.

Convalescent serum and sulphadiazine were used in a small number of cases without any apparent benefit.

The onset of the paralysis was often delayed, and in a few instances was not apparent until the fifth week.

We wish to thank colleagues for their help: Capt. J. C. Lees, R.A.M.C.; Major I. MacPherson, R.A.M.C.; Major A. Charles, R.A.M.C.; Major E. Geal, R.A.M.C.; and Capt. W. S. A. Oakes, R.A.M.C. Also Miss A. M. MacHardy, Q.A.I.M.N.S.(R.), Miss K. Taylor, Q.A.I.M.N.S.(R.), and Sgt. H. E. Fisher, R.A.M.C., for their nursing skill; Mrs. Bell, Massage Corps, for assistance with the massage; Prof. H. J. Seddon and Brig. MacAlpine for their interest and stimulating advice; Lieut.-Col. H. D. Tanner, R.E., for his technical skill and assistance in constructing, under difficult circumstances, the respirator, swimming-pool, and splints; and Brig. W. K. Morrison, D.S.O., D.D.M.S., Malta, for permission to publish this paper.

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THE ERYTHROCYTE SEDIMENTATION RATE IN INFECTIVE HEPATITIS*

BY

J. A. R. MILES, M.B., B.Ch.

In recent years a number of references to the erythrocyte sedimentation rate in infective hepatitis have been published. Ziegler (1941) found that a rise in the E.S.R. often occurred in children in the second or third week after the onset of icterus. Penman (1943), reporting hepatitis in tuberculosis patients in a sanatorium, stated that in about one-half of a series of patients the E.S.R. was markedly slowed when the jaundice was at its worst, but had returned to approximately the pre-jaundice level by the next monthly examination. Any change for the better or worse could not be attributed to the tuberculous process. More recently Wood (1945) gave figures for a small series of cases in the Mediterranean area showing readings below 10 mm. (Wintrobe) in 85% in the first 10 days of the disease and later rising.

In the present investigation the E.S.R. has in 80 cases of infective hepatitis been followed throughout their stay in hospital, and observations on a few other cases seen in the pre-icteric phase are reported. Wintrobe tubes were used and the mixed ammonium–potassium oxalate anticoagulant of Wintrobe and Landsberg (1935). Corrections were made for variations in the volume of packed erythrocytes, using the chart published by Whitby and Hynes (1938).

In 40 of the 80 cases the E.S.R. was raised above 10 mm. at some stage of the disease, and it was noticed that in these cases the E.S.R. was low in the acute stage except in a few very mild cases, and then became raised as the patient recovered. Figs. 1 and 2 are graphs in which the bilirubin level and E.S.R. are shown throughout the course of the disease in two severe cases. No relation between the maximum height of the E.S.R. and the clinical severity of the case could be found.

Two Service cases were seen in the pre-icteric phase, and both these had raised sedimentation rates. One of them developed jaundice in hospital, and as his jaundice increased his E.S.R. fell, to rise again to a maximum of 29 mm. at the time when the serum bilirubin was about 1.5 mg. per 100 c.cm. (Fig. 3). Six further pre-icteric cases had sedimentation rates measured in the pre-icteric phase. In four of these the rate was raised. Two of this last group were tested again after they became jaundiced: one, who had become moderately jaundiced, showed a normal E.S.R. in the icteric phase; the other, with only conjunctival icterus, did not show any fall to a normal E.S.R. Of the six cases with an increased rate in the pre-icteric phase, two were raised above 30 mm. in one hour. In five cases the E.S.R. was raised at the time of admission. In one of these the highest recorded bilirubin was 2.3 mg. per 100 c.cm. at the time of admission, and his sedimentation rate of 35 mm. on the same day was the highest recorded.

Particulars of the case of Bdr. C., who was admitted in the pre-icteric phase, are shown in Fig. 3. His bilirubin never rose above 4.8 mg. per 100 c.cm., and his lowest recorded sedimentation rate was 12 mm. in one hour. The other three cases were also clinically mild, having 3, 5.75, and 8.5 mg. per 100 c.cm. as their highest bilirubin, and their E.S.R. continued to rise while the bilirubin was falling.

The mean sedimentation rate of all readings at various bilirubin levels has been estimated in those cases which had a raised E.S.R. at some stage in the disease, and the results are shown in Table I. It can be seen that in this series there is a rise in the E.S.R. as the serum bilirubin falls. The coefficient of correlation is –0.57. The highest recorded E.S.R. in the cases showing some rise, after correction for differences in haematocrit, varied between 11 and 42 mm. in one hour.

TABLE I

Serum Bilirubin in mg./100 c.cm.	Number of Readings	Mean E.S.R. (mm. in 1 hour)
10+	20	5·30
8·1–10	18	8·39
6·1–8	12	8·00
4·1–6	18	10·56
2·1–4	29	14·31
0–2	34	18·94

The existence of a raised sedimentation rate at least as often in the pre-icteric as in the post-icteric phase in this series, and the very marked negative correlation between the serum bilirubin and the E.S.R., suggest strongly that the normal E.S.R. in the icteric phase is due to some factor inhibiting sedimentation. On the other hand, the sedimentation rate is not so closely bound to the bilirubin figure as to suggest that the normal figure for the E.S.R. in the icteric phase is entirely due to the raised bilirubin (see, for instance, Fig. 3). The following experiments were therefore carried out to discover whether the most obvious abnormalities in infective hepatitis—increased amounts of bile salts and bilirubin in the plasma—were capable of inhibiting the raised E.S.R. in patients with tuberculosis, rheumatic fever, and infective arthritis, or those convalescent from infective hepatitis.

Methods

Oxalated blood was taken, using a minimal amount of Wintrobe's ammonium–potassium oxalate mixture, and cells and plasma were separated as soon as possible. The cells were washed in normal saline three times in the initial experiments, and in all later experiments six times. A crude bile-salt preparation was dissolved in part of the plasma, and varying final concentrations of bile salts were obtained by mixing untreated plasma with the bile-salt solution in plasma in varying proportions. Pure bilirubin was dissolved in N/20 Na_2CO_3, in 0.85% NaCl at 80° C., and brought back to *p*H 7.5 by the addition of N/1 H_2SO_4, so that the final concentration of bilirubin was 60 mg. per 100 c.cm. Gordon and Wardley (1943) had brought evidence to show that the E.S.R. can be related to the proportions of the various types of protein rather than their absolute amounts, and it was hoped that the electrolyte mixture would have little effect on the E.S.R. When it was present in a dilution of 1 : 6 in plasma the effects were slight, but at 1 : 3 it had a marked inhibitory effect. Washed cells and treated or untreated plasma were mixed in equal volumes, and Wintrobe sedimentation tubes were set up after varying periods. Normally the fall in one hour was read, and the tubes were then spun to find the volume of packed cells and the results corrected for any variations.

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* A report to the Medical Research Council.

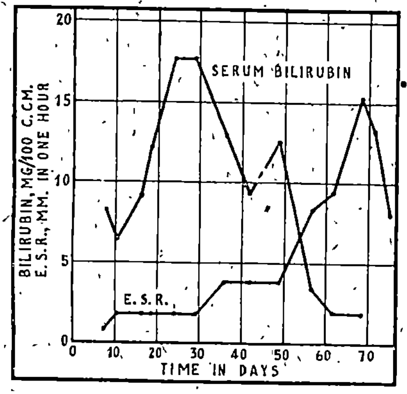

Fig. 1.—Pte. R.

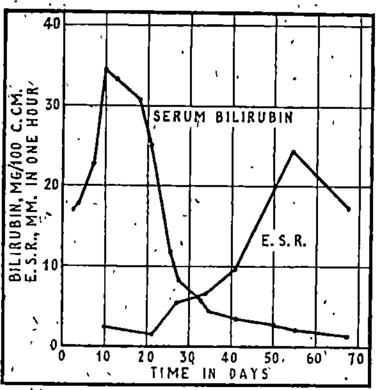

Fig. 2.—Tpr. C.

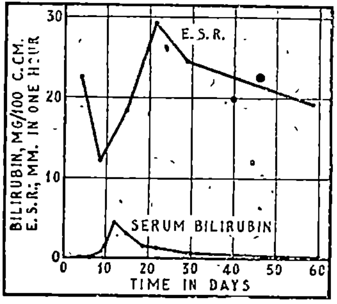

Fig. 3.—Bdr. C.

Experimental

In preliminary experiments it was found that no inhibition of sedimentation occurred immediately after the addition of crude bile salts up to 20 mg. per 100 c.cm., but that if the mixture were left at +2° C. for 18 hours quantities down to 13.4 mg. per 100 c.cm. gave definite inhibition.

In most non-malignant conditions the E.S.R. falls steadily when the blood is stored, and evidence has been put forward by Koster (1937) to show that this is due to diffusion of potassium ions from the erythrocytes into the plasma. Usually when the blood was stored overnight the E.S.R. had fallen too low for any useful observations to be made. Therefore in most experiments the E.S.R. was estimated after blood had been left at 2° C. for 1 to 4 hours. A typical result is shown in Table II.

Table II

	Corrected E.S.R. (mm. in 1 hour)	
	After Storing 1 Hour	After Storing 4 Hours
	mm.	mm.
Untreated plasma	30	20
+ 12·5 mg. bile salt ..	29·5	10
+ 25 ,, ,, ,, ..	20	8
+ 50 ,, ,, ,, ..	1	1

It will be seen that when added bile salts were 25 mg. per 100 c.cm. there was some definite inhibition after one hour. When the mixture was stored four hours the E.S.R. in all tubes was lower, but there was definite inhibition at 12.5 mg. per 100 c.cm., as against controls. In cases in which 6.25 mg. per 100 c.cm. of bile salt was added there was no inhibition. The percentage inhibition was related to the amount of bile salts added and the time given them to act, and was approximately the same for all types of case. It was not affected by the initial height of the E.S.R.

Because of inhibition due to the solvent alone it was not found possible to try the effects of more than 10 mg. per 100 c.cm. added bilirubin, but if E.S.R. inhibition were directly due to the excess of bilirubin in the plasma the results tabulated in Table I strongly suggest that this amount should be sufficient to cause very marked inhibition.

The result given in Table III shows that added bilirubin has no effect alone, and that if both bile salts and bilirubin are added the resultant inhibition of E.S.R. is that which would be expected had bile salts alone been added. The E.S.R. was estimated after the blood had been kept four hours in the cold in all the bilirubin experiments.

Table III

	Corrected E.S.R. (mm. in 1 hour)
	mm.
Bilirubin 10 mg./100 c.cm.	13
Bilirubin 10 mg./100 c.cm. + bile salt 20 mg./100 c.cm.	7
Bile salt 20 mg./100 c.cm. + 0·1 c.cm. bilirubin solvent	5
Untreated plasma + 0·1 c.cm. bilirubin solvent	11

Discussion

Both Wood and Ziegler have reported a delayed rise in the E.S.R. in infective hepatitis, while Penman in his sanatorium outbreak reports a definite inhibition in the acute stage in one-half of a group of tuberculous patients. Wood does not state how many of his cases were in the pre-icteric phase, but it may safely be assumed that he found fewer cases with a raised E.S.R. in the pre-icteric phase than were found in this series.

Ahlberg (1939) gives the E.S.R. in 36 cases of Weil's disease, in most cases serial weekly figures. In this disease the E.S.R. is raised at all stages, but, as in infective hepatitis, the figures are highest in convalescence. In the first week, using the Westergren technique, he found a mean E.S.R. of 66 mm., which rose steadily to 118 mm. in the fifth week and thereafter slowly fell. In those cases in which figures are given for serum bilirubin there is the same sort of negative relation as in infective hepatitis. Despite the occurrence of haemorrhages anaemia is said not to occur in Weil's disease (Ryle, 1921), and it is quite possible that the relatively low E.S.R. in the acute phase is due to partial inhibition in the early stages, and may well be related to the icterus.

In this series 6 of 8 pre-icteric cases showed a raised E.S.R., and in 40 of 80 cases followed throughout the disease there was a post-icteric rise, while, except in a few mild cases, the E.S.R. was within normal limits in the icteric phase. Further, there was a strong negative correlation between the E.S.R. and the serum bilirubin.

The experiments shown above suggest that an inhibition of the E.S.R. in the icteric phase is more likely due to an increase in the bile salts than in the bilirubin itself, but no figures are available to show whether the amounts of bile salt needed to cause inhibition *in vitro* are likely to be present in the average case of infective hepatitis. Further, one-half of the dose needed to cause inhibition in blood kept for one hour will cause inhibition after 4 hours' storage, and it is possible that if overnight storage were practicable even smaller doses might be effective.

Koster (1937) quoted Bendien, Neuberg, and Snapper (1932) as stating that there is a mobile fraction of non-protein nitrogen, consisting for the most part of polypeptides, which adheres to the proteins when there is a high sedimentation rate and which moves to the erythrocytes when there is a lagging or an artificial decrease caused by oleate or cholic acid. No attempt has been made to repeat this work, and it has not been possible to obtain access to the original paper; but the need for such a transference would explain the period of storage necessary for bile salts to cause inhibition *in vitro* when present in relatively small amounts. Koster does not state whether Bendien found immediate or delayed inhibition from pure cholic acid.

No attempt has been made to exclude the possibility that the changes in the E.S.R. in infective hepatitis may be entirely due to alterations in the plasma proteins. It has, however, been shown that the low sedimentation rate in the acute phase of those cases of infective hepatitis which show a raised E.S.R. in convalescence is closely related to the icterus, and evidence has been put forward suggesting the possibility that an excess of bile salts in the plasma may be responsible.

Summary

In one-half of a series of 80 cases of infective hepatitis the erythrocyte sedimentation rate was raised at some stage of the disease.

In 6 of 8 cases seen in the pre-icteric phase the E.S.R. was raised above 10 mm. in one hour.

It has been shown that in cases in which the E.S.R. is raised there is a strong negative correlation between the height of the E.S.R. and the serum bilirubin.

Evidence has been produced to suggest that an increase in bile salts might cause an inhibition of the E.S.R. in the acute phase of the disease.

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NECROSIS OF THE LIVER AND BILATERAL MASSIVE SUPRARENAL HAEMORRHAGE IN THE PUERPERIUM

BY

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Necrosis of the liver during pregnancy or early in the puerperium is not uncommon. Sheehan (1940) described 14 cases in a series of 400 necropsies in Glasgow Maternity Hospital. Haemorrhages in association with liver damage are well recognized, but bilateral massive suprarenal haemorrhage is a rare condition in adults; when it occurs it is most often associated with meningococcal septicaemia. Only two cases (Keele and Keele, 1942; Hall and Hemken, 1936) in which suprarenal haemorrhage was associated with pregnancy are recorded, and in both the condition was unilateral. A recent bilateral case is described below.

Case Report

A primigravida, 34 years old, 38 weeks pregnant, was admitted to hospital in labour on Nov. 24, 1944, at 1.45 a.m. She had attended a private doctor during her ante-natal period. The pregnancy had been normal until Nov. 10, when the B.P. was 130/85, there was slight oedema of the ankles, and a trace of albumin was present in a non-catheter specimen of urine. She was advised to rest at home and to avoid meat and fish.

On Nov. 23 labour started at 7 p.m. and she was admitted to hospital as no beds were available at the nursing home where she had booked. On admission her general condition was good—B.P. 136/86 mm. Hg, a trace of albumin in the urine, pulse 80; there was oedema of the legs up to the knees. Labour progressed normally, and she was delivered spontaneously, at 7 p.m. on Nov. 24, of a 7½-lb. living male child. In the third stage of labour about 14 oz. of blood was lost and the placenta was expressed from the vagina half an hour after delivery of the baby. The pulse rate at the end of labour was 100. The patient vomited once during the second stage of labour while using self-administered trichlorethylene, and once again about 1½ hours after delivery of the placenta.

On Nov. 25 the B.P. was 110/66, and pulse 80. She complained of frontal headache, vomited several times throughout the day, and appeared tired and sleepy. On Nov. 26 she still appeared very lethargic; pulse 82. The sclerotics were slightly yellow. There was no complaint of abdominal pain, and no tenderness was elicited on palpation of the upper part of the abdomen. She vomited once this day—a small amount of brown fluid. She still complained of headache, which was severe enough to keep her awake. A tentative diagnosis of acute yellow atrophy was made. She was given 1,000 c.cm. of 5% glucose-saline intravenously and 10 c.cm. of 10% calcium gluconate. On Nov. 27, at 10 a.m., the patient was still lethargic, but the jaundice had not deepened; pulse 82 a minute. There was some tenderness in the epigastrium but no rigidity. At 11.30 a.m. she became comatose. Respiration was slow and deep. There was no response to stimulation. At 12.30 p.m. she had a slight shivering attack. Her condition improved and she responded to stimulation and answered questions. At 2.45 p.m. her condition had improved considerably. She was alert and asked for drinks and food.

Blood investigations: Protein, 3.33% (albumin 1.76%, globulin 1.47%, A.-G. ratio 1.2:1, fibrinogen 0.10%); urea nitrogen, 78 mg. per 100 c.cm.; N.P.N., 105 mg. per 100 c.cm.; uric acid, 15 mg. per 100 c.cm.; van den Bergh—direct reaction, biphasic; indirect, 3.5 mg. per 100 c.cm.; cholesterol, 83 mg. per 100 c.cm.; R.B.C., 2,350,000; haemoglobin 43%; W.B.C. 26,900 (polymorphs 34%, lymphocytes 65%). Swabs were taken from nose, throat, and vagina for culture—all were negative. Examination of a catheter specimen of urine revealed a trace of albumin, some leucocytes, scanty hyaline casts, no crystals. A growth of enterococci was obtained on culture.

In the evening of the 27th she appeared more alert than at any time since delivery, but now complained of pain in the epigastrium below the right costal region. There was some tenderness on pressure over this area. On Nov. 28 the jaundice had not increased, but the pulse had risen to 100. She was drowsy, and still complained of pain under the right costal margin. At 3.30 p.m. she suddenly became very breathless, then comatose; the pulse deteriorated and she died at 4.50 p.m. The temperature was normal during her stay in hospital.

Post-mortem Findings.—The liver was normal in size; its surface was smooth. It was uniformly yellow and no lobular pattern could be seen. There were no haemorrhages. Microscopical examination revealed massive necrosis, involving the whole of many adjacent lobules; within these necrotic areas there were a few small clusters of surviving liver cells. The kidneys were normal in size; the capsules stripped off easily. The surface of the kidneys was smooth and pale in colour. Degenerative changes were present in the second convoluted tubules and in the loop of Henle. The suprarenals were enlarged to three or four times their normal size. They were deep purplish red in colour. On cutting into them blood spurted out. Microscopical examination showed extravasation of blood in the parenchyma of the cortex and some small areas of focal necrosis with leucocytic infiltration. The capsule was not involved, and for the most part the outer zone of the cortex was normal. Examination of the remainder of the body revealed nothing abnormal. There was no evidence of sepsis.

Discussion

The course of events in the above case can be presumed to have been liver necrosis first, followed later by suprarenal haemorrhage. Haemorrhages are of common occurrence in association with liver damage. An unusual feature was the occurrence of massive haemorrhage into both suprarenal glands. The haemorrhage probably occurred on Nov. 26, when the patient complained of pain in the epigastrium, and accounts for the coma on the 27th. The tendency to haemorrhage in liver necrosis may be associated with low fibrinogen content of the blood.

The liver lesion did not resemble that occurring in obstetric acute yellow atrophy as described by Sheehan. He records "a gross fatty change affecting the entire lobule except a sharply defined rim of normal cells around the portal tracts. The affected cells are bloated by a fine foam of small fatty vacuoles throughout the cytoplasm, the nuclei are normal, and there is an entire absence of necrobiotic change." Stander and Cadden (1934) believe that the fatty degeneration precedes actual necrosis. Glynn and Himsworth (1944) in their report of experimental work on the production of liver necrosis and fibrosis state that by killing the animals at the appropriate time specimens showing acute yellow atrophy, subacute atrophy, necrosis, and fibrosis can be obtained. The liver lesion in this case resembled the liver lesion of chloroform poisoning described by Sheehan and of massive necrosis due to dietary deficiency described by Glynn and Himsworth.

From a clinical aspect three contributory factors were present: (1) the toxaemia, (2) the low-protein diet, and (3) the use of trichlorethylene.

The *toxaemia* was slight and could not account for the severe damage found in the liver cells. It may have been the initial lesion.

Low-protein Diet.—The patient was advised to avoid meat and fish for about two weeks before she was admitted to hospital. As she was not under observation during this period the actual diet is not known. Experimentally, Glynn and Himsworth have produced massive necrosis of the liver by feeding rats on a diet deficient in proteins. It is also worth while noting that before the war of 1914-18 massive necrosis of the liver was a rarity in Central Europe (Strümpell, 1921), while during that war and for some years afterwards its incidence increased owing, it was believed, to the general malnutrition. It was commoner among women than men, largely because of the number of cases occurring in pregnancy. The protein requirements of pregnant women are higher than those of the non-pregnant, particularly because of the needs of the foetus in the later weeks of pregnancy. Digestive disturbance, poor appetite, and sometimes faulty absorption all contribute to the development of deficiency and liver destruction.

Against these two aetiological factors many thousands of women with a greater degree of toxaemia have been treated with a more restricted diet for a longer period without such a catastrophe as occurred in this case happening.

With regard to *trichlorethylene*, the patient had a small quantity of this chlorinated hydrocarbon in the second stage of labour. A Freedman inhaler was used. The amount was not enough to produce unconsciousness. The quantity was not estimated exactly, but it was certainly less than half a drachm. The drug is not very volatile, but it is unlikely that an overdose could have been obtained during inhalation through air. Trichlorethylene has been administered by the closed method to many thousands of cases, and liver damage is not mentioned in these reports (Carden, 1944; Gordon and Shackleton, 1943; Haworth and Duff, 1943; Hewer, 1943; Hunter, 1944). It has been administered through air to a large number of women in labour and, so far, no case of liver damage has been reported (Freedman, 1943; Calvert, 1944). Trichlorethylene is known to produce liver damage much more rarely than chloroform. Liver damage due to trichlorethylene in humans has been reported by Willcox (1931), Roholm (1933), and Vallée and Leclercq (1935), and in animals by Herzberg (1934), Meyer (1929), and Castellino (1932).

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At a General Court of the Governors of St. Thomas's Hospital held in London on May 23 an interim report on the reconstruction of the hospital was submitted. St. Thomas's received direct hits on different dates by twelve high-explosive bombs, including one flying bomb, and by a number of incendiaries. The chairman of the reconstruction panel, Mr. H. Winterbotham, said that the interim scheme was designed to cover the period between the end of the war in Europe and the final reconstruction of St. Thomas's. It contemplated the provision of 550 beds in London for in-patients, with facilities for an out-patient department comparable to the pre-war accommodation. Service on this basis was thought to be the minimum needed to maintain the educational standard and the standard of treatment at a proper level. Major Patrick Kinnaird, one of the joint treasurers of the hospital, said that the aim was to have ultimately 1,000 beds compared with the previous maximum of 630. The Lord Mayor of London, who was present at the meeting, emphasized the need to make widely known the prospective deficit of between £30,000 and £40,000, which would have to be made good.

MUMPS MENINGO-ENCEPHALITIS AND ORCHITIS

BY

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The following case of mumps with meningo-encephalitis and orchitis, which presents some unusual findings, is considered worthy of record. Meningo-encephalitis occurs occasionally as a sequel of mumps, and cases have been described in which meningo-encephalitis either preceded or was the only manifestation of mumps (Howard, 1919; Bedingfield, 1927). Coe (1945) described a case in which meningitis, orchitis, and arthralgia occurred without parotitis. Harris and Bethell (1938) report one case with meningitis and orchitis but no parotitis. They stress the fact that parotitis is only a common complication of mumps and not an essential feature of the disease. Frankland (1941) describes an epidemic of mumps among soldiers in which meningitis was observed without parotitis or orchitis.

Case Report

A soldier aged 26 was admitted to the medical unit of an E.M.S. hospital on March 25, 1944. His illness began on March 23 with a sharp pain in the right lower abdomen, accompanied by pain in the right testicle and slight frontal headache. The abdominal pain was severe enough to keep him awake all night, and by the next morning it had increased further in intensity. At this time his headache was also worse and he complained of giddiness and drowsiness. These symptoms persisted throughout the day, and nausea and mental confusion also appeared. The temperature during the first two days of his illness varied between 103 and 105.2° F. The pulse rate varied between 82 and 90. The personal and family histories were not relevant.

Examination revealed a well-built man who was flushed and mentally confused. Photophobia was present. All tendon and superficial reflexes were exaggerated. The plantar reflexes were extensor. There was a moderate degree of neck rigidity, and Kernig's sign was positive. Ophthalmoscopic examination revealed a moderate degree of bilateral papilloedema. No other abnormalities were observed in the central nervous system. There was slight tenderness in the right lower quadrant of the abdomen and a mild right-sided orchitis was present. There was no lymphadenopathy or splenomegaly. Clinical examination of the heart and lungs was negative and radiographs of chest and skull revealed no abnormalities. B.P 115/65.

Laboratory Investigations.—The urine contained a trace of albumin but no sugar. Microscopical examination was negative and culture was sterile. The C.S.F. was clear and contained 9 lymphocytes pe c.mm. No excess of globulin was present and the Kahn reactio was negative. Protein, 20 mg. per 100 c.cm.; sugar, 90 mg. pe 100 c.cm.; chlorides, 729 mg. per 100 c.cm. Culture was sterile Culture and animal inoculation for *M. tuberculosis* gave negativ results. Blood culture sterile. Widal reaction, negative. Bloo Wassermann, Kahn, and gonococcal complement-fixation tests al negative. B.S.R. (Westergren) 20 mm. in first hour. Blood coun showed:

	R.B.C.	Hb	W.B.C.	Neutrophils	Lymphs.	Monos.	Basophil
25/3/44			15,000	84%	11%	5%	—
26/3/44	6·25 m.	100%	10,400	78%	14%	7%	1%
3/4/44		100%	8,600	53%	43%	3%	1%

Progress.—By March 26 the orchitis was more severe, and in vie of this and the clinical evidence of meningo-encephalitis, the patien was questioned more closely as to any recent parotid swelling. H then recalled that he had observed slight swelling of the left sid of the face and pain on opening his mouth wide three days befo the onset of orchitis. The facial swelling and pain had disappeare within 24 hours. Although his orchitis had become more sever neck rigidity and Kernig's sign were no longer present; he w mentally much clearer, and headache and photophobia were le pronounced. The plantar responses were still extensor, and in t evening of March 26 he developed quick involuntary twitching o the facial muscles. The next day there was great improvemen temperature was normal, and headache and photophobia had di appeared completely. The plantar reflexes were flexor and t papilloedema was clearing. Thereafter he made an uninterrupt recovery, and by April 5 there was no evidence of orchitis and t papilloedema had gone. A further lumbar puncture was done c

March 28. The C.S.F. was then clear and the cell count 3 lymphocytes per c.mm.; protein, 20 mg. per 100 c.cm.

Apart from the usual nursing measures, the only treatment was a course of sulphadiazine starting on March 24 and finishing on March 27, a total of 21 g. being given.

Commentary

In this case an almost latent parotitis was followed three days later by a fairly severe orchitis, 36 hours after which meningo-encephalitis manifested itself. The unusual features were the low C.S.F. cell count, the rather high sugar, and the presence of papilloedema. The mental confusion, drowsiness, twitching of the facial muscles, and the C.S.F. findings indicated an encephalitis. The clinical evidence of cerebral and meningeal involvement would suggest much more extensive changes in the C.S.F. than were actually found. The cell count was only slightly raised and the protein was normal. In the case described by Coe (1945) the cell count varied from 90 to 100 per c.mm. Harris and Bethell (1938) found 740 cells per c.mm. in the C.S.F. of the case they reported. Synge (1930) describes a case with a C.S.F. cell count of 300 per c.mm. In the five cases reported by Frankland (1941) the C.S.F. cell count varied from 230 to 1,078 per c.mm. None of these authors noted papilloedema in their cases, nor was it mentioned by Rolleston (1932). Price (1942), however, states that papilloedema and even optic atrophy occur as a sequel.

The high initial pyrexia and relative bradycardia found in our case conform to previous case reports in the literature. The parotitis was very mild, and its presence was revealed only by a further close questioning of the patient when it appeared to us that mumps alone could explain the presence of a coincident meningo-encephalitis and orchitis. There was no history of any contact with another case of mumps. There was a high initial polymorphonucleosis, but as the orchitis subsided an absolute lymphocytosis developed, as is usual in mumps.

Recovery was complete and rapid. We do not consider that it was influenced to any extent by the use of sulphadiazine.

Summary

A case of mumps with a mild parotitis and a fairly severe orchitis and meningo-encephalitis is described.

The case is unusual in that the C.S.F. cell count was only slightly raised and, apart from slight increase in sugar, the C.S.F. was otherwise chemically normal.

Papilloedema was a feature of the case, but was not followed by any impairment of vision.

We are indebted to the Department of Health for Scotland and to Dr. J. A. Jenkins, medical superintendent, for permission to publish this report.

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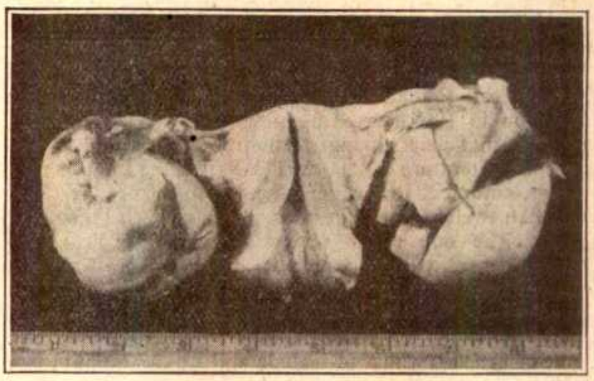
Medical Memoranda

Bilateral Ovarian Dermoid associated with a High Degree of Fertility

The case here recorded is of interest in that torsion of the pedicle of a cyst occupying the pelvis is rare, but the main feature is the high degree of fertility and absence of obstetrical mishaps.

Mrs. A., aged 40, was admitted to hospital on March 1, 1943, complaining of abdominal pain and vomiting. Her menstrual cycle was 28/4, and had always been normal until six weeks before admission, when she had intermenstrual bleeding and "cramps in the stomach." On admission the temperature was 99° and the pulse 88. In the right lower abdomen there was a tumour the size of a full-term foetal head which was movable and cystic and did not seem to be tender, although pressure in a downward direction caused pain. Per vaginam there was a blood-stained discharge; the cervix was badly lacerated and had been pushed forward behind the symphysis by a tense and tender tumour in the pouch of Douglas which had no demonstrable connexion with the abdominal tumour.

During examination under anaesthesia the tumour in the pelvis slipped up into the abdomen, when it became apparent that there were two separate ovarian cysts (see Fig.) and a bulky uterus; on opening the abdomen the pedicle of the cyst on the left, which was the smaller, was found to have rotated through two cycles and the walls were very congested. In view of the history of vaginal haemorrhage and the condition of the cervix, it was considered wiser to remove the uterus along with the cysts. Convalescence was normal.



On being opened both cysts were found to contain a large amount of hair. Microscopical section of the tumours showed them both to be combined dermoid and pseudo-mucinous cystadenomata.

The patient's obstetrical history was as follows: Married at 22. Her first pregnancy ended in an abortion at three months, since when she had had 12 full-term normal deliveries. Each confinement took place at home under the care of a midwife. Her last baby was born 18 months before admission, and she had been a widow for a year.

It is generally accepted that ovarian tumours of this type are of slow growth, and in this case both ovaries must have been the site of these tumours during several of her later pregnancies.

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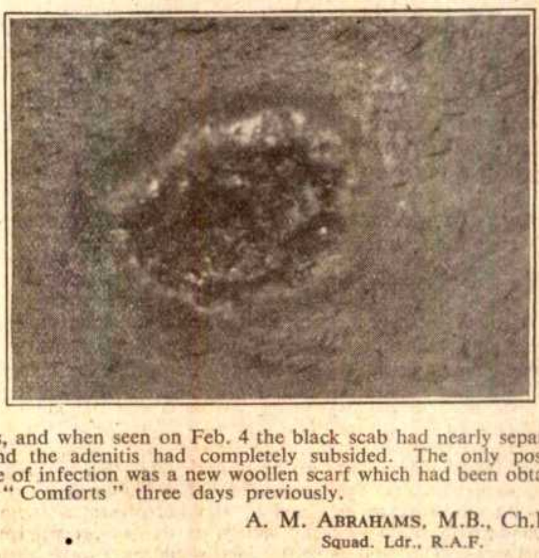
Cutaneous Anthrax treated with Penicillin

The following case of cutaneous anthrax successfully treated with penicillin may be considered worth recording.

Cpl. A. was admitted on Jan. 12, 1945, complaining of a small blister on the upper half of the left side of his neck which he had noticed for the past 48 hours. He had been feeling cold and off his food all day and had had a rigor, but no headaches, sweating, or constipation. His general condition was good; T. 102.4°, P. 96. The small vesicle on his neck was surrounded by an area of induration, and the adjacent glands at the angle of the jaw were enlarged and tender. Palpation of the abdomen revealed nothing abnormal.

Within 12 hours a circle of vesicles appeared, surrounding a small black centre (see Fig.). Fluid from a vesicle proved that the large Gram-positive organisms of anthrax bacilli were present. No Sclavo's serum was available, so a 5-day course of penicillin was given—15,000 units intramuscularly every 3 hours; a total of 600,000 units. Also 0.6 g. of N.A.B. was injected intravenously, as the clinical efficacy of penicillin in anthrax infection was unknown to us. The pustule was cauterized with pure carbolic acid. The temperature became normal after 24 hours' treatment, and remained so. The black centre became enlarged, and marked adenitis persisted for a week. The patient was discharged 16 days after the onset of his illness, and when seen on Feb. 4 the black scab had nearly separated off and the adenitis had completely subsided. The only possible source of infection was a new woollen scarf which had been obtained from "Comforts" three days previously.



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Reviews

YEARBOOK OF SURGERY

The 1944 Yearbook of General Surgery. Edited by Evarts A. Graham, M.D. (Pp. 736; illustrated. 18s. 6d.) Chicago: The Year Book Publishers, Inc.

The American Practical Medicine Year Books, which started publication in 1900, serve the same purpose as our *Medical Annual* in that they summarize the more important articles in the medical literature of the year. Whereas the English volume, however, embraces the whole range of medicine, there are no fewer than twelve American books, one for each branch of the subject. The one under review is the *1944 Yearbook of General Surgery*, which we learn from H. K. Lewis and Co. is already out of print.

The usefulness of such a volume depends entirely upon the success with which the editor chooses, from an immense annual output of articles, which to include and which to omit; it must be allowed that Prof. Evarts A. Graham has done his work well. The book runs to over 700 pages and so summarizes a very large number of articles, far too many for even brief mention in a review; they cover the whole of general surgery. We were interested to find that 16 pages were required to summarize the articles upon pilo-nidal cysts, and equally to notice that this condition has now been dubbed "jeep disease." As would be expected, the great majority of the papers summarized are from American surgical literature, but we note a few, such as one on the crush syndrome, from British journals. A short judicial note by the editor at the end of some of the summaries helps to place certain unorthodox procedures in a correct perspective.

As in this country, the production of the book is controlled by a War Production Board, so that, whereas the greater part is printed on semi-art paper, those sections which contain only line drawings are on a non-glossy surface. This gives the book an uneven appearance, which is, however, necessary in the interests of war economy.

HANDBOOK ON PULMONARY TUBERCULOSIS

Pulmonary Tuberculosis. A Handbook for Students and Practitioners. By R. Y. Keers, M.D., F.R.F.P.S., and B. G. Rigden, M.R.C.S., L.R.C.P. With foreword by F. H. Young, M.D., F.R.C.P. (Pp. 273; profusely illustrated. 17s. 6d., plus 7d. postage.). Edinburgh: E. and S. Livingstone. 1945.

This small book is intended to provide the student and practitioner with a concise and up-to-date account of pulmonary tuberculosis, and achieves its object very well. It is neatly arranged and leads the reader methodically and easily through the subject, avoiding unnecessary detail and emphasizing important points. Though the book contains no original matter, the authors have taken pains to include all recent advances which are of proved value; and many physicians who think they "know their tuberculosis" will find new and interesting knowledge in these very readable pages. Courage and common sense are evident throughout the book, and the authors are not afraid to be dogmatic when the results of experience justify confidence. Few chest clinicians will fail to applaud the decision to give higher priority to the *x* rays than to the physical signs in the diagnosis of phthisis, and the radiological section, with its wealth of excellent illustrations, is particularly valuable. The chapters on treatment are full and accurate, and they are marked by that sympathetic sense of proportion which everyone who has to treat this trying disease should strive to acquire. This modest and well-produced book will fill a real gap in the literature of tuberculosis and will help many to acquire a sound knowledge of the subject.

NEURO-OPHTHALMOLOGY

Few clinical branches of medicine are as precise as ophthalmology and neurology. One would therefore expect a book on the neurological aspects of ophthalmology to be clear in its details and general scope. Unfortunately English literature has produced no such book, though there are several excellent treatises on the subject in German and in French. Dr. D. J. Lyle's *Neuro-Ophthalmology* (Baillière, Tindall and Cox; 58s.) is a brave attempt, but hardly fills the obvious gap. Its outstanding features are its anatomical descriptions and the great number of post-mortem studies. Most of its nineteen chapters begin with a detailed anatomical description, but the clinical sections hardly maintain the high level set in the opening parts. Some of the clinical conditions are reduced to little more than a meaningless mass of names, while others are dealt with discursively and too much in the manner of a clinical lecture. The book is beautifully produced and contains a mass of incidental information.

Notes on Books

The "Careers Books," published by Robert Ross and Co. Ltd., now include a small volume entitled *Medicine*, by Dr. GEORGE LUNTZ. This, in the course of 64 closely printed pages, goes over much of the ground covered before the war in our annual Educational Number. It gives a great deal of detailed information compactly arranged, and some advice on how to prepare for a medical career and how to choose a career after qualification, with notes on postgraduate study and medical research and on higher diplomas, etc. Particulars of each of the universities and schools of medicine in Great Britain and Ireland are summarized in appendices. In his preface Dr. Luntz is particular to point out that in this booklet the medical profession has been taken as it is, and no predictions of the form it will assume have been attempted. The distributors are Rolls House Publishing Co. Ltd., 2, Breams Buildings, E.C.4, and the price is 2s. 6d.

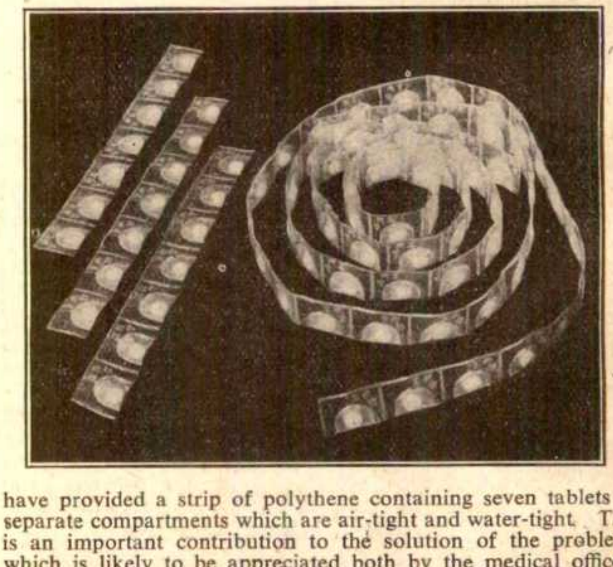
The second edition of *Aids to Fevers for Nurses*, by Miss JOYCE M. WATSON (Baillière, Tindall and Cox; 4s.), the sister tutor of the Park Fever Hospital, L.C.C., contains an excellent account of the subject, which should be in the hands of every nurse.

The official *Medical Register* for 1945 has been published on behalf of the General Medical Council by Constable and Co. (Orange Street, W.C.2) at 21s., post free 22s. The table printed in the introductory section shows that 2,971 names were added last year. New registrations numbered 1,196 in England, 619 in Scotland, 307 in Ireland 320 on the Colonial Register, and 529 on the Foreign Register. The total number of names on the *Register* at the end of last year was 73,646, being 1,764 more than on Dec. 31, 1943. The total number at the end of 1934 was 57,496.

Preparations and Appliances

MEPACRINE PACKED FOR THE TROPICS

One of the minor problems which the Army Medical Services have to face in the Tropics is how to give the soldier tablets of mepacrine, of which he is to take one daily if malaria is to be suppressed. Daily distribution to thousands of men entails great waste of time; yet, if a week's supply is given out at once, the soldier puts the tablets in a pocket where they become dirty or crushed or lost. Imperial Chemical Industries, Ltd., have provided a strip of polythene containing seven tablets i separate compartments which are air-tight and water-tight. Thi is an important contribution to the solution of the problem which is likely to be appreciated both by the medical officer and the individual soldier. With this packing, which can b rolled up into a small space, the week's supply of mepacrin can be kept unsoiled. The machinery for putting the tablet into the sealed compartments of polythene is provided b Genatosan, Ltd.



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POLIOMYELITIS IN MALTA

From the time of Italy's declaration of war until late in 1942 Malta was subjected to a remorseless aerial bombardment, sustained with a courage that has now become part of our history. It was a cruel blow that in November, 1942, just at the turn of the tide, the virus of poliomyelitis joined in the attack and produced 483 victims. But there is a happier side to the story, told in this week's *Journal*, for it has resulted in the setting up of a permanent orthopaedic service in the island, and the accounts given in these pages and elsewhere by the band of practitioners, Maltese and British, who directed combined operations against the results of the epidemic, have added many useful bits of knowledge to the already vast literature on this baffling and dangerous malady. The first striking novelty about the Malta outbreak was that infantile paralysis once again justified its name, for of the 426 civilian cases almost all were in children under the age of 5 years and a substantial number under the age of 1 year. After a period of general disturbance lasting for not more than four days, with pyrexia in the majority, the characteristic paralysis appeared. But there were features of this prodromal period which differ from the picture of the disease which has become accepted in recent years. Pain, for example—allowing for the difficulty of determining this in such young subjects—was not an outstanding feature. Stiffness of the back was remarkably infrequent. Delirium and irritability were noted in a comparatively small number. In other words, the usually accepted signs of a stage of irritation of the spinal meninges were not so prominent as in other recent outbreaks. Indeed, the early symptoms, including those in the alimentary and respiratory systems, were remarkably diverse and there was no obvious relation between the mode of onset of the disease and the distribution of the subsequent paralysis. Nearly four-fifths of the patients developed this, either alone or in association with other groups of muscles, in the lower limbs, suggesting a high rate of involvement of the lumbo-sacral region of the cord. An unusual feature in the civilian cases was the presence of facial paralysis in 11%. The treatment adopted is outlined in the two contributions in this issue: it shows once again the remarkable powers of improvisation by the Services when the need arises. The death rate was low among civilians—only 3.5% directly attributed to the disease—but higher in the 57 Service cases, amounting to nearly one-fifth. As usual, respiratory paralysis accounted for nearly all the deaths; and the record of the Service cases contains some valuable comments on the treatment of this serious complication. The complete recovery of 152 and partial recovery of 85 out of the total 426 civilian cases gives some idea of the severity of the outbreak.

Important as these clinical records are, it is the epidemiological side of the story which will, perhaps, have the greater interest. In view of the state of affairs in Malta when the outbreak occurred it is greatly to the credit of Prof. H. J. Seddon and his colleagues that they are able to marshal the facts and present the arguments in such a convincing manner. Their article[1] comes at a time when the new water-borne theory for the spread of the poliomyelitis virus has been gaining wide acceptance, and the Malta outbreak presents great difficulties for the upholders of this theory. Briefly, the facts can be summarized as follows: After a period of relative immunity—with only 61 cases recorded between 1921 and 1941 and none in 1942 up to the outbreak—the disease appeared first in a civilian in Malta on Nov. 15 and in a Service patient on Nov. 27. Thereafter the epidemic continued until the beginning of March, save for a few late sporadic cases. Altogether 426 civilian cases were recorded and 57 in the Services. What makes this epidemic of especial interest, however, is that 42 of the civilian cases occurred in the small neighbouring island of Gozo. All of these patients (except one—a refugee) were inhabitants of Gozo; the first case occurred on Nov. 21, half-way between the first civilian and the first Service case in Malta; and the distribution of the cases on Gozo failed to conform to a pattern whereby the early cases were in the towns nearest to the main island. In fact, to put the crucial position of Gozo in its full colours, apart from human carriers the only possible common factor that might be of significance was dried milk, distributed on both islands. But the dried-milk hypothesis is dismissed as fantastic, for it would involve assuming that certain batches of milk from well-known firms had become contaminated and that these batches had happened to reach almost every part of Malta and Gozo. Moreover, consumption of dried milk had begun well before the epidemic started, and continued for long after it was over.

With these facts about Gozo in mind, the remaining hypotheses examined by Seddon and his colleagues can be briefly dismissed. Excremental spread has attracted much attention in the last few years in association with the water-borne theory. The sanitary conditions of Malta were in a serious state owing to the bombardment. Moreover, with a threat of famine, the Government had reluctantly given permission for the use of sewage for farming purposes. (No such measures were sanctioned on Gozo, although excrement had long been used for manure there despite the vigilance of sanitary inspectors.) But, whereas the civilian population of Malta might have been infected through contaminated vegetables, it is pointed out that the kitchen technique of the Army and Royal Air Force would almost certainly have "closed this possible source of the virus." The position of milk has already been examined. Water supplies were not unnaturally complicated, and, indeed, from the distribution of the cases occurring in the first two weeks of the outbreak it would be necessary to postulate the simultaneous contamination of at least four and at most six separate supplies in Malta, to say nothing of the separate supply on Gozo. The case for flies as vectors of the virus is not strong. The rate of development of the disease was too rapid; it was at its height at a period when flies were less numerous than at any other time of the year, and, as already mentioned, if infected flies flew to Gozo it is strange that the first cases did not appear in the towns nearest to Malta. It is concluded that the epidemic was mainly spread by nasopharyngeal droplets and what are termed "droplet nuclei." The age distribution of the civilian and Service cases suggests that the causal strain of virus must have differed only slightly from the usual endemic Maltese strain, for its successful attacks were confined to the more susceptible civilian age groups. On the other hand, the high incidence and severity of the disease in the Service cases suggest that the strain differed much from that usually endemic in the British Isles. There had been an influx of some 200 airmen in October and November, 1942, and it is conceivable that there were some carriers among them; but the civilian outbreak started nearly two weeks before the first cases in the Services; it was three weeks before an airman succumbed, and the civilian outbreak did not occur in places where there were large concentrations of Royal Air Force personnel. There is thus no real evidence that the infection came from without. Indeed, with the Gozo outbreak to be accounted for, the presence of an indigenous carrier or carriers is strong, and the predisposing factors of overcrowding, physical and nervous fatigue, and an inadequate dietary were all present to help in the spread of what appears to have been essentially an epidemic of infection of the respiratory type.

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[1] *Quart. J. Med.*, 1945, 14, 1.

Howe, Bodian, and Wenner[2] have recently extended their observations on the presence of the poliomyelitis virus in the human oropharynx, recovering it from swabs in 43% of a series of 23 cases during the first three days of illness but never after the third day. These workers do not discuss the presence of the virus during the prodromal period, but other investigators suggest a total period of maximal infectivity of about a week, distributed more or less equally before and after the onset of paralysis. Thus, however the first cases occurred, subsequent spread by droplets, analogous with the spread of cerebrospinal fever, seems the most likely explanation of the Malta epidemic. This almost old-fashioned view of spread, and the high incidence of truly infantile cases with a striking absence of the "spine sign" in the prodromal period, are the outstanding features of a tragic outbreak and take the picture of the disease back almost a generation. Because of this fascinating reversion alone the Malta cases will be studied with great interest. For the courage and enthusiasm with which the epidemic was fought by all concerned, from the Governor, Lord Gort, downwards, it adds yet another distinction to the records of this remarkable island.

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[2] *Johns Hopk. Hosp. Bull.*, 1945, 76, 19.

DISABILITY AFTER CLOSED HEAD INJURY

When a man has had a closed head injury he is more likely to find himself handicapped through defects in his memory, intellectual capacity, and ability to concentrate, or through personality changes such as moodiness and irritability, than by discrete disturbances of bodily function. The injuries which result in cranial nerve damage or in local destruction of brain tissue with consequent motor or sensory defect are usually the more severe, or are associated with a fracture of the skull or some other complication. In wartime we have come to regard these complicated injuries as the rule, for gunshot wounds penetrating the brain have produced all manner of disabilities which are not commonly seen in the simple closed head injuries of peacetime. Denny-Brown[1] has recently emphasized the difference in the prognosis of head injuries in peace and war by describing a study of the symptoms which persisted in a large group of civilian patients in the Boston City Hospital who had suffered accidental head injuries. Out of 430 consecutive admissions he selected 200 patients between 15 and 54 years of age who had been normal citizens before the accident. Most of these patients had had mild head injuries, but they represented a sample of the usual run of head injuries admitted to hospital in peacetime. Symptoms persisted for more than six months after injury in over half the cases, although there were only 27 of the 200 patients with a post-traumatic amnesia of longer than 12 hours. The most frequent symptoms were headaches, dizziness, and disturbances of feeling or behaviour grouped together as "psychiatric." Other, physical, symptoms were present in only 8%. In spite of these symptoms 80% who were not otherwise prevented from returning to full employment did so within two months of leaving hospital. The mental symptoms related to anxiety caused the greatest delay in returning to work Analysing the factors which may have been responsible for the persistence of these mental symptoms, Denny-Brown found that the severity of the injury and the environmenta factors, such as occupational or home worries or concern for compensation, were mainly to blame. He considered intellectual disorder and personality change as relatively unimportant, and concluded that the environment in which convalescence took place was even more significant tha the severity of the injury.

These conclusions are of importance, for they affect th whole approach to the prognosis and management in case of head injury. Whether personality change or intellectua defect is recognized by examination after injury may wel depend upon the delicacy of the methods employed. Th best method is, of course, to expose the subject to stress an to observe his response. The labourer may show no intel lectual impairment to testing or at his work, but the profes sional man, normal to testing, will later describe evidence of intellectual defect which he had recognized in his wor at a level of thought never attained by the labourer. S with personality testing. An intelligent observer who kne the patient intimately before the accident will describ changes in personality in response to stress which mu have been a direct result of the injury, but which were n apparent in the quiet of a hospital. Disturbances of intellect and of personality of this kind cannot be demonstrated by ordinary methods of testing, but the rare patient whose activities are on a high enough plane and who can be honestly introspective will convince the observer of their reality. Though they usually coexist, a change in personality may be appreciated after intellectual recovery seems to be complete. Many excellent studies of this subject have been made in this country. Symonds[2] has dealt with the mechanism of the post-traumatic cerebral state, and Neustatter[3] has demonstrated the difficulty in deciding whether this syndrome is physiogenic or psychogenic. Aubrey Lewis[4] has found it impossible to distinguish the syndrome of a post-traumatic cerebral state from an anxiety state of psychological origin. At the Royal Society of Medicine Patterson, Reynell, and Kremer[5] recently discussed various aspects of the development of post-traumatic personality disorders, and made it clear that disturbances of mild degree may have serious consequences. Schaller[6] has tried to separate the physiogenic from the psychogenic syndromes upon the basis of symptoms, but Denny-Brown[7] has criticized this attempt, and there must be wide agreement with him. It seems, however, that in emphasizing the environmental causes for the persistence of neurotic symptoms after injury Denny-Brown has erred to the other extreme. It is quite true that some patients develop a neurosis out of all proportion to the severity of the head injury as a result of outside factors, which include compensation, head-consciousness, and other causes of anxiety. It is equally true that intellectual disorder may be unassociated with severe disturbances of affect. In the great majority of cases a man who is handicapped by intellectual defect or personality disorder after an injury is unable to withstand the stress of his environment incidental to his injury because of this very handicap. If the stress is slight or the handicap small he may escape with a short illness, but a defect of intellect or personality well enough marked to be measured or recognized in the ward will be a profound handicap to most people. It is not true to say that, because it cannot be demonstrated by such means, it is not present. The patient's future failure to overcome his difficulties as he did before the injury is evidence of its existence. This view does not exonerate environmental factors; it merely relates the psychogenic to the physiogenic causes of the disorder. The possibility of gain from the injury is still a great deterrent to recovery.

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[1] *J. Amer. med. Ass.*, 1945, 127, 429.

The head injuries of war do not differ in this respect from those of peace. The psychological handicaps are different in some ways; the relative incidence of focal and general brain damage is different; but in each case the likelihood of persistent post-traumatic symptoms, particularly mental symptoms, depends on the kind of man who is injured, the kind of injury he has received, and the kind of psychological stress with which he has to contend. The effect of extraneous psychological factors will be influenced by the handicaps in personality and intellect which he had before the injury, as well as those found afterwards.

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[2] *Proc. roy. Soc. Med.*, 1937, **30**, 1081.
[3] Ibid., 1942, **35**, 549.
[4] Ibid., p. 607.
[5] Ibid., pp. 557, 561, 564.
[6] *J. Amer. med. Ass.*, 1939, **113**, 1779.
[7] *New Engl. J. Med.*, 1942, **227**, 771.

FIBROSITIS

Increasing attention is being given to the problem of fibrositis, and the scepticism often expressed in the past as to its being a definite pathological entity is giving way under the pressure of such facts as those presented recently by Copeman and Ackerman.[1] In spite of the difficulties imposed by active service conditions they have supported their clinical observations by research into the anatomy and pathology of fibrositis, by both necropsy and biopsy. Attention has been concentrated for a long time upon the painful nodules often met with in fibrositis. The histological characters were fully described by Stockman, though they have been sometimes described as structures found by the fingers of the physician but not by the surgeon's scalpel. Clinicians were reluctant to ascribe the pain and stiffness of fibrositis to these nodules, or to believe that organized fibrous structures could be broken down and the symptoms relieved by heavy massage.

The work of Sir Thomas Lewis on referred pain, amplified by Kellgren, who demonstrated the relation between localized tender spots and referred sciatic pain, aroused fresh interest, and Elliott threw further light on the matter by demonstrating that these spots were associated with areas of increased excitability in the corresponding segment of the spinal cord. Now Copeman and Ackerman have shown that these "trigger points" are associated with certain areas of the back where pink fatty tissue of a particular type lies between the superficial and the deep fascia. The distribution of this fat, which they term "basic fat," forms a pattern found to be constant in many bodies examined post mortem, even in the most emaciated subjects, and coinciding with the distribution of tender spots demonstrated clinically. This fat was also found in close association with tendons, forming their sheaths, and also where the fascia was split to invest a muscle. The fat is vascular and liable to become oedematous and congested, possibly under the influence of meteorological and other influences, and may thus narrow the lumen of the tendon sheaths and cause stiffness and pain. A similar effect may arise in other situations, and this furnishes a far more convincing explanation of the characteristic symptoms of acute lumbago than many other theories. This underlying fat, when congested and swollen, tends to bulge through any weak spots or deficiencies in the enveloping fibrous layers or through the foramina which give passage to the nerves and blood vessels; these herniations form tender nodules and trigger points.

The authors describe various types of herniation—non-pedunculated, pedunculated, and foraminal—and suggest that they may be the seat of chronic strangulation and become hard fibrous nodules: they demonstrated strangulation at operation but not the hard nodules. Treatment by operation or by needling gave striking results in many cases. Further investigations along these lines and verification by other workers will be awaited with interest, but it is evident that an important advance has been made. It may also be observed that service in the R.A.M.C. under war conditions is no bar to research into the problems which beset the civilian practitioner if the thirst for knowledge is present.

PA PING OR BARIUM POISONING

Huang[2] has recently described twelve cases of "Pa Ping," a name familiar to the general population in Szechuen for a transient paralysis similar to familial periodical paralysis. Szechuen is a large salt-producing area, and barium chloride in concentrations as high as 25.69% has been found as an impurity. All the cases described by Huang were in males, but Du and Dung[3] have observed the disease in females. The symptoms, which usually came on soon after a meal, consisted of nausea, vomiting, diarrhoea, sometimes associated with abdominal pain, abnormal sensation of the skin, and flaccid paralysis of the limbs, first developing in the lower and then gradually affecting the upper. The pupil reaction was always preserved and the mind remained clear. The blood pressure was raised, the pulse rate and body temperature lowered. All the cases described by Huang recovered completely in one to three days, leaving no residual symptoms or signs; but Du and Dung[4] state that the mortality ranges from 5 to 10%. Allen[5] describes a necropsy of one case: there were parenchymatous degeneration and congestion of the liver, heavy congestion in the kidneys with parenchymatous degeneration of the tubules, and eosinophilic infiltration of the mucosa and submucosa of the duodenum, with a patch of hyaline degeneration in one muscle fibre; in the spinal column there was a chromatolysis of nerve cells in Clarke's column; there was also an endothelial swelling of the blood vessels, and a questionable increase in the microglia in the grey matter; congestion was most marked in the nerve roots.

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[1] *Quart. J. Med.*, 1944, n.s., **13**, 37.
[2] *Chin. med. J.*, 1943, **61**, 305.

Chou and Chin[6] and Ku, Yen, and Li,[7] believing that barium was the cause of this paralytic syndrome, investigated the pharmacology and toxicology of the soluble barium compounds by means of animal experiments. They administered isotonic barium chloride solution to fasting dogs by gastric tube, and by intraperitoneal, intravenous, intramuscular, and intrathecal injection. When the drug was given by mouth they observed symptoms similar to those occurring in Pa Ping disease. Salivation, vomiting, and diarrhoea were conspicuous, and neuromuscular symptoms such as twitching, tremor, and motor weakness appeared in most cases, followed by paralysis of the skeletal muscles in severe cases. After intravenous injection cardio-respiratory symptoms were more prominent, and a minute amount of barium in the cerebrospinal fluid caused convulsions. Serum concentrations of 2.2 mg. per 100 c.cm. were obtained after ingestion of the barium by mouth, but concentrations of over 5 mg. per 100 c.cm. occurred after parenteral injection. Half the barium was removed from the blood stream in 15 to 30 minutes, and three-quarters within two hours. Although the soluble barium salt may be precipitated rapidly in the gut by inorganic sulphate—and barium sulphate is generally used for opaque meals by radiologists—such precipitation does not occur in the blood stream: here the barium probably forms barium proteinate in the serum.

Huang, thinking that the symptoms of Pa Ping were caused by a low serum potassium, treated two cases with intravenous injections of 80 c.cm. and 145 c.cm. of a 5% potassium citrate solution. In both cases rapid and complete recovery took place immediately after the injections, but unfortunately they did not estimate the serum potassium before treatment. There seems no doubt, however, that the immediate cause of this particular syndrome is the taking of salt or water containing barium chloride as an impurity. The logical treatment, therefore, appeared to be that described by Allen—giving sodium or magnesium sulphate in sufficient doses to precipitate the barium as insoluble sulphate. If the disease is suspected treatment should be immediate, since the absorption of barium chloride is extremely rapid. Now that the cause of the disease is recognized, however, prevention should be accomplished by chemical analysis of brine at the well-head of all salt wells. It seems highly probable that there is a relation between Pa Ping and familial periodic paralysis, and further research should be undertaken to discover whether soluble barium salts in some way disturb the potassium equilibrium in the body. Eight years ago, in some observations on a young man suffering from familial periodic paralysis, Aitken, Allott, Castleden, and Walker[8] found that during the paralytic attacks the serum potassium level would fall from a normal of 20 mg. per 100 c.cm. to less than 10 mg.; 12 mg. per 100 c.cm. appeared to be a critical level below which paralysis developed. They induced attacks by administering large amounts of glucose by mouth, by the injection of insulin, and especially by combined injection of insulin and ingestion of glucose. Potassium chloride by mouth raised the level of potassium in the serum and abolished the paralysis. Aitken and his colleagues concluded that the fall in serum potassium concentration was associated with the passage of glucose from the blood into the tissues, and that abnormal lowering of the potassium level either blocked neuromuscular transmission or inhibited the contractile response in the affected muscles.

ANTIBIOTICS FROM PLANTS

The success of penicillin has led to detailed search for similar products among fungi and soil bacteria, and many substances with antibacterial action have already been discovered. The latest extension of this work is the search for antibacterial substances in the higher plants. The first report on this subject was given by Osborn[9] from the School of Pathology at Oxford. He examined 2,300 species of plants belonging to 166 families by methods similar to those used in estimating penicillin, and he found substances which would inhibit the growth of *Bact. coli* and *Staph. aureus* to occur in 63 different genera. The most active substances were obtained from plants of the Ranunculaceae family, especially anemone, clematis, Christmas rose, and buttercup. The field has been developed further by Lucas and Lewis.[10] They were guided in their search by the clues (1) that the tips of growing roots survive and expand in the presence of innumerable micro-organisms, and (2) that plant drugs have been used all over the world as folk remedies. Extracts were made from various plants and tested for their power to produce a zone of inhibition on agar plates inoculated with *Staph aureus*, with *Bact. coli*, or with certain bacteria pathogenic to plants. Antibacterial principles have been discovered in a variety of plants, though they vary greatly in their potency and distribution. They have been detected in the leaves of Scotch thistles, of verbascum, and of peony, and in the fruits of members of the rose, saxifrage, and other families. In particular a species of honeysuckle, *Lonicera tatarica*, has been found to contain a potent principle which inhibits the growth of *Staph. aureus* and of *Bact. coli*, and another which suppresses coliform bacilli but not Gram-positive organisms. The principles are soluble in water and are stable to heat.

From the therapeutic aspect it must be remembered that the presence of antibacterial activity is only half the picture, and that the absence of undue toxicity is equally important. It is this lack of toxicity which has made penicillin so much superior to the other antibiotic substances so far discovered. But whatever the ultimate findings about these particular preparations, it is clear that the researches in question open up a new field which may well prove to be very fruitful. Moreover, the implications of these results are not restricted to medicine, but may concern wide fields of general biology.

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[3] *Chin. med. J.*, 1943, 61, 110.
[4] Ibid., p. 302.
[5] Ibid., p. 296.
[6] Ibid., p. 313.
[7] Ibid., p. 303.
[8] *Clin. Sci.*, 1937, 3, 47.
[9] *Brit. J. exp. Path.*, 1943, 24, 227.
[10] *Science*, 1944, 100, 597.

DIET FOR MALNOURISHED PRISONERS OF WAR

BY

SHEILA KENNY, M.D.

A brief record has been made of 24 recently released British P.O.W.s admitted to hospital in this country for malnutrition and other conditions. The majority had done a long forced march and had been liberated only for periods varying from 2 to 7 days. Before admission 21 had suffered from severe diarrhoea, either during the march or after their liberation, on a sudden return to a full diet.

On receiving the first group one was appalled by their emaciation. However, since enteritis was also an urgent symptom, it was felt that caution in feeding was necessary. No literature on the subject of malnutrition was immediately available, but a decision about the diet had to be made quickly. The problem was to find one which, while suitable for the intestinal tract of men suffering from prolonged starvation, would also restore the depleted body tissues. A simple method was adopted which has, on the whole, proved satisfactory.

State on Admission

Mental.—Most of the patients were still in a state of extreme elation; if some were not, it was because they were too exhausted physically. This state has gradually subsided to one of remarkable contentment while awaiting fitness for discharge.

Physical.—Apart from the first group (see Table) and the general emaciation, the bodily condition was fairly good. The clinical anaemia was not in proportion to the emaciation, and this finding was supported by the haemoglobin estimations. All the patients were clean, but one was recovering from very severe generalized louse-bites. There were no infectious skin diseases. Mild pyrexia was found in all the active cases of enteritis. Three patients were suffering from septic ulcers of the heels, the result of blisters occurring during the forced march. The condition of the teeth was generally bad. (No dental treatment had been available during captivity.) The abdomen was distended in nearly all cases, even in those not suffering from enteritis on admission. The active cases of enteritis were having loose watery motions—2 to 10 a day.

Treatment

It was decided to put the patients on a third-week gastric diet (modified Lenhartz), with the addition of three eggs daily, and to increase or decrease this diet according to the patient's progress. Half the adult dose of vitamins, cod-liver oil and iron was considered advisable for the first week, with an increase to the adult dose by the second week. Fersolate tablets seemed to be well tolerated. Plentiful supplies of oranges were available. Mist. opii, catech., et cret. was given two-hourly to the first batch of cases suffering from enteritis; but as this was ineffective in the severe cases—for which reduction from the third-week diet was necessary—it appears that the dietary treatment alone was responsible for clearing the enteritis in the milder cases.

Observations

Patient No. 3 was so ill on admission that it was obvious he could not be put on third-week gastric diet. He therefore received glucose fluids only, by mouth, and 1,000 c.cm. of intravenous plasma, followed by 1,000 c.cm. of glucose-saline in 29 hours. The result was dramatic; within 36 hours of starting parenteral treatment he asked for a poached egg. This was allowed with some misgivings, fortunately unfounded. From then on he was put on a third-week gastric diet, and finally reached sixth-week diet at the same time as the non-enteritic patients. In two other cases also—1 and 4—parenteral fluids were necessary, although these patients were kept on third-week gastric diet before this was realized. Case 1 had prolonged diarrhoea, and Case 4 repeated vomiting. They were both given glucose fluids by mouth, and 1,000 c.cm. of intravenous plasma. In each of these cases also the result was dramatic. (Case 4, now here 3½ weeks, has gained 10 lb. in 10 days: this satisfactory improvement cannot be shown in the Table. Case 1 has been here only 2 weeks.)

Details of Cases

General Condition	Case	Age	Time P.O.W.	March	Enteritis*	Other Complaints	Loss of Weight		Weight on Admission		Weight 2 Weeks Later		Hb on Admission	Hb 2 Weeks Later
			Years				st.	lb.	st.	lb.	st.	lb.	%	%
Poor	1	26	5	+	2, 3, 4	Pulmonary tuberculosis	4	2	7	2	6	10	72	78
	2	32	7/12	+	4	Bronchopneumonia	3	0	8	13	9	1	60	76
	3	26	5	+	1, 2, 3, 4	Gastro-enteritis	2	11	6	10	7	9	76	62
	4	29	3	+	2, 3, 4	Gastro-enteritis; pulm. tuberculosis	3	4	8	7	8	7	74	80
	5	25	5	—	3, 4	Gastro-enteritis; tuberculous pleural effusion	—		7	12	8	1	68	78
	6	52	5	+	1, 3, 4	? Beriberi	?2	10	10	4	10	5	60	68
Fair	7	24	7/12	+	2, 3, 4		4	10½	9	3	11	3	72	78
	8	23	2½	+	1, 3, 4		1	10	8	4	9	2	78	84
	9	38	2⅓	+	1	Furunculosis			7	10	8	6	68	78
	10	25	4 9/12	+	1	Frost-bite of feet	3	2	7	7	8	10	76	66
	11	26	1⅓	+	2	Lobar pneumonia	2	7	9	7	10	7½	86	78
	12	23	1½	+	1, 2		2	2	8	8	9	12	72	78
	13	31	4 10/12	+	1		2	0	9	0	9	9	56	78
	14	42	1 10/12	+	2, 3, 4		2	8	10	5	10	13½	80	82
	15	41	4	+	2		2	1	8	13	9	12	72	76
	16	22	8/12	+	1, 2		2	4	7	10	9	0	—	70
	17	35	4	+	1		2	3	9	3	10	8	90	92
Quite Good	18	27	4 11/12	—	—		1	11	9	3	10	0	88	80
	19	28	4	+	1, 2, 3, 4			6	10	8	10	9†	90	90
	20	26	4 11/12	+	1			13	9	12	10	3†	98	86
	21	23	7/12	—	2			3	10	0½	10	6†	90	90
	22	28	6/12	—	—		1	3	9	4	9	6	88	84
	23	38	1 3/12	—	—	Active pulmonary tuberculosis (early)		10	10	4	10	8	86	90
	24	35	1 3/12	—	—	Active pulmonary tuberculosis	1	1	8	7	8	10	90	90

* 1 denotes enteritis during the forced march; 2, enteritis during the period between liberation and dietary treatment; 3, enteritis on beginning dietary treatment; 4, enteritis after beginning dietary treatment.

† These cases were fit to be discharged from hospital before they had been here two weeks.

Apart from these three cases little difficulty has been encountered. The satisfactory cases were kept on third-week gastric diet for periods of from 48 to 72 hours, and then advanced to fourth-week and so on, slowly, until sixth-week diet, with meat, was reached (this stage was reached within 12 days by all except Cases 1, 2, and 4). Case 6 had developed vomiting—considered due to sweets given him by a neighbouring patient—but he also reached the sixth-week stage on the twelfth day.

The most marked gains in weight have been in the second group. This was to be expected, because the third group had lost relatively less weight, and the first group, besides delay in reaching a fuller diet, were nearly all suffering from some active disease. The weight-recording of Case 6 is interesting. On admission this man had severe painless oedema of legs and feet, present since the end of the march—i.e., about three weeks before admission. (Urine N.A.D.) The diagnosis of wet beriberi was considered. Unfortunately, the vitamin B_1 content of the urine was not estimated. The oedema diminished rapidly while on third-week diet with large intramuscular doses of aneurin. The weight-recordings for this patient are as follows: on admission, 10 st. 4 lb.; one week later, 9 st. 7 lb.; two weeks later, 10 st. 5 lb.; three weeks later, 11 st. 2½ lb.

It is highly significant that in such a small group of very recently liberated prisoners of war there are just over 20% of cases of pulmonary tuberculosis. Three of the 5 cases were unsuspected when first admitted here. There is likely to be a high percentage of tuberculosis among our returning prisoners—first, because of the terrible degree of malnutrition present; and, secondly, because of the unhygienic conditions of the prison camps. Would it therefore not be wise to keep at least the definitely malnourished men under observation for 6 to 12 months, and *x*-ray their chests at two- or three-monthly intervals?

Conclusions

All cases suffering from malnutrition are liable to develop diarrhoea if put too soon on a full diet. The intestinal mucosa in malnutrition is often oedematous, and, even when it is not, it is reasonable to assume that the gastro-intestinal tract needs "re-education" in the digestion of a normal diet. In extreme malnutrition, body reserves may be so exhausted that not enough are left to supply even the enzymes necessary for digestion. In the less severe cases of malnutrition in which, however, enteritis is already present, milk-feeding might be regarded as an ideal method of "digestion re-education," if such were the only aim in the treatment. But another very important aim is to restore the depleted body tissues. Third-week gastric diet, including three eggs daily, provides an easily digested diet for the first two days' treatment, and is a safe means of observing the patient's digestive powers. From this starting-point advance can be made along the later stages of gastric diet, adding more protein if necessary. That patients do make a satisfactory gain in weight on such a diet is shown by results obtained in 14 days, 12 of which were spent on this diet.

The more severe cases of malnutrition should be put on parenteral fluids without delay. Plasma, although not regarded as an ideal substance for parenteral nutrition, has proved very satisfactory in three fairly severe cases of malnutrition, and may well be used temporarily when supplies of protein hydrolysates are not available.

Summary

Twenty-one cases of malnutrition in recently liberated prisoners of war have been treated by first putting them on third-week gastric diet with additional protein, and then increasing the diet slowly until it is a normal one; this stage was reached on the twelfth day after admission. During the first two weeks the majority of the patients showed a satisfactory increase in weight, and the enteritis present in some cases on admission cleared rapidly.

Three severe cases were given intravenous plasma until fit to be treated like the milder cases.

Just over 20% of the cases have active tuberculosis; hence the advisability of keeping all malnourished prisoners of war under observation for developing tuberculosis for some time after discharge from hospital.

My thanks are due to the medical superintendent for permission to publish these results; to Dr. I. Davies and Dr. H. Evans for their advice; and to the staff of the Whitchurch E.M.S. Hospital for their co-operation in treating the cases.

IMPAIRED WORKERS IN INDUSTRY

AMERICAN EXPERIENCE AND SUCCESSES

BY

HERMANN LEVY

"Physically impaired workers employed in factories are just as efficient in the jobs they hold as their unimpaired fellow workers." This is the conclusion which official American investigators have arrived at after a careful and detailed study of *Impaired Workers in Industry*,* covering 300 establishments with 63,382 impaired workers. The statement conforms to the general experience in this country of the results of methodical and comprehensive rehabilitation of injured workers and their resettlement in industry. It may be taken as another hopeful indication that the Disabled Persons (Employment) Act is a step in the right direction.

The U.S. is, in general, much advanced in the art of special research in the economic and social field. Investigators in that country know well how to make the best use of statistical methods. The present inquiry provides a good many interesting details of a problem whose complexity should not be underestimated. Of the disabled workers covered by it 87% were reported to be just as efficient as the unimpaired doing similar work, and the 8% reported as more efficient outweighed even the 5% reported as less efficient.

Absenteeism may be regarded as a part of inefficiency. The handicapped worker in many cases finds it more difficult to get a job, but once he has it he is anxious to keep it and to prove to himself and to others that he is as good as, or better than, his fellow workers. It is, therefore, not surprising, indeed, it is highly gratifying, that in the matter of absenteeism the physically handicapped had a better record than the normal worker. Of the former, 44% were reported as having an absentee record no worse than that of their fellow workers, while 49% had better records; only 7% were absent more than the normal worker.

Accident Proneness

In addition to occupational efficiency and absenteeism there is the problem of the position of the disabled in relation to accidents. Employers have at times been reluctant to employ partially disabled workers, fearing that their handicap might involve the risk of further, possibly even more serious, accidents. Latest experience has indicated, however, that such workers may, through being more careful than their fellows, show a smaller injury risk. In the American inquiry only 2% of the firms stated that some of the employees attempted to obtain compensation for the aggravation of an old injury. As to new accidents the physically handicapped generally experienced fewer injuries; in 38% the accident rate was no higher than in the workers without disabilities and in 51% it was lower; in 11% only was it higher. Similarly, changes of job were less frequent among the disabled.

These results lead to another question which still awaits some clarification. We know through the investigations of the Medical Research Council and the Industrial Health Research Board that generally a relatively small percentage of workers in an establishment encounter a relatively high percentage of accidents. This accident proneness has lately been reaffirmed by another American investigation, which showed that in shipyards 23,188 injuries were received by 8,599 individuals, and that more than half of the workers reported two or more injuries in a year; about 20% of the workers experienced 50% of all reported injuries. Does this definite tendency to accident proneness indicate that injured workers are more liable to sustain another injury than normal workers?

The American report on *Impaired Workers in Industry* seems to supply an answer to this question. The rehabilitated worker is not a person who can be fitted into any industrial job. The utmost attention must be paid to his handicap, to the history of his case, and to a series of psychological and sociological factors if the advantages to be derived from his restored efficiency are not to be lost. The Department of Health for Scotland, in a report on *Health and Industrial Efficiency* in 1943, said that persons invalided out of the Forces as medically unfit for further service "fared badly" socially, medically, and "in relation to work" when left to themselves. The American report, in the statement quoted at the beginning of this article, cautiously speaks of "the jobs they hold." This means that all the good features of efficiency, reduced absenteeism, and fewer accidents presuppose that the impaired worker finds the right job and the right kind of occupation.

Selective Employment

The report makes it clear that the crux of the problem is not just placing the disabled worker in employment but placing him in a suitable job. It will be noted with interest in Britain that of the industrial firms concerned only 7% reported that in their establishments there was no physical examination of the disabled before employment nor had an analysis been made of the jobs suitable for them; 17% reported that applicants were examined physically before being employed, but were not placed on the basis of job analyses; 15% reported job analyses only; and 61% reported both. The report shows that many firms, big and small, know that it is now common practice to examine an applicant and to study the physical requirements for each job so that he may be placed most advantageously from his own and the employer's point of view. We have heard much in Britain of late about the higher output per man hour of many American industries. It may well be that this selective placing in industry, which so greatly benefits the disabled worker as well, plays an important part in this, quite as much as the introduction of rationalized machinery. Some small firms consider that the increased personnel required would make this procedure too costly for them, but it is suggested in the report that such establishments do not require a full-time medical examiner.

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* The investigation was prepared for the U.S. Bureau of Labor Statistics in the Bureau's Division of Industrial Hazards by Clarence A. Trump and Frances J. Montgomery, see *Monthly Labor Review*, October, 1944.

Recognition of the importance of and the need for careful selection of employment for disabled persons opens a wide field of activity for voluntary social service, but it is a service which also pays the employer. The advantages which some firms derive from this selection were recorded. A large aircraft corporation employing 900 physically impaired workers noted that "deaf persons have been found very useful in the riveting departments. Because of the noise involved it has been found that their work is generally better than that of persons with normal hearing. This applies to efficiency on the job, absenteeism, and labour turnover. Blind persons have been used successfully in salvaging operations, mainly in sorting the rivets." Sometimes the almost unbelievable happened: devices such as a mirror for a one-armed operator were so successful that the firm concluded that they were equally helpful to normal operators.

It is evident that employers have a novel, but most encouraging task before them if they will study and adopt the teachings of such sample tests as this. Some firms, after considerable job analyses, reported that they had reached their limit in the employment of rehabilitated workers. Many employers seem to think that these workers are only useful on tedious or repetitive jobs or as clerks and watchmen. Perhaps more thorough analyses, the report observes, of physical requirements would reveal additional posts suitable for them. This conforms with the views long held by one of the foremost surgeons in this country, Mr. E. H. Griffiths; but it is highly desirable that the procedure should not be limited to cases of fracture but should be extended to persons suffering any kind of injury or serious disablement, a point which is not yet fully recognized in this country, where rehabilitation is far too much identified with the task of the surgeon only.

In Canada, not unlike the U.S.A., the re-employment efforts of different industries—metal trades, lumbering, and textiles—have not been uniform; there has been more progress and, indeed, willingness in some than in others. It is interesting to note that the Workmen's Compensation Board in Toronto does not hesitate to point out with reference to the re-employment figures of various trades that one industry should not stay behind another in what the board calls "a patriotic duty" (see *Rehabilitation*, published by the Industrial Accident Prevention Associations, 1943). Societies devoted to voluntary social service can surely inspire their employer-members with the desire to help in the re-employment of the disabled worker and thereby lighten the burden placed on the shoulders of "officialdom" by the future social security legislation.

As to the placing of impaired workers in this country, the necessity for job-analysis, so successfully started in the U.S.A., cannot be over-emphasized. Employers will need it (1) in connexion with their liability under the Reinstatement in Civil Employment Act to reinstate workers in their former occupation or in the most favourable alternative occupation that is reasonable and practicable; and (2) in connexion with their liability under the Disabled Persons (Employment) Act to place a certain quota of disabled persons. As the Industrial Welfare Society discloses in a recent publication on "Reinstatement," firms have asked for a standard schedule of occupations which will help them in the classification of jobs suitable for various disabled persons. It is disconcerting that the Industrial Welfare Society has to inform its members that the only schedule of that kind as yet available is one issued by the U.S. Government; this may be consulted at the library of the American Embassy in London.

U.N.R.R.A.'s MEDICAL AID TO CHINA

Even before the Japanese invaded China her public health services were inadequate for the population, and there was a shortage of doctors, nurses, medicines, and hospital equipment. Now, after eight years of war, there is roughly one doctor for every 40,000 of the population and one hospital bed for every 10,000. Up to 40% of the hospitals have been destroyed or looted, sewage disposal plants have been wrecked, and water supplies contaminated. The danger to national health will be even greater when millions of Chinese who have been driven from their homes start to return. China has, however, a medical relief programme, but it is estimated that she will have to train some 35,000 technicians in the next four years to administer it. In the meantime U.N.R.R.A. has come to her help and is recruiting surgeons, physicians, dentists, nurses, sanitary engineers, maternity and infant welfare specialists, tuberculosis specialists, hospital and public health administrators, among others, for work in China. The first to go there will be men with general medical experience; specialists will follow later when training programmes are set up. Special medical supplies urgently needed by the Chinese universities, including books for teaching purposes, have already been sent, part of the passage being by air. Arrangements have also been made to send 30 medical and health experts to train personnel in the medical centres to be established by the Chinese Government. U.N.R.R.A. will dispatch 90,000 lb. of medical equipment for these centres in the coming months. The Chinese Government plans to establish in the near future training centres in Chungking and Chengtu, and later in Kweiyang. Other centres will be set up in Nanking and Peiping when these cities are freed. Short intensive courses averaging from six to eighteen months will be given to people recruited in China by the Chinese Government. There are to be refresher courses for doctors, public health courses for those who have recently graduated and for nurses who have not had public health experience, technical courses for partly qualified doctors and nurses, and training courses for attendants, nurses, and midwives.

Shipping space has been made available to U.N.R.R.A. to carry the supplies to India, and Dr. Tingfu F. Tsiang, Director of the Chinese Relief and Rehabilitation Administration, has arranged for them to be carried on to China by air.

Medico-Legal

PRISON FOR PRETENDING TO BE A DOCTOR

At Manchester Assizes on May 11 Mrs. Doreen Warren, of Heswell, near Liverpool, pleaded not guilty to the charge of providing a false declaration in order to be registered as a medical practitioner.

Prosecuting counsel said that in June, 1943, Mrs. Warren applied for employment as an assistant to Dr. Lipkin, of Liverpool. She said she was an M.D. of Berlin University. Dr. Lipkin told her he could not employ her unless she was on the *Medical Register*. Mrs. Warren got a Miss Davies to sign a declaration that she had seen her certificate of qualification. The General Medical Council thereupon placed her on the Foreign List of the *Medical Register* as temporarily registered in pursuance of Orders made under Defence Regulation 32B. Dr. Lipkin employed her from November, 1943, to January, 1944. According to the report of the trial in the *Manchester Guardian* Mrs. Warren, when interviewed by the police in August last, said she had qualified by a correspondence course. She declined to go into the witness box. After the jury had returned a verdict of guilty Inspector Colshaw said she was a native of Liverpool. She had told a series of lies. One doctor had said she had not the slightest knowledge of medicine except stock prescriptions.

Mr. Justice Lynskey said he was satisfied that Mrs. Warren had never qualified to practise medicine. For her to treat people, pretending to be a doctor when she was not, might cause serious risk to the community. He sentenced her to six months' imprisonment.

R. G. Smith (*U.S. Nav. med. Bull.*, 1945, 44, 159) records his observations on 5 out of 40 men on board ship with mumps who developed orchitis, and all received 500 c.cm. of reactivated dried pooled plasma intravenously as an initial dose. The results were excellent and dramatic. One patient received a second 500 c.cm. of plasma when meningitic signs and symptoms appeared.

Reports of Societies

LATENT PERIOD BETWEEN ONSET AND RADIOGRAPHIC SIGNS

On May 18 Dr. James F. Brailsford read a paper to the Radiological Section of the Royal Society of Medicine on the significance of the latent period which elapses in most diseases between onset and radiographic signs.

He said that the radiographic signs did not coincide with the development of clinical signs, but lagged behind them, except in the case of the pulmonary metastases of sarcoma, which might have attained a large size before any clinical signs. The interval between the two manifestations varied not only in different diseases but in different lesions and sites of these diseases. The clinical signs might have disappeared before the radiographic signs appeared, and the latter might persist to the end of the life of a healthy individual. Obviously radiographs during the latent period would reveal no evidence of the disease, though it might be present. Further radiographs must be taken, after an interval depending on the condition, if they wished to obtain confirmatory radiographic evidence. The interval between the first negative radiograph and the request for the second which showed positive signs was usually very much longer than the latent radiographic period, probably because the first radiograph was of a patient with prominent symptoms which had shown some abatement in the interval, the second being only called for because of a recrudescence of symptoms or their failure to clear up within a reasonable time. The radiographic signs also lagged behind and might even seem to increase after the clinical signs had disappeared; hence it was necessary to wait to obtain radiographic evidence of the effect of any treatment. In pulmonary tuberculosis serial radiographs might show the progressive development of small lesions to complete destruction of most of the lungs even under the most favourable circumstances; while in other cases not only might the small initial foci vanish from sight but such spectacular appearances as those associated with miliary tuberculosis, consolidation, cavitation, and pleural effusion might entirely disappear under conservative home treatment. Therefore the severity of the past attack or attacks could not be judged from the residual radiographic appearance. From the latter it could not even be asserted that the disease was inactive, because a latent period followed reactivation; the significance of the radiographic findings could be appreciated only in the light of a previous clinical examination. Without such examination the interpretation of the negative or positive radiographic findings might be very erroneous. Progress in radiological interpretation would only come by helpful co-operation between clinician and radiologist.

The British Council for Rehabilitation held its first study course during the period May 7 to 11. The centres visited were Horton Emergency Hospital; Roffey Park Rehabilitation Centre; Queen Victoria Hospital Plastic Surgery Unit; the Government Training Centre, Slough; Queen Mary's Hospital Limb-fitting Centre; and Queen Elizabeth's Training College for the Disabled. The course began with a general survey by Dr. Harold Balme, and Mr. St. John Buxton, who followed, discussed the orthopaedic aspect of rehabilitation, and among other speakers during the week were Mr. John Hunter, Dr. T. M. Ling, W/O J. E. Blacksell on the work done for burned air-crew patients, Mr. Langdale Kelham, and Mr. E. S. Evans. The final session was devoted to a conference, over which Lord Rushcliffe, chairman of the council, presided, when Mr. Watson Smyth spoke from the point of view of the trainer of the disabled and Mr. S. J. Maude from that of the ultimate employer of those trained. After these opening addresses there was a general discussion.

J. H. Peters, L. Dexter, and S. Weiss (*Amer. Heart J.*, 1945, **29**, 143) record their observations on 56 cases of echinococcus infection of the left side of the heart by echinococcus cysts, to which they add five new cases. Although it is a rarity it represents a type of unusual heart disease for which surgical relief is promising now that improved technique and thoracic exploration have been developed.

Correspondence

Limits and Dangers of Blood Transfusion

Sir,—I was very much interested in the article written by Major-General W. H. Ogilvie (May 5, p. 619), but some of his statements on blood transfusion strike me as being open to criticism. General Ogilvie says: "To-day we know no limits, in amount or rate of administration, other than the needs of the patient." In my opinion there is a grave danger of overloading the circulation, even in an otherwise healthy adult. I know of one strong, healthy young man who was killed during the blitz by the rapid administration of six pints of blood. There was no reaction, but at post-mortem examination the right side of the heart was found to be full of blood to the point of bursting.

The other remark which I question is: "Fit men recently wounded can take any amount of O (IV) blood from a reliable blood bank." Does General Ogilvie consider it safe to give unlimited O (IV) Rh+ blood to an Rh− patient, especially without inquiring if the patient has had previous transfusions?

General Ogilvie is distressed about blood given during such straightforward operations as gastrectomy or resection of rectum. I can see no fundamental error in doing this, especially in the latter operation. Blood is given in these cases to combat shock and make convalescence smooth, and has little to do with loss of blood. The results in these operations have much improved since blood transfusions have been given, and the earlier the transfusions are given the better.—I am, etc.

Newport, Mon. J. T. Rice Edwards.

Surgical Lessons of War Applied to Civil Practice

Sir,—I have read with great interest Major-General W. H. Ogilvie's paper on surgical lessons of war applied to civil practice. Perhaps I may be allowed to underline the importance of one of the subjects he mentions—infrequent dressings.

In 1941 I was casualty surgical officer at a busy hospital in North London where we saw perhaps a hundred cases a day. There was a large, central, waiting hall with a skylight but no windows. There might be 50 or 60 people present on any busy morning, waiting on the benches or filing slowly into the M.O.'s room. It was the custom for dressings to be changed daily, and in order to speed up matters patients would often begin to take off their bandages as they advanced along the line; then a nurse with a jerk removed the last layer of gauze and the wound was ready for the doctor—and for contamination by the coughing crowd and the dust raised by children passing the time of waiting by running about. It was very difficult indeed to convince either the patients or the members of the nursing staff that it was not from laziness that I tried to restrict my inspection to temperature reading, palpation of regional lymph glands, and questions regarding severity of pain. Many a patient went away grumbling because he did not have his wound dressed; and the nurses murmured that there was "apparently no need for them any more."

Education will be necessary and the authority of the "honorary" will be needed to back up the junior surgeons in their attempt to alter long-established methods of the casualty department.—I am, etc.,

E. G. Herzog.

Varicose Veins: War Experience and Civilian Practice

Sir,—I read Major-General Ogilvie's article (May 5, p. 619) with great enjoyment and instruction. Anything he says carries authority to the whole of the English-speaking medical profession and is readily accepted by us, and particularly by the large number of Service surgeons whom he has so ably led, inspired, and instructed. In view of the weight of his opinion, there is one comment that he makes on varicose veins on which I should be glad of the opportunity to write—it is, that the "safest and most satisfactory way of destroying these calf varicosities without harming the deeper channels" is by "surgical extirpation."

In my experience most of these veins can be cured by ligature and injection of the long saphenous vein at the internal malleolus, after the complete Trendelenburg operation (as General Ogilvie details) plus simultaneous injection of 20 c.cm. of 30% saline at both places. Hypertonic saline is an effective and permanent sclerosing agent for varicose veins when used in this way. In addition it is safe, because if some of it does leak into the main circulation it is rapidly diluted to saline and will not damage healthy endothelium. Doses of 20 to 40 c.cm. of 30% saline have been injected into the veins of the arm in my practice since 1923 for the relief of cerebral and post-spinal headaches and restoring the fall in blood pressure that takes place with a spinal anaesthetic.

In a few patients the leg varices will not be effectively sclerosed by ligature of the long saphenous vein at the groin and ankle. Some of them require ligature of one or two communicating veins in the lower third of the internal surface of the leg in addition. These are detected by palpation with the tips of the fingers, for at the point where they emerge through the deep fascia it feels as if there is a hole in the leg. The back pressure in them is high and no sclerosing agent is effective for long. Last, a few people have incompetence of the short saphenous vein, and this must be tied and injected in the popliteal space. I would emphasize, however, that only a small proportion of patients need this treatment of ligature and injection of the communicating veins and short saphenous vein.

It would be a tragedy if surgeons started to treat varicose veins in the leg by surgical excision, for there is a simple and safe cure which has been perfected through the years of the war and tried out on civilian patients over the whole range of working-life, beginning with men and women on war work in their late 'teens to those in their seventies still working. Excising clusters of veins from the legs, apart from being unnecessary and possibly not curative, will be certain to be followed by sepsis and unnecessary incapacitation. It is often an oedematous, eczematous, and ulcerated field, in fact a pest-ridden swamp, and the less surgery here the better.—I am, etc.,

London, W.1. HAROLD DODD.

Carbachol and its Antidote

SIR,—I do not think there is any need to qualify the statement that atropine is an effective antidote for carbachol as Dr. Hugh Dunlop suggests (May 19, p. 710). Atropine antagonizes the action of all choline esters on the heart, the blood vessels, the intestines, the bronchioles, and the central nervous system fully, and does so just as well after the choline ester is given as before. The abolition of the effect of large doses of carbachol by atropine is regularly observed by students in their practical work here. Of course if the injection of atropine is delayed until carbachol, by filling the bronchioles with mucus, has brought the patient to the point of death, his life will not be saved. Dr. Dunlop makes the remarkable statement that: "When, by mistake, the dose of carbachol given is of the order of two hundred times the therapeutic amount the patient exhibits often a phase of severe hypertension." On how many patients, given such a dose, has Dr. Dunlop made this observation? How "often" has he seen such patients? It is true that atropine will not paralyse the action of carbachol on sympathetic ganglia or on the suprarenal medulla, and therefore it is likely that when atropine is used as an antidote for a large dose of carbachol there will be a large rise of blood pressure due to an intense stimulation of the sympathetic system. But this will not kill the patient or do him any permanent harm. It is surprising how little a cat or a dog is affected by a single intravenous injection of a large dose of adrenaline; there may be temporary collapse, but the animal survives.

As for Dr. Dunlop's opinion that the two "mishaps" from carbachol would probably not have been averted by the use of atropine, from my experience with animals I would say it is as safe a prediction as can be made that a patient who has had a large overdose of carbachol can be saved by atropine sulphate. In such an emergency it would be wise to give it intravenously, and to repeat the injection if necessary.—I am, etc.,

Department of Pharmacology, Oxford. J. H. BURN.

Sulphonamides and Measles

SIR,—Dr. L. Sheldon (May 12, p. 680) writes: "The dosage for children of 1 to 6 years was 1/4 tablet four-hourly." On the same page R. J. Eadie writes: "It is rightly recommended in acute infections that where sulphonamide chemotherapy is used it should be administered in full doses, and that the blood concentration should be kept at an efficient bacteriostatic level for the duration of the course, which is limited usually to 7 or 8 days." Surely a dose of 1/4 tablet—a tablet presumably of 0.5 g.—is quite inadequate in an acute infection like measles.

Incidentally, regarding toxicity, I have a letter from the home doctor of a boy who has just come to this school. He says: "I thought it as well to let you know that he is intolerant of sulphonamides in any form and liable to become convulsed and unconscious after quite small doses." I have never seen unconsciousness and convulsions following their administration nor can I recollect having seen them recorded. It would be interesting to know the frequency of these alarming conditions. —I am, etc.,

A. S. HENDRIE,
Gresham's School, Holt. Medical Officer.

SIR,—Reading the enthusiastic reports on sulphonamide treatment of measles, which seem to advocate the routine treatment of all measles cases with one of the sulpha drugs, I feel prompted to record my experiences in 152 cases, seen during the last five years, since I have been using sulphathiazole, sulphadiazine, or sulphamezathine. No case, however serious, was sent to hospital, and none of my patients died. This does not mean much, as the mortality generally has declined to what appears in the last epidemic as under 0.05%. All patients, irrespective of treatment, and with the exception of a few cases of bronchitis and one of bronchopneumonia, were well and up again within a week after the eruption of the rash. In 63 cases reliable temperature charts were kept until five days after the rash appeared. In the great majority of cases thus observed, and probably with all my patients, the temperature dropped to below 100° F. 36 hours after the rash had fully developed, and it remained low without any treatment. It did not matter if the patient looked seriously ill in the prodromal stage or stage of eruption; they were all comfortable 48 hours later.

I have treated only 26 cases of complications, or anticipated complications, with sulphonamides. I was prepared for complications if the temperature remained above 101° F. 36 hours after the rash was fully out. The complications included 6 cases of otitis media, one of which developed otorrhoea during the sulphonamide treatment; 3 cases of capillary bronchitis; 2 cases of bronchopneumonia, one of which developed during the sulphamezathine treatment (probably the initial dose was insufficient); and one of confluent bronchopneumonia in a baby of 15 months, whom I saw for the first time four days after the measles rash. All responded well to massive doses of sulpha drugs, and, with one exception, were well and without pyrexia after 36 hours. Especially gratifying and surprising were the three cases of capillary bronchitis, which all occurred within 48 hours after the rash. The patients were cyanotic, with respirations up to 60, and the ominous pale rash. Contrary to expectation, this condition, which is believed to be caused by the measles virus itself, responded promptly to massive doses of sulphadiazine. Bronchitis in children who had a history of bronchitis, asthma, or whooping-cough in the previous year was not improved by the treatment. I examined practically every case during the eruption stage with the auriscope, and I found a red ear drum in about 25%. Though some of these patients complained of an occasional earache I did not consider it an indication for treatment with sulphonamides. None of these cases developed otitis media. I gave sulphadiazine prophylactically to eight children who had been in close contact with measles, starting five days before I expected the rash to develop. Prodromal symptoms and the rash seemed to be uninfluenced.

There is, in my opinion, no justification for routine treatment of measles cases with the sulpha drugs at present, and under home treatment. Hospital experience may be different, though Joyce Wright, in the *Journal* of March 3 (p. 285), seems to come to the same conclusion. Complications are few and can generally be kept under control with the sulphonamides when they arise. The stage of " illness " after full development of the rash appears to be too short to warrant treatment with a possibly toxic drug. If sulpha drugs were given on such a large scale undesirable toxic incidents would have to be expected more often.—I am, etc.,

London, W.9. F. Muller.

Nursing of Measles Patients in Hospital

Sir,—With recommendation (*a*) of Dr. Joyce Wright's paper on ear disease in measles (March 3, p. 288) everyone should agree. A minimum of 12 feet between bed centres should be the rule in every ward in which infections of the upper respiratory tract form a part of the work. To this we may add that no bed centre should be nearer to the end wall than 6 feet. These two points, with sufficient space between the ends of the beds, may be said to make up the internal ventilation of a ward. There must also be free external ventilation. This warning is necessary because of the crowding that has gone on in nearly all our hospitals as a result of the war and the building of blast protection outside the windows. Because they have had no deadly infections spreading through such wards physicians, surgeons, and administrators without special experience have weakened on the importance of these things. A generation of students and nurses has gone out into the world brought up under these cramped conditions; and examples can easily be found of how those working in a hospital can become mentally immune to the insanitary conditions they have always been used to and take for granted. Dr. Wright's warning is salutary, and all the more so as she writes from one of the fever hospitals taken over from the old M.A.B. which have had practically the only wards in London run under proper hygienic conditions during the past five years.

With recommendation (*b*) we may also agree, not so much because of infection of the middle-ear cleft, which at this age is not dangerous and should be recoverable, but because of its devastating effect on the alimentary tract under 1 year of age. It is when we come to recommendation (*c*) that I begin to cross swords with her. As to (*d*), I have not worked in a ward submitted to the modern control of dust-borne infection, but I am sure it is necessary. With nearly the whole of recommendation (*e*) I disagree, except in so far as it describes the general principles of nursing carried out by every careful mother. Of recommendation (*f*) one would not complain, but I am in absolute opposition to recommendation (*g*), which I have known to do inestimable harm, and recommendation (*h*) is another subject.

The paper is an example of that pseudo-scientific type of medicine that is becoming so fashionable to-day, which looks only at the invisible invading organism and does not see the human being lying in the cot. It is a convincing piece of evidence in favour of that treatment of the child as a physiological unit which was developed in the 'twenties by many M.O.s of the M.A.B. when I was the first visiting consultant. It is regrettable that the misuse of isolation wards and the discovery of types of streptococci have prevented that treatment from being carried out with the same enthusiasm as it was in 1930, and I doubt whether the results of otitis media in acute infectious diseases are as good as they then were. It is, however, still carried out in its entirety at the Grove Hospital. Dr. McEntee has sent me his figures for the same period as that of Dr. Wright's paper—429 cases, of which 21 developed otitis media after the fifth day, an incidence of 4.9%. Not that statistics mean anything in these cases, except for one figure, and that is the number that are not well with a dry ear and normal hearing at the end of eight weeks from the day of discharge. At the Grove there was one doubtful case. Dr. Wright does not refer to this dominating date in otology, but she mentions another figure which is illuminating—18 mastoid operations were performed in 496 patients: at the Grove none. Leaving out those done for gastro-enteritis—a condition that was held to be an indication for a mastoid operation at that time—too many mastoids were being done either because of a fallacious plan of campaign or because of the timid interpretation of the indications for mastoidectomy. I suspect the former, though the six operations done in children under 2 are regrettable, for at this age the operation is seldom necessary.

The child as a physiological unit connotes three things that are germane to the subject. The erect position which admits of Eustachian drainage, movements of the muscles of the pharynx which stimulate this drainage, and activity which increases the circulation. This is the only way in which any influence can be exerted on the mucous membrane of the middle-ear cleft. The " ear treatment " is simply a toilet of the meatus. Treat the child and he will get well. When a roar of welcome greets the doctor or a nurse on their entry to the ward ears dry up; when all is " prunes and prisms," or the children under 2 are allowed only the exercise of their cots they will not.

We know that by the time the children are well enough to run about no harm comes from throwing them all together whatever the haemolytic streptococcus concerned. We learnt that at the special ear clinic at the Southern Hospital, which is still an integral part of the organization for the treatment of otitis media in the fever service of the L.C.C., though it had temporarily to be shut down when preparations were begun for the E.M.S. We saw it at Joyce Green, where Dr. Mitman provided a ward for all the ear cases after the 21st day of discharge, during which he had them all isolated in the bed next to the doors of the ward. This was a reasonable compromise between the two schools. Every one of those cases got well and not one operation was performed. I know how harmful is " the procedure followed in bed-isolation wards," where the child is " restricted to his own bed area " and not allowed to associate with his little friends, because ears will not get well with that limited activity, and they hang on until the middle-ear cleft becomes infected by the skin organisms and chronicity results with its otitic morbidity and life-time risk of otitis mortality.

And now for recommendations (*e*) and (*h*). I doubt whether the modern nursing habit of pushing things into a baby's nose is good; certainly they should go no further than the inturned area of skin where " bogies " form. " Discard jars " should not be used; the scientific anti-cross-infection receiver is a small paper bag into which the pledgets and sticks are thrown, the mouth of the bag is then screwed up, and the whole thrown into the flames. These streptococci can only have touched the thumb and two fingers of each hand. Of course a nurse should wash her hands. Sterile wool is unnecessary; it is also harmful because the sterilization breaks up the fibres and the wool adheres less well to the sticks so that the mops are more likely to be left in the meatus. Of course bedpans should be cleaned, but these contain the organisms of the alimentary canal, not of the upper respiratory tract. Even in typhoid the organism in the ear is a haemolytic streptococcus. As to mugs, spoons, and forks being boiled, I agree as hospital equipment develops; but no one has come to any harm from them when they have been properly washed. The " no-touch " technique is not suitable for a mastoid wound. I have seen cases go wrong from a slavish adherence to a stereotyped technique. It is the patient's skin that matters, not the dresser's. Keep it dry and don't let skin touch skin where pinna and scalp meet. You cannot do that efficiently with two pairs of forceps. The child with his bed covered with toys and books is always a difficult one, but to deprive them of all toys and books is unkind. As one of my correspondents on this matter says: " You cannot put morale into a statistical table."

Barrier nursing I have already dealt with. There remains the question of sulphonamides. I think that every case of otitis media with discharge should be given a course of sulphonamide therapy. Not that it cures the otitis media, but it stops invasion in some cases where otherwise it would occur. But the nurse should not keep the patient from the upright position and activity longer than is essential. I do not agree with " claymore therapeutics," where time and time again the microbe is given hard hits that lay the patient low. In two cases it was suggested that an operation must be necessary because the drug did not cure the condition. The sister of the ward got the patient well in a few days by the method of physiological activity that she had learnt in the special ear clinic at the Southern Hospital.—I am, etc.,

T. B. Layton,
Palermo. Otologist to the London Fever Service, 1920-44.

Desert Treatment of Chronic Otorrhoea

SIR,—To the recent correspondence on the treatment of chronic otorrhoea might I submit another line of treatment. The high incidence of inflammatory and suppurative diseases of the ear, primary and recurrent, in the Middle East tempted me to try a completely new line of treatment, and the initial results have been almost dramatic. All the cases were treated at a field hospital in the desert under adverse conditions. The outline of treatment is as follows:

1. Auriscopic examination and the condition noted.
2. Irrigation of pus, debris, and wax in all types of cases, and whenever these are found, with solution of sodium bicarbonate 1 drachm to 1 pint of warm water.
3. The patient holds the auricle upwards, outwards, and backwards by extending his hand across the vertex in the usual way.
4. Hot air is blown into the meatus three times a day through an aural speculum by means of a Eustachian catheter heated over a spirit lamp, and pumping is supplied by a Politzer bag. Initially a dental hot-air syringe was used.
5. The air feels "cold" to the patient after 20 pumps of the bag on an average, and the patient is instructed to say "cold" when the air ceases to be warm.
6. I have employed 7×20 pumps three times a day, the whole procedure, including heating, taking from 3 to 5 minutes.
7. In cases with copious discharge and resistant to treatment hot air was also blown through the Eustachian tube via a catheter, but frequently in cases with large perforations of the drum the air when blown into the ear was felt by the patient to enter the nose.
8. Light plugs of wool inserted in the ear after each treatment.
9. It is advisable for the operator to wear a mask.

The chief points of interest found in the treatment were: (1) The majority of the patients took a keen interest in the treatment. (2) The rapid disappearance of pain in acute cases. Often the patients would come and ask for a treatment if pain recurred. (3) Favourable response in very chronic cases. (4) No medicaments are used; therefore the treatment is economical. (5) By means of a bath thermometer the estimated temperature (dry heat) obtained is roughly 200° F. (6) Many of the chronic patients remarked on the rapid disappearance of discharge and pain with this treatment as compared with previous treatments. (7) In several cases recent perforations actually disappeared. (8) The cases were not chosen ones, and where two ears were affected the more severe was treated by this method and the other with sulphonamide in glycerin (5%), and in these cases the hot-air treatment gave better results. (9) In no single case was there complaint of burning sensation during treatment. (10) Patients can easily be trained to carry out the hot-air part of the treatment on one another, and this was actually the practice in my department.—I am, etc.,

C. J. SCOTT,
Kent Aural and Ophthalmic Hospital, Maidstone. Major, R.A.M.C.

War Neuroses after Psychological Trauma

SIR,—Air Commodore Gillespie's description of Freud's account of the traumatic neuroses (May 12, p. 653) cannot be allowed to pass without correction. In the first paragraph dealing with this subject he quotes from Freud's *Beyond the Pleasure Principle* (published 1920, translated 1922): "I think one may venture, tentatively, to regard the ordinary traumatic neurosis as the result of an extensive rupture of the barrier against stimuli." At this point the quotation marks are closed but he continues to quote verbatim: "In this way the old [naive] doctrine of 'shock' would come into its own again, apparently in opposition to a later and psychologically more pretentious view, which ascribes aetiological significance not to the effect of the mechanical force but to the fright and the menace to life." Here his quotation ends, but Freud goes on to say, "but these opposing views are not irreconcilable, and the psychoanalytic conception of the traumatic neurosis is far from being identical with the crudest form of the 'shock' theory." I can only quote Freud unabridged as it is so condensed. Air Commodore Gillespie's quotation of odd sentences from it, which comprises the next part of his paragraph, has changed the original meaning.

> "While the latter [shock theory] takes the essential nature of the shock as residing in the direct injury to the molecular structure, or even to the histological structure, of the nervous elements, we seek to understand the effect of the shock by considering the breaking through of the barrier with which the psychic organ is provided against stimuli. and from the tasks with which this is thereby faced. Fright retains its meaning for us too. What conditions it is the failure of the mechanism of apprehension to make the proper preparation including the overcharging of the systems first receiving the stimulus. In consequence of this lower degree of charging these systems are hardly in a position to bind the oncoming masses of excitation, and the consequences of the breaking through of the protective barrier appear all the more easily. We thus find that the apprehensive preparation together with the overcharging of the receptive systems represents the last line of defence against stimuli. For a great number of traumata the difference between the unprepared systems and those prepared by overcharging may turn the scale as to the outcome: with a trauma beyond a certain strength such a difference may no longer be of any importance. When the dreams of patients suffering from traumatic neuroses so regularly take them back to the situation of the disaster they do not thereby, it is true, serve the purpose of wish fulfilment, the hallucinatory conjuring up of which has, under the domination of the pleasure principle, become the function of dreams. But we may assume that they thereby subserve another purpose, which must be fulfilled before the pleasure principle can begin its sway. These dreams are attempts at restoring control of the stimuli by developing apprehension, the pretermission of which caused the traumatic neurosis. They thus afford us an insight into a function of the psychic apparatus, which without contradicting the pleasure principle is nevertheless independent of it, and appears to be of earlier origin than the aim of attaining pleasure and avoiding pain."

Any question of paradox, "the greater the apprehension the less the likelihood of developing a traumatic neurosis," as suggested by Air Commodore Gillespie, is dispelled by this full quotation.

In the next paragraph headed "Simple Traumatic Neurosis" Air Commodore Gillespie states: "The central feature of the classical traumatic neurosis has been the recurrent dreams which recapitulate the traumatic event. Freud (1922) made it the point of departure for his observations on the repetition-compulsion phenomena." Continuing to quote from Freud where I left off: "This is therefore the moment to concede for the *first* time an exception to the principle that the dream is a wish fulfilment . . . they obey rather the repetition compulsion, which in analysis, it is true, is supported by the (not unconscious) wish to conjure up again what has been forgotten and repressed. Thus the function of the dream, viz., to do away with the motives leading to interruption of sleep by presenting wish fulfilments of the disturbing excitation, would not be its original one; the dream could secure control of this function only after the whole psychic life had accepted the domination of the pleasure principle." So the dream by its development of apprehension can be regarded as a method of repetition compulsion to deal with the intruding stimuli. Freud discusses repetition compulsion in a paper (1919): "We are able to postulate the principle of a repetition compulsion in the unconscious mind, based upon instinctual activity and probably inherent in the very nature of the instincts—a principle powerful enough to overrule the pleasure principle, lending to certain aspects of the mind their daemonic character and still very clearly expressed in the tendencies of small children." In *Beyond the Pleasure Principle* he further elaborates his views on the subject, and demonstrates the part it plays in mastering painful experiences. Then he modifies his views on the dream as a wish fulfilment to bring them into line with this new discovery. (*Vide* quotation above.) Air Commodore Gillespie then continues: "It would not invalidate his [Freud's] speculation on repetition if this kind of dream were to be found to depend not on disturbance of the organization of the ego but on more primitive properties." As I have just shown Freud does consider repetition compulsion to belong to that borderland between physiology and psychology—i.e., the instincts. With regard to the traumatic dream itself, its outstanding characteristic is its exact photographic-like reproduction of the actual happening and is in no way whatsoever the result of any ego elaboration; this in itself places the dream in a different category to those of the pleasure principle, which are essentially ego elaborations, and, as Freud has shown (in my quotation above), are the result of disturbances in the ego. Air Commodore Gillespie goes on to say, "This type of dream may be regarded *instead* [italics mine] as a preservative phenomenon at the physiological level." If instincts belong to physiology then this is exactly the argument which Freud advanced in *Beyond the Pleasure Principle*, and is generally accepted as a true statement by psychoanalysts.—I am, etc.,

Bishop's Stortford. D. N. HARDCASTLE.

Ovariotomy or Caesarean Section?

Sir,—I desire to express my gratitude for the sage and humane counsel of Mr. Victor Bonney (March 31, p. 459) and for Prof. S. J. Cameron's example (March 3, p. 307) of how to section a patient in bed when circumstances demand it.

Mr. McIntosh Marshall (March 24, p. 421) is one of the pioneer exponents of local analgesia for Caesarean section. My regret is that I did not follow his lead sooner. Local analgesia is undoubtedly ideal. The relaxation of the abdominal wall permits one to discard retractors. The uterus contracts and retracts so beautifully that I am persuaded the blood loss is less than for normal delivery. I find that I have barely time to clear the mucus from the throat of the infant, which is usually born with its eyes wide open, and lay it between the legs of the mother before the placenta presents itself in the wound. Child and placenta together are handed to the nurse with instructions not to sever the cord until pulsations cease. This may be accomplished, using 1 in 2,000 nupercaine solution, by bilaterally blocking thoracic nerves 8, 9, 10, 11, and 12 each with 7 to 10 c.cm. anaesthetic solution and infiltrating 10 c.cm. around each iliohypogastric nerve in its course through the internal oblique muscle from 3 to 4 cm. above to 2 cm. medial to the anterior superior iliac spine. When the abdominal cavity is open 5 c.cm. of the solution is infiltrated on each side of the bladder into the extraperitoneal tissue and 10 c.cm. beneath the peritoneum in the vesico-uterine excavation. To prevent the parturient being distressed by the theatre display, needle pricks, etc., she is given a subcutaneous injection of 15 mg. omnopon or morphine before the operation (2½ hours for preference, if time permits), and on the table she is kept from moving her limbs by the very lightest chloroform or vinesthene narcosis. Before she leaves the table the mother is shown her baby, and on her return to the ward she is given a cup of tea or ovaltine as she prefers, turned into Sims's posture, and so to sleep.

Post-operative nausea and headache are abolished and the improved well-being of the mother is very evident. Nupercaine is boilable and does not inhibit the action of the sulpha drugs—an important matter when operating on a patient whose membranes may have been ruptured for 24 hours, and who may have been examined repeatedly by unclean native midwives before admission to hospital. I would never revert to other types of anaesthesia except at the express desire of a patient or where a suitable local analgesic agent is unobtainable.—I am, etc.,

Poona. F. R. W. Kinkead Allen.

Women in Labour

Sir,—I have read the correspondence of Dr. Elam and others in your recent issues with great interest. It is yet another incident in the "ever-since-Simpson" controversy upon anaesthesia and labour. Dr. Violet Russell mentioned my name in her contribution on April 28, and I am constrained to comment, apologetically, as my remarks may be considered to be irrelevant and her reference to my work misunderstood.

It appears that the general consensus is that an anaesthetic must be given in labour or woman suffers unbearable pain. The assumption that normal labour is painful is erroneous. Surely painful labour is abnormal, or must we admit that the human race in order to survive is subjected to pathological adventure? Do scientific and biologically minded men, even though they may have no particular philosophy, really accept without question that the most desirable experiences of a woman's life, and her obvious natural urges, are rewarded in their ultimate perfection by an ordeal of pain and danger?

It remains a fact, however, that labour is painful in the large majority of cases, particularly those attended by members of the medical profession. In the absence of primary physical abnormality, painful labours are due to abnormal emotional states. The pain–fear–tension syndrome and its physical manifestations cannot be fully discussed here, but I seriously urge obstetricians to inquire into this matter. The factors concerned with interpretation and intensification of sensory stimuli are important, because the mechanism of dilatation and expulsion depends upon them for their integrity.

The emotional states of a woman in labour have variations within normal limits without disturbing neuromuscular harmony or polarity. They are constant and amenable to care and treatment. Controlled emotional influences dispense with both the desire and the desirability for anaesthesia. Natural childbirth is not only free from unbearable discomfort, but attended by a pleasing and satisfying sense of accomplishment—a reward of which many women do not wish to be robbed by enforced unconsciousness. There are hundreds—probably thousands—of women in this country who can testify to the truth of this statement, but they remain silent because they are happy in their own experience, and have no desire to be called lunatics or liars by acquaintances who have themselves been allowed to suffer.

As I have written elsewhere: "It must be recognized that if and when emotional manifestations are abnormal parturition becomes pathological, and requires treatment by scientific means as expeditiously as an obstructed labour. It is a serious complication, and one of the major causes of maternal morbidity."

Anaesthetic must always be available and ready for use. We all should use it when pain threatens, but once natural painless labour has been witnessed without prejudice, anaesthesia becomes an emergency or adjuvant, instead of an adopted routine, for pain is recognized and treated as an abnormality. The difficulties that have strewn the path of this teaching are almost unbelievable when such a prize is at stake as the abolition of the fear of childbirth. But we are a conservative profession, and demand numbers, statistics, and controls before accepting innovations contrary to orthodoxy.

Students have only recently been instructed in the emotional influences of pregnancy, and their curriculum must conform to the requirements of examiners. I recently had the privilege of visiting a number of the universities in the British Isles, and found that, with few exceptions, the organizations and structure of the maternity teaching hospitals make educational changes difficult, and until these obstacles can be overcome we must expect painful labour and the general use of anaesthetics.—I am, etc.,

Woking. Grantly Dick Read.

Sir,—I have read the letter by Mr. John Hamilton (May 19, p. 714) with interest. The psychological aspects of childbirth and its related processes, such as lactation, have been largely ignored and the average labour is by no means necessarily a normal one. I agree with Mr. Hamilton's recommendation that the suggestive word "pain" would be better replaced by the innocuous term "contraction." Furthermore, the relieving of muscular tensions would help to attain "a calm conduct of the ante-natal period" and of the labour itself. This subject has been described in detail by Jacobson (*Progressive Relaxation* 1938) and has been used in pregnancy and parturition by Grantly Dick Read (*Revelation of Childbirth*, 1942). I woul add that this method has also been found useful in hypertension and for sleeplessness, and might have been mentione with advantage in the reply to the question on insomnia (p. 721).

Too little attention is paid to the psychological aspects o general anaesthesia also. I have known hospital sisters t enter the theatre with a cry of "Nurse! You've forgotten t bring the vomit bowl," while I have been attempting a peacefu induction.—I am, etc.,

Sheffield. R. O'Rahilly.

Infant Deaths

Sir,—The letter of Dr. T. B. Sellors (April 28, p. 607) contains the fantastic suggestion that "swaddling" is necessary i order to restrict a baby's natural movements "to ensure re which is one of the essential needs of early animal life." Wh should the human infant be subjected to such maltreatment Newly born lambs and other very young animals are burstin with energy and require no swaddling or binding to restri their healthy and vigorous movements. Nature makes pr vision for some freedom of movement before birth by floatin the child in liquor amnii. Abdominal paracentesis of the pre nant uterus has been shown to be practical for certain radi logical investigations, so why not interfere still further wi Nature and perform a paracentesis regularly during pregnan and drain off liquor so that the uterine muscle can caress ar "swaddle" and inhibit the movements of the growing bab

Dr. Sellors's reference to swaddling as "a universal custom from time immemorial" set me searching for references in many obstetric textbooks and books on paediatrics both British and American, but with no success. That massive work on *Woman* by Ploss and Bartel made no reference to the care of the baby. I had no success with the *Encyclopaedia Britannica*, but the *New-Born Baby* by Dr. Eric Pritchard proved of great interest and gave quotations well worthy of repetition.

Dr. Pritchard refers to infants' clothing which "fulfils the necessary conditions of comfort, warmth, economy, cleanliness, facility for free movement, and skin activities." There is a delightful chapter on nursery fallacies. He says: "Many of the most egregious nursery practices find their sanction in antiquity, and owe their perpetuation to the conservative adhesion to authority which is shown by even the greatest of the masters of medicine . . . who, each in turn, followed blindly in the footsteps of his predecessors." He quotes from Dr. George Still's work on the *History of Paediatrics*, which I have not seen:

> "First as regards binders. These monstrous inventions, which in modified and mitigated form have survived until the present day, originated in the dark periods of medicine when 'swaddling' along with 'salting' was regarded as an essential part of the hygienic ritual of the newborn (Galen, A.D. 130)." In 1472 Paolo Bagellardo "gave full details of the method of binding up the arms, body, and legs of newborn babies, so that the child might be properly shaped . . . to the end that the baby should not become a hunchback, but be properly pressed into shape." He quotes Mauriceau (1668): "Let his [the baby's] Arms and Legs be wrapped in his bed and stretched strait and swathed to keep them so, viz., his Arms along his sides and his Legs equally both together with a little of the bed between them that so they may not be galled by ubbing one another: after all this the Head must be kept steady and strait with a stay fastned on each side the Blancket, and then wrap the Child up in Mantles or Blanckets to keep it warm. He must be thus swaddled to give his little body a strait Figure, which s most decent and convenient for a Man and to accustom him to keep upon the Feet, for else he would go upon all four as most other Animals do." Again he quotes the English physician, William Cadogan, who wrote in 1748: "The first great mistake is that they think a newborn infant cannot be kept too warm: from this Prejudice they load it and bind in with Flannels, Wrappers, Swathes, tays, etc., commonly called Cloaths, which altogether are almost equal to its own Weight." John Cooke, another Englishman, wrote n 1769; "If they were not swathed, but allowed as much freedom s puppies, it would be much better for them, as I have shown in ormer discourses on the cause of the surprising mortality of infants under two years of age." Dr. Pritchard finishes this section with he comment: "Binders, long clothing, tight shawls and other impediments to free movement, by hampering muscular action, delay the eneral development of the body as a whole, encourage weak backs, pinal curvatures, and pot belly, and by restricting the expansion of he abdomen predispose to inguinal hernias."

No doubt the Association of Maternity and Child Welfare entres has done much to rationalize clothing for the newborn baby, but all this can be of little benefit if a final firm lanket is securely wrapped and fixed to immobilize the hapless fant. In my experience it usually is a firm blanket and not loosely knitted shawl lightly applied. No one suggests that e object of this tight wrapping is to deform the child, as in roducing the tiny foot of a Chinese lady or the distorted skull the Incas; the reason, I am told, is to prevent thumb-sucking. hat a penalty!

Before writing my original letter (April 14, p. 529) I made rtain inquiries which lead me to believe that tight wrapping as "widespread" and not merely a local atrocity which had me under my notice. Dr. Sellors's letter is mostly irrelevant d he endeavours to side-track the issue, but I am more than er impressed with the extreme importance of this matter. veral national and provincial papers printed extracts under ch headings as "Babies Tucked up too Tightly," and although is publicity has not improved the cordiality of certain memers of the nursing profession toward me I believe some little od has been achieved. John Cooke's observation quoted ove is worthy of special note.

I hope paediatricians whose status will command respect will ake some definite pronouncement if their experience is similar mine, and that many doctors who are competent to judge l play their part in investigating my "mischievous belief" d helping to prevent further waste of life.—I am, etc.,

Huddersfield. S. H. WADDY.

Bread and the Bowels

SIR,—The *Journal* of March 17 has just reached me and I was interested to read the report of the Nutrition Society on bread (p. 379). For the past five years my family and I have been stationed in the centre of India at a railway junction. Owing to the absence or high price of imported (and transported) goods, we have been compelled to eat those foods which are grown in the district. The grain, vegetables, pulses, fruit, etc., mostly come to us from within a radius of 50 miles or so. The basic diet of the district is wheat, dal (lentils), spinach, to which for the more wealthy may be added milk, butter-fat, and rice.

It has been our custom to buy a bag of wheat at harvest-time, and from this during the ensuing year quantities are taken as required and ground in the local "punchukki." The flour so obtained is made into leavened wholemeal bread or into chuppatties. A special hard wheat is also used to make a very palatable porridge. The flour obtained from the "punchukki" is 100% extraction, and from this the cook picks out the coarser particles but no more. This high-extraction wheat flour, then, has been the basic diet for us and our children for the past 5 years, and we consider that it has been on the whole very beneficial. Its most obvious and rapid effect has been on the bowels: two normal movements a day (except perhaps in the hottest weather) have been the rule as with the healthy Indians around us (an Indian who gets only one movement a day usually considers himself to be rather constipated).

For those liable to diarrhoea (convalescence after dysentery) and perhaps in some children under 2 years this high-extraction flour may be too coarse. For a healthy adult I would suggest that the best form of wheat for the table was a well-made fresh chuppatty with butter—better than white bread for the general health, perhaps better than leavened bread for the teeth, and having with butter a pleasant enough taste to make jam unnecessary. However, Britain will never adopt chuppatties, and in any case the "double roti" saves the housewife considerable trouble and time.

The first important point I would like to make is that I believe (correct me if I am wrong) that in these coarse diet, wheat-eating areas of India duodenal and gastric ulcer, appendicitis, etc., are fairly uncommon (in spite of the chillies). I think you would find cancer of the stomach also low, but as I have no statistics before me I will not press the point. The second point is that I believe if given the choice the vast majority of the British people would choose white bread to brown; they certainly would have done pre-war. As a vehicle for jam white bread is very pleasant. The third point is that unless bacon and eggs are as good for the bowels as high-extraction wheat flour what is lost upon the roundabouts by milling is not gained upon the swings by eating eggs and bacon. The fourth point is that with the coming of peace, and the availability again of large amounts of jam, chocolate, lollypops, and other kinds of sweets, wholemeal bread will be more, not less, necessary for the health of the population.—I am, etc.,

Itarsi, C.P., India. M. L.

"Bread—Defeat and Victory"

SIR,—Sir Ernest Graham-Little (May 26, p. 750) writes, ". . . it may profitably be noted that Russian soldiers have won their resounding victories on a diet mainly composed of whole-grain bread." Our gallant ally Soviet Russia first retreated then advanced on whole-grain bread. Our enemy Germany, on the same bread, as a corollary, first advanced then retreated. With such perfectly controlled experiments, it is difficult to see why Sir Ernest should consider there is a causal relationship between "intake of bran" and "output of victories."—I am, etc.,

London, W.1. J. DOUGLAS ROBERTSON.

Chlorine Inhalation for the Common Cold

SIR,—Some years ago I was impressed by two patients who accidentally inhaled chlorine while suffering from colds, and whose colds promptly recovered. I found that I could invariably abort my own colds by inhaling small quantities of chlorine gas, and, in fact, have not had a cold since I adopted this method two years ago. But I was doubtful if the mucous membrane would stand the insult. However, after being re-

reassured by an eminent laryngologist that ciliated epithelium could regenerate in four days, I decided to try chlorine as a cold cure among the workers in a small factory engaged on important war work, where absenteeism from colds interfered with production.

The method adopted has been to add 30 minims of HCl fort. to about 2 drachms of pot. chlorate in a dry 8-oz. bottle, allow to stand stoppered for 15 minutes, and add water gradually to dissolve the chlorine. The victim is persuaded to attend the first-aid room once an hour, when the unstoppered bottle is held under his nose, and he must sniff sufficiently hard to make him cough. On the first occasion he is given 5 grains of aspirin and a tablet of benzedrine to clear his head.

All those who volunteered to be treated in this way were sufficiently relieved to continue the treatment with enthusiasm. None took longer than three days to cure; most took one or, at most, two days. In January, February, and March this year 62 people with colds were so treated, and between them lost only one day's work. The sceptics, who did not attend, in some cases stayed at work with their colds, but 13 people stayed away, sending medical certificates that they had colds, and between them they lost 44 days of work. The total population at risk averaged 225. I have had no complications, such as sinus infection or bronchitis, in any of the treated cases.—I am, etc.,

Ashtead. W. Edwards.

Sulphonamides in Pus

Sir,—It seems to be a generally accepted clinical rule that sulphonamides are inactive in the presence of pus. (Local treatment [of otitis media] by sulphonamides is irrational because . . . the drug . . . is inactivated by pus (*Journal*, April 29, p. 617). In October, 1944, we were anxious to obtain a culture of the gonococcus to make antigen for the complement-fixation test. We chose—for culture on citrated rabbit's blood agar—urethral pus containing many gonococci, demonstrable by Gram-stained smears, showing a minimum of contaminating bacteria, and taken from recently infected persons on their first diagnostic visit. All our cultures were negative. We made a number of attempts, using media in triplicate, but to no effect. In spite of the well-known difficulty of growing gonococci these results were so different from our previous experience that we made inquiries as to the nature of any treatment undergone by the patients before we had seen them. We found that they had all been taking sulphathiazole—6 g. a day for twenty-four hours—before attending the laboratory. After learning this we treated our media with procaine (novocain)—para-aminobenzoic acid being unobtainable—and then found that our media supported the growth of gonococci, even though the patients continued as before with their sulphonamides.

It is claimed that this experience demonstrates the effectiveness of a sulphonamide even in the presence of pus, since the sulphonamide present as a contaminant in the pus prevented growth of susceptible organisms until neutralized by a P.A.B. substitute.

One of my assistants—Mr. A. Hodgson, F.I.M.L.T.—suggested this use of procaine.—I am, etc.,

Frank Marsh.

Artificial Respiration

Sir,—May I reply tersely to three recent criticisms in your columns?

(1) I had stated, "I am permitted to say that the proportion of successful resuscitations in the Royal Navy has increased since the rocking method was adopted." To this the Royal Life Saving Society replied (April 28, p. 618): ". . . we are given to understand on good authority that rocking methods are not being used in the Navy." Needless to say I could not have made this public statement unless the information was authentic and official: this has subsequently been confirmed.

(2) Dr. Clark Noble (May 5, p. 643) fails to see my point that—in a toneless victim lying prone in Schäfer's or the rocking methods—the upward thrust of the ground (or stretcher) immobilizes the ribs and anterior abdomen so that artificial respiration is effected almost only by the piston action of the diaphragm. (Anyone can feel the truth of this by lying prone on the floor.) Hence, if with approaching death in asphyxia the diaphragm also loses tone, Schäfer's method would be ineffective but the rocking method unimpaired. Dr. Noble concludes by saying that Schäfer's method is the most satisfactory. Yet surely he has read that in all the recent quantitative tests Schäfer's method has taken the last place, not the first.

(3) Surg. Rear-Adml. Cecil Wakeley (May 19, p. 712) quotes two distressing cases in which underwater explosion had caused perforations in the bowels. He blames the rocking method for causing wide escape of faeces, making operation hopeless. But what were the poor first-aiders on the rescue trawler to do? If breathing had stopped, death would quickly follow unless they promptly started artificial respiration. Schäfer's method would have been as bad as rocking in forcing faecal material through perforations, perhaps worse. Silvester's method is not admissible in blast cases because the lungs may be injured. Mouth-to-mouth inflation is the only harmless method in blast, but this is rarely taught (except for newborn babies) and the admiral omits to suggest it. Hence these two cases are not evidence that rocking has more contraindications than Schäfer's method; the reverse opinion is generally held.

The menace of the present situation (revealed in all three letters) is the false but tempting doctrine that Schäfer's method is invariably the best and all-sufficing. This saves instructors and administrators much thought and trouble but prevents all progress. Thank goodness, the Royal Navy in 1942 had the courage to point out the imperfections and bad overall results of Schäfer's method (though useful when single-handed or as a prompt preliminary to rocking). Ever since they have acted as pioneers towards more effective methods. For this grea task they have the finest facilities—teachers and taught anc rocking devices in the same ship. The aid of this *Journal* ha also been invaluable though impartial.—I am, etc.,

Hull. Frank C. Eve, M.D., F.R.C.P.

PS.—Prof. R. R. Macintosh (May 26, p. 747) considers tha as regards pulmonary ventilation, any method if given efficientl will probably suffice unless the patient is already dead. Bu this omits the great factor of circulation, which may decide th issue and in which the rocking method has shown its superiorit both experimentally and theoretically. And obviously, no on could tell whether a border-line case was already dead (i.e unrevivable) unless the *best* method had been tried properl and failed.—F. C. E.

The Child's Acquisition of Speech

Sir,—In her article on the child's acquisition of speec (May 19, p. 707) Dr. Mary Sheridan refers to so many sourcе of information besides her own interesting observations th it is all the more disappointing that in her closing remarks o "speech therapy" she leaves the reader with the impressio that failure in the development of speech in the young chil only needs investigation from the point of view of mental r tardation or organic hearing defect. Not infrequently, how ever, it is conditioned by emotional conflict. There may be n hearing defect, and speech therapy is in some cases found t be useless or inadvisable before the emotional difficulty h been adjusted.

In the case of a 4-year-old boy under my care with gro emotional disturbance, speech is returning parallel with resol tion of the emotional conflict.—I am, etc.,

London, W.14. J. E. Mackworth.

Final M.B. of London University

Sir,—There are people who consider that by allowing candidate to take the final M.B. in separate parts the standa is lowered. After a long experience as an examiner, I am co vinced the opposite is the case. When a candidate is oblig to take the two parts together and does well in one subject t examiners in the other subject (who are always humane) a liable to be persuaded to let him through the second subje although he is definitely below standard.

It is true that some candidates find it easier to attain t high standard of the M.B. by taking the parts separately, b is there really anybody against this, provided that he does rea that standard? I can find no evidence that a candidate w takes the parts separately will forget what he has learnt a quicker.—I am, etc.,

London, W.1. Malcolm Donaldson

Housing the Returned Consultant

SIR,—There are a few of us, now well advanced in the fifth decade of life, who in September, 1939, when we joined the Army uninvited, were serving on the honorary staffs of one or more of the London teaching hospitals. By virtue of our age and military service we have been led to hope for release from the Army in the near future. Our only means of living, before being caught in the net of a State medical service, is to subsist on the scanty ruins of our pre-war practices. Both custom and necessity urge us towards that citadel of consultants (and others) situated between Oxford Street and Marylebone Road. I am informed by a number of house agents who operate this area that consulting-rooms and living accommodation are impossible to obtain, and that for some rooms there is a long waiting list. One agent said despairingly, "There is Major-Gen. —— a major-general, no less, coming home and we have nowhere to put him." So there would seem to be little hope for those of us of slave rank. Rents are fantastic and Central Europeans abound in this chosen land. Perhaps eventually there may be an exodus of these foreign bodies directed by persuasion or compulsion to meet the medical needs of Germany, with which the R.A.M.C. are now contending. Many of us hope this may be so.

In the meantime could it be suggested to some benevolent medical body that a few houses be requisitioned for ex-Service consultants and specialists where rooms could be let at reasonable rents in which we could see our few patients and enjoy a sense of liberty and professional independence, at least for a time. The alternative seems to be to acquire a Nissen hut in the wastes of Regent's Park.—I am, etc.,

H. B. STALLARD, M.D., F.R.C.S.,
B.L.A. Major, R.A.M.C. (T.A.).

Indications for Adrenalectomy

SIR,—In your issue of May 19 two cases are recorded of adrenal virilism associated with mental changes treated by adrenalectomy. The first case (Clifford Allen and Broster, p. 696) showed a progressive schizophrenic psychosis and increased body hair growth with a "thick down" on cheeks, chin, and upper lip. There is no mention of the fact that the hirsutism was especially disfiguring or that the patient herself was sensitive of her appearance, and, indeed, if I interpreted the paper correctly, the psychosis and not the adrenal virilism was the main indication for adrenalectomy. The second case (Raymond Greene, Paterson, and Pile, p. 698) showed mental symptoms described as a "tense hypochondria," for the development of which there would seem to have been adequate domestic reasons, such as an alcoholic husband, an invalid mother suffering from hysterical fits, and a son whose asthmatic attacks often disturbed his mother's sleep. Subsequently acne and an inordinate growth of hair appeared. In this case the primary indications for adrenalectomy seem to have been the adrenal virilism, the rise in 17-ketosteroid excretion from 21 to 33.8 mg. a day, and the fact that a second perirenal insufflation gave an illusory appearance of increase in size of the left adrenal. In both cases removal of a normal-sized adrenal gland led to disappearance of the mental symptoms and improvement in regard to the hirsutism—"her hair could be easily pulled out" (Allen and Broster); gradual disappearance of the facial hair which had not been shaved, and no sign of further hair growth either on the shaven or unshaven areas (Greene et al.).

The publication of these two reports raises the question of the indications for adrenalectomy. Everyone would agree that in the presence of good evidence for the existence of an adrenal cortical tumour (such as palpation or visualization of the tumour, or an elevation of the 17-ketosteroid excretion to the region of 100 mg. a day) removal is essential and is usually followed by the disappearance of the virilizing features.

The indications for the removal of a normal-sized adrenal gland, however, are open to argument. It would, I think, be the opinion of those who have had experience of the treatment of superfluous hair in women that such an operation does not usually result in the cessation of growth of the offending hair. Indeed this impression is borne out by Broster himself, and he is undoubtedly the most distinguished exponent of adrenalectomy in this country. In his book *The Adrenal Cortex and Intersexuality* 28 cases of hirsutism without adrenal cortical tumour in which he has performed unilateral adrenalectomy are tabulated. Of the 10 cases in which the condition of hair growth at "follow-up" 4 months or more after operation is recorded, one only was apparently completely cured ("face free from hair" 9 months after operation). In the other 9 depilation was still necessary, though the hair "comes out easily." It would appear, therefore, that hirsutism by itself is not an adequate indication for removal of a normal-sized adrenal.

An elevated 17-ketosteroid excretion has been referred to in both the papers under discussion. At present, however, not enough is known about the normal range of 17-ketosteroid excretion to justify drawing conclusions as to the significance of values in the region of 30–40 mg., other than that they suggest that the adrenal glands are more active than normal—a suspicion which the hirsutism itself will have already established.

The pitfalls of perirenal insufflation, a procedure not completely devoid of risk, are brought out by the experience of Raymond Greene and his colleagues. Either this method of visualizing an enlarged adrenal or evidence of displacement of the kidney as provided by intravenous pyelography may, however, greatly assist in locating a suspected tumour after a very high 17-ketosteroid excretion has shown its existence to be likely.

There remain, therefore, only the psychological changes to be discussed as an adequate indication for unilateral adrenalectomy. Allen and Broster in their paper point out that they are recording the fourth case of schizophrenic psychosis associated with adrenal virilism, and that adrenalectomy should always be considered in this rare syndrome. Allen goes further, and indicates (in Broster's book) that many cases of adrenal virilism are associated with "abnormal sexuality" (e.g., autosexuality or homosexuality), and claims that "correction of the adrenal factor may lead to the restoration of normality." It may, therefore, be that adrenalectomy may come to be used as yet another heroic method of psychiatric treatment (like prefrontal leucotomy), concerning the justification for which I am quite unqualified to express an opinion.

Let us, however, be clear about one thing, and this is not stressed either in Allen and Broster's paper or in that of Greene and others—namely, that there is at the moment no evidence to show that removal of one normal-sized adrenal gland is justified in a woman with superfluous hair who does not show an "abnormal sexuality," a schizophrenic psychosis, or a "tense hypochondria."—I am, etc.,

London, S.E.1. P. M. F. BISHOP.

The Services

Col. (Acting) G. M. Warrack, R.A.M.C., has been awarded the D.S.O., and Capt. (Temp.) B. C. Montague, R.A.M.C., the M.C., in recognition of gallant and distinguished services in North-West Europe.

Capt. H. A. Cole, R.A.M.C., and Capts. M. Lerner and S. Worobetz, R.C.A.M.C., have been awarded the M.C. in recognition of gallant and distinguished services in Italy.

Capts. A. C. V. Jones and E. H. Williams, R.A.M.C., have been awarded the M.C. in recognition of gallant and distinguished services in Burma.

Safe and well in Rangoon.—Lieut.-Col. (Acting Colonel) K. P. MacKenzie, R.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Killed in action.—Capt. William Donald Wilson, R.A.M.C.

Wounded.—Lieut.-Col. G. E. Ord; Major B. McN. Truscott; Capts. J. W. Macmillan, M.C., H. R. Thomson, and W. H. McN. Wilson; War Subs. Capts. L. E. S. Coghlan, C. K. Hirson, G. Houseman, and H. M. Jones, M.C.; and Lieut. H. Holden, R.A.M.C.

Acting Squad. Ldr. JOHN NORMAN WILLIAMS died on May 10 of injuries received in an accident in N.W. Europe. He was born in May, 1915, studied medicine at Guy's Hospital, and qualified M.R.C.S., L.R.C.P. in 1939. He held house appointments at Belgrave Hospital, the Seamen's Hospital, Greenwich, and King George's Sanatorium, Liphook, and was appointed to a commission in the Medical Branch, R.A.F.V.R., in May, 1941.

Obituary

H. E. DUNNING GALE, M.B., B.S.

Surg. Lieut. Dunning Gale ended his life, aged 35, as a Marine Commando in the bitter struggle on the beaches of Dieppe in August, 1942. For over two years he was posted as missing, and news of his death has only recently come in.

Born in Monmouthshire on April 26, 1907, the preparatory school to which his parents sent him played a large part in shaping his career, for the family fortunes were in a poor way at that time and the headmaster took upon himself the education of two of the three Gale boys by coaching them privately before and after they had left his school. Fifteen years later, when Dunning was discussing his work as a doctor, he would seldom forget this debt that he owed to his old headmaster, Frank Barton.

Gale entered Bart's in April, 1927, and from the first his keenness for the scientific and laboratory side of medicine was apparent. In 1934 he was doing original work with Graham Weddell on changes in the blood-sugar level associated with surgical operations; work that was published, soon after he qualified, in the *British Journal of Surgery*. During his appointments as casualty house-physician at Bart's, and as house-physician to George Graham, his tough and stocky figure was well known about the hospital. With Graham he found he could blend his love for the laboratory with his interest in clinical medicine, and many were the nights one can remember when he was doing blood-sugar estimations long after the other residents were in bed. This was one of the happiest years of his life. His heart was in research, and for this his enthusiasm, patience, and thoroughness stood him in good stead. Under the late Prof. H. H. Woollard, F.R.S., and Prof. W. J. Hamilton, Gale at first enjoyed his anatomical work as demonstrator. He liked teaching and he was a good draughtsman. Prof. Hamilton writes: "In the transfer of the anatomy department from the hospital side to the new department in Charterhouse Square, Gale gave valuable service. In spite of heavy teaching duties in the department he found time to do research. He was particularly interested in tissue culture and had made progress in the developing of a technique for the growth of nerves *in vitro*. I always found him to be a very helpful and loyal colleague, ready and willing to give of his best. By his untimely death the medical profession has lost a young man of great ability and promise." After three years in the anatomy department Gale found that "teaching was not enough." His heart was in medicine, in his biochemical laboratory, and in clinical research; and in September, 1938, he resigned his appointment as demonstrator, and to everyone's surprise, except those who knew him well, he put his plate up in general practice in Bolton Gardens, S.W.10. Here, once more, he was happy. In a few months he equipped a clinical laboratory that was the envy of his colleagues, and in one short year he must have done more first-class clinical biochemical work than has ever been done before by a general practitioner. Single-handed, he carried out blood-urea, alkali-reserve, blood-sugar, and serum-protein estimations, urea-clearance tests, and many others, often working at them late at night, on top of all the manifold tasks demanded of him by a busy panel and private practice. His patients recognized at once that here was a young doctor out of the ordinary, with a good training, with modern ideas, and with first-class equipment, and many came to seek his advice. Those of us who were privileged to look after these patients when Dunning Gale was away, or after he had joined the Navy, knew what his patients thought about him, and about his keenness to give even the most humble of them—in their homes—the best that modern medical science could offer. It was his ambition to show that many uncomplicated laboratory investigations not only could but should be carried out by the practitioner himself. He believed that the future of medical practice lay in the more fully-trained practitioner investigating fewer patients more thoroughly.

Gale joined the R.N.V.R. in 1940. He was stationed on the South Coast during the Battle of Britain, and at this time he often used his car to rush to crashed machines, or to the aid of pilots who had baled out. Many times he was the first on the spot. When the call came for volunteers for the Marine Commandos, Gale offered his services, and so he came to be on the Dieppe raid. We are told by a comrade (who was, until recently, a prisoner of war) that, at the height of the fighting on the beach, Gale had a chance of getting back but he decided to stay with his wounded. Later he ran out from cover across a fire-swept beach to some wounded Canadians at the edge of the water, and there he met his gallant death. Of him we shall remember most clearly his enthusiasm in his professional work, his ready laugh, his deft fingers and fondness for "gadgets," his laboratory with its shelves of bottles, his microscope, his scientific outlook, and his loyalty to his friends. There are many who will feel in his death a particular loss.

J. H. H.

Dr. ELLIOTT BEVERLEY STEEDS-BIRD, well known as a radiologist in the Portsmouth area, died at Southsea on May 16, aged 64. He was educated at Cheltenham College and Trinity College, Dublin, qualifying L.R.C.P.&S.I. in 1903. After holding resident posts in Dublin he obtained the L.M. of the Rotunda Hospital in 1907. He served throughout the last war, was mentioned in dispatches four times, and received the D.S.O. in 1917 and the Territorial Decoration, and the Croix de Guerre Française, retiring with the rank of lieut.-colonel, R.A.M.C. He was proud of the fact that he went to France with the first Territorial contingent and was the first Territorial M.O. to command a regular field ambulance. Before his appointment as honorary radiologist to the Royal Portsmouth Hospital and the War Memorial Hospital, Gosport, Dr. Steeds-Bird had held the same post at the Royal West Sussex Hospital; he was also consultant radiologist to the Petersfield and Emsworth Cottage Hospitals. He joined the B.M.A. in 1910, was secretary of the Section of Radiology and Electrology at the Portsmouth Meeting of 1923, and was elected a Fellow of the Faculty of Radiologists in 1939. His principal recreation was sailing, and he belonged to the Royal Albert Yacht Club, Southsea, and the Royal Portsmouth Corinthian Yacht Club. Gardening and mechanics were also pursuits he enjoyed in his scanty leisure time. By his death the medical profession in Portsmouth has suffered a severe loss. His colleagues looked upon him as a true friend to whom they could always turn in trouble. During the war he was greatly overworked, owing to the absence of one of his partners in one of the Services and the enormous strain of extra duty among casualties both before and after D-day. A partner writes: Close personal and professional association with Beverley Steeds-Bird has been a great and rare privilege. Recent anxious and difficult years illuminated by his courage and comradeship became a precious experience, not to be missed, leaving happy memories. His never-failing sense of fun did much to lighten heavy work, and at times made even air raids almost enjoyable. Though one saw him every day, he never left the house but that one found oneself looking forward to his return. It has been easy to understand why he had a distinguished record as a soldier in the last war; easy to see why the nurses in his department at the hospital looked forward to his visits. It will not be easy to fill the gap caused by his departure.

Dr. ROBERT STEWART PARK, of Grove House, Paddock, Huddersfield, died with painful suddenness on May 13 while on a fishing holiday at Masham in North Yorkshire. Qualifying in 1908 at St. Andrews, he had been in practice for a few years at Silloth, interrupted by war service, and then in 1919 he settled in Huddersfield, where he speedily gathered a large circle of patients and conducted a very successful practice for 25 years. Although he took no part in public life, he was chairman of the Huddersfield Local Medical and Panel Committee for 13 years and on several occasions was the representative at the Annual Panel Conference. He was also chairman of the Huddersfield Division, B.M.A., and a prominent member of the Scottish societies which are features of English towns and cities. His wise counsel and natural Scottish caution were a great asset to the town, and he served with distinction on the Local Medical War Committee during the whole period of the European War, and was the most prominent member of the medical bureau, dealing with the accounts for evacuated children. His memorial service was attended by most members of the profession in the town, and his presence at medical gatherings will be sorely missed.—W. H. S.

Dr. HERBERT SHARPE, for twenty-one years medical superintendent of Ware Park Sanatorium, Herts, died suddenly a Bexhill on May 7. He was born at Peterborough on April 15 1883, and from Haileybury College went to Pembroke College Cambridge, and thence to Guy's Hospital after taking his B.A in 1906. He qualified M.R.C.S., L.R.C.P. in 1914 and serve in the last war as captain, R.A.M.C.(T.), with promotion to th rank of brevet major. Dr. Sharpe was then in turn assistan M.O. at Frimley Sanatorium, chief tuberculosis officer fo North Staffs, medical superintendent of King George's Sanatorium for Sailors at Liphook, and resident M.O. at the Hul Tuberculosis Sanatorium at Cottingham until his appointmen in 1923 to be superintendent at Ware Park. He joined th B.M.A. in 1919 and wrote two papers which appeared in thes columns, one of them reporting a case of primary actinomycosi of the lung.

Dr. JOHN DICK, medical superintendent of St. James' Hospital, Leeds, died on May 20, aged 51. After schoolday at Ayr Academy he entered the University of Edinburgh as medical student and graduated M.B., Ch.B. in 1915, and late took the D.P.H. His first appointments were as house physician and house-surgeon at the Edinburgh Royal Infirmar and he served during the last war with a commission in the R.A.M.C., attached to the King's African Rifles in East Africa. In 1920 he joined the staff of Fir Vale Hospital, Sheffield, and became deputy medical superintendent there. He left Sheffield on his appointment to Leeds in 1926. With the appropriations which took place under the Local Government Act of 1929 Dr. Dick had charge not only of St. James's Hospital but also of St. Mary's Infirmary, St. George's Infirmary, Cookridge Hospital, and, later, the institution which became known as St. James's North. He was a fine organizer and was largely responsible for the changes, extensions, and modern improvements which made St. James's the largest hospital of its kind in the country. Two of his brothers are medical men: Dr. James Hamilton Dick, of Bexhill-on-Sea, and Dr. Kenneth S. Dick, of Halifax.

Dr. BENJAMIN WAINMAN, who practised in Dewsbury Road, Leeds, for nearly half a century, died on May 14, aged 80. He was born on July 4, 1864, and studied medicine at the Yorkshire College, Leeds, taking the M.R.C.S., L.R.C.P. diplomas in 1889. He was police surgeon for the B Division of Leeds, 1914–23, and had served on the City Council for nine years and was chairman of the Leeds Public Health Committee. Dr. Wainman had been a member of the B.M.A. for 40 years, and he and his wife celebrated their golden wedding in 1944. Two of his children are members of the medical profession.—Dr. Wilfred Wainman and Dr. Leila Mary Wainman.

Dr. FRANK RAYMOND CROOKES, of Eckington, Derbyshire, died on May 9 after a long illness, aged 39. He was the only son of the late Dr. G. W. Crookes, of Eckington, and studied medicine at the University of Oxford and at Sheffield, graduating B.M., B.Ch. in 1930, and joining the B.M.A. soon afterwards. He entered the R.A.M.C. as temporary lieutenant in May, 1940, and was promoted war substantive captain a year later, retaining that rank when he relinquished his commission in August, 1944, on account of ill-health.

Universities and Colleges

UNIVERSITY OF OXFORD

n a Congregation held on May 3 the following medical degrees were conferred:

D.M.—*In absence:* F. Fulton.
B.M., B.CH.—J. P. Herdman, W. J. H. Butterfield, P. L. Skeggs, I. V. Polunin, I. J. Shaw, R. A. B. Drury, Susan A. J. Chappel, Janet E. Poulton, Jean M. Briscoe. *In absence:* C. L. Bulf, D. C. G. Bett, H. R. Morton, M. I. Bostock, I. D. Darcus, P. C. Elmes, G. R. B. McCarter, J. D. Judah, P. J. N. Cox.

UNIVERSITY OF CAMBRIDGE

At a meeting of the Senate held on May 8 to discuss a number of eports the Master of Trinity Hall (Prof. H. R. Dean, M.D.) said that the reports of the Council of the Senate and of the General Board recommending the establishment of a Department of Medicine nder the direction of Dr. R. A. McCance had been read with great pleasure by members of the Faculty of Medicine. The establishment in Cambridge of a department devoted to the advancement f medicine by research had been desired for many years. On the etirement of Sir Humphry Rolleston in 1932 from the Regius Chair of Physic the wish for a Department of Experimental Medicine was again expressed, and a few years later Sir Humphry's successor, Sir Walter Langdon-Brown, advocated the establishment of a chair in experimental medicine. On the appointment of Dr. Ryle to the egius Chair the University established a Department of Medicine, and in 1938 a Readership in Medicine was established for Dr. McCance. In 1944 the Interdepartmental Committee endorsed the proposals put forward by the representatives of Cambridge University for the establishment of a School of Clinical Research, to const of a number of units of which the first might be Departments of Experimental Medicine, of Radiotherapy, and of Psychiatry. It as the generous financial help of the Medical Research Council that had enabled the University to propose the establishment of the first of those departments. Prof. Dean was glad to put on record the appreciation of the Faculty of Medicine of the good will and co-operation with which the Governing Body and honorary staff of ddenbrooke's Hospital had met the proposals of the University, and also its lively satisfaction at the generous recognition which e M.R.C. had given to Dr. McCance's work.

At a Congregation on May 19 the following medical degrees were conferred:

M.D.—W. H. Mylechreest. M.B., B.CHIR.—*P. R. A. May. M.B.—*J. W. D. ttery.

*By proxy.

UNIVERSITY OF DURHAM

At a Convocation to be held in July the honorary degree of D.Sc. will be conferred on Sir Alexander Fleming, F.R.S., F.R.C.P., F.R.C.S., and the honorary degree of D.Hy. on Sir Wilson Jameson, M.D., F.R.C.P.

UNIVERSITY OF GLASGOW

At a special graduation ceremony to be held on June 26 a number of honorary degrees will be conferred, including the LL.D. on Major-Gen. Sir John Taylor, C.I.E., D.S.O., M.D., I.M.S.(ret.), late Director of the Central Research Institute, Kasauli.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

The Morison Lecture on "Recent Experiences in a Neuropsychiatric Division of Medicine" will be delivered by Mr. Norman M. Dott at the College (9, Queen Street, Edinburgh) on Friday, June 15, at 5 p.m. Medical graduates and senior students are cordially invited to attend.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

H.R.H. the Princess Royal, who is an Honorary Fellow, has sent a gift to the Royal College of Surgeons for the Restoration and Development Fund of the College.

The following lectures will be delivered at the College (Lincoln's Inn Fields, W.C.) at 4 p.m. each day. June 6, Arris and Gale Lecture by Dr. D. V. Davies, "Synovial Membrane and the Synovial Fluid of Joints." June 11, Arris and Gale Lecture by Prof. E. Davies, "Early Development of the Human Embryo." June 13, Hunterian Lecture by Air Vice-Marshal Geoffrey L. Keynes, "Surgery of the Thymus Gland." June 14, Hunterian Lecture by Col. Elliott C. Cutler, Hon. F.R.C.S., "Management of Battle Casualties." The lectures are open to medical practitioners and advanced students.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At a meeting of the Royal College of Surgeons of Edinburgh held on May 18, with Prof. R. W. Johnstone, President, in the chair, the following candidates, having passed the requisite examinations, were admitted Fellows:

F. E. D. Hallon, H. A. Hashemian, A. W. Khan, W. Laurence, M. R. Liddell, C. B. Limerick, J. W. Peden, A. L. Schofield, D. M. Sheppard, Betty V. Slesser, I. J. Thomas, M. E. Winston.

The Henry Arthur Dalziel Ferns Bursary was, after a competitive examination in organic chemistry in its application to medicine, awarded to M. C. Berenbaum.

COLLEGE OF PHYSICIANS AND SURGEONS OF BOMBAY

The Council of the College of Physicians and Surgeons of Bombay has placed on record its deep regret for the loss sustained by the death of Surg. Gen. Henry Wickham Stevenson, C.S.I., I.M.S.(ret.), who was one of its Foundation Fellows, a member and the first President of the College Council. The resolution states that it was on his suggestion that the constitution of the College was modelled on the lines of the Royal College of Surgeons of England. "General Stevenson was a man of broad views, various activities, and wide sympathies. It was he who had started the practice of Indianizing the Medical Services in the Province by appointing the late Dr. Y. G. Nadgir, an Indian and that too a non-I.M.S. man, as one of the full-time professors in the Grant Medical College in 1913. This had happened 32 years ago, when the idea of Indianization of the Services was not properly conceived and much less practised."

Medical Notes in Parliament

Mr. Churchill on May 23 tendered his resignation to the King and was entrusted with the formation of a new Government. All members of the old Government went out of office with the Prime Minister. Parliament is to be dissolved on June 15. A General Election will follow on July 5.

Teeth of School-children

On May 15 Mr. LINSTEAD asked the Minister of Education whether, in view of the bad condition of the teeth of school-children, as evidenced by the findings of the Interdepartmental Committee on Dentistry, he would consider the appointment of a dental surgeon on the central advisory councils set up by the Education Act, 1944, in order that the development of the school dental service and of education in the care of teeth might be kept in the forefront of educational reforms. Mr. BUTLER: While I am fully alive to the importance of the school dental service, I do not see my way to increase the membership of either of the central advisory councils.

Future of National Service

Intervening on May 16 in a debate on the resettlement of Service personnel and war workers, Mr. **ERNEST BEVIN** said the nation would probably have to face for a number of years national service of some kind or military training. There were 1,000,000 men over 65 and women over 60 in industry. The war had naturally taken its toll of these. The number of juveniles now available to go into industry was reduced because of the heavy fall in the birth rate between 1922 and 1930. The nursing profession gave him great anxiety. The Ministry of Labour would make efforts to induce women coming out of the Forces and others to take up nursing training, which the Government was ready to assist financially in order to build up a nursing force. Many nurses were wanted urgently for Burma and the Far East. With regard to the relaxation of controls, men over 65 and women over 60 would be allowed to leave their jobs and not be required to take others. Women over 50 would be allowed to leave their jobs unless it was vital for them to remain. Women over 40 would no longer be called up for interviews and women under 21 would no longer be required to leave home.

Negotiating Committee

Dr. **HADEN GUEST** asked on May 17 whether the Minister of Health had any statement to make on the results of his discussions with the Negotiating Committee of the medical profession on the National Health Service. Mr. **WILLINK** replied that he did not think he could usefully make any statement at that stage.

Mr. **WILLINK** announced on May 17, in answer to Dr. Haden Guest, that he would at an early date meet the Negotiating Committee, possibly for the last time at this stage. He said he would then be in a position to relate their views to those of the local authorities and to discuss the matter with his colleagues. Dr. **SUMMERSKILL** asserted that enlightened medical associations regarded with disfavour these negotiations which were being conducted behind the scenes. Dr. **MORGAN** said it was in perfect order, and an established trade union practice in any organization of workers, medical or other, for reports not to be required during the negotiations.

Freed Channel Islands

Reporting to the House of Commons on May 17 after his visit to the Channel Isles, Mr. **HERBERT MORRISON** said the health and physique of the population there were better than he had dared to hope. He had been impressed by the healthy appearance of the children. This was largely due to the supplies which during the past winter the islanders received from the British Red Cross and Order of St. John through the International Red Cross. So far as he could ascertain, the Germans had not attempted to divert the Red Cross supplies. The Germans had left the premises they had occupied in a filthy condition. That was even true of the hospitals. He could not say whether there was an adequate supply of doctors in the Islands. That difficulty had not been mentioned to him.

Mr. **KEELING** asked whether Mr. Morrison would give island doctors priority to return. Mr. Morrison did not reply.

Mental Institution Nurses

Mr. **JOHNSTON** announced on May 17 that the chairman of the Scottish Nurses' Salaries Committee had given him a summary of the recommendations on which the Committee had agreed up to that date. The summary recommended scales and salaries for male and female mental institution nurses up to and including the charge nurse or ward sister. It also made recommendations on hours of work, annual leave, and sick pay. A circular was being sent to all employing authorities commending adoption of the Committee's recommendations. He hoped soon to present to Parliament a complete report from the Committee on the salaries and conditions of service of nurses in mental institutions.

Shortage of Doctors in Evacuation Areas

Sir **HERBERT WILLIAMS** asked on May 17 if Mr. Willink's attention had been drawn to the shortage of doctors in many of the evacuation areas and what steps were being taken to reinforce the strength of the medical profession in those districts to which many evacuees would soon return. Mr. **WILLINK** replied that any special shortage of doctors caused by movements of population of that kind was a matter for consideration by the Local Medical War Committee for the area. After taking account of any doctors coming into the area, either on release from the Forces in an early demobilization group or otherwise, it would be open to the local committee to apply through the Central Medical War Committee for the special release of a doctor where the circumstances of the area justified that course.

Ministry of Health Appointments

Mr. **WILLINK** stated on May 17 that one pensioned medical officer from the R.A.F. had been appointed to the Ministry of Health during the past 12 months. He had since resigned. Such appointments were made on a temporary basis pending the resumption of normal permanent recruitment. Four pensioned medical officers from the R.A.F., one of whom had resigned, had been appointed to temporary posts in the Ministry of Pensions during the same period.

Dietetic Advice for Repatriates

Mr. **ARTHUR HENDERSON** told Major Gates on May 17 that not all repatriated prisoners of war were in need of special dietetic advice. It was given orally by medical officers at reception camps to those who needed it. The latter also distributed as necessary a printed leaflet, which contained hints on diet during recuperative leave for those whose digestion had been impaired by their privations in captivity, and advice on which types of food were suitable and unsuitable and on the size and timing of meals. It was not thought necessary to provide repatriates on leave with elaborate charts specifying quantities of foodstuffs that should be eaten. Any man requiring such a carefully regulated diet would be admitted to hospital before being sent on leave.

Treatment of Mental Illness in Service Patients

Mr. **WILLINK**, replying to Mr. Messer on May 17, said members of H.M. Forces suffering from mental illness were dealt with by the medical services of the Forces. Some accommodation in civilian mental hospitals had been especially assigned to those services for the purpose. In the neurosis centres provided under the E.M.S. there were, on March 31, 994 males and 149 female Service patients. After-care of members of the Forces discharged from neurosis centres as well as from mental hospitals was undertaken by the Provisional National Counci for Mental Health in collaboration with the Mental After-Car Association.

Cost of Deaf Aids.—On May 8 Mr. **KIRBY** asked the Presiden of the Board of Trade if his attention had been drawn to the numbe of men and women who had become deaf during the period o heavy bombing; and whether, to assist those who desired to obtai deaf aids, he would have inquiries made into the high cost of thes appliances. Mr. **DALTON** said that the Central Price Regulatio Committee was examining this matter in consultation with th Electro-acoustics Committee recently set up by the Medical Researc Council.

Requisitioned Harley Street Houses.—Sir E. **GRAHAM-LITTLE** o May 16 drew attention to the shortage in the Harley Street area o consulting-rooms used by medical consultants, through requisitionin of houses by the fighting Services. He asked the Secretary of Stat for War to release as many of these premises as possible, in vie of the early return of consultants from war service. Sir **JAMES GRIG** said the War Office had requisitioned three houses in Harley Stree Two of them were occupied, the third would be occupied whe alterations had been completed. He was at present unable to releas any of these houses.

Medical Examination before Courts Martial.—On May 15 M **TURTON** asked the Secretary of State for War whether soldiers wer examined by a psychiatrist before being tried by field general court martial. Sir **JAMES GRIGG** said that before such a trial a man wa always examined by a medical officer, but not necessarily by psychiatrist.

Cholera among British Officers in Calcutta.—Mr. **AMERY** said o May 17 that fifteen cases of cholera occurred at the end of la month among the British officers billeted at a hotel in Calcutta. C these one died as a result of developing pneumonia. Three of th waiters were afterwards discovered to be cholera carriers. In mediate action was taken and the outbreak was at an end. I Burma there had been 26 sporadic cases of cholera, mostly amon Indian troops. There had been no other cases of cholera amon British troops in India and Burma since 1943. As cholera w endemic in these areas the comparative immunity of the troo was a tribute to the skill and devotion of the medical services an the value of modern protective measures.

Leprosy in Britain.—In this country 22 cases of leprosy have bee brought to notice during the war, of which 9 have been in perso known to be British subjects.

Public Health Laboratory Service.—The provision of a publ health laboratory service on a national basis after the war and t form which any such service should take are matters which a under consideration as part of the wider proposals for a compr hensive health service.

Medical News

Lord Horder will deliver the third Sanderson-Wells Lecture at the Middlesex Hospital on Wednesday, June 6, at 4 p.m. The subject is "Food and Rheumatism." Members of the medical profession are cordially invited to attend the lecture.

A meeting of the Nutrition Panel of the Society of Chemical Industry will be held at the Rooms of the Chemical Society, Burlington House, Piccadilly, W., on Wednesday, June 6, at 2.30 p.m., when a paper on "Protein Hydrolysates—Their Preparation and Clinical Uses" will be read by Dr. D. P. Cuthbertson. A discussion will follow.

A clinical meeting of the Middlesex County Medical Society will be held at the North Middlesex County Hospital at 3 p.m. on Saturday, June 9.

The lecture by Dr. F. M. R. Walshe on "Infantile Paralysis," to be given before the Royal Society of Arts, John Adam Street, Adelphi, W.C. (postponed owing to VE holidays) has now been arranged for Tuesday, June 12, at 1.45 p.m.

At the meeting of the Board of the Finney-Howell Research Foundation on March 2 fellowships were renewed for a third year for Dr. Nelicia Maier; for a second year for Drs. Muriel Virginia Bradley and Margaret Aston Kelsall; and a new fellowship was awarded Dr. Elizabeth Cavert Miller, to work at the University of Wisconsin. Applications for fellowships for 1946 must be made to the office of the Foundation (Medical and Chirurgical Faculty Building, 1211, Cathedral Street, Baltimore, Md.) before December, 1945, to be eligible for consideration.

The Minister of Health has notified all local authorities and port health authorities that a photographic display is now available for use in the educational campaign against venereal diseases. This display tells frankly what the venereal diseases are, how they are caused, what are their effects, and why skilled treatment should be obtained at the earliest possible stage. It has been prepared for private showing to those who wish to see it, and to members of the two sexes separately; it is being offered by the Ministry of Information to factories throughout the country. Copies on free loan are available to local authorities through the Central Council for Health Education.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* most infectious diseases fell in incidence during the week, the drops being as follows: measles 727, whooping-cough 251, dysentery 126, diphtheria 91. Two cases of typhus fever were imported into the country.

The chief local variations in the trend of diphtheria were decreases of 28 in Yorks West Riding, 23 in Staffordshire, and 14 in Northumberland, and a rise of 9 in London. The decline in whooping-cough was fairly general throughout the country; Yorks West Riding showed a decrease of 36. Although the notifications of measles fell substantially, there was a rise in several counties, particularly in the south, where notifications were higher than last week by the following numbers: Northamptonshire 174, Sussex 113, Dorsetshire 83, Berkshire 71, Wiltshire 64, Middlesex 62; Southampton reported 280 fewer cases, Monmouthshire 207, Glamorganshire 206, Lancashire 114, and Gloucestershire 106.

The notifications of dysentery fell for the third week, but the incidence is still high—343. The largest returns were Lancashire 63, Staffordshire 39, Yorks West Riding 30, London 25, Kent 19, Surrey 18, Essex 18, Gloucestershire 16, Warwickshire 14, Middlesex 10.

In *Scotland* measles showed 152 fewer notifications than last week, whooping-cough 74, and dysentery 61, but there were 36 more cases of pneumonia, and 25 more of diphtheria. The largest returns for dysentery were Aberdeen 22, Edinburgh 22, Dundee 13, Glasgow 12. The recent large outbreak in Aberdeen, involving 245 cases in the King's Gate district of the city, had its origin in a dairy.

In *Eire* the chief feature of the returns was an outbreak of dysentery in Monaghan U.D., involving 20 persons.

In *Northern Ireland* there were 19 fewer notifications of scarlet fever, 10 fewer of whooping-cough, and 9 fewer of measles; there was a small increase of 3 in the incidence of diphtheria.

Week Ending May 19

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,340, whooping-cough 1,068, diphtheria 498, measles 14,126, acute pneumonia 612, cerebrospinal fever 64, dysentery 434, paratyphoid 2, typhoid 2, typhus 7 (imported cases).

No. 19

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended May 12.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	53	2	22	2	5	70	5	26	4	2
Deaths		3	1				1	—		
Diphtheria	413	23	118	69	11	584	45	161	70	33
Deaths	7	1	1	1	2	7	—	—	1	1
Dysentery	343	25	112	20	—	280	21	54	5	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	1	—	—	—	—	4	—	—	—	—
Deaths		1					—			
Erysipelas			30	10	4			48	4	4
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				14					13	
Deaths	38	3	9	6	2	53	7	14	8	4
Measles*	12,412	822	203	53	12	2,132	210	560	161	16
Deaths	13	1	2	—	—	4	2	—	2	—
Ophthalmia neonatorum	55	3	6	—	—	75	5	14	—	—
Deaths										
Paratyphoid fever ..	3	—	—	—	—	10	1	20 (B)	62 (B)	—
Deaths	—	—	—	—	—	—	—	—	1 (B)	—
Pneumonia, influenzal†	511	25	6	7	3	704	52	1	12	2
Deaths (from influenza)	10	—	1	—	1	14	—	1	1	1
Pneumonia, primary ..			210	26				199	18	
Deaths		24		13	13		35		9	9
Polio-encephalitis, acute	1	—				—	—			
Deaths		—					—			
Poliomyelitis, acute ..	6	—	—	—	1	2	—	3	—	—
Deaths		—					—			
Puerperal fever ..			16		—		1	18		
Deaths										
Puerperal pyrexia‡ ..	126	9	13	2	—	150	16	18	2	1
Deaths		—					—			
Relapsing fever ..	—	—			—	—	—			—
Deaths										
Scarlet fever	1,365	69	214	16	31	1,791	133	199	20	64
Deaths	—	—	—	—	—	2	1	1	—	—
Smallpox	—	—	—	—	—	1	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	4	—	2	10	2	8	—	1	5	4
Deaths	—	—	—	—	—	1	—	—	—	—
Typhus fever	2	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough* ..	799	31	75	35	13	2,548	262	179	42	16
Deaths	6	—	3	—	1	14	2	1	—	1
Deaths (0–1 year) ..	340	35	70	29	24	354	44	66	29	21
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4,664	662	672	217	140	4,290	615	553	222	134
Annual death rate (per 1,000 persons living)			15·3	14·0	§			12·7	14·4	§
Live births	5,833	621	809	468	232	7,886	883	1028	593	303
Annual rate per 1,000 persons living ..			16·2	30·2	§			20·9	—	§
Stillbirths	171	14	34			208	20	35		
Rate per 1,000 total births (including stillborn)			40					33		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

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ANY QUESTIONS?

Motor Nerve Supply to Tongue and Lips

Q.—*What is the embryological explanation for the motor nerve supply to the tongue and lips (i.e., the most "anterior" part of the alimentary canal) being via the 12th cranial nerve, yet the pharynx, larynx, etc., more distal parts of the alimentary canal, are supplied by the 9th and 10th nerves?*

A.—The comparative study of anatomy shows that the tongue musculature was evolved by forward extension of ventral neck musculature into the floor of the mouth: like the infrahyoid musculature it is thus a derivative of the body wall (somatic) musculature. Now it has been established in various submammalian animals that this ventral neck musculature is developed in the embryo from certain myotomes. In man, however (as perhaps in mammals generally), the process of development has been modified and it is differentiated *in situ*. It is nevertheless innervated in man by a nerve, the hypoglossal (closely associated with the ansa hypoglossi), which has a course and central connexions that identify it with the nerves which supply the ventral "neck" musculature in fish, amphibians, and reptiles—i.e., it is a somatic motor nerve in series with the ventral (anterior) roots of spinal nerves. The hypoglossal nerve, again, has a rudimentary dorsal ganglion in embryos (including the human), which observation emphasizes the comparison with spinal nerves.

The musculature supplied by the 9th and 10th nerves develops as a part of the wall of the pharynx in man, as in fish. These nerves in man leave the skull above the hypoglossal nerve, and the relation is similar in fish (the equivalent to the hypoglossal nerve is commonly known as the "hypobranchial" nerve in fish). The inquiry resolves itself, then, into an inquiry concerning the arrangement in fish. Now it is known that in fish and amphibian embryos a number of myotomes become suppressed at the anterior end of the series, in the posterior head region, and that the hypoglossal nerve loses some of its more cephalad rootlets in the course of development. The hypoglossal nerve is, then, presumed to have had an origin (in the central nervous system) which originally extended further forwards and overlapped the 9th and 10th nerves.

The explanation of the backward extension of the 10th nerve as far as the intestines is obscure. The human arrangement obtains also in fish. This part of the vagus contains autonomic fibres of the cranial outflow, which are distributed to a region that is also supplied from the thoracic outflow. The distribution of the autonomic system does not therefore follow so clear-cut a segmental pattern as that of the nerves of the body wall. A similar problem is afforded from the distribution of autonomic fibres from the thoracic outflow to various structures in the head.

The actual numbering employed for cranial nerves was based on the early accounts of human anatomy. It is well known that it does not well express the pattern of the cranial nerves; namely, there is a cranial nerve, the "nervus terminalis," in advance of the 1st or olfactory, and the 11th might well be described as a portion of the 10th. The generally recognized enumeration must be retained for convenience.

Skodaic Resonance

Q.—*Skodaic resonance, an area of resonance on percussion, is sometimes found over a pleural effusion. This is said to be due to relaxed lung tissue. How can the lung tissue be relaxed over a pathological process which is "pressing on" the lung? Has any other explanation been put forward?*

A.—Skodaic resonance is found over the lung immediately *above* an effusion, not *over* the effusion itself. The normal lung is an elastic organ and is stretched to fill the pleural cavity; when part of that cavity is occupied by fluid the lung is at first relaxed. This relaxation is said to be responsible for the peculiar "boxy" note heard on percussion above an effusion. When the fluid fills the pleural cavity the lung becomes completely collapsed and finally compressed. The percussion note is then dull, but very occasionally hyper-resonance can occur over a chest full of fluid. Bosanquet (*Brompton Hosp. Rep.*, 1937, **6**, 59) described two examples of this rare phenomenon and the writer has seen one other; the cause is unknown.

Calcium in Water

Q.—*The water in this district (Scopwick, Lincoln) is so heavily charged with calcium carbonate that particles may be seen floating on the surface of water that has stood a short time; kettles are heavily encrusted with the salt. What is the modern opinion of the effect this water has upon the body? Constipation is a definite result to those visiting and unused to the water: I have never experienced greater "hardness" anywhere else in England, and I have lived in many areas.*

A.—The furring of kettles and boilers and the wastage of soap are the chief disadvantages of a very hard water. Even if the water is extremely hard it is unlikely to contribute more than 200 mg. of calcium to the daily intake, which usually runs between 600 and 1,500 mg., and this addition is beneficial rather than harmful. The hard water is unlikely to be responsible for visitors' constipation. In this connexion one must remember (*a*) that a change of diet and habitat is very liable to make a person constipated for a few days and (*b*) that people are very prone to make something like the water, with obvious drawbacks, the scapegoat for their minor medical maladies.

Prostigmin in Arthritis

Q.—*Can you give me any information about the use of prostigmin to relieve pain in cases of rheumatoid arthritis? Is it of any use in osteo-arthritis?*

A.—The claim has been made that injection of prostigmin combined with atropine relieves the pain of rheumatoid arthritis, and the writer has had the opportunity of testing this in a limited number of cases. Where the pain is due to spasm of the muscles associated with affected joints relief is given because the effect of the drug is to relax spasm, but in the absence of spasm (and it is not a common feature in true rheumatoid) better results are obtained by the use of the more common analgesics such as aspirin, phenacetin, codeine, etc., alone or in combination. In cases where cramp is a troublesome feature prostigmin has also given prompt relief, but the writer has not been able to keep such cases under observation for long enough to say how lasting the relief may be. It is therefore reasonable to give prostigmin and atropine where spasm is present, but when the spasm has relaxed it is desirable to prevent its recurrence by suitable physical measures, such as the application of light splints, rather than to continue the administration of such powerful drugs which have been observed to produce undesirable effects if administration is prolonged.

The use of prostigmin was advocated in an American medical journal and the article was quoted in a popular magazine; but in the first case in which dramatic results were obtained and which is described the condition was quite obviously not rheumatoid arthritis but subacromial bursitis, in which the pain is much more severe than in arthritis and is directly due to spasm; of the other cases described some were probably rheumatoid, though the description was not very scientific, while at least one was of a different nature. This being the case, the article fails to carry conviction, and further investigation is required.

"The Sweats"

Q.—*Is anything known or surmised about the aetiology of the sweating sickness which was apparently so very common in the fifteenth and sixteenth centuries and from which Charles Churchill (the poet died in 1764? It seems from various historical works that it was at times widespread and extremely fatal. Has any conclusion, other than that it might have been a virus infection, been reached?*

A.—The late Sir William Hamer (*The Milroy Lectures on Epidemic Disease in England—The Evidence of Variability and of Persistency of Type.* 1906. London: Bedford Press) gave reasons for thinking that the sweats were epidemics of influenza—an opinion which is probably held by most epidemiologists of this generation, although naturally, the reasoning is wholly by analogy. Suggestive points are: (1) rapid diffusion, (2) general symptoms, (3) lack of evidence that the underfed and overcrowded classes suffered more than the well-to-do—evidence plentifully obtainable in other plagues of ancient times.

Hallux Valgus

Q.—*What is the prognosis of arthroplasty excision of base of phalanx for hallux valgus in a female 65 years old? Does age affect the outlook? What is the period of incapacity, and should one recommend surgical treatment at this age?*

A.—In a patient of 65 a hallux valgus is likely to be but a part of a widespread foot disturbance with a good deal of splaying of the metatarsals. Removal of the base of the phalanx at this age will do little to remedy this. The patient will get more relief from the use of appropriately shaped pads and metatarsal straps, such as could be fitted by a properly qualified chiropodist. In patients of this age the only indication for operation would be a local pain caused by a recurrent bursitis or an osteophytic outgrowth, and the operation should be the smallest possible—i.e., removal of exostosis and bursa, and so on. Even so, the condition of the circulation in the foot should be carefully ascertained beforehand and no operation undertaken unless it is satisfactory. Local gangrene and delayed healing may follow quite simple operation on the toes in older patients.

There is a tendency to underestimate the period of incapacity which follows operation upon the great toe. It would probably be wise to estimate that six weeks will elapse before the patient is able to wear ordinary shoes.

Physiology and Psychology of Craving

Q.—*Can any reader tell me what is the cause of a "craving," for any special food, drink, or smoke? What are the conditions precedent to such a state (is it?) of mind?*

A.—As a psychologist, I should first of all look for a physiological cause. We do not know enough about biochemistry to detect *any* chemical deficiency; but we do know that the hypoglycaemic child is the one who craves for sugar—because he needs it. Piglets, immediately they are released from the spotlessly clean sties, rush to eat earth, not because they like earth as such, but because they need the iron in it. A craving for pickled onions may be an aid to digestion in the intestinal canal. It is to be remembered that when the body had need of some such food, it feels the need for it although it has no knowledge of what it needs.

The psychopathologist more commonly meets with the *dislike* for certain substances, such as milk or lettuce, and in such cases this can usually be traced back to experiences in childhood, when either too much was forced on the child, or the child choked with the skin on the milk, etc. On that analogy one would expect that a craving of psychological origin would be due to the association of that food with pleasure, probably of a very fundamental kind, such as of a person greatly loved in childhood, or of a strong sensuous gratification.

We have not met a craving for a specific type of tobacco with a refusal of all others, but the craving to smoke, and chain smoking in particular, which is often more difficult to give up than alcohol, s usually traceable to the persistence of disorders or exaggeration of the sucking tendency in infancy. But it is an activity which starts in the boy or girl as a desire to be grown up, and therefore, like other forms of neurosis, compulsive smoking gratifies two opposing tendencies—the infantile and the adult—not to speak of ts soothing narcotic effect, which is partly infantile. I have a patient at the moment who has the craving to light a cigarette and take a few puffs, but who then throws it away; this refers back to a craving for, but rejection of, the mother's breast.

Is a Toothbrush a Good Thing?

Q.—*What evidence is there that cleaning the teeth with a toothbrush is a good thing? Does the modern view support the statement that "the use of a toothbrush saves the teeth at the expense of the gums"? The best teeth I have seen, and the only jaws with 32 healthy teeth, have been in those who have never used a toothbrush.*

A.—The use of the toothbrush is an essential habit for everyone who wishes to have healthy teeth and gums. Brushing the crowns of the teeth removes debris and keeps the surfaces polished and thereby minimizes the risk of decay. Places, such as the interdental spaces, where the bristles cannot reach are always the danger spots for the commencement of decay. But just as important is the good, not harm, derived from brushing the gum margin. The secret for healthy gums is friction of the margins by the toothbrush, which keeps the epithelial surfaces well keratinized and prevents the onset of pyorrhoea. There are other methods of cleaning the teeth and gum margins, but the toothbrush must be given priority. For every person with thirty-two healthy teeth who have never used a toothbrush there must be ninety and nine who are ursed with no teeth at all by the time they have reached middle age.

Malignant Cells in Sputum

Q.—*What is the technique for the demonstration of malignant cells in sputum in the diagnosis of carcinoma of the bronchus?*

A.—The method generally used for this purpose was described by the late Prof. L. S. Dudgeon (*St. Thom. Hosp. Rep.*, 1936, **1**, 51). From a fresh specimen of sputum the more cellular portions are selected—especially any which are blood-stained—spread on a slide, and fixed while still wet in Schaudinn's solution. After treatment with methylated spirit to which a few drops of tincture of iodine have been added, and washing in water, the film is lightly stained with Mayer's haemalum (about 2 minutes), left in tap water until blue, counterstained with eosin, and dehydrated and mounted in balsam in the usual way. The questioner should refer to Dudgeon's paper for an account and illustrations of the appearances of clumps of malignant cells in the sputum. He will also be well advised to examine a considerable number of specimens from patients with and without cancer of the lung before venturing to affirm that he has identified malignant cells. This is difficult even with experience, and mistakes have been made. It is no doubt for this reason that many pathologists are reluctant to attempt this examination.

Radiotherapy for Dupuytren's Contracture

Q.—*Is there any evidence that radiotherapy is of value in the treatment of Dupuytren's contracture?*

A.—Radiotherapeutic technique is always a difficult matter to write about. It is so liable to smack of "prescribing by post," whereas, of course, innumerable factors of clinical experience come into it when dealing with each particular patient. However, I would say that the answer to the above question is yes: in the early case both subjective and objective improvement is obtained. My own technique is by fractional doses over 10 days to produce a first-degree erythema.

Quarantine for Measles

Q.—*What is the necessary period of quarantine for measles? The Board of Education lay down this period as a minimum of three weeks from the appearance of the rash. The Medical Officers of Schools Association booklet lays down ten days from the appearance of the rash.*

A.—Infectivity of measles is highest in the pre-eruptive stage and thereafter wanes rapidly. The period over which the virus remains viable and infective in any given case is probably determined by the amount of upper respiratory catarrh which accompanies the attack. Thus, in measles well modified by serum quarantine of no more than 4 to 5 days is necessary. At the other end of the scale clinical experience indicates that a sharp attack of measles with pronounced catarrhal features or accompanied by coincident respiratory infections such as whooping-cough, influenza, etc., may remain mildly infectious up to 12–14 days from onset. Thus, a period of 10 days from the appearance of the rash provides very adequate quarantine for all cases.

Corneal Scar

Q.—*In the* JOURNAL *of April 28, in an answer about a contact lens for corneal scar, your adviser hints at "more simple and less expensive methods." What alternative would he suggest to obtain the maximum optical efficiency?*

A.—Where one eye interferes with the vision of the other, the following are the usual methods of obtaining relief: (1) a ground glass in the appropriate spectacles in front of the interfering eye; (2) a "clip-on" opaque disk similarly placed; (3) a Chavasse glass (i.e., a crinkled glass) so that the cosmetic appearance is altered as little as possible.

INCOME TAX

Pension: Claim for Expenses

F. S. is in receipt of a pension as from the death of her husband on active service. Can a claim be made (*a*) for insurance (endowment) and (*b*) for cost of storage of furniture, which was necessitated by enemy action?

⁂ (*a*) Yes, if the insurance is on the life of F. S. (*b*) No—there being no assessed income against which such cost can be off-set as a relevant expense.

University Scholarship

M. P. qualified two years ago and has now been granted a scholarship of £110 per annum. Is this liable to income tax?

⁂ Section 28 of the Finance Act, 1920, provides that income arising from a scholarship held by a person receiving full-time instruction at a University . . . shall be exempt from income tax. If any doubt arises as to whether a particular scholarship comes within the section, the Commissioners of Inland Revenue are authorized to consult the Board of Education on the point. M. P. might ask the university authorities whether the point has been decided in connexion with a previous holder of this scholarship.

Locumtenent and Travelling Expenses

J. D. sends an inquiry of a general nature.

⁂ In our opinion a locumtenent working for short periods in different areas during a financial year is normally to be regarded as exercising his profession in such a way as to bring him under Schedule D and to entitle him to all expenditure incurred "wholly and exclusively" for the purposes of his profession, including the expense of travelling from his residence to the places where he does his professional work. The correspondent to whom J. D. refers worked for one employer under terms which brought the earnings within Schedule E. That Schedule, in spite of the more stringent rule with regard to expenses, was preferable for the year concerned in the taxpayer's interest, and furnishes no guide as to the line to be taken in the usual type of locumtenency engagement.

LETTERS, NOTES, ETC.

Examinations in Stages

Mr. G. H. COLT, F.R.C.S. (London, W.1), writes: A surgeon who is well known to me was able to prepare for and make one serious attempt at passing the Final F.R.C.S. examination. He failed in one of the six parts. From then onwards he took passing shots at the examination each time it came round, but without further preparation. Each time for five times he failed in one of the six parts, and each time it was in a different part, so that in all six attempts he failed once in every part. At the seventh attempt he drew winners in all the six parts, and being freed from thraldom has become a real surgeon in the Near East. The facts given show how examinations and examiners may fail when, in the so-called higher degrees, the element of chance becomes greater than the element of ability to show one's knowledge. Examinations which hinder rather than help a prospective surgeon in the preparation for his life's work should be abolished There are excellent alternatives for testing a candidate's surgical ability, and these are safer for the public, at any rate at the start of his career!

A New Covering for Skin Dressings

Dr. R. STOPFORD-TAYLOR (Liverpool) writes: I was very interested and glad to read in the *Journal* of April 7 (p. 485) that Dr. J. E. M. Wigley had found a new use for perforated oiled silk. I would remind him; however, that the idea of using "green protective with holes" for the treatment of granulating surfaces following burns was suggested over 30 years ago. Perforated oiled silk has been freely obtainable through the usual channels of surgical supplies for over ten years. It has been perfectly satisfactory, and there is no doubt of its value as a semi-occlusive and painless dressing. I drew attention to its use in the treatment of burns in a clinical memorandum in the *Journal* of March 15, 1941 (p. 403).

Unilateral Flush after Food

Dr. A. D. McDWYER (Dublin) writes: In the question under the above title (May 12, p. 687) the account of a transient facial erythema, appearing at the beginning of a meal and vanishing in 1/2 to 3/4 hour afterwards, seems to show a very close relationship to the auriculo-temporal syndrome, if it is not essentially the same. This syndrome, which has been the subject of reports in the literature for over half a century, is characterized by redness followed by sweating, of one side of the face: although the two areas may not have the same extent. The vasodilatation may be accompanied by very mild pain. Objective alterations in sensation in this area innervated by the auriculo-temporal nerve may be elicited. The vaso-cutaneous manifestations are produced reflexly by tasting rather than chewing, especially spicy foods and also psychically by the sight of any procedure with food which stimulates the parotid gland to activity. In a large proportion of cases, if not all, there is a previous history of trauma in the region of the parotid gland, or of parotitis, usually complicating one of the infectious fevers.

To understand the theories of causation a short account of the anatomy will be of value. The auriculo-temporal nerve, a branch of the third division of the trigeminal, receives a communication via the otic ganglion from the glosso-pharyngeal nerve, conveying secretory fibres to the parotid gland, and then pierces the latter, to supply the skin over the temporal area, part of the pinna, and over the parotid gland. This nerve also receives a branch from the cervical sympathetic trunk, and a twig from the seventh nerve. It is suggested that subsequent to injury or parotitis there is increased formation of fibrous tissue around the nerve, which becomes compressed from the swelling of the gland when the latter is stimulated into activity. Vasodilatation and sweating are the consequence of this pressure on the vegetative fibres. Another theory is that the nerve is injured, either from trauma or from parotitis, and in the subsequent regeneration the glosso-pharyngeal fibres become diverted from their purpose of supplying the parotid gland. The third view is that this phenomenon is an exaggeration of the appearance normally seen in this area on a person's face when eating. The first suggestion is the most favoured, and, as this condition has been present since birth, the possibility may be that the aetiological cause was trauma during delivery. I am not aware of any satisfactory treatment, but if the symptoms are troublesome irradiation has been suggested (W. Needles, *Arch. Neurol. Psychiat.*, Chicago, 1936, **35**, 357). In view of the causation, could this really be wise?

Yaws and Positive Kahn

Dr. G. SHEARER (Colonial Medical Service, Nigeria—on leave) writes: I read with great interest the answer to the question on "Yaws and Positive Kahn" in your issue of April 14 (p. 543). Having studied the problem of yaws closely there are certain parts of the answer I would like to comment on. I was glad it was emphasized that yaws was not endemic all over West Africa, and that in areas where it was not endemic syphilis is common. In some colonies yaws is endemic in some areas of the colony and not in others. In Nigeria, for example, yaws is endemic throughout the south, whereas in the north it is unknown, but syphilis is rife. Humidity as well as heat is a predominant factor in determining the endemic yaws areas.

The statement that the Kahn test may be rendered positive by leprosy, malaria, and trypanosomiasis is open to argument. In regard to trypanosomiasis, I think the statement is inaccurate. My colleague Dr. C. W. Hope Gill published an article in the *Journal of the Royal Society of Tropical Medicine and Hygiene* about 1931 showing that the Kahn test is not affected by that disease; and, following on his work in the area where yaws and sleeping sickness were both endemic, I had ample reasons to confirm his findings. A certain amount of work on the effect of leprosy on the Kahn test has been done lately at a leper colony I know, but nothing has been published yet. It would be premature to make pronouncements on it, but I am led to understand that the opinion formed is that the effect of leprosy on the Kahn test is so small and rare as to be of no importance whatsoever. As to malaria affecting the Kahn test, the suggestion is new to me, and I would like to be given some indications as to the authority for this statement.

In the answer given it is stated that "if a positive Kahn is due to yaws a couple of short courses of N.A.B. would almost certainly reverse it," and I agree entirely with this; but I fear the cases thus treated would come into the category of inadequately treated yaws infections, as the Kahn test would probably not remain negative. Too much has been said and written about curing yaws with one o two injections of N.A.B. If we are to take the disappearance of symptoms and external signs as a cure, then this is correct; but, to be logical, the disappearance of the primary sore in an early case of syphilis would be regarded as a cure of that disease. The only criterion of cure in yaws as well as syphilis is a permanently negative Kahn or similar serum reaction. It is unnecessary to test the cerebrospinal fluid in yaws. I have treated thousands of cases of this disease, and in many studied the results by the Kahn test, an I have no doubt that adequate courses of N.A.B. with bismuth are necessary to effect a permanent cure.

In my experience it would be a grave mistake to ignore a one or two-plus Kahn in an African as suggested. If this is due to yaws, a small provocative dose of N.A.B. will increase the titre A cured case of yaws in childhood will not give a three- or four-plus Kahn in adult life unless there has been a reinfection with yaws o infection with syphilis, but I would point out that the number of West Africans having yaws in childhood or young adult life who receive adequate treatment to secure a cure as defined is at present I regret to say, very small—in fact, an infinitesimal proportion of actual cases.

Shortage of Medical Textbooks

Dr. R. D. GRAY (Chippenham) writes: The recent discussion in the House of Lords, and particularly the remarks of Lord Buck master, tempt me to report an example of maldistribution which may be of serious consequence if repeated up and down the country Some months ago, when the position with regard to *Gray' Anatomy* was so acute that one London medical student resorted to an advertisement in your columns, a new copy of the latest edition was in the front window of the Salisbury branch of a popular book seller and more were available within. While the shortage continues, it might reasonably be expected that publishers would assist by confining their deliveries to the recognized medical and scientific booksellers, and so avoid offering to the general public what the medical student cannot get.

Intestinal Obstruction by Gall-stone

Dr. ROBERT ANDERSON (Birmingham) writes: About 20 years ago I was called to see a woman of 75 who had been suffering from abdominal colic and vomiting for several days. There was not muc distension but there was visible peristalsis. On examination p.v. I found a hard mass behind the uterus and advised an operatio for relief. Her friends would not agree to it, but a few days afterwards they asked me to bring a surgeon. When he came he coul not find the mass I had found, but on opening the abdomen he pu his hand down into the pelvis and brought up a coil of small intestine with a hard mass in it. He incised the bowel and the mass was found to be a gall-stone fully an inch long and nearly as broad. The patient recovered. The surgeon was the late Albert Lucas, F.R.C.S.

"Predisposition" to War Neuroses

Dr. A. HARRIS writes from Wilmslow, Cheshire: With regard t Dr. Frederick Dillon's letter (April 21, p. 570), I would draw h attention to a paper by J. G. Sheps, "A Psychiatric Study o Successful Soldiers" (*J. Amer. med. Ass.*, 1944, **126**, 271).

Corrections

Dr. K. D. Salzmann wishes to correct a mistake in the lette published on May 26 (p. 748). The sentence should read ". . . Dr Read's teaching is that doctors must take more time and troubl in instructing and reassuring childbearing women" (not measuring

In the *Journal* of May 26 (p. 758) a note was published on "Di and Dental Health." The name of the author, Dr. A. Livingston should have been spelt without the final "e."

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THE EFFECTS OF PROTEIN DIET ON INFECTIVE HEPATITIS

BY

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The effects of diet on the course of various forms of jaundice have been the subject of some controversy. The purpose of this paper is to report on a series of 61 cases of infective hepatitis in men, 32 of which were treated with a high-protein diet with superadded vitamin B complex, and 29 by a classical low-fat diet in which the protein was not augmented.

Definition of Cases

Past experience of infective hepatitis has made it clear that the severity and the duration of the disease are extremely variable (Stocks, 1944; Higgins *et al.*, 1945). Recent claims have been made that the causal organism of infective hepatitis and N.A.B. and homologous serum jaundice are either similar or closely related. The fact that those diseases differ in their clinical course is best shown in Table I. The present series of 61 cases of infective hepatitis are compared with 54 cases of homologous serum jaundice resulting from the same icterogenic yellow fever vaccine. These have been arranged into four groups, depending upon the duration of the illness as originally suggested by Fox *et al.* (1942). The number of cases in each group has been expressed as a percentage of the total in each series.

TABLE I.—*Comparison with Serum Jaundice due to Yellow Fever Vaccine*

	Serum Y.F. Jaundice		Infective Hepatitis
	Fox *et al.*	Personal Series	
Days under treatment:	%	%	%
A: 21 or less	25	19	8
B: 22–49	40	39	86
C: 50–89	23	27	5
D: 89 or over and fatal cases	12	15	0
Cases in each series	759	54	61

It appears from the table that the majority of patients with infective hepatitis fall into Group B, whereas those of serum jaundice are spread over a longer period. This would suggest that the recovery rate of serum jaundice is of a scattered nature; in some the disease is transient, in others there is a greater tendency to relapse (10%). On the other hand, infective hepatitis appears to be largely self-limiting and recovery spontaneous.

In selecting cases for this experiment, therefore, the importance is stressed of using only those patients who gave a history of contact or in whom there was adequate epidemiological evidence of the disease. All cases which had been under arsenotherapy or had had yellow fever vaccine of an unknown batch number, or had had transfusions within 200 days of onset, were excluded. Five W.A.A.F. personnel were also treated under similar conditions, but, owing to paucity of numbers and possible sex differences in the rate of return to normal, these have not been included.

To exclude cases of Weil's disease a leucocyte count was made on entry, and in no case was a total of over 10,000 per c.mm. found. Infective mononucleosis was ruled out by differential counts and by the classical Paul-Bunnell reaction on selected cases. Only those who contracted the disease between Nov., 1943, and May, 1944, have been included in this series.

Criteria of Progress

During the course of treatment to assess progress four criteria were observed. (These were all based on the time taken to return to normal after admission to hospital.)

The first—the presence daily of bile in the urine—was tested by the iodine and foam test. The second—the excess of bilirubin in the serum—was assessed by the quantitative van den Bergh reaction as described by Harrison (1937), using the Lovibond disk. Normal was taken as being less than 0.6 mg. per 100 c.cm.; this test was made every fifth day initially, but later was carried out when the clinical signs suggested the icterus was minimal. The third criterion was the degree of parenchymatous liver degeneration as determined by the intravenous hippuric acid test of Quick (1939). The analysis of the urine, however, was carried out by the method of Weichselbaum and Probstein (1939). Two-hourly samples were used throughout, as these were considered to be more exact and sensitive. The fourth criterion was the time taken to return to duty.

Conditions of Experiment

It was decided to try the effects of foodstuffs readily available, supplementing these with vitamin B complex in the form of bakers' yeast. Two diets were arranged; the first, based on those of Patek and Post (1941) and Fleming and Snell (1942), contained 370 g. carbohydrate, 154 g. proteins, and 108 g. fats. Vitamin B complex was given as bakers' yeast, 30 g. daily by mouth. Parenteral liver (2 c.cm. of anahaemin) and thiamine hydrochloride 5 mg. were given twice weekly subcutaneously. Later the original diet was modified to a more fluid character for some patients in the initial stages. The second was a classical low-fat diet—320 g. carbohydrate, 70–90 g. proteins, 60 g. fats—and acted purely as a control. Vitamins were not supplied in excess of those already contained in the diet. Table II gives details of the diets used in the investigation.

Through the courtesy of the commanding officer a 40-bed ward was set aside for the treatment of infective hepatitis. Cases were admitted alternately, without prejudice, to the right and left sides of the ward. Those on the left side received the high-protein and vitamin B diet, and those on the right the control. Officers were accommodated in the side wards and were given the same diets as the airmen. The ward was never completely filled at any one time, so that this method of random allocation to the diet group presented no difficulties.

While in hospital patients were kept in bed until their liver function was found to be normal by the intravenous hippuric acid method. When the urine became bile-free they were allowed to go to a convalescent home, or, in the case of officers, on sick leave. Initially, during the period at a convalescent home those on the high-protein diets were returned to their normal airman's rations (approximately 100 g. of protein a day), and yeast was withheld. Later, the high-protein diet and yeast were continued during the entire treatment. When in the opinion of the medical officer in charge of the convalescent home evidence of clinical jaundice was minimal, the patient returned to the main hospital and the van den Bergh test was repeated.

TABLE II.—*Details of the Diets*

	Prescription (approximate)		
	High Protein (C., 370 g.; P., 154 g.; F., 108 g.)	Semi-fluid High Protein (C., 230 g.; P., 120 g.; F., 110 g.)	Low Fat (C., 320 g.; P., 70–90 g.; F., 60 g.)
Breakfast	90 g. prunes 30 g. cornflakes 15 g. sugar 180 g. milk 1 egg 60 g. bread 20 g. butter 15 g. sugar in tea 15 g. marmalade	180 g. milk 30 g. cornflakes 15 g. sugar 1 egg 60 g. bread 15 g. marmalade 20 g. butter	30 g. porridge 90 g. fruit 90 g. bread 90 g. marmalade 60 g. milk
9 a.m.	30 g. yeast 150 g. milk 15 g. sugar	30 g. yeast 150 g. milk 15 g. sugar	Lemonade 15 g. sugar
Dinner, 12 midday	90 g. meat 120 g. potatoes 90 g. vegetables 30 g. bread 20 g. butter 120 g. sweet 180 g. milk 15 g. sugar in coffee	90 g. mashed potatoes 15 g. butter 150 g. fish 90 g. vegetable purée 90 g. milk pudding	120 g. fish 120 g. potatoes 120 g. vegetables 90 g. milk pudding or fruit
2 p.m.	30 g. yeast 150 g. milk 15 g. sugar	30 g. yeast 150 g. milk 15 g. sugar	Lemonade 15 g. sugar
Tea, 4 p.m.	60 g. bread 15 g. butter 15 g. jam Green salad	60 g. bread 20 g. butter 15 g. jam	90 g. bread 60 g. jam 60 g. milk 8 g. butter
Supper	120 g. soup 90 g. meat 120 g. potatoes 90 g. vegetables 90 g. stewed fruit	120 g. soup 90 g. minced meat. 90 g. mashed potatoes 90 g. vegetable purée 15 g. butter	120 g. soup 90 g. meat 120 g. potatoes 90 g. milk pudding and stewed fruit
9 p.m.	180 g. milk	180 g. milk 15 g. ovaltine 15 g. sugar	180 g. milk 15 g. sugar

Comparison of Home and Oversea Cases

Of the 61 cases concerned in the experiment, 23 (8 of these were air-crew, 7 of whom were officers) had recently returned from North Africa within the prescribed incubation period of 30 days, and can be said to have contracted the disease away from this country. The remaining 38 (7 were air-crew, of whom 4 were officers—1 officer on ground duties was also included) had not left this country. To ensure that the disease of North Africa was no more severe than that contracted here, a comparative test was made. Table III shows the number of cases placed on each diet from home and oversea service. It is clear that precisely the same proportion of these two groups were on the experimental and the control diets.

TABLE III

	Experimental Diet	Control Diet	Total
Home cases	20 (52·6%)	18 (47·4%)	38
Oversea cases ..	12 (52·2%)	11 (47·8%)	23

This allows a comparison to be made (Table IV) between home and oversea cases without the possible effects of diet interfering. In order that these results should be comparable with those of other observers, the cases have been further subdivided. Those coming under treatment in hospital within one week of the initial symptoms are designated "early" and after this time "late."

TABLE IV.—*Comparison of Home and Oversea Cases. Mean Duration before Return to Normal in Days*

	Late Cases		Early Cases		Total Cases	
	Home	Oversea	Home	Oversea	Home	Oversea
Biliuria	15·0 (9)	12·4 (8)	11·4 (29)	11·8 (15)	12·3 (38)	12·0 (23)
Van den Bergh ..	26·6 (9)	20·4 (8)	24·3 (29)	24·4 (14)	24·8 (38)	22·9 (22)
Hippuric acid ..	16·3 (9)	11·6 (7)	12·8 (28)	12·5 (15)	13·6 (37)	12·2 (22)
Duration of treatment	34·0 (9)	25·8 (8)	32·0 (29)	30·5 (15)	32·5 (38)	28·8 (23)

The number of observations upon which the mean is based appears in brackets.

No significant difference is seen in the duration of any o the standards of fitness from either home or oversea sources It is therefore considered that the origin of the disease has n bearing on the effects of diets, and, in any case, since those o either diet include equal proportions of home and overse cases, there can be no error from this source.

The comparative figures for the diet groups are given i Table V.

TABLE V.—*Comparison of Diet Groups. Mean Duration and Standard Deviations in Days*

	Late Cases		Early Cases		All Cases	
	H.P. Diet	Control	H.P. Diet	Control	H.P. Diet	Control
Biliuria:						
Number of cases	10	7	22	22	32	29
Mean duration	13·0	14·9	12·5	10·6	12·6	11·7
S.D.			5·4	4·0	5·2	7·9
Van den Bergh:						
Number of cases	10	7	22	21	32	28
Mean duration	24·1	23·0	24·7	23·9	24·5	23·6
S.D.			9·1	10·2	8·0	12·7
Hippuric acid:						
Number of cases	10	6*	22	21	32	27
Mean duration	10·7	20·2	13·8	11·5	12·8	13·4
S.D.			7·1	9·6	6·8	15·7
Duration of treatment:						
Number of cases	10	7	22	22	32	29
Mean duration	28·0	33·1	33·1	29·9	31·5	30·7
S.D.			12·6	8·4	11·0	12·2

Owing to the small number of cases occurring in the late series the standar deviation has been omitted.

* This figure includes 1 case in which the liver function was subnormal through out hospitalization.

From Table V it is seen that cases coming under treatmen late are small in number and unevenly divided, whereas thos coming under treatment early are equally divided. In comparing results there does not appear to be any differenc between late and early groups. This is surprising, but may b explained by the fact that only those patients who did not sho any immediate response to treatment were transferred fro their station sick quarters. These cases tended to be mor severe than those in the early series.

Two cases placed on the high-protein diet relapsed. Thes were both air-crew, and both came under treatment early. Th first case—No. 20—relapsed while at the convalescent home Biliuria was absent and a normal liver function test was obtaine before entry to the convalescent home. This patient's secon period of biliuria and liver failure has not been included. Th second case—No. 8—was discharged from hospital bile-free the van den Bergh was within normal limits, and the liver function test was normal on discharge. Relapse occurred 11 day later. The second period of hospitalization of this case ha not been included, as the object of the experiment is to tes the time taken to return to duty.

Case 6, coming late under treatment in the control series, ha a prolonged course. Biliuria persisted for 80 days, and the live function test was still subnormal on discharge.

With so small an experience no significance can be attache to these few individual reactions. In general the evidence give by Table V is that there was no material difference at a between the two diet groups in any of the four characteristi measured.

Discussion

It is possible that the total numbers of cases may be considered to be too small for conclusions to be drawn from thes experiments; but it was felt that, since the epidemic perio occurs largely during the winter months, care must be taken include only those from any one winter period, in case of year variations in the severity or alterations in the type of th disease.

The importance of even distribution has been recognized allotting the diet, and statistical analysis has been undertake to ensure that the use of cases from different areas of infecti has not influenced the experiment. It would appear that disea of North Africa in no way differs from that in this countr As Clifford Wilson (1945) has recently stated, the patien stay in hospital is bound up with many proble other than their illness; for this reason other criteria have been taken to assess their progress.

The benefit of protein in this disease has largely been based upon the effects of diet in nutritional liver disorders. In the present series it is of interest to note that those on the experimental diet did not show any improvement over those in the control series. This is in striking contrast to the claims made by Beattie (1943–4), who has stated that with hepatitis it was possible to reduce the time spent in hospital by as much as 37% by dietetic measures alone. He further states that, roughly, the average stay in hospital is inversely proportional to the daily intake of protein. It is not clear to which type of hepatitis he refers, nor how much protein is given, but he quotes an average of 150 g. of protein a day in one series—the figure used here.

The active principle in preventing nutritional liver disorders has been traced to sulphur-containing amino-acids, of which methionine appears to be the foremost. It is not possible to determine the methionine content of the diets used in our series, but it is interesting to observe that Wilson *et al.* (1945) and Higgins *et al.* (1945), using oral methionine, were unable to find any statistical difference, using comparable criteria to assess progress.

Macrae *et al.* (1943) have demonstrated that the protein intake of the R.A.F. has exceeded the generally accepted standards of protein requirements. Whether the self-limitation of the disease as shown in Table I is due to the probable protein stores can only be a matter of conjecture. Himsworth and Glynn (1945) have pointed out that the case-mortality rate of the disease of allied pathology—post-inoculation jaundice—was 2.5% in the cases of Fox *et al.* (1942), whereas that in the cases of Findlay *et al.* (1944) it was 1.5%, the difference being considered to be due to the relatively poor nutrition of Fox's cases. This may suggest that the effect of protein is maximal as a protective but not as a restorative measure, and that, as protein deficiency is not found in the R.A.F., this may be the reason for the similarity of the two series. It is clear, however, that no harm arises as the result of the increased protein, and, in the meantime, a further experiment on similar lines is being undertaken with widely divergent protein intakes.

Summary

The progress of 61 cases of infective hepatitis in the R.A.F. is assessed; 32 were treated with high-protein diet with added vitamin B complex and liver extract; 29 were on a control diet. No response to this form of therapy is noted. Two cases relapsed following the high-protein vitamin B diet.

The recovery rate of a series of cases of jaundice due to icterogenic yellow fever vaccine is compared with a series of cases of infective hepatitis.

No difference has been found between the course of cases from North Africa and those from this country.

My thanks are due to Air Vice-Marshal Sir Harold Whittingham, K.C.B., for allowing me to publish this paper; to Dr. A. Bradford Hill (Consultant in Medical Statistics to the R.A.F.) for advice on the statistical analysis; to Group Capt. J. G. Russell and Group Capt. G. A. M. Knight, commanding officers of an R.A.F. hospital, for setting aside a ward for the treatment of these cases; to Wing Cmdrs. T. Macrae, O.B.E., and C. Hardwick, and Squad. Ldr. S. Yudkin, for criticism and advice; to Fl. Officer D. M. Forgan for supervision and preparation of the diets; to Sisters MacLeod and Fleet, of P.M.R.A.F.N.S., for the careful way in which the patients were supervised; and to the laboratory staff, who have met the extra work with zeal and enthusiasm.

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CIVILIAN DYSPEPSIA

BY

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Service reports leave no doubt that dyspepsia is an important medical problem of the war, and the purpose of this paper is to show that the same problem exists at home. The present series of cases covers two years—1943 and 1944—at a hospital which serves a large industrial and poor residential district in Greater London. All patients with dyspepsia were referred to the special dietetic out-patient department or to the dietetic wards under our care. Both the surgical and the medical complications of peptic ulcer were admitted to our department, and therefore a satisfactory perspective of the peptic ulcer problem was obtained. A small number of ulcer patients remained in other wards but were fed from the diet kitchen and have been added to our series; probably 98% of dyspepsia cases attending the hospital are included in our figures. The dietetic department has been working eight years, and therefore the figures represent an equilibrium which has been established with the district. A detailed history and examination were recorded in all patients, and are available for further analysis. Barium meal examinations were made in nearly every case, and gastroscopy was freely used in trying to achieve an accurate diagnosis. The clinical material is summarized in Table I. The series does not include about 200 patients referred from other hospitals for gastroscopy.

"X-ray negative" Dyspepsia

Of all new patients with gastric symptoms 59% have a peptic ulcer. The large group of non-ulcer dyspepsias (41%) will be the subject of a later report, and only a brief account of them will be given. First there was a small group of patients with obvious air-swallowing or nervous vomiting. Secondly, various physical causes may be finally diagnosed—e.g., chronic gastritis, gall-bladder disease, carcinoma ventriculi, early congestive heart failure, pulmonary tuberculosis, diaphragmatic hernia, or habitual purgation. In the majority of cases no definite diagnosis could be given, and they include all degrees of dyspepsia from slight occasional discomfort to regular remittent dyspepsia. At least half this group gave histories suggesting peptic ulcer, and sometimes a subacute gastric ulcer was found gastroscopically. We believe they are indeed peptic ulcer subjects, and correspond with the many patients with proved ulcers (especially duodenal) who give a history of having had a previous negative barium meal examination. Many of these dyspepsia cases seem to arise from the same factors that favour peptic ulcer—the rush and hurry of modern life, with its fatigue, worries, irregular meals, and nervous tension. Modern civilization provides good opportunities for the energetic and conscientious constantly to irritate their stomach. The intensity and duration of the stimuli may determine whether there is only irritability of the stomach or duodenum or a peptic ulcer is in process of formation.

It is worth noting that, although gall-bladder disease was constantly being looked for and many negative cholecystograms were being obtained, in only 23 (5 males and 18 females) out of 1,522 patients was there good evidence of cholecystitis or cholelithiasis; and as a cause of women coming to hospital with dyspepsia, duodenal ulcer (91 cases) was five times as common as gall-bladder diseases. These figures do not include the patients admitted to other wards with biliary colic or jaundice, but, even so, during 1944 the Medical Research Council Classification of Diseases Register (in-patients only) showed only 34, 20, and 4 admissions for the groups 545 (cholecystitis), 546 (cholelithiasis), and 547 (other gall-bladder diseases) respectively.

Table I.—*Summary of Clinical Material at the Central Middlesex County Hospital from Jan. 1, 1943, to Dec. 31, 1944*

In-patient admissions (general medical and surgical)	15,836		Excludes 2,582 mothers and 2,631 babies in the maternity department	
New patients attending consulting out-patient department (general medical and surgical)	16,074		Excludes ante- and post-natal, dental, electrical, *x*-ray, casualty, and V.D. departments. Many were probably admitted and are included in the first group	
New patients with gastric symptoms attending dietetic clinic as in-patient or out-patient, or both (but not counted twice)	1,522	G.U., 271 (F., 79) D.U., 681 (F., 91) Post-operative dyspepsias, 33 "*X*-ray-negative," 342 "*X*-ray-negative" haematemesis, 57 Duodenitis, 25 Pylorospasm, 28 Gall-bladder diseases, 23 Carcinoma ventriculi, 44 Gastritis, 21	The gastric ulcers include 42 acute gastric ulcers diagnosed gastroscopically and probably not visible radiologically. 58 "pyloric or juxtapyloric" ulcers are included with the duodenal ulcers	Gastric/duodenal ulcer ratio 1 : 2·5
Admissions with frank haematemesis and/or melaena	220	G.U., 56 (F., 23) D.U., 67 (F., 14) Post-operative, 15 (F., 3) "*X*-ray-negative," 57 Miscellaneous, 25	The gastric ulcers include 15 ulcers demonstrated gastroscopically but not visible when *x*-rayed during convalescence	Gastric/duodenal ulcer ratio 1 : 1·2
Admissions with perforations	90	G.U., 11 (F., 1) D.U., 77 (F., 7) Jejunal ulcer, 2		Gastric/duodenal ulcer ratio 1 : 7
Deaths attributable to peptic ulcer	27	G.U., 15 D.U., 11 J.U., 1	Haemorrhage, 11 deaths Perforation, 10 deaths (3 not operated on) After elective surgery for peptic ulcer, 6 deaths (116 partial gastrectomies and 16 gastro-enterostomies)	Gastric/duodenal ulcer ratio 1 : 0·73

Peptic ulcer was diagnosed in 952 patients.

Table II.—*Peptic Ulcer Cases*

	M.	F.	Total	F./M. Ratio
Acute gastric ulcer (gastroscopic) ..	21	21	42	1 : 1
Chronic gastric ulcer (lesser curvature or adjacent anterior or posterior walls)	171	58	229	1 : 3
Pyloric ulcer	46	12	58	1 : 4
Duodenal ulcer	544	79	623	1 : 6
Total	782	170	952	1 : 4·7

Age and Sex Incidence

The accompanying Chart shows the maximum incidence for gastric ulcer between 40 and 60, but duodenal ulcer has an earlier peak at 35 to 39. The pyloric ulcer curve corresponds more closely with the gastric ulcer than with the duodenal ulcer curve, but a possible fallacy may be that scarring from long-standing duodenal ulcer may cause deformity of the pyloric canal.

Apart from the rapidly healing acute ulcers, in which the sex ratio is equal, there is a big preponderance of men, and it is interesting to note the different sex ratios. As duodenal ulcer has a different sex and age incidence from gastric ulcer it is possible that different factors are involved in their causation. There are big variations in the proportion of gastric and duodenal ulcer in various series from different parts of the country and from different sections of the community. If there are varying aetiological factors between gastric and duodenal ulcer a clue might be found where there are significant differences.

Relative Incidence of Gastric and Duodenal Ulcer

There are six possible fallacies in comparing published figures. First, the civilian series refer without exception to patients admitted to hospital or nursing homes. It is fair to say there is a bias towards admitting gastric rather than duodenal ulcer cases because a large lesser-curve ulcer is more impressive than a deformed duodenal cap, and the patient often looks more ill. Further, there may be a suspicion of malignancy with a gastric ulcer. One of us (F. A. J.), working at St. Bartholomew's Hospital before the war, can confirm the operation of the bias. The pressure on beds did not allow uncomplicated ulcers to be admitted, and the majority of duodenal ulcer patients were returned to their doctor after the *x*-ray diagnosis had been established. In 1936 the G.U./D.U. ratio of in-patients was 1 : 0.79, but an examination of the *x*-ray department reports in the same year showed a G.U./D.U. ratio of 1 : 2.2. Secondly, it is necessary to know how often pyloric or pre-pyloric ulcers are diagnosed and whether they are included with the gastric or the duodenal ulcers. There is good reason for following Illingworth *et al.* (1944) and including them with the duodenal ulcers, for at operation it may be very difficult to decide whether the ulcer is pyloric or duodenal, and it is our experience that the radiological diagnosis of pyloric ulcer is not always confirmed at operation and the ulcer may be duodenal; and, further, a pre-pyloric ulcer is extremely rare gastroscopically. Thirdly, it is fallacious to argue from the proportion of ulcers which bleed, perforate, or cause death, as can be seen by the variation in ratios in this series of consecutive cases attending one hospital (Table I). Fourthly, the social status is apparently significant, for death-rate studies show that

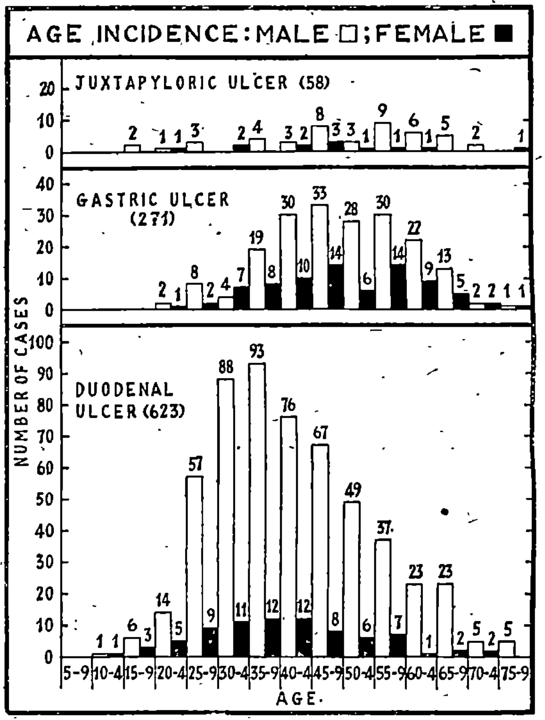

Chart showing the age and sex incidence in a series of 952 cases of peptic ulcer at under 65 gastric ulcer is more lethal in the poor and that duodenal ulcer causes more deaths in the wealthy than in the poor (Morris and Titmuss, 1944). Fifthly, the age incidence of different series is most important, because the age peak for duodenal ulcer is apparently earlier than for gastric ulcer (see Chart). Taking only males under 45, the G.U./D.U. ratio changes from 1 : 2.5 for the whole series to 1 : 5.5 ! The sixth fallacy may be the inclusion of "*x*-ray-negative" gastric ulcers diagnosed gastroscopically. In many of the previous series gastroscopy has not been performed, and the exclusion of such cases from our series would alter the G.U./D.U. ratio from 1 : 2.5 to 1 : 3.0.

Taking these points into consideration, it may be profitable to review the figures given for London, elsewhere in the country, from the Services, and for private patients.

TABLE III.—*London Series*

Source	No.	Year	G.U./D.U. Ratio
Registrar-General (Tidy, 1944)	— —	1921 1928	1 : 0.36 1 : 0·42
Admissions to L.C.C. Hospitals (Daley, 1942)	15,443	1933–8	1 : 0·62
In-patients at London Hospital (Souttar, 1927)	1,275	1923–5	1 : 1·0
Admissions to St. Thomas's Hospital (Tidy, 1944)	870 986 862	1926–7 1930–3 1934–7	1 : 0·66 1 : 0·45 1 : 0·40
Admissions to St. Bart's	335	1936	1 : 0·79
Sample of *X*-ray dept.'s barium meal reports at St. Bart's	80	1936	1 : 2·2
The present series	952	1943–4	1 : 2·5

Our conclusion that duodenal ulcer is 2½ times as common as gastric ulcer is the complete reversal of previous series, and we believe the difference is due to the inclusion of out-patients in our series. This view is supported by the difference between the G.U./D.U. ratio at St. Bartholomew's Hospital in 1936 for in-patients (1 : 0.79) and the *x*-ray department figures for in-patients and out-patients (1 : 2.2)—suggesting that the majority of duodenal ulcer cases were not admitted to the wards. The Registrar-General's ratio is probably fallacious, for a chronic gastric ulcer is more lethal than a duodenal ulcer should bleeding or perforation occur.

TABLE IV.—*Service Series*

	No. with Dyspepsia	G.U./D.U. Ratio*	% Ulcer	
Army:				
Morris (1940) ..	500	1 : 8·7	42·8	D.U. include 10%† juxtapyloric ulcers
Brockbank (1942) ..	931	1 : 6·5	41·5	D.U. include 6·3%† juxtapyloric ulcers
Spillane (1941) ..	200	1 : 4·5	32	No mention of pyloric ulcers
Graham and Kerr (1941)	246	1 : 5·9	64	,, ,,
Hill (1943)	197	1 : 4·7	34·6	D.U. include 4·5%† pyloric ulcers
Tidy (1941) ..	2,500	1 : 4·4	51·9	D.U. include 8% pyloric ulcers
Hinds Howell (1942)	1,422	1 : 4·6	51	D.U. include 5%† pyloric ulcers
Payne and Newman (1940)	287	1 : 4·2	78	No mention of pyloric ulcer
Navy:				
Wade (1942) ..	1,063	1 : 6·0	45	,, ,,
Allison and Thomas (1941)	100	1 : 5·7	45	
R.A.F.:				
Rook (1943) ..	194	1 : 4·0		
Present series (1943–4):				
Males under 45 ..	610	1 : 5·5	66	

* Where possible, calculated to include pyloric ulcers with duodenal ulcers.
† These percentages refer to the total series.

Where possible, the figures given include the pyloric ulcers with the duodenal ulcers ; this can be a significant factor; for if included with the gastric ulcers Hinds Howell's series gives a ratio of 1 : 2.5 instead of 1 : 4.6. The overwhelming preponderance of duodenal ulcer is seen in all the series, and it seems to correspond to the ratio 1 : 5.5 obtained from our civilian series by taking only males under 45.

Nicol (1941) suggests there may be significant variations in different parts of the country, and gives the following figures :

TABLE V.—*Geographical Variations*

	G.U./D.U. Ratio		G.U./D.U. Ratio
Glasgow (Young, 1927) ..	1 : 6·4	Leeds (Flint, 1927) ..	1 : 2·8
Aberdeen (Nicol, 1941) ..	1 : 6·8	London (Souttar, 1927) ..	1 : 1·0
Edinburgh (Wilkie, 1927)	1 : 6·1		

Nicol doubted the validity of the London figure, and his suggestion that more duodenal ulcers are treated at home seems to be correct, but there is still a gross discrepancy with the Scottish figures. Whether this may be due to an absolute increase in duodenal ulcer or whether gastric ulcers are less frequent in Aberdeen remains to be studied. Table VI gives available figures for private cases.

TABLE VI.—*Private Cases*

	No.	G.U./D.U. Ratio
Aberdeen (Nicol, 1941)	229	.... 1 : 4·5
London (Ryle, 1932)	261	.... 1 : 4·0
New Lodge Clinic, London (Barford, 1928)	166	.... 1 : 4·3

There is probably little selection with private cases, for all who are seen in consulting-rooms or nursing homes are likely to be included. Even if the pyloric ulcers are included with the gastric ulcers there is a greater incidence of duodenal ulcer than in our own series, and duodenal ulcer may be more common in private than in hospital practice.

Ratio of Fatal Cases to New Patients

During the two years 1943–4 there were 1,522 new patients with gastric symptoms ; 952 of these had proved peptic ulcer, and 27 died from peptic ulcer—i.e., there were 35 new patients for every death from ulcer. The ratio is open to criticism, but the possible fallacies may in part cancel themselves. The number of ulcer cases does not take into account the patients diagnosed as "*x*-ray-negative" dyspepsias with an ulcer-like history, and it does not include the "*x*-ray-negative" haematemesis and melaena or patients with pylorospasm. The majority of such patients are probably candidates for peptic ulcer if ulcers are not already present.

Our numbers are too small to allow more than a rough calculation, but they help to provide an estimate for the ulcer population in England and Wales. First, between 1929 and 1938 there were 43,200 deaths from peptic ulcer, and therefore 43,200×35=1,512,000 people may have developed ulcers during that time. Secondly, comparing the age incidence of our new patients and our deaths, and applying the ratio in each age group to the national figures, an estimate can be made of the number of ulcers beginning in one year (Table VII).

TABLE VII.—*Estimate of Number of Ulcers beginning in One Year (Males only)*

Age Group	Cases	Deaths	Ratio	National Deaths (1938)	National Cases
–15	1	0	—	0	0
15–25	25	0	160 ×	54 =	9,000*
25–35	160	1	160 ×	170 =	27,000
35–45	225	1	225 ×	488 =	110,000
45–55	188	10	19 ×	882 =	17,000
55–65	127	5	25 ×	1,063 =	26,000
65–75	50	4	12 ×	644 =	8,000
75+	6	1	6 ×	251 =	1,500
Total ..	782	22		3,552	198,500

* Assumed age 25–35 ratio.

This would suggest that nearly 200,000 men develop peptic ulcer each year. The mortality of patients treated in a specialized gastro-intestinal clinic is likely to be lower than in the country as a whole. This may be offset by the probability that most gravely ill patients are sent to hospital, whereas many with mild peptic ulcer symptoms are treated by their doctor and not referred to us.

Thirdly, the post-mortem incidence of active or healed ulcer in the stomach or duodenum has been given as 10.25% of all necropsies in a general hospital (Hurst and Stewart, 1929).

Mr. R. M. Titmuss has kindly assisted us with these calculations, and considers we are justified in giving a rough estimate that the number of living people in England and Wales who have suffered from peptic ulcer is around 1,500,000 and may even be higher. We do not wish to stress these figures except to indicate that peptic ulcer seems to be an appreciable problem in this country.

Peptic Ulcer: A Modern Industrial Problem

Unfortunately many cases of peptic ulcer relapse, and the majority of those who have had ulcers have to follow simple rules to avoid further symptoms—e.g., regular meals with balanced diet, avoidance of common indigestible foods, avoidance of undue fatigue, and maintenance of a calm philosophical outlook on life. It is a problem which mainly confronts men during their working life and often when at their prime. Although peptic ulcer does not cause heavy loss of life (little more than 1% of non-violent deaths) it results in much suffering and incapacity for work. The ulcer subject has "guts" even if they are weak ones, and he does not give in easily. The man with a duodenal ulcer is usually of special value to industry, for he is over-conscientious, with plenty of drive and a sense of good standards of work.

The magnitude of the problem demands further study of those factors in modern industrial life which favour peptic ulcer.

Summary

An analysis in given of all patients with digestive trouble coming to a large general hospital in Greater London. Of 1,522 patients, 952 were found to have peptic ulcer.

The ratio of women to men with peptic ulcer was 1 : 4.7.

The ratio of gastric to duodenal ulcer was 1 : 2.5. This is higher than in previous London series.

The ratios of previous series are considered and possible causes for discrepancies discussed. An important factor is the exclusion of out-patients in most series, for patients with duodenal ulcer probably have less chance of hospital admission than those with gastric ulcer.

The ratio of gastric and duodenal ulcer in Service series is found to be equivalent to the figure for males under 45 in the present civilian series.

Calculations suggest there are about 1,500,000 living people in England and Wales who have suffered from peptic ulcer.

Thanks are due to Miss C. F. Harris, our dietitian, who has kept a careful record of all in-patient and out-patient diagnoses. We are also grateful to Mr. R. M. Titmuss for statistical advice.

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Increased standard rates of pay and improved conditions of service for mental nurses in Scotland are among the recommendations by the Scottish Nurses' Salaries Committee to the Secretary of State, who commends them for adoption by hospitals in a circular issued by the Department of Health for Scotland. The Taylor Committee has been dealing during the last three years with nurses' salaries and has still to submit its complete report, but puts forward to the Secretary of State a summary of the points on which agreement has been reached up to date. The present recommendations will apply from April 1, 1945. The scales awarded are broadly similar to those recommended last year by the Rushcliffe Committee for mental nurses in England and Wales.

NUTRITIONAL MACROCYTIC ANAEMIA AND THE ANIMAL PROTEIN OF DIET

BY

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The incidence of anaemia, especially of nutritional macrocytic anaemia, in relation to the animal protein content of the diet is of interest in countries such as India, where most of the population live on barely adequate or frankly inadequate diets. During war and post-war periods, when nutritional anaemias are probably more widespread, the subject becomes of world-wide importance.

The study of the incidence, type, and severity of cases of anaemia in relation to the diets of a population affords some evidence of the inadequacy of such diets. This note is based on 50 consecutive unselected cases of anaemia seen between May 1 and Sept. 15, 1944, studied from this point of view. They occurred among a population of adult male Indians (17,000 meat-eaters and 1,188 vegetarians), all the sick of which were admitted into one hospital. The men had been on known rations for over two years. The men and their quarters were medically inspected regularly. The locality was a desert and the climate was extremely hot in summer. The hospital admission rate was the low one of 1.5 per 1,000 per day. There was practically no fresh malaria and the dysentery rate was very low. All cases with red blood counts of under four million cells per c.mm. or corresponding haemoglobin of under 11.6 g. were investigated, with the exception of cases admitted for obvious pulmonary tuberculosis. This arbitrary standard was adopted to exclude borderline cases.

The following normal ranges for absolute values, suggested for general use in India by Napier and Das Gupta (1942), were adopted for analysis of this series: mean corpuscular haemoglobin (M.C.H.) of 24 to 33 micromicrograms ($\gamma\gamma$), mean corpuscular haemoglobin concentration (M.C.H.C.) of 30 to 35%, and mean corpuscular volume (M.C.V.) of 80 to 100 cubic microns (c.μ).

Examinations were carried out on oxalated venous blood. The standardized Sahli haemoglobinometer was used. Stool and urine examinations, test-meal, sedimentation rate, Kahn test, and skiagrams of the chest were carried out, in addition to a full clinical examination, in all cases. The first blood examination figures, after admission, and the results of other investigations, are shown in Table I.

All 50 cases, except one, had complicating factors (Table II). An analysis of the 50 cases according to age, occupation, race, and living conditions failed to bring out any differences; but it was found that 27 of them were lifelong vegetarians, 2 were temporary vegetarians, and 21 meat-eaters. The vegetarians had never taken meat or eggs. The vegetarians and meat-eaters were fed from the same kitchens. They were equally exposed to malaria, hookworm, and other diseases. No difference in general body development was seen in the two groups. The two temporary vegetarians suffered from dyspepsia and undulant fever. The dyspeptic patient had omitted meat from his diet for six months. The undulant fever case had lived on a hospital milk diet without meat or eggs for two months.

It was possible to check with some accuracy what was eaten. The daily rations were: 18 oz. of atta (wheat flour) or rice, 2½ oz. of dhal (pulses), 3¼ oz. of ghee (clarified butter or vegetable oil), 2/3 oz. of condiments, 2 oz. of onions, 2 oz. of potatoes, 4 oz. of fresh vegetables, and 6 oz. of fresh mutton with bone, for five days in a week. Leafy vegetables were issued for only a few months of the year. The vitamin A content of the diet was also known to be low. In lieu of fresh meat vegetarians were allowed 4½ oz. of tinned milk three days a week, and 3/4 oz. of ghee and 3 oz. of atta or rice for two days a week. This amounted in practice to one tin of unsweetened milk containing 13 fluid oz., equivalent to 26 oz. of fresh milk, each week. But of 27 vegetarians with anaemia only 11 had received milk in lieu of meat. No one had bought any extra milk from canteens or elsewhere. The meat ration of 6 oz. of fresh mutton with bone for five days a week amounted to 4 oz. without bone. This was checked in local carcasses. Therefore, 20 oz. of fresh mutton without bone weekly was the main difference in the diets of vegetarians and meat-eaters, although 11 vegetarians had been drinking one tin of milk weekly. Excluding milk and meat rations, the diet contained over 3,000 calories and over 80 g. of vegetable protein. The diet is emphasized because the anaemia, in its type and severity, was closely and regularly related to the diet consumed.

TABLE I.—*Results of Blood Examination in 50 Cases of Anaemia*

Case No.	R.B.C. (mills.)	Hb (g.)	M.C.H. (γγ)	M.C.H.C. (%)	M.C.V. (c.μ)
Vegetarians:					
3	2·0	7·28	36·4	29·03	125·3
4	3·55	12·6	35·4	28·8	122·8
5	1·25	4·9	31·5	28·6	109·0
6	1·2	4·7	39·1	36·1	108·3
7	4·0	9·05	22·6	24·46	92·2
8	2·8	12·4	44·2	32·6	135·0
9	1·7	6·35	37·3	31·7	117·6
11	1·9	6·69	39·2	30·4	115·8
13	1·8	6·35	35·2	28·8	122·2
16	1·4	5·85	41·7	31·6	132·0
17	2·5	8·3	33·2	31·9	104·0
20	3·2	13·0	41·2	33·3	121·8
22	3·4	6·2	18·2	20·0	91·1
23	3·5	10·5	30·0	32·8	91·4
24	1·08	4·46	41·2	37·1	111·0
25	1·5	5·85	39·0	30·7	126·6
26	3·0	11·7	39·0	36·56	106·6
27	2·4	8·3	34·5	26·7	129·1
32	3·1	9·92	32·0	26·1	122·6
35	3·75	12·6	33·6	28·88	116·2
36	1·8	7·0	38·8	30·5	127·1
39	2·7	12·2	40·5	38·1	118·5
40	3·0	9·9	33·0	30·0	110·0
41	3·7	9·65	26·08	26·08	100·0
43	3·7	13·02	35·1	36·2	114·8
50	4·15	10·3	24·8	21·4	115·5
Temporary vegetarians:					
29	1·8	6·45	35·8	30·7	116·6
14	2·1	6·72	32·0	26·88	119·0
Meat-eaters:					
1	4·2	9·6	22·8	24·0	95·2
2	4·3	9·1	21·1	21·4	98·8
10	3·0	4·96	16·5	21·5	76·6
12	4·2	9·3	22·1	28·4	77·8
15	4·7	8·7	18·5	20·9	88·2
18	4·3	9·3	21·6	24·4	80·8
19	3·8	8·0	21·05	24·2	86·8
21	4·2	9·5	22·6	26·3	85·7
28	3·8	6·8	17·8	21·2	84·2
30	4·3	9·9	23·02	24·7	93·0
31	4·0	7·45	18·6	21·3	92·5
34	4·2	7·95	18·9	22·8	82·8
37	3·8	8·55	22·5	25·3	88·6
38	4·8	9·3	19·3	21·1	91·6
42	5·5	10·5	19·9	22·8	83·63
47	4·9	9·1	18·5	24·5	75·6
49	4·25	10·92	25·6	27·0	94·8
Sprue—vegetarians:					
46	2·1	7·7	36·6	30·8	119·04
Sprue—meat-eaters:					
33	2·0	7·95	39·7	33·1	120·0
44	2·7	9·1	33·7	25·2	133·0
45	1·9	7·0	36·8	30·5	120·4
48	2·0	8·68	43·4	29·4	147·1

TABLE II.—*Complicating Factors*

Disease	Meat-eaters	Vegetarians	Temporary Vegetarians	Sprue
Hookworm	14	12	—	2
Roundworm	—	1	—	—
Tapeworm	—	1	—	—
Malaria	9	14	—	2
Bacillary dysentery	—	9	—	—
Amoebic dysentery	—	1	—	—
Amoebic hepatitis	1	1	—	—
Infective hepatitis	—	1	—	—
Syphilis	—	1	1	—
Active tuberculosis (closed) ..	1	1	—	—
Suspicious skiagrams of lungs .	4	3	—	—
Dyspepsia	—	—	1	—
Undulant fever	—	—	1	—

Classification

Haematologically, the cases grouped themselves as follows: Normocytic-orthochromic, 2; normocytic-hypochromic, 15; microcytic-hypochromic, 3; macrocytic-hyperchromic, 25; macrocytic-orthochromic, 4; and macrocytic-hypochromic, 1. It was found that (*a*) 17 out of the 20 normo-microcytic group were meat-eaters, and (*b*) 26 out of 30 of the macrocytic group were vegetarians. The remaining 4 were meat-eaters and cases of sprue.

Aetiologically, as a low M.C.H.C. is accepted as indicating iron deficiency, and a high M.C.V. or macrocytosis as usually indicating a haemopoietic-principle (or principles) deficiency, the cases can be classified as: (i) Iron-deficient normo-microcytic cases consisting of 17 meat-eaters and 3 vegetarians. Sixteen were infested with hookworm, three had malaria, and one was a case of idiopathic hypochromic anaemia. (ii) Haemopoietic-principle deficiency macrocytic cases, consisting of 24 cases of nutritional macrocytic anaemia (all vegetarians), 5 cases of sprue, and 1 case associated with undulant fever. Nine of the nutritional macrocytic cases were "dimorphic" (see later). Thus there were two main groups—17 meat-eaters who had iron-deficiency (low M.C.H.C.) hypochromic anaemia, and 24 vegetarians with nutritional macrocytic anaemia. These significant facts are examined later in relation to the numbers of the population from which the cases were admitted.

Before this investigation there was a clinical impression that severe anaemia was associated with vegetarianism in this Indian population. To test this impression the cases were analysed according to severity. Severe anaemia was arbitrarily defined as one with a red cell count of two millions or below, or a haemoglobin of 5.8 g. (which is comparative to this R.B.C. level) or below. It was found that, whereas there was only one case (No. 10) of severe anaemia in the iron-deficiency group of 17 meat-eaters, there were 11 cases of severe anaemia in the 24 vegetarians with nutritional macrocytic anaemia. Three of the five sprue cases had also a severe anaemia. The only severe anaemia seen among the meat-eaters (excluding sprue cases) was not clinically serious. But the majority of the severe cases among the vegetarians were obviously seriously ill on admission to hospital.

Incidence

In view of the contrast in type and severity of anaemia shown by the vegetarian and the meat-eating patients in this series, the incidence was examined according to diet. It was found that in 4½ months 17 cases of anaemia came from the group of 17,000 meat-eaters and 26 from the 1,188 lifelong vegetarians—a rate of 2.6 per 1,000 per year for meat-eaters and 58.5 per 1,000 per year for vegetarians. Anaemia associated with sprue and undulant fever was excluded from the incidence analysis for the reason that the anaemia occurred during the course of another serious illness. The 24 cases of nutritional macrocytic anaemia came from the vegetarians—a rate of 54.1 per 1,000 per year. Not a single case came from the meat-eaters. Of the 20 cases of iron-deficiency anaemia 17 came from the meat-eaters and the remaining 3 from the vegetarians. Nine of the nutritional macrocytic cases also had iron deficiency (low M.C.H.C.), so that the incidence of iron deficiency was 10 times greater in vegetarians than in meat-eaters.

Severe anaemia as already defined occurred at a rate of 24.7 per 1,000 per year in the vegetarian group and 0.16 per 1,000 in the meat-eaters.

It would be of interest to compare these results with the incidence in areas where malaria and dysentery are rife.

Some Clinical and Haematological Features

1. The iron-deficiency group of 20 cases was mainly a mild normocytic-microcytic hypochromic anaemia. The red cell counts in the group varied between 3,000,000 and 5,500,000 (Hb only 10.5 g. in the latter case). The haemoglobin varied between 4.96 and 10.9 g. The 4 cases in this group which were not infested with hookworms were associated with malaria in three instances, and the fourth was an idiopathic hypochromic anaemia.

2. The 30 macrocytic anaemias were classified into 24 cases of nutritional macrocytic anaemia, 5 cases caused by sprue, and 1 case associated with undulant fever. In the 24 nutritional macrocytic cases the blood picture, as shown in Table I, was varied. The lowest red cell count was 1,080,000 and the lowest haemoglobin 4.46 g. Clinically, out of 11 severe cases 7 were seriously ill and were confined to bed. Others, though suffering from advanced anaemia, had few complaints. It was of

interest to note that men with red cell counts below two millions were doing full duties before admission. Though every one of these 24 cases had a complicating factor, which was irregularly distributed, the incidence of such factors was not higher than in the remaining 26 cases, except that bacillary dysentery or its history was present in 9 cases and not in the anaemia of other groups. But each case occurred in a vegetarian, and, what is more, not a single meat-eater of the 17,000 had developed this type of anaemia. Vegetarianism was thus thought to be the principal cause of nutritional macrocytic anaemia in this series. It is not, however, the purpose of this note to discuss what is present in the meat ration which prevents the occurrence of macrocytic anaemia.

One case showed how quickly a severe nutritional macrocytic anaemia may develop. A champion wrestler—a vegetarian—had had excellent rations, with four extra tins of milk weekly, and plentiful fruit and vegetables, as he lived in a fertile part of the country. He was transferred to the desert, where his ration contained little or no fruit and vegetables, and no milk. After three months of this diet he developed a severe macrocytic anaemia with a red cell count of 1,250,000 and Hb of 4.9 g.

In the 5 cases of sprue anaemia there was nothing of particular note.

The patient with severe undulant fever developed macrocytic anaemia after two months in hospital. In health he was a meat-eater, but in hospital was given a milk diet without eggs. There was no clinical anaemia on admission, but after two months' fever he looked very pale, which led to a full blood investigation, with the following results: R.B.C., 2,100,000; Hb, 6.72 g.; M.C.H., 31.5 $\gamma\gamma$; M.C.H.C., 26.28%; M.C.V., 119.0 c.μ. The sternal marrow differential count showed 7.75% megaloblasts, 14% erythroblasts, 27% macroblasts, and 18% normoblasts. No other anaemia-producing factors were present. The blood picture in this case was of interest because undulant fever usually produces a microcytic anaemia, the macrocytic form being rare. The anaemia usually is not severe. Strong (1942) says: "The lowest recorded count by Basset-Smith was 2,500,000, and by Kern 2,800,000."

3. That 9 of these 24 macrocytic cases had an M.C.H.C. below 30% was of interest. Four were infested with hookworms. Two had achlorhydria, but free acid returned as anaemia disappeared. In the remaining three the iron deficiency appeared to be purely dietetic in origin. These 9 cases were similar to the "dimorphic" group recently emphasized by Trowell.

4. Koilonychia occurred in 7 cases (Table III). There was a low M.C.H.C. in all except one. Five cases had hookworm infestation. In one of these there was achlorhydria. The case with a normal M.C.H.C. (30.5%) had an M.C.V. of 127 c.μ.

5. Test meals gave the following abnormal results. Achlorhydria was present in 7 nutritional macrocytic anaemias and 5 iron-deficiency anaemias on the first examination. Acid was later found in four of the former group and two of the latter. Histamine was not available.

6. The results of the examination of the lips, buccal mucous membrane, tongue, and eyes have been tabulated. Cheilitis and angular stomatitis were common, but exact records were not kept in the earlier cases. Sublingual glossitis was a condition in which the under surface and sides of the tongue were very red and tender, and, in some, large red papules were present.

TABLE III.—*Findings in Mouth, Eyes, and Nails*

Disease	Meat-eaters	Vegetarians	Temporary Vegetarians	Sprue
Generalized glossitis	—	8	—	5
Geographical tongue	2	4	—	—
Sublingual glossitis	4	4	—	—
Enlarged numerous fungiform papillae	11	16	—	2
Koilonychia	5	2	—	—
Bitot's spots (xerophthalmia) ..	—	2	—	—

Conclusions

A full blood investigation of 50 consecutive cases of anaemia in Indian men in an extreme desert climate, where there was a low sickness rate (about 1.5 per 1,000 per day), showed that the admission rate to hospital for anaemia per 1,000 of population among vegetarians was 22 times greater than among meat-eaters. The incidence of severe anaemia was very much greater in vegetarians than in meat-eaters in this series.

The anaemia differed in type and severity in the two groups, being mainly macrocytic in the vegetarians (nutritional or tropical macrocytic anaemia) and hypochromic and either normocytic or slightly microcytic in the meat-eating group. No case of nutritional macrocytic anaemia was seen in a meat-eater.

In all cases except one a complicating factor was found, hookworm and malaria being most frequent.

The difference in the habits of the two groups, which were otherwise alike, was that social customs prevented the vegetarian group from eating the weekly ration of 20 oz. of fresh mutton in the meat-eaters' ration. The absence of this meat appeared to be the cause of macrocytosis and severity and frequency of anaemia in the vegetarian group. The rations contained over 3,000 calories and over 80 g. of vegetable protein. Riboflavin and vitamin A were known to be low.

It will be of interest to compare these results with findings when the stress of severe frequent malarial infection and dysentery is great.

One case showed that a severe macrocytic anaemia may develop within three months if milk, fresh fruit, and vegetables are much reduced in a vegetarian diet. Another case in which severe macrocytic anaemia developed during a prolonged fever (undulant fever) showed the need of liver and iron in the diet in cases of chronic illness.

Summary

The incidence, type, and severity of anaemia in an Indian adult male population of about 18,000 were shown to depend on the meat content of the diet. Nutritional macrocytic anaemia occurred only in vegetarians in a series of 50 cases.

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THE DIAGNOSIS OF DOUBTFULLY PENETRATING ABDOMINAL WOUNDS

A LESSER OPERATIVE PROCEDURE

BY

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A diagnostic procedure for doubtfully penetrating abdominal wounds, introduced by me in the Desert Campaign and thereafter often referred to among field surgeons as my test, has recently (Rogers, 1944) been designated, not unkindly but with some lack of euphony, "Donald's explorotomy." Rogers mentions the test as if it were generally known, and does not elaborate it. Lest other references should appear I feel i advisable to put a description on record; otherwise the implications and limitations may not be understood. The circumstances attending its origin are not without interest.

In the casualty clearing stations behind El Alamein there wa great congestion of casualties for the first week or so of the battle. Only first priority cases could be operated upon; al else had to travel on to the base hospitals, not far away i distance but a fair way in time. The first-priority cases wer numerous enough to overwork the surgeons, and amon abdominal cases there had to be a discrimination as to wh were worth operating upon and who were not, to an exten that I have not seen repeated.

Most penetrating wounds of the abdomen are easil diagnosed. With experience on the part of the surgeon th proportion of doubtful penetrations, usually with wounds o entrance at a distance, becomes less. But till that experienc is gained, and after then in lesser degree, there are cases i which doubt remains and precious hours are allowed to pas in waiting for more signs. The alternative is an explorator laparotomy. When severe casualties are waiting their turn i large numbers, as at El Alamein, it is galling to do a negati laparotomy of the usual searching kind, and under field conditions this wastes more than a good hour of time and a great deal of energy.

It soon became apparent to me that no missile ever entered the peritoneal cavity without, by the time the patient reached the surgeon, there being some blood, little or much, in the pelvis. Such did not necessarily imply that a viscus had been injured, only that the abdominal wall had been completely pierced, with some bleeding from it into the general peritoneal cavity. Even without visceral injury there could be a large collection of blood if a particular vessel in the parietal wall had been hit; there was always some. From civil practice one recalls how irritatingly a stab incision through the abdominal wall can bleed until it is tautened on the drainage-tube. The absence of any blood in the pelvis, conversely, meant that the parietal wall had not been pierced.

The Method.—A time-saving, and life-saving, procedure in doubtful cases, based on this fact, seemed justifiable in the conditions then existing. Instead of the usual large laparotomy, turning over of the gut, and palpation of other viscera, a small 1½-in. exploratory incision, halfway between umbilicus and pubis, was made. Through this a swab on a long holder was passed to the pouch of Douglas. If no blood was found on the swab the incision was closed. If the swab was blood-stained the wound was extended into a proper laparotomy, which might or might not reveal visceral injury as well. The small incision was made through the rectus muscle, as any extension necessary then produced what was regarded generally as the quickest and best of abdominal incisions in abdominal injuries—the vertical rectus-splitting. The procedure does not take more than 20 minutes, time for induction of anaesthesia included.

The value of a test depends in great measure on its proper performance and interpretation. It is necessary, for instance, to make sure that the swab on the holder is not soiled on its passage through the small exploratory hole. Again, a purely retroperitoneal injury, perhaps necessitating laparotomy, will of course not give a positive result, but the position of the wound, the signs, and often the odour from it, will not lead one into the performance of the test under these conditions.

While I did not advise the test to be done save under exceptionally busy circumstances, where the greatest good of the greatest number was the prime consideration, it would now be of interest to know of any other experiences in the matter. Personally I have not heard of an instance where a negative finding on the swab did not mean one could shut up the small incision with confidence. While the same thought of the underlying principle must have entered other surgeons' minds, I have found no note of it in the literature, and experienced surgeons of the last war tell me it was not a practice known to them.

Rogers, in the article above referred to, indicates the value of the test in those few cases in which the signs leave doubt as to the advisability of operating, and (*a*) the amount of shock seems out of proportion to the external wounds, (*b*) the haemoglobin and red cell count are lower than normal in early cases or the white cell count higher than normal in late cases, and (*c*) the failure of the patient's condition to improve in a reasonable time.

While I agree with these indications I think they suggest that the doubt arises only in cases of the relatively ill. I would add the occasional case in which the patient is relatively well but his signs are equivocal, and something—call it clinical sense or what you will—leaves the examiner unhappy as to delaying for what may be precious hours. Writers on the subject of abdominal wounds usually record a proportion of negative laparotomies. If, especially in shocked patients, the exploration can be cut down to what is described above, then lives as well as time may be saved.

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J. McConnell (*Amer. J. med. Sci.*, 1945, 209, 41) describes an outbreak of epidemic pleurodynia affecting young women in a nurses' training school. The source of the epidemic was not determined. Signs and symptoms referable to the central nervous system were usually present. In three patients the symptoms resembled those of meningo-encephalitis. Attempts to reproduce the disease in animals failed.

CASE-FATALITY RATES OF GAS GANGRENE IN RELATION TO TREATMENT*

BY

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The War Wounds Committee of the Medical Research Council recommended in 1940 a combination of measures for the treatment of gas gangrene—the use of surgery and bacteriostatic drugs to control the infection and the use of polyvalent antitoxin to alleviate the toxaemia. At this time the therapeutic value of antitoxin in clinical gas gangrene had not been assessed. It was shown later, by analysis of the case reports on Army Form I 1241 (Macfarlane, 1943), that the fatality rate was significantly lower among patients who received prompt treatment with antitoxin in addition to surgical treatment; even among those who underwent amputation of the affected limb within six hours of diagnosis the beneficial effect of antitoxin was demonstrable. It seemed clear that, in general, the combined use of surgery and antitoxin was more effective in saving life than either of these measures alone, but it was pointed out that patients in whom the gas gangrene involved the thigh or buttock region showed a poorer response to treatment than those in whom the lower leg or arm was affected. This was thought to be due to the difficulty of controlling the infection in a region with a relatively poor collateral circulation and in which surgical elimination of the infection might be difficult or impossible.

In a later memorandum (M.R.C. War Memorandum No. 2, revised edition, 1943) it was recommended that the initial dose of antitoxin should be increased to 50,000 units, given intravenously; it seemed possible that with a more intensive use of antitoxin and with more effective drugs the fatality rate might be further decreased. The case reports from the Central Mediterranean Force have therefore been analysed to assess the effectiveness of the treatment at present recommended, and to examine the factors contributing to death in those patients who died in spite of such treatment. During the period under review penicillin was increasingly used in addition to or instead of sulphonamide drugs, and it is necessary to compare the effect of the combined treatment with and without penicillin before coming to any conclusion on the efficiency of the therapy now available.

Out of a total of 295 reports of anaerobic infections on Army Form I 1241 between the beginning of the campaign in Sicily and June, 1944, 185 reports have been considered to be typical of cases of gas gangrene, the main criterion being the infection of muscle, since bacteriological confirmation of a clostridial infection was not always given. It was shown in an interim analysis (MacLennan and Macfarlane, 1944) that there was good correlation between the data obtained in the early part of the campaign by personal investigations in the field and those obtained from the reports, and a further check is possible by comparison with the report made by Jeffrey and Thomson (1944) on 33 cases of gas gangrene in the C.M.F. treated with penicillin during the early months of 1944.

I. General Features

Method of Analysis.—The difficulties in the evaluation of therapeutic measures in gas gangrene have been discussed previously. Briefly, because of the many variables involved it is necessary to group together cases which are similar in nature and have received similar general treatment and then to determine within such a group the effect of the particular measure to be evaluated. The main facts which must be taken into account are the adequacy of the treatment with surgical measures, antitoxin, and drugs, and the site of the gas gangrene; other factors, such as the general facilities for evacuation and surgery, must also be considered.

Adequacy of Treatment.—The cases have first been grouped according to the level of treatment with surgical measures and antitoxin, in the classification used by MacLennan and Macfarlane (1944):

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* Based on a report to the Subcommittee on Anaerobic Wound Infections, War Wounds Committee, Medical Research Council.

Class I: Treatment within 6 hours of diagnosis, including surgical measures (excision or incisions) and an initial dose of at least 50,000 units of polyvalent antitoxin, given intravenously.

Class II: Treatment later than 6 hours, *or* with a smaller dose or an intramuscular dose of antitoxin. (Cases in which the route or time of antitoxin dosage was not stated were included in this class.)

Class III: No surgical treatment, or no antitoxin.

This method of classification serves to distinguish in Class I the patients who received the treatment recommended, and the effectiveness of this treatment can be judged by the fatality rate in this class. The treatment in Class II can be broadly defined as being suboptimal in antitoxin therapy, for only 9 of the 78 patients in this class were placed there because of delay in surgical treatment; the difference in the fatality rates of Class I and Class II therefore mainly reflects the effect of prompt intravenous therapy with antitoxin.

Criterion of Adequate Treatment with Penicillin.—The treatment of gas gangrene cases with penicillin was usually systemic. For this analysis the criterion of adequacy has been taken as intravenous or intramuscular injection at the rate of at least 12,000 or 15,000 (Oxford) units every three or four hours. The total dose varied considerably, but the course was usually continued until death in the fatal cases and for three or four days in those which recovered. Some patients received, in addition, local treatment with penicillin, but four receiving only local treatment or an inadequate systemic course have been included in the "No penicillin" group.

It may be noted that the efficiency of the combined treatment including penicillin is being compared with the efficiency of the combined treatment including sulphonamides, and not simply with treatment by surgical measures and antitoxin, for practically all the patients received sulphonamide drugs in addition to or instead of penicillin. Any test of the value of penicillin, as such, in gas gangrene, is therefore bound to be severe, as the effect must be better than that of the sulphonamides in order to be demonstrable.

Site of Disease.—The cases have been grouped in two classes, according to the site of the gas gangrene: Class A, lower leg or arm; Class B, thigh, buttock, shoulder, or back. Approximately Class A is one in which the muscles have a good collateral circulation, and Class B is one in which either the possibility of a collateral circulation is poor or excision is anatomically more difficult.

Conditions for Treatment.—The cases in this series occurred over a period of nearly a year, during which there were considerable changes in surgical teams and in the conditions under which they worked. The high death rate in Sicily and in the early weeks of the Italian campaign may have been due in part to the inexperience of surgeons newly posted, and the rate was in fact falling towards the end of the year (MacLennan and Macfarlane, 1944). During the winter and until the opening of the offensive in May, however, most of the casualties occurred in the Anzio and Cassino areas; the field surgical units were practically in the line, and the conditions for nursing were so difficult that the amount of surgery was necessarily restricted, while the alternative of evacuation by sea or over bad roads was hazardous for patients liable to gas gangrene. Conditions such as these were no doubt mainly responsible for the number of patients in Class III; the disease was established on admission in many of these, of whom some died within an hour of arrival and others were judged unlikely to respond to treatment. The conditions in these areas improved by April, but were clearly inferior throughout to those prevailing during the May offensive. This information is derived from the reports of the Consulting Surgeon, A.A.I., who remarks: "Thus the battle began with an abundance of experienced forward surgeons. . . . The centres were well grouped, and the lines of evacuation short in time and in distance. . . . Never can conditions have been more favourable to good battle surgery."

The change in conditions is relevant to this analysis, for experience and early diagnosis are potent factors in the successful treatment of gas gangrene. In Sicily, and in the early part of the campaign in Italy, penicillin was mainly in the hands of experienced surgeons, since the technique of use was being explored; it apparently came into general use only during March (almost concurrently with the improvement in general conditions), for after this time approximately 80 to 90% of the reported cases received it. It seems probable, therefore, that the patients who received penicillin were on the whole at least as favourably placed for response to any treatment as those who did not receive it.

Inclusion of Cases with Complications.—The various complications among the 185 cases of gas gangrene in this series fall into two categories—those which may be sufficient in themselves as a cause of death, and those which are more immediately relevant to death from gas gangrene:

1. Complications sufficient as a cause of death:
   Head wound, 4; chest wound, 1; abdominal wound, 10; malaria, 2; pneumonia, 1; ? anaphylactic shock, 1. Total, 19 cases (10.3%), with 16 deaths.
2. Complications relevant to death from gas gangrene:
   Multiple limb wounds, 33; shock (failure to resuscitate), 4. Total, 37 cases (20%), with 27 deaths.

In three other cases death occurred suddenly, after an initial recovery, from either pulmonary embolism or secondary haemorrhage, which, like renal failure, can be considered as sequelae rather than as complications.

In all, 30% of the cases were recorded as having some complication, but examination of the data shows that the complicated cases are not unequally represented in the different groups, including the groups "penicillin plus" and "penicillin minus," and from a statistical point of view ther is no point in excluding such cases from the analysis. The data have therefore been tabulated inclusive of all the cases but where it seemed of particular interest the rates exclusiv of fatal cases with complications have also been given.

Throughout this report a difference is regarded as significan if it exceeds twice its standard error, in which case it woul occur by chance less than 5 times in 100 trials. As the numbe of cases in some of the groups is small, the standard errors ar high, and if a difference in rates is to be dissociated from pur chance it would have to be dramatic. It should be borne i mind, therefore, that a difference in rates which is not signif cant on these numbers might be significant with larger numbers but is probably not dramatic.

II. Gas Gangrene of Leg or Arm

The data for the patients with gas gangrene of the lower le or arm are shown in Table I, the cases being grouped accordin to the class of treatment with surgery and antitoxin, with an without treatment with penicillin.

Table I.—*Gas Gangrene of Leg or Arm*

Class of Treatment	Penicillin			No Penicillin			Difference ± S.E.
	Cases	Deaths	Fatality Rate (%)	Cases	Deaths	Fatality Rate (%)	
Class I ..	23	6	26·1	11	1	9·1	− 17 ± 1
" II ..	8	2	25·0	30	16	53·3	+ 28 ± 2
" III ..	1	1	100·0	11	10	90·9	− 9 ± 2

In no case is the difference in the death rate between the tw groups, penicillin plus and penicillin minus, statistically signi cant. In view of the small numbers in Class I, it is of intere to compare the death rates in this class with those of two oth groups, reported elsewhere, who received similar but not strict comparable treatment with surgical measures and antitoxi The penicillin-treated cases reported by Jeffrey and Thoms (which may overlap to some extent with cases reported o Army Form I 1241) include 12 cases of gas gangrene of t leg or arm. These patients are described as receiving full trea ment with surgical measures and antitoxin, including an intr venous dose of antitoxin before or at operation; 11 of the 1 patients recovered. Another series of cases reported previous (Macfarlane, 1943, Table VII) included 24 cases of gas gangre of the leg or arm treated promptly with surgical measures a antitoxin, with a total dose of more than 20,000 units of an toxin but without penicillin; 21 of these 24 patients recovere

It seems clear that in this type of case, given adequate trea ment with surgical measures and antitoxin, the expectation life is high. Many of these patients underwent amputatio and in view of the fact that in the majority of such cases the infection was eliminated from the body before administration of penicillin was begun it could hardly be expected that this treatment would make a difference to the death rate among them.

TABLE II.—*Amputation Rates in Gas Gangrene of Leg or Arm*

Class of Treatment	Penicillin			No Penicillin			Total in Class		
	Cases	Amptns.		Cases	Amptns.		Cases	Amptns. (%)	Fatality Rate (%)
		No.	(%)		No.	(%)			
Class I ..	23	17	73·9	11	8	72·7	34	73·5	20·6
„ II ..	8	8	100·0	30	27	90·0	38	92·1	47·4

The amputation rate among the 38 patients in Class II (shown in Table II) was over 90%, yet the death rate was 47%; this rate is significantly higher (27%±11.3) than the death rate among the 34 patients in Class I (20%) who received a prompt intravenous dose of antitoxin in addition to radical surgery. The combination of intravenous antitoxin therapy with surgery is clearly beneficial, and in considering its absolute efficiency it is of interest that the 7 fatal cases in Class I all suffered from some complication, which may have affected the issue.

III. Gas Gangrene of Thigh, Buttock, or Shoulder

It was noted previously that the poorer response to treatment in patients with gas gangrene of the thigh or buttock region might be due to the difficulties of excision, and it was certainly hoped that a more extensive use of antitoxin and of drugs highly effective against clostridia would lead to some improvement. The data for the C.M.F. cases of this type (Class B) are set out in Table III.

TABLE III.—*Gas Gangrene of Thigh, Buttock, or Shoulder*

Class of Treatment	Penicillin			No Penicillin			Difference; ± S.E.
	Cases	Deaths	Fatality Rate (%)	Cases	Deaths	Fatality Rate (%)	
Class I ..	13	5	38·5	11	6	54·5	+ 16 ± 20
„ II ..	8	6	75·0	32	26	81·3	+ 6 ± 16
„ III ..	6	6	100·0	31	31	100·0	No difference

Within each class of treatment with surgical means and antitoxin there was no significant difference in the death rate of the group treated and that not treated with penicillin. The mean death rate in Class I (24 patients, with 11 deaths) was 46% and in Class II (40 patients, with 32 deaths) 80%; the case fatality was therefore significantly decreased (34%±12.1) when the recommended treatment was given, but the death rate in this type of case was absolutely much higher than in the cases with gas gangrene of the leg or arm.

Jeffrey and Thomson (1944) report 18 cases of this type which received treatment with surgical measures and antitoxin similar to Class I, in addition to penicillin; of these patients 8 died—a death rate of 44.4%. In a previous series of cases (Macarlane, 1943) out of 11 patients of this type who received early treatment with surgery and antitoxin, with a total of more than 0,000 units, 6 died (54.6%). In spite of the best treatment which could be given in these circumstances, the death rate from gas gangrene in these sites remains about 45%.

IV. Conclusions on Effect of Treatment

The reduction in the death rate when antitoxin and bacteriostatic drugs were used as recommended in addition to surgical measures affords a striking testimony to the value of the combined method of treatment. It is clear, however, that the ancillary measures had their limitations in a type of case in which surgical excision of the affected tissue may be impossible. It does not appear that this limitation was due to inadequate dosage with antitoxin. The total dose of antitoxin given within 48 hours of onset to patients with gas gangrene of the thigh or buttock (Class I only) is shown in Table IV; similar figures for the group described by Jeffrey and Thomson are included. The death rates were not significantly less among the patients who received a total dose of more than 120,000 units of antitoxin; that is to say, there is no indication that a larger dose would have been of value as a routine.

TABLE IV.—*Dosage of Antitoxin in Class I Cases*

Series of Cases	Total Dose of Antitoxin in 48 Hours						Difference; ± S.E.
	Up to 120,000 Units			Over 120,000 Units			
	Cases	Deaths	Fatality Rate (%)	Cases	Deaths	Fatality Rate (%)	
C.M.F. Army Forms	11	7	63·6	13	4	30·7	32·9 ± 20·4
Jeffrey and Thomson	9	4	44·4	9	4	44·4	No diff.

With regard to the adequacy of treatment with penicillin the cases included in the penicillin group received a dosage which has been estimated to maintain a bacteriostatic level in the blood. In the C.M.F. cases there was no significant difference in the death rate between those who received penicillin systemically and those who did not, even among cases (Class B) in which a decrease might legitimately be expected if effective chemotherapy could compensate for inadequate surgical excision. This does not imply that penicillin is without value in the treatment of gas gangrene (still less that it is without value in the treatment of the patient, for the question of wound-healing has not been considered). Its value as a specific treatment, in the sense that the death rate was lower among those treated, is simply not proved. Whether penicillin controlled the bacterial infection is another matter, and one difficult to assess when several measures were often employed. It seems possible, however, that in a disease in which there is frequently a failure of the circulation through the infected area the local application of penicillin might be the more effective route.

The doses of antitoxin and drugs used appear to be adequate for their purposes and, on the whole, the opinion of surgeons seemed to be that the clostridial infection was controlled. If this was the case the question arises whether other factors were contributing to death in those patients who died in spite of apparently adequate treatment of the infection. In a number of cases the immediate cause of death was renal failure rather than a fulminating toxaemia, and the similarity between this type of case and the crush syndrome was pointed out by Jeffrey and Thomson. It is surely significant that the specific treatment recommended for gas gangrene was highly effective in a type of case in which radical excision was almost always carried out, and much less effective in a type in which excision was sometimes limited in extent. The hypothesis that a toxic substance is absorbed from muscle damaged by trauma or ischaemia is of course not new, but lately, with the recognition of the crush syndrome and the occurrence of massive limb wounds, it has aroused much interest. It is not unlikely that a necrotic bacterial toxin, such as *Cl. welchii* alpha-toxin, might accelerate or augment the liberation of a "muscle toxin" and thus have a potent secondary effect in addition to any direct action on a vital organ. In most cases the danger from such an effect would be minimized by early excision, but where excision is delayed the prevention of local damage may be of great significance. The existence and the nature of such a "muscle toxin," however, have yet to be demonstrated.

The importance of surgical excision of the affected tissue in gas gangrene has long been recognized, but as emphasis has been laid on this procedure chiefly in order to control the infection it seemed possible that bacteriostatic drugs might lessen the necessity for radical surgery. If the resorption of some toxic substance other than the bacterial toxin from gangrenous muscle is a factor in the severity of gas gangrene the situation is changed. On the one hand, if radical excision is practised the drug is probably superfluous as a life-saving measure; on the other hand, if the necrotic muscle cannot be removed and is a source of danger the drug may in fact control the infection—which is its virtue—without altering the outcome of the disease. To mention this possible limitation is of course not an argument against the use of drugs, for the control of the infection by any possible means is a primary necessity; but it may account for the fact that, with the numbers available, it has not been possible, either with the sulphonamide drugs or with penicillin, to show in the statistical sense that the drugs increased the expectation of life.

Summary

In a series of 185 cases of gas gangrene in the C.M.F. reported on Army Form I 1241 the case-fatality rate has been examined in relation to the treatment given. The combined method of treatment with surgical measures, intravenous antitoxin, and bacteriostatic drugs, when given as recommended, was highly effective in reducing the death rate in cases with gas gangrene of the leg or arm. The death rate in cases of gangrene of the thigh, buttock, or shoulder region was approximately 40% in spite of such treatment, even among those who received penicillin systemically. The findings suggest that the specific treatment was generally effective in controlling the clostridial infection, but that in cases in which surgical excision of the affected tissue is limited in extent some factor associated with the local damage to muscle may be contributing to the severity of the disease.

Thanks are due to the Director-General, A.M.S., for access to the reports. I am also indebted to Dr. E. Lewis-Faning for his criticism and the verification of the statistical significance, and to Sir Claude Frankau, Mr. B. W. Williams, and Prof. McIntosh for their comments on various case reports.

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STAPHYLOCOCCAL PYOPERICARDIUM (COMPLICATING TYPHOID FEVER) TREATED WITH PENICILLIN

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Because penicillin has been scarce, and because repeated injections are exceedingly trying to a debilitated patient, it is the rule that local application, whenever this will suffice, should be used in place of systemic treatment. It is recognized, too, that the use of penicillin does not in any sense replace surgical drainage, and that when pus is formed in any quantity it must be evacuated. In the case here described a staphylococcal infection of the pericardium supervened in the course of a very severe typhoid infection. The ensuing pyopericardium was successfully treated by the repeated aspiration of pus and the instillation of sodium penicillin into the pericardial sac.

Case History

An officer cadet, aged 26, was admitted to a military hospital on May 25, 1944, complaining of malaise, nausea, abdominal pain, and constipation for three days. On admission the temperature was 104° and the pulse rate 96. Apart from slight abdominal distension, no definitely abnormal physical signs were present. The urine was normal, and the white cells numbered 4.500 per c.mm. with a normal differential count. Health in the past had been unexceptionable. The most recent immunization with T.A.B. vaccine was in March, 1944.

The patient remained acutely ill, with high sustained fever. The abdominal distension became more marked and a troublesome cough developed. On May 29 *B. typhosus* was isolated from the blood in pure culture. About the same time a scanty macular rose-spot rash appeared on the abdomen. During the next few days his condition still further deteriorated. Constipation gave way to a persistent diarrhoea, with which vomiting was associated. The patient became stuporous and delirious. By June 4 serious dehydration was apparent, and three litres of normal saline were given by intravenous drip. Abdominal distension was pronounced, and there was considerable basal congestion of both lungs. But the fluid was well tolerated, and its administration was followed by a great improvement in condition.

By June 14 the temperature had practically settled, only a negligible evening rise persisting. Progress at this time appeared very satisfactory, but, disappointingly enough, four days later the patient again became seriously ill. The temperature was now 102°, and the pulse, weak and irregular, was 128. The physical signs were typical of a pericardial effusion, there being a definite paradoxical pulse and a positive Ewing's sign. On June 24 the pericardium was needled in the fifth intercostal space, half an inch inside the area of cardiac dullness; 50 c.cm. of thin pus was aspirated. This pus gave a pure growth of *Staph. aureus* on culture. The next day surgical drainage of the pericardium was attempted. A trephine hole was made through the sternum at the level of the fourth cartilage, but pus was not found in the pericardial sac. It was thought that this was due to the aspiration of the pericardium on the previous day.

On June 26 it was decided to needle the left pleura. Pus was not found, and the physical signs at the base of the left lung were those of collapse. The white cell count was 26,600 per c.mm., with an excess of polymorphs. The haemoglobin was 64%. The next day the pericardium was again explored through the trephine hole, and on this occasion pus was found and 4 oz. was evacuated. One pint of fresh blood was given by intravenous transfusion.

The pathologist had now reported the sensitivity of the *Staph. aureus* isolated from the pus withdrawn from the pericardium as being approximately the same as that of the standard "Oxford" *Staph. aureus*—i.e., zones of inhibition around cups containing one Oxford unit of penicillin per c.cm. were as follows: (1) patient's staphylococcus, 19 mm.; (2) Oxford staphylococcus, 28 mm. On June 28, therefore, penicillin therapy was inaugurated, 50,000 units of sodium penicillin being injected direct into the pericardial sac by means of a No. 5 rubber catheter. The superficial part of the operation wound had become secondarily infected, culture giving a profuse growth of *Ps. pyocyanea*. Before catheterization, therefore, the wound was filled with 1/1000 perchloride of mercury for a few minutes and then swabbed dry. This technique was found satisfactory, and there was no difficulty in the repeated passage of the catheter. The penicillin was introduced after aspiration of as much pus as possible and the wound subsequently packed to prevent leakage. The injection of 50,000 units was repeated on five further occasions, giving a total dosage of 300,000 units. The first three injections were given on successive days, and the last three on alternate days. After the third dose of penicillin the pus withdrawn from the pericardial sac was reported as sterile on culture.

On July 1 there was considerable improvement in the clinical condition. This improvement was maintained in spite of a sharp attack of diarrhoea, which responded satisfactorily to sulphaguanidine therapy. By July 10 the temperature was once again normal. On this day a further pint of blood was transfused. The haemoglobin prior to transfusion was 70% and the white cell count 14,500 per c.mm.

On July 17, however, there was a renewal of the fever, with the temperature rising to 102°. Some abdominal distension was still present and the pulse was again markedly paradoxical. The spleen was felt "two fingers" below the costal margin, tenderness and rigidity were noted over the right upper abdomen, and there were physical signs of a considerable effusion in the right chest. It was clear that fluid had once again accumulated in the pericardium, and 20 c.cm. of thin sterile pus was aspirated from it. Eighteen ounce of clear yellow fluid, sterile on culture, was also withdrawn fron the right pleura. Some improvement followed this, but in view o increasing dyspnoea it once again became necessary to aspirate both pleura and pericardium, 15 oz. being withdrawn from the forme and 15 c.cm. from the latter.

By Aug. 2 there was still an evening rise of temperature to abou 100°. Signs were now apparent of fluid in the left chest, and 12 oz of sterile heavily blood-stained fluid was aspirated. The spleen coul still be felt and the liver was palpable one inch below the righ costal margin. Slight oedema of the ankles was noted. Furthe exploration of the right chest produced only 3 c.cm. of fluid. N more could be obtained.

On Aug. 17 the patient was again transfused. In view of th persistent pyrexia a course of systemic penicillin was given, 15,00 units being injected every three hours for three days. This produce no improvement in the clinical picture, and it was abandoned, as was proving very exhausting. At this time another 14 oz. of blood-stained fluid was withdrawn from the left chest. The white ce count had dropped to 10,000 per c.mm., the haemoglobin was 75% and the red blood cells 3,650,000 per c.mm. The general conditio had improved. The blood pressure was 110/75, with no paradoxica pulse or evidence of cardiac tamponade. The liver and spleen wer no longer palpable, nor was there reaccumulation of the pleur exudates.

The evening rise of temperature still persisted, and there no developed a very tender swelling over the lower left costal cartilage A diagnosis of typhoid periostitis was made, and on Sept. 7 operation was performed under local analgesia, a transverse incision bei made over the costochondral junction. Thickened inflamed tissu were found with a small quantity of pus beneath the periosteu The bone was curetted and drained and the wound packed wi vaselined gauze. Thereafter convalescence was slow but consisten By Oct. 10 the patient was well enough for repatriation to th United Kingdom by hospital ship.

Comment

The occurrence of a staphylococcal pyopericardium in th case of a soldier already gravely ill with typhoid fever recorded. The successful treatment of this complication by penicillin instillation and repeated aspiration is described. The therapeutic result in the local treatment with penicillin depends upon whether it proves possible to maintain permeation with an adequate concentration of the drug. There are special difficulties in dealing with the infected pericardium. It is difficult to be certain that, when aspiration is done, adequate drainage in fact has been achieved. With extensive infection of the superficial wound of the chest wall it is hard to ensure that the pericardial sac is not contaminated with secondary invading organisms which are penicillin-resistant.

In the case of empyema thoracis similarly treated it is common to get a residual grossly thickened pleura and a rigid chest wall. Rib resection may be necessary to remove extensive fibrinous deposits from the empyema cavity. The end-results in pyopericardium, in which the scope of surgery is more limited, are likely to be less satisfactory. Attention is particularly directed to the long period during which the reaccumulation of sterile pus in the pericardium persisted.

Medical Memoranda

Impacted Foreign Body in the Bronchus of an Infant, causing Collapse and Obstructive Emphysema

The case here recorded is thought worthy of publication because of the occurrence of both collapse and obstructive emphysema in the same lung after impaction of a foreign body in the bronchus of an infant. The obstruction was successfully removed by bronchoscopy.

CASE REPORT

A male child aged 1 year attended the out-patient department of Belgrave Hospital for Children on Nov. 17, 1944, with a history of wheeziness and cough following a choking fit after eating some nut chocolate five days previously. On examination he was found to be healthy-looking and well nourished. There was diminished air entry with an impaired percussion note, as well as much diminution of breath sounds below the right clavicle over an area corresponding to the right upper lobe. The percussion note was hyperresonant over the lower part of the right side. There was some mediastinal displacement towards the right. The left side showed no signs. No abnormal physical signs were found in any other system. His temperature was 99°, pulse 154, respirations 48. He was admitted to the wards. A radiograph taken on admission showed complete collapse of the right upper lobe, with mediastinal displacement to the right and very well marked emphysema of the right middle and lower lobes. On Nov. 20 a radiograph showed increased collapse of the right upper lobe and increased emphysema of the right middle and lower lobes. He was transferred to the London Chest Hospital and bronchoscoped the same day by L. G. C.

Bronchoscopy Report.—Foreign body seen in the right main bronchus projecting into and completely blocking the right upper lobe bronchus but only partially obstructing the main stem bronchus. The foreign body was removed; it appeared to be a piece of nut.

A radiograph taken on Nov. 21 showed that the collapse of the right upper lobe had almost completely cleared, the mediastinum was nearly central, and there was no emphysema in the remainder of the right lung. On Nov. 23 the patient returned to Belgrave Hospital, where he made an uneventful recovery except for an attack of tonsillitis. On Dec. 28 radiographs showed that both lung fields were normal in appearance and the mediastinum central. He was discharged on Jan. 3, 1945, without any physical signs; pulse, emperature, and respiration were normal.

We wish to thank Dr. Norman Hill and Mr. V. C. Thompson for permission to publish this case.

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A Case of Aberrant Suprahyoid Thyroid Tumour

Aberrant thyroid tumours are recorded from time to time, but the occurrence of two separate tumours, one lying above the hyoid and the other just below the left cornua of the hyoid, s unusual.

CASE REPORT

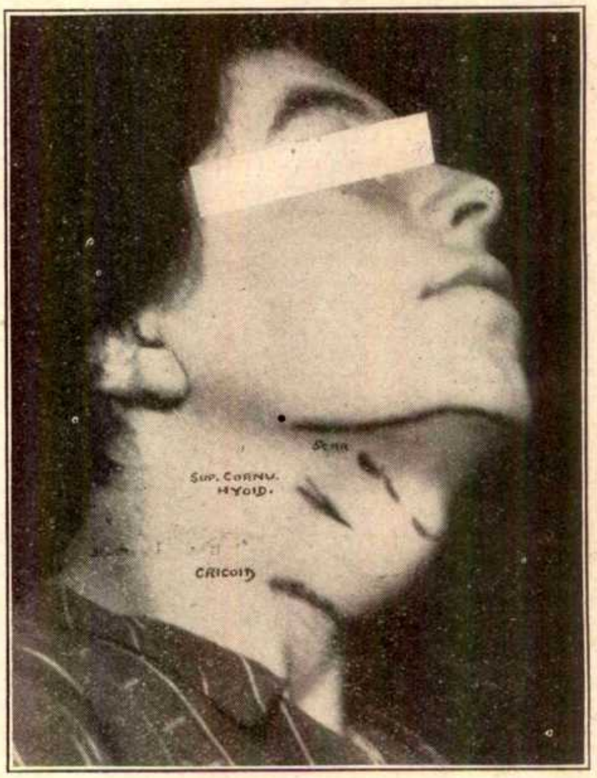
A spinster aged 30 attended the out-patient department and was ound to have a solid tumour, the size of a small hen's egg, lying in he midline between the mandible and the hyoid bone. She was a nervous, mentally deficient but pleasant young woman, who weighed over 9 st. and had a large fat face with prominent eyes. The fat was found chiefly on the trunk and face, and the legs and arms were thin in proportion to the rest of the body. She was of rather short stature, and her skin was dry, soft, and smooth. Menstruation was normal. Radiographs of the thorax did not reveal the presence of any thoracic tumour. A provisional diagnosis of a subfascial lipoma was made and the patient was admitted to hospital for operation.

Operation.—Under local analgesia a plum-coloured tumour was exposed and easily removed. It lay entirely above the hyoid, deep to the mylohyoid muscles, and there were no connexions which suggested remnants of the thyroglossal duct. About one inch from the left lower border, at the level of the superior cornu of the thyroid cartilage, there was a separate tumour the size of a small walnut, which appeared to be normal thyroid tissue. As the rings of the trachea could be easily palpated, and no thyroid gland could be felt, the second tumour was left alone. The patient was discharged seven days later.

The specimen had the appearance of a cystadenoma, into which haemorrhage had occurred. The pathological report, from Dr. Popjak, was as follows: "Atypical epithelial hyperplasia in ectopic thyroid. The tissue consists of solid masses of polygonal or cuboidal epithelial cells, having a pale-staining slightly granular cytoplasm and round nucleus, or small acini free of colloid. The latter are lined by a high columnar epithelium. At the periphery of the specimen there is a good deal of fibrosis and at the centre hyaline degeneration. There was no definite evidence of malignancy."

Post-operative History.—The patient was seen at intervals, and in a year lost 8 lb. in weight. The remaining tumour has enlarged and is now the size of a plum. Its consistence suggests cystic changes, and its removal may be necessary.

Moritz and Bayless (1932) state that the large majority of aberrant thyroid tumours are found in females in the third decade, and this case conforms with their findings. Lazarus and Rosenthal (1933) believe that 75% of aberrant thyroid is neoplastic, while Ward (1940) found 9 out of 12 of his cases to be malignant. Probstein and Agress (1936) consider that median tumours are usually simple and the laterally placed tumours malignant.



The photograph shows the situation of the present tumour, and the facies and distribution of fat.

I wish to thank Dr. Popjak for his report, and Mr. de Rynck for his kindness in taking the photograph.

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Reviews

HUMAN EMBRYOLOGY

Human Embryology. By W. J. Hamilton, M.D., D.Sc., J. D. Boyd, M.D., M.Sc., and H. W. Mossman, M.S., Ph.D. (Pp. 366; illustrated. 31s. 6d.) Cambridge: W. Heffer and Sons.

To the medical student of average ability, embryology is an extremely difficult subject for study. And well it may be, for, starting with microscopical sections of embryos, it involves two separate steps in mental reconstruction. First, sections which are approximately two-dimensional have to be strung together to form a semblance of the three-dimensional system, and then the three-dimensional systems require to be linked up in a time series in order to appreciate the gradual changes that occur during progressive development. The mental processes involve considerable powers of visualization, the aptitude for which (as every teacher of anatomy knows) varies greatly from one individual to another. Thus, to be really successful, a textbook of embryology needs to be amply and carefully illustrated, and this feature has been by no means a strong point in British textbooks of embryology in the recent past. Without doubt, therefore, the new textbook by Hamilton, Boyd, and Mossman will receive an enthusiastic welcome, for one of its outstanding qualities lies in the excellence of the illustrations. They are both numerous and exceptionally clear, and the frequent intermixture of accurate drawings of sections with realistic diagrams of reconstructed models should make it a relatively simple matter for the student to follow the text descriptions.

But, fine as the illustrations are, they are not the only outstanding character of this book. The authors are all embryologists of distinction and have themselves made important original contributions to their subject. In addition, they clearly possess a comprehensive knowledge of the literature. They have evidently set themselves out to produce a textbook which is readily intelligible to the ordinary student and at the same time accurate in detail and authoritative in interpretation. They have succeeded to the extent that their book will certainly be regarded as the students' standard textbook on human embryology in the English language. The descriptive accounts of embryological anatomy at various stages of development follow orthodox lines, and they are clear and detailed. Some may think that in certain sections they are perhaps too detailed for the average medical student, but here we sympathize with the authors in what must have been a very difficult task—the selection of material judged necessary for a liberal medical education. No two anatomists are likely to agree in these matters, and we consider that on the whole the authors have shown a judicious attitude to the problem. Each chapter is supplemented with a list of appropriate references to original papers to which the interested student may have recourse in order to amplify his knowledge, and the occasional discussions in the text on conflicting views should certainly stimulate the reader to do so. The inclusion of sections on foetal embryology is a welcome addition, expressive of the interest which this aspect of embryology has aroused in research laboratories during recent years.

We have suggested that this book will be accepted as a standard textbook. It follows, therefore, that it is likely to see a long run with a succession of editions. For this very reason the book is particularly worthy of a critical review, and we would offer the following suggestions for the consideration of the authors. The terminal chapter on comparative vertebrate development is the least satisfying part of the book, for it has too much the appearance of an appendix inserted as a sort of afterthought. It is too short and condensed to be of real value, and the diagrams which illustrate it are cramped and confused. Probably the chapter should be omitted altogether, and such information as it contains which has a direct bearing on the interpretation of human development inserted at the appropriate place in the main part of the book. In any case, comparative vertebrate development is such a vast subject as to require a separate textbook altogether. We would also suggest (if it is feasible) that the story of the dynamics of embryological development be more closely interwoven with the purely descriptive sections, so as to interrelate these aspects of developmental processes as closely as possible. We recognize that this is by no means an easy thing to do; yet it is an ideal to be aimed at if the student is to achieve a proper synthesis of the facts of development and the underlying processes of which they are the visible manifestation. Lastly, the book would certainly gain in value if the magnifications of the photomicrographs and illustrations of models were indicated in each case.

To review such a book as this is a real pleasure, and at the same time something of an honour. For it is a learned and erudite book, written and prepared with great care. Moreover, it is a welcome sign of a resurgence of anatomical science in this country which will go far to enhance the prestige of British Anatomy.

AN OUTLINE OF PHARMACOLOGY

Pharmacology. By Michael G. Mulinos, M.D., Ph.D. With foreword by Charles C. Lieb, M.D. Oxford Medical Outline Series. (Pp. 482. 25s.). London: Oxford University Press.

This is a useful book either for the student who wishes to learn quickly for an examination or for a doctor who wishes to have a book of reference to guide him in treatment. For example, on page 82 is to be found a section on tapeworm infestation. First there is a list of the three species which commonly infest man, and the origin and locality of these species. Next comes the diagnosis and after that a list of the symptoms; then methods of prophylaxis; then drug therapy, giving the details of preparing the patient, and the details of treatment, including second, third, and fourth methods of treatment should one method after another fail. Then are given details of the various drugs, in which is explained that oleoresine of aspidium *U.S.P.* is a dark-green liquid which is an ethereal extract of male fern; and the action and toxic symptoms are described. The book is thus a catalogue arranged under main headings A, B, C, etc., subheadings 1, 2, 3, etc., further divisions a, b, c, etc., and subdivisions (1), (2), (3), etc. This method of explaining the use of drugs is of great value to the house-physician who is learning to use them for the first time, when he needs something written in the style of a cookery book. It is, however, less suited to the use of drugs in a disease like syphilis, where treatment cannot be reduced to tabular form so easily. This is a book of moderate size and easy to read; it is conveniently interleaved with blank pages for notes, so that it is possible for anyone to carry the book with him and record his experiences in applying any method.

Dr. Mulinos thus presents another answer to the question "What is pharmacology, and how is it to be taught?" With the growing feeling that treatment is greatly in need of improvement, the answers become increasingly numerous. Some stress the theoretical background, others the practical application. Probably all are valuable if only the young physician is determined to discover from some authority what things can be done and is able to find time to try them.

BIOLOGICAL BASIS OF INDIVIDUALITY

The Biological Basis of Individuality. By Leo Loeb. (Pp. 711. $10.50 or 58s.) Springfield and Baltimore: Charles C. Thomas; London: Baillière, Tindall and Cox. 1945.

Individuality is used in this book to emphasize the distinctive unique features which a person possesses, and the physical features alone are dealt with. If we conceive of an individual as a mosaic of many tissues and organs, each one functioning and metabolizing in its own peculiar way, we may consider this mosaic of separate parts as the biological basis of individuality. There is, however, another basis which is comprised of properties common to all parts of the organism which can be discovered by observing the reactions of certain cells and tissues of one individual towards the tissues and cells of another individual. This is the theme of the 700 pages of this book.

Part I deals with tissue transplantation, and shows how the violence of reaction is in inverse proportion to the nearness of genetic relationship of the individuals concerned, though certain substances—e.g., hormones and vitamins—may not be destroyed when introduced into a strange host. The relationship of tissues within the individual organism is important in the study of the formation of antigens, and also of tumou formation. Part II deals with the phylogenetic and ontogenetic development of these individuality and organismal differentials from the lowest organisms and from the egg to the adult state. Part III deals with the differentials as found in the single cell, whether in protozoa, the leucocyte, or in the germ cells. Part IV deals with organismal differentials in tumours which represent modified tissues. Part V shows the part played by organismal differentials in the maintenance of the harmony of the organism as a whole, and in the interaction of the organs and tissues within the organism. Part VI deals with antigen and immune substances and how they are related to individuality differentials. Part VII shows the relation between the evolution of species and organismal differentials. Part VIII illustrates the significance of individuality differentials in the psychical social field; it is here that the concept of individuality had its origin. A full bibliography is appended.

This is a highly technical book and very comprehensive, and there is no doubt that it contains much valuable material for the study of many vital problems in heredity and pathology.

Notes on Books

For the third edition of *The Infant. A Handbook of Management* (H. K. Lewis and Co.; 4s.) Drs. W. J. PEARSON and A. G. WATKINS have added a section on preventive inoculation, and they also include a new table of vitamin requirements. A table on the daily allowances of essential food elements, based on the Hot Springs conference, brings this modest little book well up to date.

The Permanent Central Opium Board of the League of Nations has issued a pamphlet, *Pre-War Production and Distribution of Narcotic Drugs and their Raw Materials*, which is obtainable in this country from Allen and Unwin Ltd., 40, Museum Street, London, W.C.1, at 2s. This report summarizes and analyses the mass of world-wide information on drugs which the Board has received. It shows the importance of each country as a producer, and puts on record the quantities and method of disposal of the raw materials and manufactured drugs by both producer and consumer countries. The details will be of interest chiefly to technicians, but the main facts and conclusions are of wider concern.

Miss MARY V. LACE's book *Massage and Medical Gymnastics* was first published in 1936 with a foreward by Dr. James Mennell. A second edition appeared in 1941 and a third has now reached us (J. and A. Churchill; 12s. 6d.). During the past four years there have been many changes in physiotherapy, largely following the development of what is commonly known as rehabilitation. The emphasis on active rather than on passive treatment, which the popularization of this term has brought about, has been beneficial, but the simple basic movements should be thoroughly learnt by students. Though many suggestions about free exercises and useful occupations are added in this edition, the basic exercises are therefore retained.

Preparations and Appliances

A CONVENIENT TYPE OF OXYGEN TENT FOR PREMATURE INFANTS

Dr. L. SAGORIN, D.C.H., paediatric resident medical officer, E.M.S., writes:

It is now generally agreed that oxygen therapy has an imporant place in the management of certain types of premature infants (Hess and Lundeen, 1941; Tow, 1942), particularly those showing signs of an inadequately developed respiratory entre, with poor respiratory movements and consequent insuffiient oxygenation resulting in cyanosis and weak cardiac action.

To be of any use the oxygen must be administered early and by an efficient method. When given by "tube-and-funnel," nasal catheter, or by a tube in the mouth it is of very dubious value. The infant requires a high oxygen tension, and the best ype of apparatus is some form of tent or oxygen chamber.

As the standard type of oxygen tent for infant use was not always immediately available, some form of temporary apparatus had to be devised until a tent was available. The apparatus ound most suitable consists of a modification of the "hospital respirator." The rubber bellows and filter are removed and their attachment to the tent sealed off with zinc plaster. The xygen is introduced through a cylindrical tube at the side of the tent, and this inlet ends above the infant's head. The infant is placed in the tent; a hygrometer is inserted. The side-flaps re tucked under the infant and the tent covered with the requisite number of bedclothes, folded up to the window. The longitudinal fold is not tucked under the infant, as this unnecessarily raises the humidity in the tent and the concentration of oxygen. Temperature is maintained by hot-water bottles outside the tent.

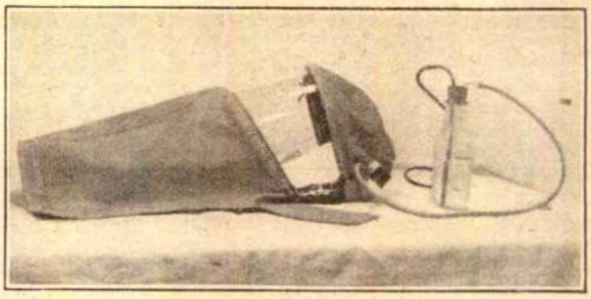

FIG. 1

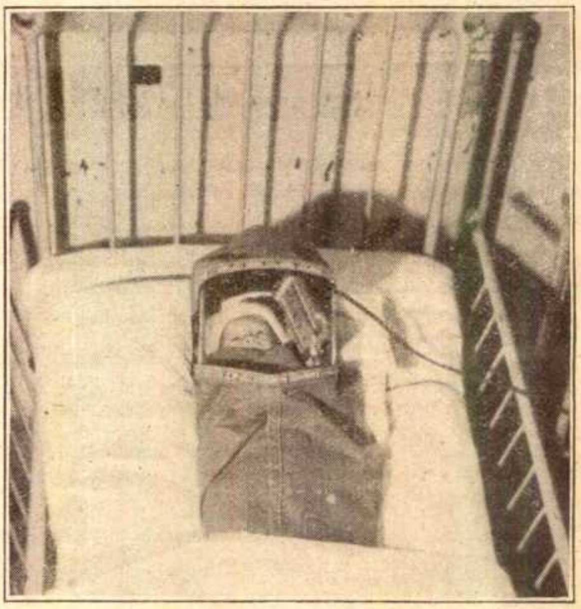

FIG. 2

Management.—An oxygen flow of 2 litres per minute produces a concentration of 80% in 10 minutes. After 3 hours the concentration diminishes to 65–70%. The carbon dioxide does not rise to above 1.5%, and an absorber is not necessary. The tent is opened at 3-hourly intervals for feeding and changing, and an adequate concentration of oxygen is always easily maintained. As a high percentage humidity is desirable for premature infants it is convenient to use a combined humidifier–flowmeter, when a humidity of 60–80% (depending on the weather conditions outside) is obtained. If the humidity rises above 80% the oxygen is run dry with the use of an ordinary flowmeter until the desired humidity is obtained.

Though originally introduced as a temporary measure, this tent has been found more useful, more practicable, and more economical than the larger type of canopy tent. With the latter the highest concentration of oxygen we could attain varied between 45 and 50%, and this with a flow of 6 to 8 litres per minute; furthermore, adequate humidity was difficult to maintain without the presence of basins of water in the tent.

The nursing staff find the infants easily accessible for feeding and changing. When necessary the tent can be transported in an ambulance or car for premature infants brought into hospital from outside. These tents have now been in routine use for the past nine months and have been found to be eminently satisfactory. Apart from premature infants under a birth weight of 3 lb. there have been no deaths during the first fortnight of life.

I am indebted to Dr. N. M. Jacoby for his constant advice and helpful criticism, to Dr. G. D. Grasby for permission to use the tents, and to Sister M. I. Wilcock and her nursing staff for their unfailing co-operation.

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SYRINGES, SERUM, AND JAUNDICE

Jaundice, long known as a disease of campaigns, must now be regarded as a disease of clinics also. It is well known that our troops suffered a series of annual epidemics of infective hepatitis when they were fighting in the Middle East and North Africa,[1] but it is no less memorable that outbreaks of jaundice on a commensurate scale have occurred in this war in consequence of prophylactic and therapeutic procedures. In the American Army more than 28,000 men developed jaundice after yellow-fever vaccination in the early months of 1942.[2] The jaundice was traced to the human serum used in making up the vaccine, and on omitting the serum from the vaccine the outbreak of jaundice was abruptly halted. In this country the incidence of post-arsphenamine jaundice rose steadily during 1941 and 1942, until some clinics were recording jaundice in 46 and 68% of patients treated.[3] [4] MacCallum[5] suggested that the jaundice was due to transmission of infection from patient to patient by means of traces of blood left in the syringes, which at that time were not sterilized by heat between cases in most venereal clinics, and Bigger[6] demonstrated that the technique then employed was inadequate to prevent the passage of an infective agent. Salaman and co-workers[4] then showed that if a careful aseptic technique was used, with a sterile syringe for each patient, the incidence of post-arsphenamine jaundice could be reduced practically to zero, and as a result partly of this demonstration, partly of the introduction of penicillin, post-arsphenamine jaundice has joined the list of vanishing diseases. The belief that post-arsphenamine jaundice was due to the transfer of a virus from patient to patient in the syringes has been further strengthened since MacCallum[7] demonstrated by inoculation of human volunteers that an icterogenic agent is present in the serum in post-arsphenamine jaundice. Both yellow-fever–vaccine jaundice and post-arsphenamine jaundice must therefore be regarded as examples of the variety of jaundice now known as homologous serum jaundice.[8] The common factor is the contamination of the inoculation with small quantities of human plasma or serum which contains an icterogenic virus.

Another example of what appears to be the same variety of jaundice was recorded by Droller in the *Journal* of May 5, 1945. Droller studied an epidemic of jaundice which attacked 62 out of 450 patients attending a diabetic clinic. Analysis of the case incidence and incubation periods suggested that the epidemic was homologous serum jaundice, and the severity of the jaundice was in keeping with this suggestion. In the same number of the *Journal* Mendelssohn and Witts demonstrated that a virus could have been transmitted in the syringe used for obtaining blood for blood-sugar estimations, and it is noteworthy that the epidemic came to an end on discontinuing venepunctures. Similar epidemics of jaundice have been noted in other diabetic clinics,[9] [10] and also in rheumatism clinics[11] and sanatoria[12] where blood is often taken for estimation of the blood sedimentation rate. In none of these instances has it been proved yet that the blood contains a virus, as has been demonstrated by human transmission experiments in post-vaccinal and post-arsphenamine jaundice; but anyone dealing with an epidemic of jaundice of this type must now adopt the working hypothesis that the jaundice is due to transfer of a virus in the syringes used for injection or for withdrawal of blood samples, and must see if the epidemic cannot be brought to an end by improvements in aseptic technique.

If communal syringes are used in a clinic for the withdrawal of blood or the intravenous injection of drugs, a single carrier may in course of time infect all the patient attending the clinic, and, as already noted, as many as 68% of the patients may develop overt jaundice. Seeing tha the virus of hepatitis is highly infective, even in the smal amounts of plasma which are transmitted from patient t patient under these conditions, and that it offers consider able resistance to antiseptics, heat, cold, drying, and pro longed storage, the reader may well ask what are the risk when large amounts of whole blood, plasma, or seru are deliberately transfused. Whole-blood transfusions ha been used on a large scale for some years before the wa and there is little to suggest that they were at all common followed by homologous serum jaundice. Plasma an serum, on the other hand, are wartime expedients, an information about them has been difficult to collect owin to the dislocations of war, the rapid transfer of patient and the long incubation period of homologous serum jau dice. Early in the war a good deal of work was done c burns, and large amounts of plasma and serum were use in treatment. The clinicians were interested in the po sibility of liver damage from the burned tissue and t coagulant applications, so that it seems unlikely th homologous serum jaundice would have been missed; b here again late jaundice was not reported. Latterly, ho ever, experience has not been so favourable, and unpu lished figures suggest that homologous serum jaundice h occurred in as many as 10% of some series of patients whom blood plus plasma or serum has been given f resuscitation from war injuries. The mortality has be appreciable. To put matters in their proper perspecti we must remember that 96% of wounded men are n being saved, and the high recovery rate is in large part d to the development of transfusion.

We must conclude that in the present state of knowle transfusion inevitably carries a delayed hazard, and plas and serum should be administered with the same care dangerous drugs. In haemorrhagic and traumatic sh it is legitimate to take risks and to use dangerous remedies, but in other conditions in which life itself is not at stake the advantages of transfusion should be carefully weighed against the disadvantages. The risk might be expected to be proportional to the number of donors who have supplied the blood or plasma, and the mixing of icterogenic with non-icterogenic material may even increase its virulence.[13] On theoretical grounds, therefore, whole blood should be safer than plasma or serum, which are pooled products, and small pools of plasma or serum should be safer than large. Active research is being performed to settle these questions and also to determine if the virus cannot be inactivated during the processing of plasma and serum. In the meantime it is incumbent on anyone who gives a transfusion to record the case history, the details of the transfusion, and the identification numbers of the bottles of blood, serum, or plasma in such a way that both they and the patient can subsequently be traced. Whenever possible a patient who has received a transfusion should be kept under unobtrusive supervision for the next six months, and his medical attendants should be informed of the fact of transfusion. In this way a subsequent attack of homologous serum jaundice may be diagnosed in the pre-icteric stage, when prompt treatment by bed-rest may mitigate the severity of the illness.

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[1] Witts, L. J., *British Medical Journal*, 1944, **1**, 739.
[2] Editorial, *J. Amer. med. Ass.*, 1942, **119**, 1110.
[3] Beattie, J., and Marshall, J., *British Medical Journal*, 1944, **1**, 547.
[4] Salaman, M. H., *et al.*, *Lancet*, 1944, **2**, 7.
[5] MacCallum, F. O., *Brit. J. ven. Dis.*, 1943, **19**, 63.
[6] Bigger, J. W., *Lancet*, 1943, **1**, 457.
[7] MacCallum, F. O., ibid., 1945, **1**, 342.
[8] Memorandum of Ministry of Health, *Lancet*, 1943, **1**, 83.
[9] Graham, G., *Lancet*, 1938, **2**, 1.
[10] Vannfält, K. A., *Acta med. scand.*, 1944, **117**, 462.
[11] Hartfall, S. J., *Lancet*, 1944, **2**, 358.
[12] Sheehan, H. L., ibid., p. 8.

The relationship of the viruses of homologous serum jaundice and infective hepatitis is still unsettled. Provisionally they must be regarded as two separate varieties of the same species, though it may prove that they are different phases of the same virus. The morbid anatomy of the two diseases is identical. They differ in the longer incubation period of homologous serum jaundice—approximately three months as compared with one month for the spontaneous disease—and in the greater severity and higher mortality of homologous serum jaundice. It is also uncertain whether patients suffering from homologous serum jaundice ever pass on the disease to others by contact, droplet, or excremental infection, and data on this problem should be collected and reported wherever possible.

THE TREATMENT OF BACTERIAL ENDOCARDITIS

In a series of papers S. R. Kelson, P. D. White, and other collaborators[14] analyse a large number of cases of subacute bacterial endocarditis seen at Boston and elsewhere in the U.S.A., and by grouping them into three therapeutic periods they give a clear picture of what has recently been achieved in the treatment of this disease. These papers provide the most important contribution to the literature of their subject for some years, and contain much information of interest from other points of view than the therapeutic. The first group consists of 250 cases seen in Boston between 1927 and March, 1939; only 33 of these were treated with sulphonamides; the other treatments employed were of forty-three different kinds. Only one patient made even a temporary recovery, to die of rheumatic carditis a year later; he had received no specific treatment. A second group between 1939 and 1944, all treated with sulphonamides, consists of 77 patients, of whom 6 recovered: 3 of these and 14 of those who died also received heparin. A combination of heparin and sulphapyridine, according to Kelson, affords the best prospects of success, and in a separate paper, dealing with another group of 34 patients, he records 8 apparent recoveries following this treatment, together with two others in which sulphadiazine, and both sulphadiazine and penicillin, were combined with heparin. A third small group in the main series comprises 9 patients treated with penicillin, 4 of whom have apparently recovered, while in 2 others the infection was suppressed, although they are now ill or dead from other causes.

A more complete picture of what penicillin will do in this disease is afforded by the observations of L. Loewe,[15] who has now treated 54 cases, with 14 failures and 40 successes, 37 of the latter being alive from 2 to 15 months later and 3 dead from other causes. It is an important feature of this author's method that every patient is also given heparin, not intravenously but subcutaneously in a gelatin menstruum from which slow absorption takes place; the necessary dose, usually about 300 mg. every second or third day, is determined for each case by estimations of the coagulation time, which is kept at between 30 and 60 minutes. He strongly advocates that penicillin should be given by continuous intravenous infusion in order to maintain a constantly adequate level in the blood. What that level must be depends on the sensitivity of the streptococcus in each case, and he recommends that the aim should be to maintain a concentration 5 to 10 times greater than the minimum required to inhibit the growth of the organism. M. H. Dawson and others[16] have previously reported very wide variations in the susceptibility to penicillin of different strains of streptococci from cases of endocarditis, and anyone who has studied these organisms knows that their characters are almost infinitely variable. The concentration of penicillin required to inhibit the growth of strains from Loewe's cases varied from 0.007 to 0.5 unit per c.cm; 3 strains exhibiting high resistance are said to constitute a distinct and hitherto undescribed variety, and treatment failed in the cases from which they were derived. The regulation of dosage on this principle resulted in variations in the daily dose between 40,000 and 1,000,000 units, and in the total amount given between 867,000 and the enormous figure of 48,930,000 units. An inadequate dose may cause the streptococcus to develop resistance; a forty-fold increase in its resistance was observed in one case. The duration of treatment should depend on that of the disease, but if possible a five-weeks course should be the minimum. Loewe considers that in cases of less than three months' duration, due to a reasonably sensitive organism and in patients in good physical condition, a good result may be expected in almost every case. It does not follow, of course, that such patients will be restored to normal health. Gross valvular incompetence must remain, and of those patients who have undoubtedly been cured of their infection during the past few years, a number have succumbed later to progressive cardiac failure.

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[13] Andrewes, C. H., *Lancet*, 1944, 2, 159.

[14] *Ann. intern. Med.*, 1945, 22, 40, 61, 75.

[15] *Bull. N.Y. Acad. Med.*, 1945, 21, 59.

[16] *Proc. Soc. exp. Biol. Med.*, 1944, 56, 101.

Another American report on this subject is by M. H. Dawson and T. H. Hunter,[17] who have treated 27 cases in three groups. The first 5 were carefully selected favourable cases treated with penicillin only; since 2 of these relapsed but later recovered completely after a course of penicillin combined with heparin, administered in 1 case by Loewe himself, the next 15 were all given heparin by Loewe's method in addition to penicillin. Of these 15 patients, 11 recovered, 2 died, and 2 are still suffering from the disease. A final series of 7 cases has recently been treated, of which 5 had no heparin, with so far apparently equally good results; whether heparin is helpful is therefore a question still *sub judice*. Dawson and Hunter agree with Loewe that the dose of penicillin should be determined by the degree of sensitivity of the streptococcus—cases with hopelessly resistant organisms being rejected—and that a prolonged continuous course is necessary.

The treatment of subacute bacterial endocarditis with penicillin in this country is at present confined to specified institutions, as announced recently in this *Journal*. That this study should be kept on a research basis is obviously desirable until the best methods have been clearly defined. If those advocated by Loewe are finally accepted, this will always be a major therapeutic undertaking and restricted of necessity to hospitals where the fullest laboratory and other facilities are available. It will be interesting to see whether the ultimate verdict is pronounced in favour of combining the use of heparin with penicillin treatment. Heparin in endocarditis has never found much favour in this country, owing to its undoubted danger, but to judge by Loewe's present results the method of administration he now employs must have overcome this to a large extent.

DIAGNOSIS OF HAEMORRHAGE IN MAN

A few years ago most of us had the idea that collapse from haemorrhage was characterized by a rising pulse rate and, at a slightly later stage, a low blood pressure. This notion seemed to be firmly based on physiological grounds, in that a falling cardiac output would precipitate compensatory sympathetic vasoconstriction and cardio-acceleration through the sino-aortic reflexes. It came as a surprise, therefore, to realize that rapid bleedings in human volunteers up to a litre and over were accompanied by collapse reactions with marked bradycardia, and that these reactions became more frequent with the magnitude of the bleeding.[18-20] These vasovagal reactions have been analysed in detail by Barcroft and his colleagues,[21] who have shown that they are the result of "reflex" vasodilatation in the musculature of the body. The characteristic symptoms preceding and accompanying this fainting reaction include deep sighing respirations, yawning, feeling of heat and sweating, vomiting, waning consciousness, carpo-pedal spasms, and sometimes convulsions. The differential diagnosis of haemorrhage and fainting came to be meaningless. At a still later stage after haemorrhage, when haemodilution and anaemia have made their appearance, Sharpey-Schafer[22] has shown that another cardiovascular state occurs: the pulse is rapid and collapsing in type, while the cardiac output is up to double the normal. This state of affairs is commonly seen in patients admitted to hospital after recurrent gastro-intestinal bleeding, and is compatible with considerable reductions of blood volume.[23]

Three types of clinical picture after haemorrhage have thus been established: (1) the "classical" picture with rapid pulse and low blood pressure; (2) the vasovagal reaction; and (3) the late hyperkinetic phase, when post-haemorrhagic anaemia has developed. These varied reactions raise a host of problems for both the physiologist and the clinician. The vasovagal "reflex" and the high cardiac output with low blood volume cut right across current trends of thought on circulatory regulation based on animal work. The clinician also will have to observe the phenomena of transition between the various stages. Shenkin and his co-workers have made a further contribution to the problem by their careful studies. In the early phase of haemorrhage they subdivided the phenomena into the following three stages: (1) symptom-free at rest with pulse and blood pressure within normal limits, but undue acceleration of pulse on standing up; (2) intolerance of the upright position, which precipitates vasovagal syncope; (3) syncopal attacks with bradycardia even though recumbent. They also observed that when all the lost blood was retransfused 1½ to 2 hours after bleeding the blood pressure was raised 10 or 20 mm. Hg. above the value before bleeding.

All these data are of much interest and importance, and we shall expect soon to be able to see more clearly how the jigsaw puzzle fits together. Most of the experimental work involves acute and rapid bleeding. More work is required on slower rates of bleeding on volunteers, for this may resemble more closely what is usually seen in patients with gastro-intestinal haemorrhage.

ROAD ACCIDENTS

Before the war this country had a quarter of a million road casualties every year, with 6,500 deaths. During the war although there were far fewer vehicles on the road, the deaths have not been much below this figure. The return of the basic petrol ration, with its threat of an outbreak of mechanically dubious cars and unpractised drivers, is a sharp reminder that something must be done quickly to minimize the dangers of the road. Lord Leathers, Minister of War Transport, writing in the *Practitioner* for April said that the Government would soon announce some proposals, but that the whole community must make a combined effort. Medical practitioners come into contact with the road problem from several aspects. As the Minister pointed out, they know the suffering and trouble that accidents cause; as motorists they are familiar with the dangers and they can personally influence many of the motoring public. They have a special responsibility in certifying that applicants for licences to drive public service vehicles are medically fit to do so. No medical examination is imposed on applicants for an ordinary licence, and Dr. Douglas Kerr, writing in the same issue, thinks the present declaration of fitness has little value and tha private drivers should be obliged to produce a medica certificate similar to that of a public service vehicle In this opinion he is supported by Mr. Eric Farmer's researches in accident-proneness. As drivers are no examined after accidents, statistics concerning the responsibility of unfit drivers for accidents are, he says, fallacious Without some such information medical examiners wi continue to work largely in the dark, especially if, a Dr. Hugh Dunlop thinks, most of the "borderline" disabilities, as distinct from the definitely incapacitating ailments, are mental and temperamental. Recklessness indecision, and lack of road sense are more easily detected in the police court than in the consulting-room or even at the driving test; but when detected they ought, if serious, to be recognized by disqualification. Drunkenness, according to Prof. Sydney Smith, has been greatly exaggerated as a source of accidents; but alcohol is a potential danger in quantities too small to be appreciable in clinical examination, and in his opinion the problem of the drinking driver would be greatly simplified if the law assumed a driver, as it does in many of the United States, to be "under the influence" if his ability has been lessened in any degree by alcohol. Small improvements in motor-car design (leading, for example, to better braking, vision, comfort, and ventilation), such as Mr. J. F. Bramley and Dr. N. T. Glynn, of Austins, enumerate, will perhaps eliminate more danger than will any revolutionary change; such a change, they say, may be more necessary in the design of the roads. The effects of accidents may be mitigated, as Mr. Charles Noon and Mr. William Gissane show, by extending the provision of blood transfusion and sulphonamide drugs, and by organizing accident centres similar to those which have long proved their value in industry.

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[17] *J. Amer. med. Ass.*, 1945, 127, 129.
[18] Wallace and Sharpey-Schafer, *Lancet*, 1941, 2, 393.
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[20] Shenkin, Cheney, Govons, Hardy, Fletcher, and Starr, *Amer. J. med. Sci.*, 1944, 208, 421.
[21] Barcroft, Edholm, McMichael, and Sharpey-Schafer, *Lancet*, 1944, 1, 489.
[22] *Clin. Sci.*, 1944, 5, 125.
[23] McMichael, Sharpey-Schafer, Mollison, and Vaughan, *Lancet*, 1943, 1, 63

As the Minister observed, the most disturbing aspect of the road problem is the high toll it takes of children. Over the decade before the war the figures were improving; but the war brought a setback, and the figure is now about a hundred deaths a month in the age group between 3 and 8 years. Dr. Percy Stocks's figures from the General Register Office[1] show that children did not benefit by the wartime estriction of road traffic, and that their need is especially urgent. Training of children in road sense on the lines suggested by Dr. Muriel Hughes in the *Practitioner* will have to be intensified and greater attention given to protecive measures such as guard rails and play centres. The legal attitude to compensation for road accidents ought, in Mr. Harcourt Kitchin's view, to be radically changed, and he compensation and rehabilitation of victims should form part of a communal insurance scheme and not depend on a dilatory and expensive legal tussle between insurance companies. Finally, readers may think that the statistics of oad casualties will never have much quantitative meaning until the number of victims are correlated with the number of vehicles on the roads.

THE HORROR CAMP

Accounts in the lay press of German concentration camps and the report of the Parliamentary delegation have confirmed what many people knew years ago—namely, that the Nazis, with cold inhumanity, were systematically torturing and slowly exterminating Jews and political enemies. It is well, therefore, to put on record in this week's *Journal* an account of the conditions in Belsen written by one of the medical men engaged in resuscitating its diseased and starved victims. Apparently only a small proportion of the inmates of Belsen were German Jews. The rest were Jews from the various countries occupied by Germany at the height of her recent expansion. The German policy seems to have been one of complete and utter neglect, so that the inhabitants of the camp, deprived of all care and the common decencies, should die of starvation and disease. The results of this policy are described on page 814 y Dr. W. R. F. Collis, a Dublin physician.

It seems to be established beyond doubt that German doctors gave intravenous infusions of benzol and creosote, and we are informed that the apparent reason for injecting benzol was the induction of a paralysis in the victim which ould "justify" sending him or her to the crematorium. When British doctors and nurses subsequently tried to administer casein hydrolysate to the starving wretches they cried out in terrified expectation of being sent to the crematorium. It is very hard indeed for people living in this country to realize this terrible example of man's inhumanity to man, and it requires a mental effort to grasp the enormity of such behaviour in civilized Europe. What is peculiarly distressing is the knowledge that German doctors—presumed to be educated men—should so completely deny the humane tradition of their calling, a tradition laid down by the school of Hippocrates and reaffirmed since then by countless generations of medical men the world over. We should of course not fall into the error of supposing that all German doctors are like the doctors in Belsen. But we should be doing a profound injustice to the thousands upon thousands of tortured Europeans if we too easily forget what has happened. It will be some time before we can look upon German doctors as men imbued with the ideals of medicine common to civilized countries—ideals so magnificently sustained by the British doctors, nurses, medical students, and orderlies now cleansing this Augean stable of Nazi horror.

WARTIME RESEARCH IN DAIRYING

The National Institute for Research in Dairying is one of the research institutes founded by the Board of Agriculture as part of the scheme of agricultural research formulated under the Development and Road Improvement Fund Act, 1909. Reading was chosen as the centre of dairy investigation, and in 1912 the Institute was established at University College, Reading (now the University of Reading). In 1920 it acquired the Shinfield Manor Estate, four miles away. The last annual report issued was for the year Oct. 1, 1939, to Sept. 30, 1940. Two years ago it was decided that the publication of some connected account of the work done during the war years should not be too long delayed, and a report has now been published outlining the research activities in the triennium Oct. 1, 1940, to September 30, 1943. This record shows that much of the time and energy of the staff of the Institute has been given to problems created or intensified by war conditions, the solution of which problems would increase wartime efficiency in production, handling, distribution, or manufacture of milk and milk products. Some of these problems have been solved to the advantage of the country and the dairy industry; some are still under investigation; some wait on fundamental research before a solution can be found. The war has repeatedly underlined the need for fundamental and long-range research in certain directions in dairy science. Experience on the farm in wartime has emphasized that there is still much to be learnt about the breeding, feeding, and management of dairy cows for consistent high yield and quality of milk either when, as now, imported concentrates are scarce or when the supply of feeding stuffs is normal. The events of the war have supported the view, expressed many times in the past by the Institute, that the physiological approach to many problems of dairy husbandry needs greater emphasis both now and in the future. Another need brought to light by wartime conditions is for improving farm dairy appliances and machines. Practical wartime difficulties in the dairy industry have again and again stressed the importance of a wider and more accurate knowledge of the micro-organisms which either enter unasked or are pressed into service at different stages of milk production, handling, and distribution, or in the manufacture of cheese, butter, and dried milk. As the director, Prof. H. D. Kay, says, "Quite fundamental to any system of control or assessment of the marketability of milk or to a steady improvement in the quality of milk reaching the public is objective research in this field of dairy bacteriology . . . the post-war research work of the Institute must be on a larger scale and attain a wider scope than anything conceived before the war."

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[1] *British Medical Journal*, April 28, 1945, p. 601.

BELSEN CAMP: A PRELIMINARY REPORT

BY

W. R. F. COLLIS, M.D., F.R.C.P., F.R.C.P.I., D.P.H.

The following extract from an appreciation of the situation by the senior medical officer after 24 hours' contact with the camp will serve to illustrate the state of affairs at the beginning.

GENERAL LAYOUT

"The camp is separated into two distinct portions—Camps 1 and 2. Camp 1 is a hutted encampment housing approximately 22,000 females and 18,000 males. Camp 2 consists of a series of brick buildings and houses approximately 27,000 males. The inhabitants of these camps are of mixed nationalities, with Russians and Poles predominating. Czechs, Belgians, French, and Italians are also present.

CONDITIONS PREVAILING

The following is a brief account of the conditions seen on first entering these camps on April 17, 1945. It is impossible to give an adequate description on paper.

Camp 1.—A dense mass of emaciated apathetic scarecrows huddled together in wooden huts without beds or blankets in many cases, without any clothing whatsoever in some cases. The females in worse condition than the men, their clothing generally, if they have any, only filthy rags. The dead lie all over the camp and in piles outside the blocks of huts which house the worst of the sick and are miscalled hospitals. Approximately 3,000 naked and emaciated corpses in various stages of decomposition are lying about this camp. Sanitation is non-existent. Pits, with, in only a few instances, wooden perch rails are available in totally inadequate numbers, but the majority of inmates, from starvation, apathy, and weakness, defaecate and urinate where they sit or lie, even inside the living huts. There is no running water or electricity. All water is being brought in by our water trucks.

Camp 2.—Conditions in this camp are vastly improved in comparison with Camp 1. The inmates are housed in buildings, 600 to a building of 150 capacity. Sickness in this camp is much less and the death rate is about 10 a day. The inmates appear better clad and generally less emaciated than in Camp 1, though signs of starvation are everywhere. An attempt is being made to bury the dead.

DISEASES PREVALENT

Camp 1.—Riddled with typhus and tuberculosis. Gastro-intestinal infections are very common and are probably enteric and simple gastro-enteritis. No cholera or dysentery has been diagnosed. Erysipelas, scurvy, and starvation disorders are prevalent.

Camp 2.—Enteric, tuberculosis, erysipelas. There is no typhus in this camp."

Actually the state of affairs was worse than described above: for instance, when the corpses were more accurately counted the figure was nearer 8,000 to 10,000 than 3,000. In many cases the dead lay in naked walls of bodies around the huts, many of which were filled, literally filled, with the dead and the dying. Next to nothing had been done for these people for months. For a week they had had almost no water. There they lay, either three persons to a bunk designed to hold one or on the floor, in foul rags drenched in excreta, covered with lice. Death came chiefly through starvation, typhus, tuberculosis, and dysentery: 500 a day were dying from disease, and the guards killing more. In Camp 1, covering an area of 0.8 mile long by 0.4 mile wide and containing a large portion for administration and another for the crematorium and "accessories," were kept 40,000 human beings confined most of the time to the huts on pain of being shot.

Into this foul place came the British troops. The S.S. guards were got under control and forced to bury the dead and clean up the worst of the filth. The Hungarian guards were also employed, and an S O S for help sent out. In the meantime the following British medical units were sent to the camp by the D.D.M.S., Second Army, Brig. H. L. Glyn Hughes, together with a contingent of the armed Forces, including military Government detachments, and began the colossal medical task of transforming a death-trap into a hospital, though it could not be regarded as a commitment which came strictly under the Army Medical Services, but the dictates of humanity required quick action: 32 C.C.S. (Lieut.-Col. J. A. D. Johnston, R.A.M.C.); 11 Light Field Ambulance (Lieut.-Col. M. W. Gonin, R.A.M.C.); 163 Field Ambulance (Lieut.-Col. M. E. M. Herford, D.S.O., R.A.M.C.); 30 Field Hygiene Section (Major P. J. Fox, R.A.M.C.); 76 Field Hygiene Section (Major F. R. Waldron, R.A.M.C.). Some days later these were reinforced by No. 9 General Hospital—600 beds (Col. A. R. Oram), and these have been followed up by another C.C.S. and another general hospital of 1,200 beds.

The work carried out by these medical units under the direction of the S.M.O. Camp, Lieut.-Col. Johnston, produced results which have to be seen to be believed. The setting up of hospital accommodation of 17,000 beds in ordinary barrack buildings is one of the monumental tasks undertaken and accomplished. Beds, bedding, drugs, dressings, and a hundred and one other items of hospital equipment had to be found from one source or another, whilst nursing and domestic aid on a large scale had to be recruited and organized from among those internees capable of rendering assistance, and also from German sources. Only the superb initiative and untiring energy displayed by Lieut.-Col. Johnston made this feat possible. The Field Hygiene Section were meanwhile tackling the problems in hygiene which abounded in this camp of horror. Supervision of the clearing away of corpses and filth, with which the camp area was literally covered, and the disinfestation by D.D.T. powder of the 40,000 inmates of the camp were among the manifold duties which fell to their lot in the struggle to control infection and prevent its spread. The antityphus measures undertaken were directed and controlled by Capt. W. A. Davis, U.S.A. Medical Corps (Consultant in Typhus attached to 21st Army Group from the U.S.A. Typhus Commission). The work carried out by the Field Hygiene Sections and Capt. Davis has undoubtedly resulted in preventing a widespread epidemic of typhus.

About a week after the camp was uncovered a contingent of the British Red Cross arrived and were immediately thrown into the fray, doing anything and everything that they were asked. The women, under the leadership of Sisters Silver-Jones and Beardwell, were sent into the hospital area to take care of the first 600 patients admitted, most of whom were in a dying condition, covered with suppurating sores and almost all suffering from dysentery and many from typhus. The men took on the job of driving the now patients from the horror camp to the human laundry and then to the hospital. About two weeks later 100 medical students arrived and, under the direction of Dr. Meiklejohn, of U.N.R.R.A., took over the major job of feeding the internees in the horror camp. The stench, the foulness, which these young men endured is quite impossible to describe. Gradually the huts were got into order and the patients thinned out, partly by removal and partly by death and the camp was divided into two areas—one known as the Horror Camp Hospital, in which treatment of a medical nature is now being undertaken. In those huts outside the Horror Camp Hospital one or two students with 0 to 5 internee nurses look after 200 to 400 people who have not been medically sorted out. In the huts of the hospital area of the Horror Camp (Camp 1) three medical students look after some 150 patients, assisted by internee nurses and Hungarian guards. In a small division of a hut containing 8 to 10 patients may be found two cases of typhus, one or two cases of advanced tuberculosis, and three with dysentery. The complications mos often met with in the typhus patients are thrombosis, gangrene and bronchopneumonia. Cerebral symptoms are rare and usually fatal. Among the pure famine cases are many with oedema, gingivitis, pigmentation (? pellagra), emaciation, and profound lassitude. These medical students have done and are doing a work of epic gallantry and are worthy of all honour

The daily death rate in the camp, which was approximatel 300, fell very shortly after the arrival of the students and is now approximately 60. There is no doubt that the provisio of 40 tons of dried milk and of the necessary protein hydrolysate and glucose, and the supervision of the special feeding have resulted in the saving of thousands of lives.

The accompanying map gives the general layout of the camp as it now exists.

Camp 1 (the Horror Camp) is now practically empty. A da or two should see the last of the inmates cleared from th ordinary huts to either No. 1 Camp Hospital or to the hospit- proper. The Horror Camp will then be burned.

Camp 2.—Part of this camp is now under the control of a Army General Hospital, with already nearly 2,300 patients. ■

is rapidly expanding to 3,500. The larger portion of Camp 2 is still under the control of the original C.C.S. and consists of the main hospital area, containing 11,200 patients. It is divided into squares of five houses, the whole square accommodating approximately 700 patients. Each square is under the control of one medical officer from the R.A.M.C. Each house of 150 patients has one Swiss or internee or German doctor in charge. Each square has only one or two British trained nurses, the rest being either internee nurses or German nurses. It has been found necessary due to the lack of doctors and nurses from home to employ German doctors and nurses. No doubt the additional medical skill thus added have proved beneficial in a general sense, but the patients are naturally terrified of being looked after by Germans even under supervision, remembering how they were tortured in the past. It has been established that patients were often given intravenous infusions of benzol and creosote by the German *medical* staff, so that now, when the doctors approach with hydrolysate for intravenous infusion, the patients often cry out begging not to be taken to the crematorium. The main squares (see map) are for general treatment, while the three blocks at the back are kept for maternity patients and children. Probably nowhere else in the world at the present moment, certainly in no maternity hospital, have obstetricians to deliver women who are actually suffering from typhus at the time of their confinement, but here this is quite ordinary. The difficulties facing the staff have been truly appalling, but now very few women are getting puerperal sepsis, though many of the babies are still going down with neonatal sepsis.

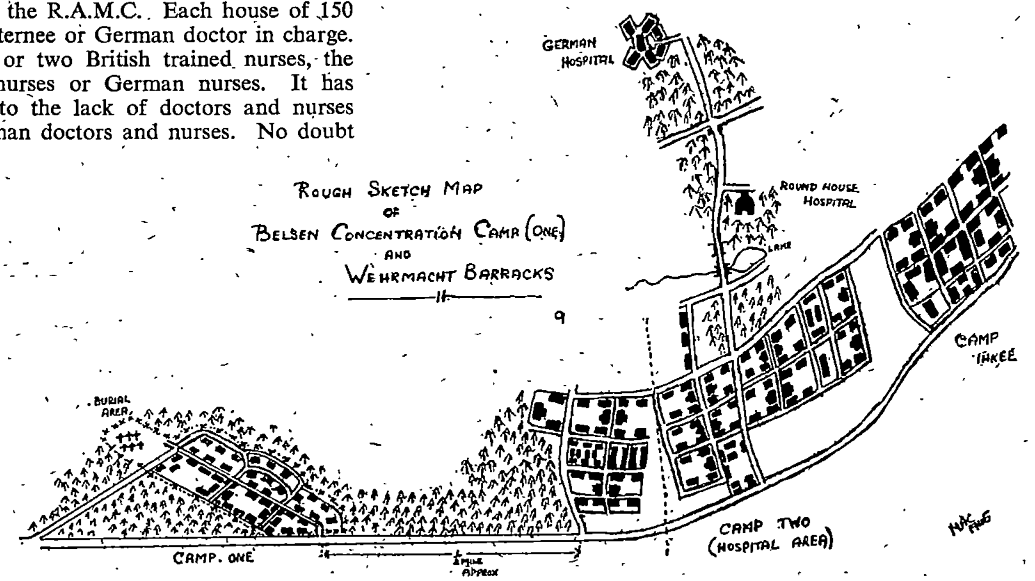
The Children's Blocks are the happiest in the whole camp. Many of the children are emaciated, showing the utmost marasmus, and many are sick; but also many are now beginning to recover, and, strange though it may seem, these, particularly the children under 7, do not show the terror symptoms which are perhaps the most terrible aspect of the adult patients' mental state. Already they are laughing and smiling again. Many are going to recover altogether. But our responsibility will not end then, for most have no homes to go to, no parents, no ordinary future. Surely somewhere in the world there are people who will come forward and care for these children and give them a home again.

In the general squares of the hospital area the main treatment up to the present has been that of feeding those in the extreme famine condition. Dr. Janet Vaughan and her team are doing invaluable work with intravenous hydrolysate while making important scientific investigations; but it is not easy to give an intravenous infusion with one hand and a bed-pan with the other, and little can be expected from these specific treatments. Few of the important scientific problems can be tackled properly until sufficient nursing facilities can be obtained.

In the hospital area it is still necessary to nurse patients with open tuberculosis and typhus in the small overcrowded wards containing other patients. Without *x*-ray apparatus diagnosis is often only provisional.

Camp 3.—This area contains approximately 8,000 persons. They are supposedly well or at least convalescent and have been ransferred from the other camps. They are able to walk and generally able to look after themselves; but many are pitiably weak still, and now quite a number are getting sick and being ransferred back to the hospital once more. Typhus has broken out now in Camp 3 quite seriously, and the problem of the management of this vast collection of persons from the social and medical points of view is one of the most difficult facing the directors of the camp.

If the map is referred to again two other hospitals will be seen—the Round House Hospital and the German Hospital. These have not yet been opened, though over 1,200 German patients have been removed from the latter, and it is now being got ready for admission of the patients from the camp. One wing is at present being used for the treatment of a number of orderlies and R.A.M.C. personnel who have themselves contracted typhus in the course of their duty. The opening of these new hospitals will greatly help the more advanced types of medical and surgical therapy.



Finally comes the immense problem of rehabilitation of these poor, abused, broken people. First the demands of their bodies must no doubt be met, but many are as wasted in mind as they are in body. Here expert workers are necessary, and vast quantities of books in all languages—Russian, Polish, Yugoslavian, German, and French, together with all kinds of sewing equipment, such as needles, thread, thimbles, etc., for the women; and much besides. The number of French internees cannot be more than 200, and all whom one speaks to who are recovering are full of hope and thinking only of the day of their return to France; but many thousands of those from the East, particularly the Poles, have no homes to go to, have apparently no future, no hope. The problem of what to do with these forsaken, almost lost, souls is immense, but one which if not tackled and solved will make all our efforts here mere waste of time, for then it were kinder to have let them die than to have brought them back to mere existence and more suffering in a hostile world where they have no longer even a hope of being able to compete in the struggle of the survival of the fittest, and must inevitably go down.

Conclusion

This is a brief preliminary report of Belsen Camp to give the medical profession in Britain some idea of the medical problems involved. It is a complete understatement. No words can describe the stench of decaying faeces, rotting bodies, and burning rags, which in the first weeks one could begin to smell miles from the camp, and it can but be left to the imagination of the medical men who read this article to appreciate what the doctors, nurses, and students at Belsen have endured and accomplished.

Since the camp was taken over from the Germans more than 20,000 internees have been buried; some 30,000 are left, of whom 11,200 are in the main hospital area. Now the Horror Camp is being rapidly emptied and the first emergency problem of hospitalization at Belsen has been accomplished, though an enormous task lies ahead if these poor people are to be cured and rehabilitated. It will be possible to repatriate those who are fit to be moved to their own countries, where further hospitalization and rehabilitation will be a matter for their respective peoples; but there will still remain a very large number, possibly thousands, of Stateless and homeless people whose welfare, both medical and general, and ultimate assimilation into normal society must remain as an almost insoluble problem, for years to come.

All honour is due to the R.A.M.C. and the doctors, nurses, and medical students of the British Red Cross and Order of St. John, under whose umbrella a large number of people of different nationalities have worked in perfect harmony. Particular mention must be made of the Swiss doctors and nurses who arrived by air and immediately went straight into action in the traditional manner of their countrymen whenever the cause of humanity is to be served. Nor must the gallant efforts of the internee doctors and nurses be forgotten. Many were sick and weak themselves, but, forgetting their tired and wasted bodies, they have worked and fought beside our medical personnel to their utmost power. Finally, the part played by the orderlies and other British soldiers must also be remembered. Their courage and kindliness were amazing, and not a few of them now lie dangerously ill, having contracted typhus while cleaning-up the filth and helping the lice-covered patients.

THE TASKS OF U.N.R.R.A.

MEDICAL SERVICES IN LIBERATED COUNTRIES

Dr. Andrew Topping, chief of the Health Division of the European Regional Office of the United Nations Relief and Rehabilitation Administration (U.N.R.R.A.), Col. R. E. Butler, its chief nutrition expert in the Balkans, and other members of the Health Division staff have lately returned from visits to certain of the liberated areas of Europe. They recently met representatives of the medical press in conference, when some very candid and enlightening statements were made.

Difficulties of the Administration

Dr. Topping said that the original programme of U.N.R.R.A. was framed on the supposition that it would play an important part in the reorganization of medical services throughout the liberated countries, but it was not appreciated that for this purpose certain essential priorities must be secured and support given at the highest level by the subscribing Governments. U.N.R.R.A. had not been able to obtain these priorities, with the supplies, shipping, and man-power necessary for its elaborate programme. Many Governments had been extremely half-hearted. Statements had been current that U.N.R.R.A. was not doing its job, but no one had explained that it was not its province to relieve liberated countries during the active military period when the various armies engaged were supposed to be dealing with civil problems. The problem of transport and supply so far as the civil populations were concerned had proved impossible for the armies, whose prime aim had obviously to be the successful prosecution of the war, but this fact should have been stated and the slur upon U.N.R.R.A. removed.

The Administration, Dr. Topping further explained, had had to cope with a severe shortage of medical and nursing services. One of the sections in its constitution provided that subscribing Governments should release any in their employment who were considered essential for U.N.R.R.A.'s activities; but in fact, while many local authorities deserved praise for releasing temporarily some of their key personnel, considerable difficulties had been found in obtaining the people who were wanted. It had also been expected that the liberated countries of Europe would require expert help in the reorganization of their medical services, and in fact a senior health officer had been appointed to each country; but while these officers had been courteously received and friendly relations had been established, and their help in enabling supplies had been appreciated, they had been given no specific functions in the reorganization, and their presence was, to put it bluntly, looked upon as the price to be paid for essential medical supplies.

The European Picture

Concerning the conditions in France and Belgium, Dr. Topping said that in many respects they were not as bad as they had been represented. It had been stated that there was great shortage of doctors in Belgium, but in fact doctors there were in adequate supply, and indeed a number had been recruited by U.N.R.R.A. with the full co-operation of the Ministry of Health. The position in Holland was considerably worse than elsewhere, and in Greece the position was serious, largely owing to a lack of appreciation by the Government of the need for sufficient medical and nursing services. Italy also was not getting an adequate diet, but in this respect it was little worse off than before the war. The future of these countries from this point of view depended upon forces stronger than U.N.R.R.A., chiefly upon the resources available for overcoming world food shortage.

As for countries within the Russian sphere of influence, Dr. Topping said that a mission had been ready to go to Poland and Czechoslovakia for many months, but so far it had been impossible to obtain permission. Although a mission had now entered Yugoslavia, it appeared that the authorities there looked upon the presence of U.N.R.R.A. personnel as little more than a nuisance and were not according them reasonable facilities. Yugoslavia had asked for a team of plastic surgeons, complete with anaesthetists, dentists, and nurses, and U.N.R.R.A. is investigating the possibility of meeting their wishes.

Solid Achievements

Nevertheless, U.N.R.R.A. has some great achievements to its credit. Dr. Topping mentioned the organization of very large camps in the Middle East and North Africa. At one time there were more than 60,000 refugees under the Administration's control, but these were gradually being sent back to their own countries. Another achievement was the establishment of friendly relations with the medical profession in the various countries. Concerning the control of displaced persons in Germany, U.N.R.R.A. had undertaken to provide 450 teams, each with doctor and nurse, and 205 were in the field already, working under military control. A good deal of difficulty had been experienced in getting together these teams, for it was possible only to get older people or the medically unfit and those who could be spared from their ordinary jobs. The recruiting net had been cast very wide. A number of doctors had been recruited from France, Belgium, Poland, and Czechoslovakia, and it was hoped to obtain others from Eire, Switzerland, and Sweden, and from Austrian refugees in this country.

Dr. Topping added that Sweden had been very helpful i offering to take 10,000 displaced persons, sick people, and children. The country had already received 20,000 peopl from Germany, mostly Norwegian and Danes. The difficult would be the hard core of people, expected to number at leas half a million, who had no country.

The Extent of Malnutrition

Prof. V. P. SYDENSTRICKER, the American nutritional exper told the conference that in Paris and Brussels, although ther was hunger and misery, there was no serious state of starvation. In Western Holland, the portion of the country liberate early in May, actual starvation did prevail, and the ration ha fallen to an extremely low level. Loss of weight was foun to a significant degree in the town populations, and in the poo districts of towns where close observations had been mad 10% of the people were suffering from famine oedema. List of these people had been prepared, and they were visited b officials and given extra food when it was available, and th Dutch were prepared to carry their own relief as soon a supplies appeared. He also spoke of experiences with protei hydrolysate. Small experiments he had carried out personall had been successful, and in Holland the first reports wer excellent. He had been told that at Belsen the experiment wa not successful, the people suspecting a new form of tortur It was only when people were too ill to take milk and gru that protein hydrolysate was used.

Col. R. E. BUTLER spoke of his experiences in the camp mainly for Yugoslavs and Greeks, in the Near and Middle Eas While there were minor deficiencies, by and large the childre were in good condition. In Greece itself the picture was no different from what it was in 1940–1. The growth of the blac market, to thwart the German authorities, and the advent the Swedish–Swiss Red Cross, had resulted in a marked improvement in nutritional standards. In the hospitals, amon the many patients brought in for injuries, there were few wh exhibited any marked degree of malnutrition. Thanks to th Red Cross, the situation was in control in Athens and Salonik He had seen no cases of famine oedema in Greece, though was reported that the children were under weight. In Ita minor deficiencies were apparent, but the age-weight figures had not been seriously disturbed. If supplies were continued as already allocated, no grave position should arise.

Infant Welfare and Epidemiological Work

Prof. R. R. STRUTHERS, of McGill University, a paediatrician attached to U.N.R.R.A., added some observations on his recent visit to France and Belgium. He said that children in the age-group 1–3 years had been well provided for; the neonatal death rate was not much higher than before the war. The frequency of miscarriage was rather higher than normal, but nothing like it was in 1941–2. Breast-feeding of infants was not carried on for as long a period as usual, but this might be due to the desire of the mothers to get back to their factory employment. The birth weights of infants were comparable with the pre-war figures. In Holland the children looked comparatively well, but lean. The only place where he had encountered acute difficulty was in the South of France, along the Mediterranean coast, where supplies of food and milk were inadequate.

Dr. N. M. GOODMAN gave some account of the new international conventions sponsored by U.N.R.R.A. at the time when the International Office of Public Health in Paris was under German occupation. U.N.R.R.A. received and dispatched as quickly as possible epidemiological information and had set up bureaux in London and Washington, the former to deal with notifications from Europe, the Middle and Near East, and Africa, and the latter with notifications from the Americas and the Far East. Among the other duties of the Administration was to authorize yellow fever vaccines to be recognized internationally, and with the consent of the French Minister for the Colonies, tests were to be made on French soldiers going to the Far East. It was a new departure in medicine that an international body should be authorized to test and approve vaccines and the institutes at which they were made.

EMERGENCY RATIONS FOR POLAR FLIGHTS

For the Polar flights made by the R.A.F. Lancaster *Aries* it was decided that in case of a forced landing in the Arctic regions the aircraft should carry emergency rations for the crew of nine sufficient to last 28 days. These were designed and prepared by the Low Temperature Research Station of the Department of Scientific and Industrial Research, in close consultation with Wing Comdr. Macrae, of the R.A.F. Institute of Pathology, and Wing Comdr. Winfield, of the R.A.F. Institute of Aviation Medicine, who was the medical officer on the flights. For this purpose the normal rations available were not altogether satisfactory, as they would have been too weighty and bulky. Thus the use of dehydrated foodstuffs was indicated, and, in view of our development of compounded food tablets, an approach was made by the Air Force authorities with a view to a ration being specially made for the job in the Low Temperature Research Station.

Compounded Dehydrated Foods

If the aircraft was forced down there was a good possibility that some of the aviation spirit could be salvaged. A stove had been designed to burn 100 octane spirit, and its use for cooking and for melting snow and ice to reconstitute dehydrated food was possible. Clearly the amount of fuel available was not unlimited, and the ration had to be so designed to use it economically, and in case no fuel was saved a substantial proportion of it could be eaten dry and be palatable in that form.

The ration pack was designed so that most of the food was in the form of blocks of compounded dehydrated foods. These consist of mixtures of dehydrated foods with added sweetening and flavouring materials where appropriate, so that each is a ready-made meal requiring only the addition of water. They are fabricated into tablets of standard size (usually 2 in. by 2 in. by 0.9 in.). Two of their virtues are that they need only to be wrapped in high-grade waxed films or papers and that their standard size facilitates the assembly of mixed rations, while very little space is wasted as compared with circular cans. One of two processes is employed. Tablets containing dried foods of large particle size such as dehydrated meat or vegetables are made by compressing the mixture in a hydraulic press. The pressed block can be crumbled easily in the hand and reconstituted, when any lumps are broken up by the swelling of the larger particles. Where the particle size of the material is much finer, as with spray dried powders such as milk or egg, compressed blocks of this kind would be very difficult to crumble, and, furthermore, lumps escaping crumbling would remain as unreconstituted lumps and mar the smoothness of the product. Thus they are prepared by casting the mixture hot into moulds with added molten fat. The fat binds the particles when cold, and the block can be dissolved by adding it to the boiling water. The heat of the water melts the fat and the enclosed particles of food go into solution without any lumps being formed. The texture of these blocks is such that many of those containing milk powders are palatable when eaten as sweets.

Menus for Four Days

A sufficient range of these blocks had been developed and tested to enable four different menus to be prepared to relieve the monotony of the diet. Just as everyone eats bread and drinks tea every day, so some items were included each day or on more than one day in the four, but it is thought that the variety was as great as in a normal wartime household menu. The possibility of increasing the number of varieties still further was rejected as it would have complicated the job of production. The menus finally agreed upon were:

	Day 1	Day 2	Day 3	Day 4
Breakfast	Porridge Toasted cheese Biscuits Butter Milk	Porridge Scrambled egg Biscuits Butter Cocoa	Porridge Herring Biscuits Dripping spread Milk	Porridge Scrambled egg Biscuits Dripping spread Cocoa
Mid morning	Tea	Tea	Tea	Tea
Lunch	Meat & vegetable stew Fruit Biscuits Butter Tea	Cod pie Biscuits Butter Cheese Coffee	Meat & vegetable stew Semolina pudding Biscuits Dripping spread Tea	Curry Biscuits Dripping spread Cheese Milk
Supper	Meat soup Beef & tomato Mashed potato Cocoa	Beef Mashed potato Fruit Tea	Tomato soup Mutton and onion Mashed potato Cocoa	Beef Potato Semolina pudding Tea
Snacks	Boiled sweets Chocolate	Boiled sweets Raisin chocolate	Boiled sweets Chocolate	Boiled sweets Raisin chocolate
Total calories per man	3,430	3,380	3,400	3,550
Total weight of food per man	708 g.	705 g.	715 g.	706 g.
Total weight of fat per man	185 g.	184 g.	177 g.	213 g.
% fat	26 g.	26 g.	25 g.	30 g.

The computed total weight on this basis was 393 lb. plus 3 lb. for immediate wrappings of the blocks. It was found that rations for two days could be packed into a standard 4-gallon can which not only was most convenient as a master container but also could be gas-packed to ensure that the food remained in the best condition possible. The fourteen cans increased the total weight to 435 lb.

Assembly and Labelling

To simplify unpacking and utilization and to reduce the amount of labelling the 7 or 9 blocks of each item required for one day were held together by adhesive tape in a vertical stack. The stacks were quite rigid, and, thus often, where there was space between them and the side of the can, a single block or a biscuit was inserted as a key, thus avoiding the need to fill the whole space with packing. These stacks of blocks were assembled and labelled before the packing of the cans began, and this procedure made the packing operation much simpler—the whole ration laid out on the laboratory bench was quite an impressive sight, though it was difficult to realize that it represented rations for 252 people for one day.

The weight of 715 g. achieved in practice includes, in addition to water and roughage, some 8 g. of salt and 13 g. of tea. It is therefore considered that, for a ration which gives three normal meals a day, it would be virtually impossible, with the materials available at present, to reduce the weight of the ration further. The tinplate cans used and the immediate wrappings contributed some 40 lb. to a total of 435 lb. gross, but this is very modest compared with most emergency rations, even when master containers are excluded. The robustness of the package and the fact that it could be gas-packed were advantages which more than counterbalanced the extra weight. The only other possibility would seem to be in the use of light metal alloys for such a purpose.

These types of food may be of great value for future polar expeditions.

Reports of Societies

PHYSIOLOGY AND TREATMENT OF STARVATION

EXPERIENCES IN WAR-STARVED EUROPE

A meeting of the Section of Medicine of the Royal Society of Medicine was held on May 29, under the chairmanship of Dr. **GEOFFREY EVANS**, for a discussion on the treatment of starvation conditions, and in particular on the use of protein hydrolysate. The discussion was preceded by the projection of Ministry of Information films depicting conditions in the German concentration camps.

Physiological Basis of Starvation Symptoms

Dr. H. E. **MAGEE** (Ministry of Health) said that between 1927 and 1933 he was engaged in studying the functions of the alimentary canal, particularly absorption by the small intestine, in animals. Absorption was fundamental to all the other nutritional processes. Failure in absorption was the essential lesion in starvation. Evidence pointed to progressive decline in the efficiency of absorption with increase of fasting period. Many experiments proved that deprivation of food, so far from increasing the functional efficiency of the epithelium of the small intestine, actually diminished it, also that the metabolic functions of the body were slowed by fasting. The small intestine was the great portal of entry of nutrients into the body, and if the essential cells of this viscus were destroyed, as in extreme starvation, the administration of food acted merely as an irritant, causing diarrhoea and dehydration. The aim must be the restoration of structure and function of the intestinal epithelium, and as this could not be done by giving food by mouth, suitable "building stones" must be given by vein. Enough glucose must be given, preferably before the proteins, to cover the body's energy needs so as to prevent the amino-acids administered from being used up for energy purposes. Sufficient B vitamins must also be administered to cover oxidation of glucose.

Loss of the protective function of the epithelium laid the intestine open to infection by organisms present in the food, and would explain the presence of ulcers so frequently found in persons dying of starvation. The work of Elman and others in the United States had shown that suitable hydrolysates could be used in the treatment of starvation arising out of pathological conditions which prevented the consumption, digestion, or absorption of food administered in the ordinary way. Dr. Magee had felt that this method of treatment would be of inestimable benefit to people suffering from acute starvation, though at the time this work was brought to his notice (1943) he had not contemplated the possibility of cases of starvation requiring such treatment coming to this country. He added that the Ministry of Health had set up emergency supplies of hydrolysate in Whitehall and in the regional offices for immediate use.

Conditions in the Channel Islands

Dr. Magee, who had just returned from the Channel Islands, said that there he saw two cases of extreme emaciation in adults, and these, with another case, had been evacuated to this country. He also saw a number of other adults, including German prisoners, in varying stages of recovery from nutritional oedema and emaciation. The history in all these cases was the same. As the diet became more vegetarian, and therefore more bulky and fibrous, the patients became increasingly unable to eat food of any sort, oedema set in, and then persistent diarrhoea and vomiting. In the more severe cases even milk was not tolerated. In some cases which came to operation or necropsy, volvulus of the caecum was found, with spastic contractions of the transverse colon, and ballooning of the part proximal to it. The large and, more rarely, the small intestine were thinned out to an extreme degree, and seemed to consist mainly of the serous coat. Ulcers of the large intestine were also sometimes seen.

The surgeons on the Islands had informed him that at first the perforation of peptic ulcers was relatively common, and subinvolution of the uterus had been frequent during the occupation. They also said that the incidence of appendicitis was much lower during the occupation than before it. Since the liberation the bulk of the people had been suffering from constipation, sometimes very obstinate, and the whole medical profession in the Islands deplored the return to white bread.

Preparation of Hydrolysates

Dr. P. **CUTHBERTSON** (Medical Research Council) said that in planning to treat cases of starvation it was urgent that adequate protein intake should be available, or, if the ability of the body to break down protein into its constituent parts were lacking, as in advanced cases of starvation, that the constituent amino-acids should be at hand. Dr. Magee had stressed the changes in the columnar epithelium in fasting, and it was to be supposed that the enzymes suffered a similar change, though this was not quite established, and even in the most advanced stages of starvation it was still possible to get patients to sip proteinaceous fluids and to obtain some protein synthesis.

Interest in protein hydrolysates dated from 1913, when Henriques and Anderson carried out some experiments on goats, injecting into the vein of the goat a hydrolysate formed by a pancreatic extract of goat flesh, as a result of which nitrogen equilibrium was achieved. Amino-acids given in the form of hydrolysates brought about a positive nitrogen balance. He mentioned various methods by which hydrolysis could be induced in proteins: (1) Proteolytic enzymes of pork pancreas; here the longer the digestion went on the greater the proportion of amino-acids. (2) Papain, a proteolytic enzyme from the melon tree; digestion at 50° C. was rapid. (3) The acid H_2SO_4, splitting the protein into amino-acids, but in the course of this development tryptophan was lost. Casein hydrolysis had also been used; its great drawback was unpalatability.

Dr. Cuthbertson demonstrated the sets as made up by the Protein Requirements Committee of the M.R.C. Each set included, besides instructions and records, ten bottles of 5% hydrolysate, one tin of glucose–vitamin mixture, five bottles of plasma and serum (dried), and five bottles of 10% glucose in pyrogen-free water. These packages were meant for the treatment of patients too ill to sip fluids by mouth. The idea was that the glucose–vitamin mixture should be given by gavage (drip nasal feed) and the protein hydrolysate by vein. By the evening of the third day it was thought that the patients would be got on to skim milk plus glucose by mouth. The plasma had proved to have considerable value; it increased the osmotic properties of the blood, and perhaps reduced the hunger oedema. On the other hand, if there was a considerable demand by the tissues for protein, that protein might be rapidly used up. In addition to the intravenous sets, units were being put up for 16 complete treatments, providing 50 grammes of hydrolysate and 50 grammes of glucose.

A Complex Picture of Many Unknowns

Dr. **HUGH S. STANNUS** said that protein hydrolysates had sprung rather suddenly into prominence, and might attain the unenviable position of being regarded as a cure for all ill. Associated with extreme emaciation was a marked loss of protein in the tissues, and to save life the first essential was to restore protein. The giving of protein hydrolysates was only one among other methods which might be used to attain this end. From 20 to 30 different amino-acids had been isolated from animal and plant proteins; 8 to 10 were essential to human needs. Combinations of these amino-acids, in different order or amount, with some omitted and others added, made an almost infinite number of different proteins possible. It had been estimated that there were 1,600 types of protein in the body of man. The amino-acids were the stones or bricks with which each cell built its own structure.

The conditions in starvation, to meet which protein hydrolysate therapy had been introduced, made a complex picture of many unknowns. If the patient could swallow, digest, and absorb the requisite amount of protein this might be supplied in some suitable form such as reconstituted dried skim-milk powder by mouth, or, if he could not swallow, by nasal-tube feeding; but if he were unable to digest, then protein hydrolysate should be given by mouth or by gavage, and if he could not swallow or digest or absorb, then resort must be made to intravenous administration of protein hydrolysate.

This conception, however, had been rather shaken in his own experience when called upon to advise upon the treatment of a repatriated prisoner of war who was in the last stages of starvation, with an extreme degree of emaciation and dehydration, and regarded by his R.M.O. as unlikely to live another day. He had also a Flexner infection, and the diarrhoea persisted in spite of sulphaguanidine. He had difficulty in taking his milk diet. It seemed to be a case demanding intravenous hydrolysates, but none were available, and the man was therefore given glucose-saline intravenous therapy, a crude liver extract parenterally, and teaspoonful feeding with powdered liver substituted for the milk diet. The response was dramatic, and a second case responded in a similar manner.

Among the considerable number of returned prisoners of war detained in hospital whom Dr. Stannus had had the opportunity of examining, the signs suggestive of protein deficiency had been almost universal. Many showed, in addition, all kinds of signs combined into mixed syndromes recognizable as indicative of vitamin deficiency—conjunctivitis, cheilosis, annular stomatitis, glossitis, change in the hair, paraesthesia, acrocyanosis, altered reflexes, "crazy pavement" skin, and pellagrous eruptions. Anaemia was common in some of the megalocytic type.

Conditions at Belsen Concentration Camp

Dr. JANET VAUGHAN, who was one of a small team of workers sent out at the end of April by the Medical Research Council to test the relative value of hydrolysates, skimmed milk, and serum in the treatment of starvation, gave a moving account of the conditions she found at Belsen camp. She first paid a tribute to the R.A.M.C. personnel. The amazing courage and gallantry of those who first went in to tackle what must have been one of the worst medical problems that had ever been put up to anyone deserved high praise. There were on the field at the beginning a field ambulance, a casualty clearing station, and a mobile pathological laboratory to deal with literally thousands of starving and dying persons, and the way in which they rose to the occasion was unbelievable. She herself and her colleagues arrived late in the day, after the first fortnight, and she would always feel it a great privilege to have seen what courage and kindliness could do in face of such difficulties.

The problem was a twofold one: to determine whether the hydrolysates worked, and whether they were practicable. The answer to both questions was quite definitely in the negative under the conditions found in the concentration camp. They had compared the administration of amigen, an acid hydrolysate, by intravenous injection; serum given in normal concentration and twice concentrated (because it was found that at the prescribed dose they could keep no one at a positive nitrogen balance; hydrolysate used orally, both in the standard dose of 50 grammes daily and in the double dose: and a milk mixture in the standard dose of 120 grammes daily.

Laboratory conditions were good, but hospital conditions most primitive. The hospital was a German barracks, in a filthy condition, furnished with wooden beds and straw pallets. Each floor had about 100 patients. There were two water taps on each floor, but sometimes no cold water for days together. Hot water was obtained by means of a primus stove. During the first week candles were the only artificial light. Nursing at first was done by the less ill women in the camp, who had, of course, no training, and by members of the Hungarian Army, who performed every function under the supervision of one English sister responsible for four big blocks. Food was supplied from big central kitchens under the supervision of one Red Cross worker in each kitchen. Preparation and distribution were relatively primitive, and the feeding of this mass of ill humanity was an extremely complicated problem and made one feel that it would be better to provide the personnel for the distribution of food instead of carrying out elaborate therapy. The people were of all nationalities, with no common language. Patients severely ill were admitted to the number of 700 to 1,000 a day. They went straight to what was called the "human laundry," really the laundry of the barracks, where they were laid on tables and scrubbed by German nurses to remove the caked dirt and faeces of months. She and her colleagues would go to the laundry to pick out cases which they thought would be useful for their purpose. They chose men who were grossly emaciated, too weak to get themselves off the stretcher. A snap diagnosis was made, to avoid patients with tuberculosis or dysentery. All of them had diarrhoea and all had oedema of the feet. Some cases showed gross famine oedema. The pathological facilities did not suffice to cope with 1,000 cases a day, but it was clear that although there was some Flexner dysentery, the majority of the cases gave no micro-organism.

In the group of cases dealt with the haemoglobin level was, on the whole, surprisingly high considering the gross deficiency of the blood. The mean figure for 21 men was 66.5%. This included three very low figures, and one very high figure in a collapsed patient, and eliminating these four abnormals, the mean figure was 69%.

Results with Intravenous Therapy

Dr. Vaughan first described the results with intravenous therapy. Five patients were given amigen; they took it well, and had no reaction. Four of them did well; the fifth, with famine oedema, showed no improvement at all. Three patients had oral hydrolysate by intravenous injection; two of them showed no improvement, and the third was very much worse at the end of 2½ days. This was a boy aged 18, with gross ascites, which became worse under treatment. It was thought essential to raise his plasma protein in the hope of drawing fluid from the tissues, and in the succeeding 24 hours he had two litres of twice concentrated serum, with striking improvement. Three other patients were treated with serum, and all did extremely well. Those with oedema improved, and among those who had had no oedema there was a general sense of well-being and increased facility in moving about.

The workers felt no doubt that if it was possible to use intravenous therapy on a large scale under these conditions serum was preferable to hydrolysates. The theoretical explanation was that with the serum there was much more protein with relatively little fluid. There was danger in pushing fluid into these starved people. A litre of fluid given intravenously, together with whatever they wanted to take by mouth, was probably sufficient. One of the reasons why serum was likely to be more valuable than hydrolysates was because with the latter not enough could be given to bring about a positive balance.

The hydrolysates given by mouth proved to be the worst fiasco of all. The substance had a very unpleasant flavour, and many patients having taken 300 c.cm. curled up and preferred to die rather than take any more. One or two vomited all that they had taken. Two took the whole amount, but with devastating clinical results. One man, who was most co-operative, on the second day of his oral hydrolysate passed at least half a bucketful of watery brown stool and had gross abdominal discomfort. An endeavour was made to give it by nasal drip or oral tube, but the patients regarded this as a new form of torture, and it was difficult to explain to them what it was intended to do.

On the other hand, milk and glucose–vitamin mixture answered extremely well. There were not more than 5% of the patients at Belsen who would not take fluids by mouth. But it was essential to flavour the milk. Many of these patients had sore ulcerated mouths. Mouth washes were out of the question under such conditions, and milk, given for three days with a sore mouth, was not very satisfactory. It was found useful to flavour the milk with tea or coffee, but, of course, other flavourings might be used. Starving people craved not only for food but for familiar food. There was no difficulty in getting them to take milk, and no abdominal discomfort followed, but it had to be given frequently in small feeds, which was very difficult because of lack of nursing staff, and they could not help feeling that it was better to employ nurses to give small frequent feeds by mouth than to set up drips.

Dr. Vaughan added that she was speaking only of hydrolysates in the type of patient whom they had had to handle at Belsen. She did not mean that hydrolysates given perhaps in conjunction with food and under proper nursing conditions might not play a great part in the medicine of the future.

Nitrogen Balance

Capt. J. A. F. STEVENSON, R.C.A.M.C., referred to some nitrogen balance studies undertaken at McGill University. It was the experience of most workers that in the period of increased nitrogen excretion following fractures and burns, if the intake by mouth were increased it resulted in very little change in the nitrogen balance, for as the intake went up the output also went up, so that there was still a negative position. Some workers reported that they could prevent the nitrogen balance from falling by using protein hydrolysate intravenously, and accordingly various amino-acid mixtures were tried out. He exhibited a chart illustrating some experiments with amigen given intravenously to people who were healthy and well-fed but had sustained injury. The results went to show that amino-acids given by vein were treated by the body in exactly the same way as food given by mouth. In the ordinary case there was very little distinction so far as the body was concerned between the results of the two procedures.

The discussion was wound up by a few remarks by Prof. R. B. HAWES, who said that the unhappy circumstances which had made this discussion significant might not be without their value if they taught politicians and others the importance of protein supply. It was Army experience that if there had been a low protein intake in early life, no matter how the men might have developed subsequently, nor how well-fed they might be, these people were the first to show a lowered resistance and to go down with pneumonia or other infection.

Correspondence

Inguinal Hernia

SIR,—Dicey, in the preamble to his famous classic *The Law of the Constitution*, quotes the following remarkable passage written by Burke in 1791:

> "Great critics have taught us one essential rule. . . . It is this, that if ever we should find ourselves disposed not to admire those writers or artists, Livy and Virgil for instance, Raphael or Michael Angelo, whom all the learned had admired, not to follow our own fancies, but to study them until we know how and what we ought to admire; and if we cannot arrive at this combination of admiration with knowledge, rather to believe that we are dull, than that the rest of the world has been imposed on. It is as good a rule, at least, with regard to this admired constitution (of England). We ought to understand it according to our measure; and to venerate where we are not able presently to comprehend."

I would commend this passage to Squad. Ldr. J. B. Kinmonth, who, in the *Journal* of May 5 (p. 642), speaks disparagingly of the filigree operation in the treatment of inguinal hernia and also of the results published by Mr. Percival Cole. May I be allowed the courtesy of your columns to give my own experiences in this matter.

Since 1938 I have carried out the filigree repair upon upwards of 80 cases. The filigree technique has been reserved for difficult cases, and the age incidence has been mainly between 40 and 65. Most of the cases have been large inguino-scrotal herniae or herniae of the direct type. Herniae *en glissade* has been present in two instances. The only recurrence I have had has been in a member of the N.F.S. who had been operated upon twice before elsewhere; in this case the recurrence was only slight. Paradoxically speaking, I would welcome a few recurrences, as I am anxious to practise this side of the technique. Apart from this one case, no others have come to hand. Most of the cases have been carefully followed up, and every patient has been asked to report should there be any recurrence. I cannot agree with your correspondent that the recurrences and failures go elsewhere; my experience in other branches of surgery has been that they do come back. In this connexion I well remember a member of the staff of a teaching hospital, who, with characteristic candour, was wont to relate on his ward rounds how he left a patient with a permanent biliary fistula. The patient used to send him a postcard regularly every Christmas informing him that the fistula was working quite nicely. Most of my patients selected for the filigree operation have been in the middle and latter decades of life. The general physique has often been poor to moderate, and the herniae of a type that recurrences could safely be predicted if treated along standard lines. Surgically speaking, my mouth waters when I contemplate a series of herniae in policemen. The recurrence rate on such material, using the filigree technique, should be infinitesimal.

I have in my possession a post-mortem specimen of the right inguinal canal and surrounding structures recently removed from a patient aged 80 years. This specimen demonstrates a filigree repair carried out by McGavin himself 30 years ago. If Squad. Ldr. Kinmonth would care to inspect this specimen and also some of the cases upon which I have operated I am sure that his conversion would be as speedy, dramatic, and complete as was that of St. Paul in another direction many years ago. I would, however, finish on an urgent note. This operation is well within the scope of the average competent surgeon who is conversant with the anatomy of the inguinal canal. This would-be operator should go to the trouble to observe some competent surgeon employing the technique; the haphazard employment of filigrees or their incorrect lodgment might easily lead to recurrences, and bring this magnificent method into disrepute.—I am, etc.,

W. PICKUP GREENWOOD, F.R.C.S.,
Bethnal Green Hospital (L.C.C.), London, E.2. Medical Superintendent.

Surgical Lessons of War applied to Civil Practice

SIR,—In his excellent article on adapting war surgery to civil practice Major-Gen. Ogilvie (May 5, p. 619) raises the issue of control in surgical practice. Regimentation and control may be necessary for efficiency under war and military conditions, but it is open to question whether this is necessary in civilian surgical practice. One of our national characteristics is the power of adaptation and improvisation, and already where the demand has occurred the creation of special units and centres has been established without any external pressure. Centres for cranial surgery have been established, and most reputable hospitals have their own fracture clinics, etc. If this specialization is carried further to any major degree, especially under pressure from any central authority, it will of necessity have a stultifying and inhibiting effect on the periphery.

Surgeons may be "a loose association of individuals," but they hold for the most part higher surgical qualifications and have served a long and arduous apprenticeship. In my own old teaching hospital there was the example of Sir Percy Sargent and Mr. Cyril Nitch, who made brilliant contributions to their own particular fields of specialty, and were equally at home in the field of general surgery. A surgical colleague of mine is as successful with a pneumonectomy as with an endoscopic resection of prostate. British surgery flourishes on account of its sanity, breadth of vision, and sturdy common sense. Coerced into too narrow specialization, we shall tend to become superlative technicians in a limited field, losing that clinical flair for a comprehensive grasp of the patient as a whole being.

The impact of American influence on British medicine must make itself felt. While prepared to absorb much of what is good, it seems unnecessary to adopt entirely their mode of practice with its stress on specialization. British surgery has always been in the vanguard in the past, and its general standard throughout the country, I am sure, compares favourably with and may be even better than, that practised in America and elsewhere.—I am, etc.,

Bournemouth. C. E. P. MARKBY.

Home Helps and Private Nurses

SIR,—I feel that the time has now come to relieve housewives of some of their burdens. In house after house to which one goes one finds nobody able to care for the invalid if the invalid happens to be the housewife herself. We have been promised on some uncertain date in the future a system of home helps, supplied by local authorities who will be able to do housework when required. There is now a most urgent need to start such a service.

Furthermore, in most towns the position as regards private nurses is very unsatisfactory. Before the war a nurse working on her own in a provincial town would, when she first came to the place, call on the doctors asking for their patronage.

Some years later she would vanish, and when one sent round to her address one would be told, "She left here a year ago." Much time was wasted in this way trying to find nurses; in fact most doctors in the Provinces who were at all near London used to phone up a London agency to get one. During the war the medical officer of health of almost every authority employed practically every spare nurse in the district in a first-aid post. Here in Colchester we have an excellent system whereby any private nurses coming to the town are invited to register themselves with the M.O.H., who calls on their services if we phone him up. The nurses, of course, are supposed to keep him notified as to when they are free. This system, if applied to the whole of the country, would be a tremendous advantage.

Finally, a system of hospitals throughout the country where G.P.s can attend their patients who are sick but who do not need specialized treatment is most urgently needed. The E.M.S. was set up to provide hospital services for the public, but in this area it seems to be collapsing. Our local hospital has just had to close 36 beds through lack of nurses, although there are 700 cases on the waiting list. Is the E.M.S. proposing to remain in a state of suspended animation until the National Health Service is inaugurated? For five years the Ministry of Labour has had the power to direct every girl in the kingdom, and now we find ourselves so short of nurses that we have to close down hospital beds. This seems to me a grave reflection on the capabilities of the Ministry of Labour.—I am, etc.,

Colchester. M. E. LAMPARD.

Institutional Maternity Service

SIR,—I am writing to give strong support to Dr. Laura Hutton's letter (May 5, p. 639) on the need for encouraging a home maternity service. I am in full agreement with Dr. Hutton that the happiest and often most satisfactory confinements take place in the patient's own home, but failing the provision of enough domestic service to give peace of mind to the patient I would urge the encouragement of small well-run maternity homes, of which there are many in existence, in spite of their critics. The public demand for these homes is only too evident from the difficulty of obtaining accommodation in them.

In these homes the patient can be attended by her own family practitioner, and in this case the follow-through is complete—ante-natal supervision, the confinement, the care of the nursing mother and newborn infant. To have a break in this continuity from the seventh month until a fortnight after confinement, while the patient is under the care of a doctor unknown to her in an institution, is psychologically unsound. As Dr. Hutton says, hygiene and asepsis are bought at too dear a price in cases where no difficulty is expected.

I also feel that the whole question is of psychological importance to the doctor. It is agreed that the family practitioner is of value to the community, but it is not easy to feel quite the same interest and responsibility in the life of a family when for all the major events such as confinements and operations the patient is compelled (through lack of sufficient alternative accommodation) to go to a hospital, where the general practitioner is only allowed to enter by invitation as a visitor.—I am, etc.,

St. John's Wood, N.W.8. EVELYN MACLAGAN.

Caudal Analgesia: A Rational Assessment

SIR,—As the first folk in Great Britain to have published any experiences of caudal analgesia in obstetrics (*Proc. roy. Soc. Med.*, Oct., 1944, **37**, No. 12, 680) we feel concerned that such a weighty authority in British obstetrics as Prof. F. J. Browne should have thought fit to issue a wholesale condemnation of the method (May 26, p. 746). Backed as we are by a personal experience extending over two years, we cannot allow his armchair criticism to pass unchallenged. To begin with, we question his method of attack, which consists for the most part of having combed the publications on the subject in order to catalogue all the rarest complications and presenting these as reasons against employment of the technique. Surely few procedures in medicine could stand up to so stringent a test: anaesthetics, for instance, would have been given up decades ago had the first anaesthetic deaths been the cause of professional panic.

Let us survey the subject soberly and with an attempt at clear thinking. Caudal analgesia can be subdivided into two categories—that given for a specific obstetric procedure, such as a forceps delivery or Caesarean section, and that given solely for the relief of the pain of a normal labour. The former must be compared and contrasted with other methods of securing anaesthesia for forceps or Caesarean section; the latter, on the other hand, must be compared with alternative techniques for producing adequate analgesia during parturition. All anaesthetics and analgesics for forceps delivery or Caesarean section have definite dangers and recognized complications; so has caudal analgesia. Why condemn the latter, however, and not the former? The alternative techniques for securing analgesia during normal labour also have very definite and recognized disadvantages if given in doses sufficient to maintain *adequate* relief of pain—i.e., they all tend to diminish the force of uterine contractions and slow down labour; they all tend to increase the forceps rate; most of them depress the foetal respiratory centre; and following their use there is an increased likelihood of post-partum haemorrhage. With caudal analgesia the first stage of labour remains unaffected, or, in the highly strung patient who fails to dilate readily, *it is actually speeded up* owing to the paralysis of the motor innervation of the cervix uteri—often in the most dramatic manner. Morphine and other analgesic drugs have killed far more babies than "metycaine" in the sacral canal has ever done, or is likely to do, but do we therefore condemn these drugs out of hand? Our experience is that the foetus is completely unaffected by caudal analgesia, and that cases requiring resuscitation are as few as if delivered without the exhibition of any form of analgesia. We have also found that the uterus expels the placenta in quick time—it retracts eagerly (even before an injection of ergometrine), and that haemorrhage is minimal.

On the question of the increased incidence of forceps delivery it must be admitted that Prof. Browne is on safer ground, but even here he is guilty of an over-simplification of the issue which gives a distorted impression of the facts. Had he pursued his researches into the literature a little further he would have found that all contributors (including ourselves, whom he did not quote) lay emphasis upon the disparity between the behaviour of primigravidae and multiparae upon entering the second stage under caudal analgesia. *It is the former group alone which is responsible for the increased forceps rate*; multiparae nearly all deliver themselves spontaneously. In our previous publication we concluded that caudal analgesia was not suitable for the relief of pain in the second stage in the normal primigravidae because of this increased tendency of forceps delivery. Before condemning the method in primigravidae, however, it is only fair to take into account the increased forceps rate under any form of adequate analgesia; to do otherwise is to think dishonestly or with prejudice. To overcome this disadvantage we are, at the moment, experimenting with a new technique in which caudal analgesia is discontinued during the second stage in primigravidae and an alternative substituted until the head is almost crowned, when caudal analgesia is resumed or gas-and-oxygen given; in this manner the patient has several hours of complete relief from pain and is thus enabled to cope with the second stage without having become half exhausted *en route*. Surely this is an intelligent method of overcoming the difficulty!

Limitations of space prevent all but the briefest comments on the remaining criticisms. To begin with, how many women in the second stage are able to empty their bladders spontaneously? We seem to remember that a full bladder is a well-recognized cause of delay in the second stage of labour, and, when it is, the bladder certainly cannot be voided voluntarily, even in the Garden of Eden! True, there is a small risk of infection during caudal analgesia, but there is also a risk of pneumonia from inhaling vomit during gas-and-oxygen analgesia; yet, again, no one dreams of condemning gas-and-oxygen on this account. There is some risk of infection even at the sight of injection in doing Caesarean sections under local analgesia. When cases of Caesarean section are quoted with lowered blood pressures of 60/40 for periods up to 3/4 hour we can only ask why on earth the patient was not given an injection of phoLedrine ("veritol"), or "neo-synephrin," either intravenously or intramuscularly—the latter no more difficult to give than ergometrine. Incidentally this fall in blood pressure is the only way in which the foetus can possibly be affected by caudal analgesia; and Hingson and Edwards take blood pressures every 1/4 hour as a precautionary measure. They also test the height of skin analgesia at the same time, which should never be allowed to reach higher than the umbilicus; under these conditions a fall of blood pressure is unlikely or, if present, is immediately remediable.

Prof. Browne has endeavoured to divorce the method *per se* from the skill and judgment of those administering it, an impossible procedure when discussing medical technique or treatments. He claims—quite rightly—that the "ideal analgesia in childbirth should be safe for mother and child." But how would he define the word "safe"? If by safe he means foolproof then his condemnation of caudal analgesia is justified and reasonable; but then no method of analgesia is foolproof (again, has he never heard of a foetal fatality following the use of morphine analgesia?), and to be consistent he should eschew all forms of analgesia, a policy to which we can hardly believe he would subscribe. If, however, by safe he means relatively safe then he automatically implies some degree of judgment and skill on the part of the administrator—judgment to pursue, modify, or even withhold the method according to the exigencies of the circumstances and skill to avoid its complications. It is on this very degree of skill and judgment that the safety or otherwise of the method depends; neither can be gained without personal experience, nor can any criticism carry full weight unless the critic is himself personally acquainted with the method under discussion.—We are, etc.,

J. H. PEEL, F.R.C.O.G.,
Gynaecological and Obstetric Surgeon,
King's College Hospital.

A. H. GALLEY, D.A.,
Temporary Demonstrator in Anaesthetics,
King's College Hospital.

London, W.1.

Women in Labour

SIR,—This correspondence shows a healthy sign of an awakening conscience that all is far from well in the conduct of our confinements. It is somewhat startling that almost a century after the introduction of chloroform—still an excellent drug—despite the startling advances in the art of anaesthesia in recent years, the over-all standard of analgesia and anaesthesia in labour should be so pitifully low. It would even appear that a lazy acceptance of the "curse of Eve" blinds us to the suffering of a woman in labour; but not if she requires incision of an abscess or extraction of a tooth.

It is also a disturbing thought that in other aspects of midwifery there should be a similar tardy and reluctant attitude to avail ourselves of the magnificent advances in medicine generally. Wearing masks has only recently become general, if indeed it is so; *x*-ray examination is still somewhat of a novelty; *x*-ray pelvimetry a rather exceptional event. And it would be an easy task to count the number of doctors who could lay their hands quickly on a supply of plasma and a giving-set when faced with a severe P.P.H. in the home. It is high time we asked ourselves, "Why this lag in just *one* branch of our art? We are accustomed to use all the new drugs and methods of investigation in other cases; why alone in midwifery is there this stasis?"

And why do the regulations of the Central Midwives Board refuse to allow a midwife to administer nitrous oxide and air unless she is accompanied by a trained assistant nurse? The Minnett is absolutely foolproof; it just can't give too much. Our midwives have the apparatus, have been trained, but because they just can't raise another midwife or nurse to take along to the case they must not use the machine. Surely this ruling is entirely out of date? Admitted, unless the patient can afford the services of an expert in anaesthesia for the entire duration of labour the ideal method is still to be found. But a simple technique and a safe one for the midwife would be pot. bromide and chloral at the beginning, repeated if necessary; gas-and-air when the patient begins to be uncomfortable, not when she is really up against it; and at this stage a hypodermic of pethidine 100 mg. In my own practice delivery of the head is usually done under light chloroform, and for any instrumental procedure in the home it is still the ideal drug.—I am, etc.,

Oakham. GORDON PURDY.

SIR,—May I protest strongly against the wholesale condemnation of the attitude of midwives in general towards women in labour as expressed recently in your columns. Some of your correspondents have had the most unfortunate contacts during their midwifery training, and one hopes that with more experience they will get a wider field of vision and not generalize from such short observation. One must realize that there are unpleasant and inefficient individuals in every profession, but that these are not representative of the whole. To counteract the impression left on some readers by the narration of your correspondents' sad experiences I feel bound to say that in the large Edinburgh maternity hospital where I trained such unkindnesses and inefficiencies as are instanced by them would not have been tolerated for one moment, nor have I since met the attitude they exemplify in my work in midwifery institutions. I have no reason to believe that the Edinburgh attitude of compassion and courtesy—taught alike to students, doctors, and nurses—and the unforgettable kindness shown to me by the complete staff in the English hospital where I myself had two babies, are unique.

The answer to Dr. Angela Heffernan's question (May 26, p. 748): "Why do all women of the higher income levels employ doctors rather than midwives for their confinements?" is, obviously, as she will in time discover, that almost all women of whatever income level employ a midwife in any case. They realize from acquaintances if it is to be their first confinement and from experience if other than the first, that when one is in labour one craves and appreciates tremendously the comfort and reassurance of a woman and an experienced midwife, although one may engage a doctor in case an emergency beyond the scope of a midwife should arise, as well as to ensure the "whiff of chloroform" at the end.

Would it appear malicious to add, in reply to the implication that the control of the Central Midwives Board is responsible for the continuance of the suffering of "the great majority of women," that if and when midwifery does come completely under the control of the medical profession women may still suffer during labour? And not, I hasten to add, through negligence on the part of the medical profession.

To conclude, it is to be hoped that your correspondents will soon meet with the usual type of midwife, the woman whose heart is in her work, her interest including the relief of her patient's pain whether due to actual physical causes or nervous tension, and whose sympathy, understanding, and skill enable the labourer to carry through with an otherwise unendurable task.—I am, etc., JANET LACK.

SIR,—I should like to reply to some of the statements made in recent issues of the *Journal* on women in labour. Such remarks as "the callous attitude of the midwives to women in labour"; "midwives are particularly unkind to the nervous patient with a rigid os"; and "during the London 'blitz' women who remained in town had to have their babies at home as the maternity wards were closed" surely were made by someone who knows little about midwifery and less about midwives.

During the London "blitz" I was night sister in charge of fifty maternity beds, which were usually full, at one of the largest London maternity hospitals. I speak as a midwife who has been practising a number of years, including the teaching of medical students. Sedatives and gas-and-air analgesia are given routinely to all patients as necessary in the wards I have known. It is due to old-fashioned ideas and medical prejudice that midwives are not allowed to give any drug stronger than pot. brom. and chloral, or an opium pill which contains 1/10 gr. morphine, without a doctor's written prescription. We know that women in labour have to suffer at times owing to shortage of staff; enough has been said of this in the medical and lay press.

Finally, even "women of higher income levels" are left in the care of midwives as neither the hundred-guineas obstetrician nor the general practitioner has the time to wait around until "the head is on the perineum." Your correspondent who cries out for the time when all women in labour will come under control of the medical profession will have to wait a long time when one considers that more than 76% of the births in this country are dealt with by midwives.—I am, etc.

South London Hospital, S.W.4. NORA K. KELLY.

SIR,—My attention has been drawn to the correspondence in the *Journal* on the subject of women in labour. While I am in sympathy with those who deplore the neglect to maintain efficiently gas-and-air apparatus and the failure to train midwives adequately in its use, I feel that the essentials of the problem have been missed. I am convinced that a woman does not need an anaesthetic for a normal labour, but I know also how fear of the unknown can turn the uncomfortable sensations of labour into pain. Surely it is in the training of women for labour that the answer lies.

My first baby was born during the last fortnight. My labour lasted nineteen hours, and although I experienced discomfort particularly at the end of the first stage, I did not suffer anything I should describe as pain, and did not feel the need for an analgesic. The second stage I found hard work, but derived great satisfaction from being able to hasten my baby's arrival by my own efforts. My doctor advised me to use the gas-and-air apparatus for the delivery of the head to prevent my pushing too hard. I found this very helpful, not because I was experiencing pain but because by concentrating my attention on breathing deeply I was able to control the desire to push and thus avoided the alarming feeling of "splitting." I should have felt I had missed a great experience had I been unconscious when my baby arrived. I was thrilled to hold her in my arms when only half a minute old.

I am a qualified physiotherapist, and therefore had some advantage in realizing the importance of preparatory exercises, controlled breathing, and relaxation, but I have had no experience of midwifery, and consider that the most important factor in making my labour a thrilling and satisfying experience, instead of a painful operation, was my ante-natal education. This was not elaborate, and consisted of nothing more than making clear to me the processes of pregnancy and labour, and the part I would have to play in them. Any doubts and fears I had, born of my own ignorance and the harrowing tales of friends and relations, were allayed by frank answers to my questions. Doctors are, unwittingly perhaps, insulting the women they make the passive sufferers of a mystical ordeal of Nature. Give us, not the magic black-out from fear and torment, but the knowledge and the confidence to deal with them ourselves.—I am, etc.,

Southborough, Kent. JEAN SUTTON, C.S.P.

Obstetric "Specialism"

SIR,—In the Annual Report of Council, 1944–5 (*Supplement*, May 12, p. 82), it is stated that the Report on a National Maternity Service by the Royal College of Obstetricians and Gynaecologists "includes a proviso that the general practitioner who desires to undertake midwifery *must* have special experience." These self-appointed "Fellows" have an extraordinary opinion of themselves, but, their heads befogged in a cloud of self-adulation, they fail to realize that their "proviso" is a grave indictment upon their own capacity both as teachers of obstetrics and as practical obstetricians.

Carrying their advice into other spheres of medicine we should soon have our Royal Colleges of Surgeons advising that before a general practitioner would be allowed to diagnose the cause of a child's sore belly he must have special experience! Which is the more difficult, to carry out an ante-natal examination, a confinement, a post-natal examination, and decide when a case requires special hospital treatment, or to diagnose, in an infant, whether a sore belly is due to cystitis, obstruction, appendicitis, pneumonia, otitis media, or wrong feeding, and come to a decision rapidly enough to save a life?

In my opinion it would be a good thing if many of these "Fellows" spent two or three years under the supervision of a competent G.P. before being permitted to proceed to hospital for special experience and special training, and, further, a general practitioner should be a co-examiner at every obstetrical examination for ordinary degrees, higher qualifications, and under the Central Midwives' Board. I wonder how many self-styled obstetric specialists know anything of normal labour. How many of them, since their student days, have watched a maternity case from beginning to end or seen hundreds of such cases as I and many of my colleagues have? We would have our women less fearful of labour than they are to-day, and less interference of labour carried on by the methods devised by God, if many of our obstetric specialists knew more about normal labour. Women of to-day would face labour as their mothers did, without fear, and full of joyful anticipation, and little, if any, post-natal suffering. What is this "special experience"? Possibly watching a variety of specialists carrying out a variety of episiotomies; possibly watching a variety of women in labour being subjected to a variety of anaesthetics—general, local, intravenous, and intrathecal—and a variety of stillborn infants make their appearance into the world; possibly viewing a variety of means of inducing premature labour with callous indifference for infant life, for conditions quite capable of being treated by simple common-sense medical means. One would, of course, view a variety of Caesarean sections, and picture on occasion the puzzled glow on the specialist's countenance as he wondered whether there was an ovarian cyst lurking in the background, the cold sweat pouring off his brow at the thought that he had removed the baby before the cyst.

Yes, there is a place for the obstetric specialist, a very vital place, though he makes just as many errors of diagnosis and judgment as the general practitioner, and he would be a fool if he did not; but there is no place for this driving women into ante-natal hysterics, irrational operative procedures, and breaking down the very foundations of home life by this constant specialist barking; this driving women to hospital, and a forgetting that midwifery, if it calls for our best judgment and common sense, is that department of medicine where diagnosis is easiest, and we can help our women in the vast majority of cases, by the simplest means in the world.—I am, etc.,

Tain. E. K. MACKENZIE.

Adrenalectomy in Paranoid Psychosis

SIR,—The further development of the case of psychosis treated by adrenalectomy, reported by Dr. Clifford Allen and Mr. L. R. Broster in the *Journal* of May 19 (p. 696), may be of interest.

The patient's physical condition has hardly been influenced by the operation. Though her voice has become higher her body up to the waist is still covered with thick and coarse hair, she has a vertical distribution of pubic hair, and has to shave her face frequently. During the first few months after adrenalectomy her thinking was retarded, she was easily tired, and complained of inability to concentrate and of lack of initiative. She was greatly distressed about this condition, and wondered whether she would ever get well. She found it difficult and embarrassing to meet people as she could not converse with them. She gained 7 lb. in weight. From the 4th to the 7th month after the operation she was given 2.5-5 mg. benzedrine and, for periods of 3 to 4 weeks, thyroid gr. 2 daily. Gradually she lost her excessive weight, became more self-confident and sociable, and was able to resume normal household and social activities. Eventually she took up regular duties at a Forces' canteen.

With regard to her mental state the operation has proved a complete success so far. She has lost all psychotic symptoms and homosexual leanings, her habits have become feminine again, and she dresses with care and smokes little. In addition, the claustrophobia, the facial tic, and the occasional stammering which preceded the psychosis for at least seven years have disappeared. She is now three months pregnant and looks forward to having a child.—I am, etc.,

Manchester. LEO WISLICKI.

Tuberculosis of the Lower Lobe

SIR,—I am grateful to Dr. George Luntz for calling attention in his letter (May 26, p. 747) to a passage in my article on the above subject in which I referred to the use of pneumoperitoneum. I agree with Dr. Luntz and the authors he quotes that diaphragmatic paralysis is generally more efficient with lesions of the lower and upper lobe than in the middle lobe, and I regret that the disputed passage gave the impression, which I did not mean to convey, that phrenic paralysis followed by pneumoperitoneum was *particularly* valuable in mid- and lower-lobe lesions.

At the same time I would like to point out that my article was dealing with the lower lobe, and the passing reference to middle-lobe cavities was not intended to be taken as a definitive conclusion. I can only say that though the number of middle-lobe cavities I have so far treated by phrenic paralysis and pneumoperitoneum is comparatively few, this treatment has been successful in a sufficient number of cases to warrant its trial when artificial pneumothorax fails.—I am, etc.,

Essex County Hospital, Braintree. R. C. Cohen, M.D.

Shall We Nationalize Medicine?

Sir,—The letter from Dr. Dakin (May 19, p. 715) is, in my opinion, one of the most sensible of the numerous letters written on the subject of a national medical service. Dr. Dakin rightly stresses the importance of conducting professional work away from the home. The difficulty of obtaining adequate domestic help before the war was acute and may even be more so after the war. The shortage of domestic workers may render practice from health centres almost essential if doctors and their wives, especially the latter, are to lead lives of reasonable comfort free from intolerable drudgery.

Whereas it would be undesirable to curb a doctor's potentialities by unduly restricting the size of his practice, there is obviously a limit to the number of patients to whom he can give adequate attention, this number depending on the type of practice, urban or rural. Further, if the whole population is to be insured the option suggested of permitting patients to make their own private arrangements for medical treatment matters little to the doctor. What certainly does matter is the capitation fee, for if this is adequate it may well be that in the average practice the practitioner may prefer all his patients on his insured list. With a basic capitation fee of, say, £1 a practitioner would probably obtain a greater net income than from a practice composed partly of private patients with expenses in connexion with drugs, dispensing, etc.

I agree with Dr. Dakin that it is lamentable that conditions in practice nowadays are such that many doctors, especially the single-handed ones, have to work unreasonable hours making undue demands on their physical and mental powers. This pernicious state of affairs could be rectified by practice from health centres, in which more or less regular hours of work could be arranged, with rotas for night work and holidays for all. Those doctors referred to by Dr. Dakin who feel they are not true to their calling unless always on duty could gratify their desires to the full, for in each centre there would be a fair proportion of doctors who like, and feel entitled to, recreation at the end of an exacting working day. Under a national medical service with practice divested of much of its competitive character, it would be interesting to observe whether the zest for work and day and night devotion to duty of some doctors would continue unabated, or would decline with the curtailment of income which would occur in some instances.—I am, etc.,

Hornsea. L. French.

Flour in the Loaf

Sir,—Sir Ernest Graham-Little, having been shown to be completely wrong in his statement that the germ of imported wheat is removed in the country of origin before importation to this country, now brings forward another suggestion in his letter (May 26, p. 750). This suggestion is that the majority of the cereals imported is in the form of white flour (germ removed), so that the amount of germ imported via wheat is small. Again, Sir Ernest Graham-Little is, as is so often the case, entirely wrong as to his facts. The majority of imported cereals is in the form of wheat, from which, as he now knows, the germ has not been removed. This is clearly seen from the fact that the present miller's grist in this country for the manufacture of flour for bread-making is approximately 40% English wheat and 60% imported wheat (mainly Manitoba). The imported flour (germ removed) added is less than 20%, so that, contrary to what Sir Ernest Graham-Little states, there is about three times as much wheat imported as flour. The correctness of these statements can be easily confirmed by inquiry at the Ministry of Food. It is unfortunate that Sir Ernest Graham-Little does not trouble to get his facts correct and gives publicity to statements which are incorrect and hence misleading.

I purposely refrained from entering into controversial matters and have merely restricted myself to showing that statements, on which certain arguments are based, are incorrect in fact. Hence I do not propose to carry on this correspondence. However, perhaps I might be permitted to make the following observations.

Sir Ernest Graham-Little says (May 26, p. 750): "I think Dr. Kent-Jones is likely to hear from the makers of biscuits whose product is thus revealed as consisting, like the pre-war bread, almost entirely of starch!" My experience of biscuit manufacturers is that the majority of them are not likely to be at all perturbed by my statement of fact concerning the destruction of B_1 in biscuits, but they will know that the claim that biscuits merely contain starch is another example of Sir Ernest Graham-Little's misstatements. Biscuits contain, besides starch, protein and fats and other nutrients.

Sir Ernest Graham-Little further states: "It may profitably be noted that Russian soldiers have won their resounding victories on a diet mainly composed of whole-grain bread." This interesting observation can scarcely be considered as a serious argument. If it is, then one must also remember the great victories gained by the American soldiers who received enriched white bread. Also, readers may like to remember that the youth of Great Britain, bred on white bread, whatever its defects, fought and won two major wars in the last twenty-five years.—I am, etc.,

Ealing, W.5. D. W. Kent-Jones.

Sir,—Sir Ernest Graham-Little, having been shown to be factually inaccurate on every major point he attempted to make, now retires behind a smokescreen (May 26, p. 750). His argument now is "that it is against the interests of the public . . . to divert one penny-weight [of wheat germ] to any purpose other than the provision of the most nutritive national loaf that science can devise." The only purpose for which germ (in the form of milling offals) can be diverted from the national loaf is for stock feeding purposes, a fact of which Sir Ernest Graham-Little is well aware. The rest of his letter is therefore irrelevant to the point under discussion. Careful scrutiny reveals, indeed, that he does not—because he cannot—contradict my statement (supported as it is by numerous Hansard references) that "not one flake or particle of Bemax is derived from flour either intended to be or actually used for bread-making." This is my point and on that I rest.—I am, etc.,

H. C. H. Graves,
Chairman and Managing Director,
Vitamins, Limited.

London, W.6.

⁂ This correspondence is now closed.—Ed., *B.M.J.*

Civilian Jobs for Medical "Other Ranks"

Sir,—Many medical practitioners must have had the experience during these war years of working with Regimental and Medical Corps N.C.O.s and orderlies, and found them, if "unskilled," most efficient. Are these men now to be returned to their forges, shops, and ploughs, and so lose the training they have acquired and also be a complete loss to our profession, or can we offer them reasonable employment at reasonable wages? Could some of them not administer our smaller hospitals, or if "rehabilitation" is to increase vastly is this not the man-power—and many being ex-bandsmen have an additional musical knowledge—which we must seize? If any organization exists for the absorption of these people can it not be given wider publicity so that those of us still in a position to direct may be able to give the correct directions?—I am, etc.,

Helensburg, Dumbartonshire. John McD. Glennie, M.B.

The Services

The following appointments and award have been made in recognition of gallant and distinguished services in Italy:

O.B.E. (Military Division).—Cols. K. A. Hunter, G. A. Sinclair, and H. G. Young, D.S.O., M.C.; Lieut.-Col. W. L. Coke; and Major D. A. Young, R.C.A.M.C.

M.C.—Major (Acting) D. W. McCullough, R.C.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Missing, presumed killed.—Surg. Lieut.-Cmdr. Ronald Grant Dingwall, O.B.E., R.N.

Obituary

CARLTON OLDFIELD, M.D., F.R.C.P., F.R.C.S.

We regret to announce that Mr. Carlton Oldfield, the well-known Leeds consultant and former professor of obstetrics and gynaecology in the University of Leeds, died on May 27 at his home, Moor House, Harewood, aged 74. Almost the whole of his professional life was spent in the Leeds district, with which his family has had a long association.

A student of the Leeds School of Medicine, Carlton Oldfield came to London to take the English Conjoint Diplomas in 1893, graduated M.B., B.S.Lond. two years later, and proceeded M.D. in 1905 after holding a succession of junior posts. He became a Fellow of the Royal College of Surgeons of England in 1909 and was elected a Fellow of the Royal College of Physicians of London in 1928. Before his appointment to the staff of the General Infirmary at Leeds as honorary gynaecological surgeon he had been surgeon to the Leeds Maternity Hospital and to the Leeds Hospital for Women, and he was also visiting gynaecologist to the Batley and District Hospital, the Dewsbury General Infirmary, the Wakefield Clayton Hospital, the Skipton and District Hospital, and the Coronation Cottage Hospital at Ilkley. In 1919 he succeeded the late Prof. J. B. Hellier in the chair of obstetrics and gynaecology at Leeds University and held the professorship until 1932. He retired from active practice in 1939. He had examined for some years in his subject at the University of Oxford, and was a past president of the North of England Obstetrical and Gynaecological Society. In 1929 he revised Herman's standard work *Difficult Labour* for its seventh edition; he wrote the article on septic infections for Eden and Lockyer's *New System of Gynaecology*, and contributed papers to this and other journals.

Mr. Oldfield joined the British Medical Association in 1897 and was honorary secretary of the Section of Gynaecology and Obstetrics at the Annual Meeting held in London in 1910; he was also for many years a member of the Leeds and West Riding Medico-Chirurgical Society and a Fellow of the Royal Society of Medicine. Throughout his career as teacher and consultant he took a warm interest in the advancement of younger members of the hospital staff and in the promotion of better welfare and working conditions for the nurses. He leaves a widow, two sons, and two daughters; one son is Major Michael Oldfield, F.R.C.S., now serving abroad with the R.A.M.C., who in civilian life is assistant surgeon to the General Infirmary at Leeds.

JOHN DICK, M.B., D.P.H.

J. J. J. sends the following appreciation of the life and work of Dr. John Dick, medical superintendent of St. James's Hospital, Leeds, from 1926 to 1945.

He joined the staff of Firvale—now the City General Hospital—in Sheffield, where, under the efficient tutelage of Dr. James Clark, its distinguished medical superintendent, also a Scot, he learned not only how to apply the knowledge he had acquired in Edinburgh but also how to administer a large hospital, and in a comparatively short time he was promoted to the post of deputy medical superintendent. In 1926 Dr. James Allan, the venerable and well-loved medical superintendent of St. James's Hospital in Leeds, retired, and out of a large number of applicants Dr. Dick was chosen to fill the vacancy. He was then only 32 years of age, which was considered young for the holder of such an onerous post. For the first eight years of his service in Leeds he was an officer of the Public Assistance Committee, and it was not until 1934, when the three hospitals under the control of that committee—St. James's, St. Mary's, and St. George's—under powers conferred by the Local Government Act of 1929, were appropriated as part of the general hospital service of the city, that he was transferred and became a member of the staff of the Public Health Department.

From the outset of his public life his desire was to see St. James's Hospital in the first rank not alone of municipal general hospitals but of all, including the most up-to-date voluntary hospitals, and towards this goal he strove with might and main. At the time of his death the goal was in sight, and he had the satisfaction of seeing the first-fruits of his labours beginning to appear. He reorganized the medical and nursing staffs, modernized and re-equipped the wards, built new operating theatres, pathological, radiological, and physiotherapy blocks, and installed new *x*-ray and electrical apparatus. For the nurses, whose comfort and welfare lay very close to his heart, he provided extended and improved accommodation for living, dining, and recreation, and to assist them in their studies and preparation for their examinations a complete and up-to-date school of instruction. What he did for St. James's he did in a minor degree for the other hospitals under his care. At St. Mary's Infirmary in particular out of a block that had become obsolete he fashioned and equipped on modern lines a maternity unit. Acutely alive to the social implications of disease, he was instrumental in establishing an almoner's department with a staff of trained and qualified almoners to serve all the hospitals in the group.

Perhaps his greatest work, however, lay in his linking up of St. James's Hospital with the General Infirmary at Leeds and the other voluntary hospitals in the city. With skill and tact—for at the inception of the idea there was suspicion on both sides—he overcame opposition and succeeded in bringing the two systems together and interweaving them in such a way as to form a useful and valuable combination. In furtherance of this policy of friendly co-operation he built up a staff of visiting specialists who, in the main, were the same as those attached to the General Infirmary at Leeds and teaching school, thus taking the first step towards the identification of St. James's Hospital with the Leeds School of Medicine in the teaching of undergraduates. That St. James's Hospital should one day become a teaching hospital and enter the ambit of the Leeds University was one of his dreams which may be nearer fulfilment than even he at the time of his death realized. The formation of a Joint Hospitals Advisory Committee, with which he was intimately associated, was another step in the same direction.

The last, and not the least important, of his achievements was the taking over from the Public Assistance Committee in April, 1944, of the buildings known as North Lodge, which adjoin St. James's Hospital, and their appropriation for hospital purposes, thus raising the number of beds in the combined hospitals (North to South) to 1,800, which makes it the largest general hospital in England. Plans for adaptation of the newly acquired buildings have been approved and part of the work has been carried out, but the completion of the scheme will occupy many months. Though the author of these plans and proposals will not see them come to fruition, the hospital when complete will be another monument to his foresight and enterprise. This addition to the territory under his control made it necessary to share the responsibility for the management of the hospitals with another medical superintendent. The hospitals were split into two groups—an inner, consisting of St. James's Hospital (North and South), and an outer, of the other hospitals, now increased to three. While retaining the medical superintendency of the inner group he continued to exercise a general supervision over the whole, under the title of Medical Director of General Municipal Hospitals. The burden resting upon his shoulders, at no time light, was greatly enhanced by the war. He was called upon not only to arrange for the protection of the hospitals from air attack but also to ensure their proper staffing and maintenance under the most trying conditions. St. James's became an E.M.S. Hospital and was adapted to deal with civilian as well as military casualties, while within it there was incorporated a special unit for injuries of the face and jaw, the only one of its kind in the region. For a short period at the beginning of the war he was lent to the Ministry of Health to help in the planning and development of a hospital system for the North-East region.

Nineteen years in the normal span of human life and experience is not a long time, but when those years are packed with high endeavour and great achievement they make history. What Dr. Dick wrought for the advancement of medical science during the nineteen years of his superintendency will form an outstanding chapter in the history of the hospital service of Leeds. In his home life he was fortunate too. If he had given much to St. James's Hospital it did not deal niggardly with him, for it gave him a wife. In Mrs. Dick he had one who not only loved and sympathized but who knew and understood the weight of responsibility he had to carry, and was therefore able to render the help he so much needed, especially during the anxious days of the early part of the war. In the turmoil of life his home was an oasis where he found refreshment, encouragement, and hope. When death came it found him as he would have wished it to find him, at his post surrounded by familiar scenes and sounds and faces in the midst of the institution he knew and loved so well and for which he had laboured so assiduously, so faithfully, and so long.

Dr. THOMAS DIXON TODD died at Wath-on-Dearne on May 23. Before studying medicine he had been a schoolmaster, and for eleven years was senior languages master at Mansfield Grammar School. He qualified M.B., B.S.Durham in 1939, and after a period at Darlington and Ollerton settled in practice at Wath-on-Dearne four years ago. While of a retiring disposition, those who were privileged with his confidence and friendship realized his innate courage clothed with gentleness, his inherent steadfastness concealed under a never-failing courtesy and regard for others. He was held in high esteem by his colleagues and patients, and his untimely death is a grievous loss to the district. Deep sympathy is extended to his nearest and dearest.—I. C.

Universities and Colleges

UNIVERSITY OF OXFORD

In Convocation on May 29 it was resolved to confer the honorary degree of D.Sc. on Hubert Maitland Turnbull, M.D., F.R.S., F.R.C.P., Professor of Morbid Anatomy in the University of London.

Charles Garrett Phillips, B.M., B.Ch., has been elected to an official Fellowship as Lecturer in Physiology at Trinity College. Miss Celia K. Westropp, D.M., has been appointed to a Tutorship in Natural Science at Lady Margaret Hall.

UNIVERSITY OF LONDON

London School of Hygiene and Tropical Medicine

At the end of the present session Prof. Major Greenwood, F.R.S., retires from the Chair of Epidemiology and Vital Statistics at the London School of Hygiene and Tropical Medicine under the age limit. Owing to a change in the distribution of teaching and steady increase in the volume of research work and teaching within the field of medical statistics, the title of the chair has been changed to that of Medical Statistics. Mr. A. Bradford Hill, D.Sc., Ph.D., Reader in Medical Statistics in the University since 1933, has been appointed to fill the vacancy. The Senate has conferred upon the retiring professor the title of Professor Emeritus in Epidemiology and Vital Statistics in the University of London.

UNIVERSITY OF MANCHESTER

At the meeting of the University Court on May 30 Sir John Stopford, the Vice-Chancellor, gave a general survey, in which he said that by December the University would be virtually "unwound" except for certain controls with regard to the admission of students and the completed return of the teaching staff. One of the major problems for a long time ahead would be the finding of new members of staff. Limited accommodation was a secondary difficulty; they were faced by a considerable increase of students to meet the urgent national demand for teachers, doctors, and dentists. Three new chairs had been established, including one in medicine and one in industrial health; the former would be whole-time, as had been contemplated before the war; and the latter was, under Dr. R. E. Lane, the first full professorial department in the subject in Great Britain. The Vice-Chancellor was hopeful that by next September the University would have the financial support needed to start a full professorial department of child health.

UNIVERSITY OF EDINBURGH

Charles Cameron, M.D.Glas., F.R.F.P.S., has been appointed to the Chair of Tuberculosis in the University in succession to the late Sir Robert Philip. Dr. Cameron has been medical superintendent of the South-East Counties of Scotland Sanatorium, East Fortune, for the past 22 years, and took charge of the tuberculosis department at Bangour Hospital under the Emergency Medical Service. He is a past president of the Tuberculosis Society of Scotland.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

The Croonian Lectures, which were unavoidably postponed, will now be given at the College by Surg. Capt. Macdonald Critchley on Tuesday and Thursday, July 10 and 12, at 4.30 p.m. His subject is "Problems of Naval Warfare under Climatic Extremes."

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Sir Hugh Devine's Honorary Fellowship

The President, Sir Alfred Webb-Johnson, Bt., has received from Sir Alan Newton, President of the Royal Australasian College of Surgeons, a letter dated March 19, 1945, in confirmation of a personal message by air mail, recording that H.R.H. the Duke of Gloucester had admitted Sir Hugh Devine as an Honorary Fellow of the Royal College of Surgeons of England at Government House, Melbourne, on Feb. 23. Sir Alan Newton enclosed a copy of his address to the Governor-General of Australia and also of His Royal Highness's reply, part of which was spoken directly to Sir Hugh Devine, a founder and Past-President of the Royal Australasian College of Surgeons, as follows: "The value of your work in the advancement of surgery has been most deeply appreciated and your wise and cautious guidance has been the means of saving many lives during the war—so much so that your counsels have come to be spoken of as the 'Devine Precepts.' Australian surgeons have made most remarkable and stimulating contributions to the science and art of surgery, and none have been more fruitful than your own. It is therefore a special pleasure to me to bring you greetings from your colleagues of the Royal College of Surgeons of England, of which I am myself an Honorary Fellow, and to present you with your Diploma. In the name of the College and by the authority of the President and Council I admit you as a Fellow of the Royal College of Surgeons of England—*Honoris Causa.*" The following is a quotation from Sir Alan Newton's letter to Sir Alfred Webb-Johnson: "May I take this opportunity of emphasizing the fact that my reference to our debt to the Royal College of Surgeons of England expressed the feelings of all the Fellows of the Royal Australasian College of Surgeons. It is our intention to send you a gift of money to help you to repair the damage to the College in Lincoln's Inn Fields and we intend to obtain for you such anatomical and pathological specimens as may be of value to you. Either I or my successor who will be appointed in May of this year will write to you further about these intentions. It was a very great pleasure to us that Surg. Capt. Lambert Rogers was able to be present on this occasion and we look forward to seeing him again at a College meeting to be held in Melbourne in May. There will be a public meeting in the Wilson Hall, where you will remember giving your Syme Oration with such success, and I have arranged for Lambert Rogers to speak at this meeting as a member of your Council. I know that he will make a public reference to the close association between the two Colleges. I trust that you and your Council will approve of the way in which the ceremony was carried out in Australia, and assure you that Devine, and all of us who are his colleagues, are deeply appreciative of the great honour you have done to Australasian Surgery in conferring an Honorary Fellowship upon him."

Medical Notes in Parliament

Artificial Insemination in Animals

Mr. Tom Williams moved on May 17 the second reading of the Agriculture (Artificial Insemination) Bill. He reminded the House that Section 17 of the Agriculture (Miscellaneous Provisions) Act, 1943, had endorsed the principle of controlled development of artificial insemination. Problems still required investigation, such as the keeping quality of semen, insemination methods, and technique, which were unsuitable for investigation at a commercial centre. In Clause 1 of the new Bill the Minister of Agriculture and the Secretary for Scotland sought power to set up artificial insemination centres where research and experiments could be carried on. These centres would also provide a limited service to farmers in the neighbourhood. The clause would also allow financial assistance to be given to organizations or persons undertaking approved investigations. The clause would enable the Ministry to carry out investigations in the case of all animals, including poultry, but not human beings. In England and Wales the Milk Marketing Board were leading in the establishment of artificial insemination centres. The method was going to be of more use for dairy herds than for beef herds.

Mr. Wootton-Davies said the process had been of more use for horses than for cattle. He himself sent to South America semen from his rams. But the House should not approve this method without consideration. The mating of animals was not just like mixing an acid with an alkali. Mr. Price doubted whether the country had stock which could be used with certainty for improving the quality of dairy cattle. Mr. Chapman, replying for the Government, said the two Ministries concerned had arranged, in printed regulations, a thorough control of the practice of artificial insemination.

The Bill was read a second time.

Pneumoconiosis and the Mines Inspectorate

Moving on May 29 a motion to approve the Coal Charges (Amendment) Order, Major Lloyd George said he had many complaints of the food for miners. It was disappointing to find so small a percentage of the mineworkers taking full advantage of the extension of canteen facilities. He wished to say a word about health services. Rehabilitation centres had been greatly increased during the last four years with the aid of the Welfare Commission. With regard to pneumoconiosis which affected miners most in West Wales and South Wales the Ministry of Fuel and Power had been able to increase its staff of doctors, with great difficulty, to reduce the waiting-list It was to have a research centre. There, he hoped, a cure would be found for this disease about which little was known at present. The waiting-list was at one time 3,000. There had been some change since increased medical staff were obtained He hoped to get rid of the arrears in nine to twelve months

Dr. Summerskill asked how many specialists there were for pneumoconiosis. Major Lloyd George said there were four panels. His recollection was that a doctor who was a specialis in the disease was at the head of each. It was difficult to get the right men. He was told that one could not regard the ordinary tuberculosis specialist as having any real knowledge of this extraordinary disease. He hoped after the Japanese war to have the services of many more who had experience of the disease, and also that as a result of putting up a research centre to have a proper clinic and contacts with other countries where the same thing was found in different forms.

Dr. MORGAN asked what steps were being taken to train either young medical men or older men who were experts in respiratory diseases to enable them to get the requisite knowledge of the disease. Major LLOYD GEORGE said there was a great shortage of medical men of all categories. The Ministry had increased the number of panels available. He was anxious to clear off the waiting-list. Dr. MORGAN said that when the Ministry was formed there were about nine medical inspectors for the different mining districts. He did not know the present number. Did their work deal purely with safety arrangements? Had it anything to do with ventilation or humidity? Could the House get any detailed health statistics for the industry as a whole? There were now three teaching schools with professorships of industrial medicine, but no lectureships in London connected with it. Had the Minister a Medical Appointments Board? How did he recruit and train these inspectors? Medical men did not know. What arrangements were being made for the appointment of a Silicosis Board? There should be intensive training, because the more machinery put into the mines the more dust and cases of disease there would be. The Minister's medical inspectors should ensure that when accidents happened the roads were cleared so that the badly injured workman could be got out of the mine easily.

The "Minister of Health"

Mr. CHURCHILL remarked on May 30 that he never liked the change from "President of the Local Government Board" to "Minister of Health," but thought it would be a great mistake to make another change now.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* large increases were reported in the incidence of measles, whooping-cough, acute pneumonia, dysentery, and diphtheria, which rose by 1,714, 269, 101, 91, and 85 cases respectively. Seven cases of typhus fever were notified.

Whooping-cough increased in most areas of the country, the largest rises over last week's totals being Yorks West Riding 37, Lancashire 41, London 29. Diphtheria was most prevalent in the North; the chief local rises over last week's totals were: Northumberland 16, Staffordshire 13, Durham 12, Derbyshire 12, Worcestershire 11. There was a general rise in measles, except in the north. The largest increases were in the counties surrounding London, the increases over last week being as follows: Surrey 233, Kent 163, Buckinghamshire 106, Bedfordshire 102, Berkshire 102, Hertfordshire 99. Yorks West Riding reported a fall of 107 in incidence.

The rise in dysentery was due mainly to increases in existing outbreaks. The largest returns were Lancashire 56, Yorks West Riding 50, Staffordshire 46, London 31, Gloucestershire 24, Middlesex 22, Warwickshire 22, Essex 14, Pembrokeshire 14, Hertfordshire 12, Glamorganshire 11, Kent 10, Southampton 10, Lincolnshire 10.

In *Scotland* notifications exceeded last week's totals as follows: measles 248, whooping-cough 56, scarlet fever 16, diphtheria 9. The increase in measles and whooping-cough was mainly in Glasgow. There was one case of typhus fever.

In *Eire* the notifications of whooping-cough increased by 42, and of measles by 10, but there were 10 fewer cases of diphtheria. The rise in diarrhoea and enteritis—26—was due to an outbreak in Dublin C.B., where 25 of the 36 cases were reported.

In *Northern Ireland* there were 16 more cases of whooping-cough than last week.

Typhus in Paris

Sixty-six cases of typhus have been reported in Paris, 64 of the patients being former prisoners or deportees. In anticipation of returning prisoners spreading infection Shaef ordered all men in rear areas to be inoculated or reinoculated against typhus some weeks ago.

Week Ending May 26

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,295, whooping-cough 855, diphtheria 396, measles 11,408, acute pneumonia 487, cerebrospinal fever 50, dysentery 374, paratyphoid 3, typhoid 8. The cases of typhus during the past weeks have occurred among returning prisoners of war. Anyone entering Britain from the Continent has to undergo a rigorous test for typhus, and special precautions have been taken in case of an outbreak.

No. 20

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended May 19.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	64	2	24	3	—	62	6	20	4	3
Deaths		—	1				1	2		
Diphtheria	498	27	127	59	14	598	23	138	75	55
Deaths	4	—	1	1	1	3	1	2	1	—
Dysentery	434	31	106	12	—	276	18	81	—	—
Deaths				1	—				—	—
Encephalitis lethargica, acute	1	—	—	—	—	—	—	—	—	—
Deaths		—					—			
Erysipelas			40	13	1			44	8	3
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				36					17	
Deaths	51	9	8	9	3	45	9	14	8	4
Measles*	14,126	819	451	63	12	2,255	213	479	211	25
Deaths	3	—	—	—	1	1	—	—	2	—
Ophthalmia neonatorum	78	4	11	—	—	98	6	35	—	—
Deaths										
Paratyphoid fever	2	—	1 (B)	—	1 (B)	3	—	9 (B)	16 (B)	—
Deaths	—	—	—	—	—	—	—	—	1 (B)	—
Pneumonia, influenzal† ..	612	23	7	12	4	806	63	22	8	8
Deaths (from influenza)	13	—	2	—	—	17	2	2	1	—
Pneumonia, primary ..			202	44				205	35	
Deaths		19		11	9		30		9	6
Polio-encephalitis, acute	1	—				1	—			
Deaths		—					—			
Poliomyelitis, acute ..	3	—	1	—	—	5	1	2	—	—
Deaths		—					—			
Puerperal fever		6	7		—		1	12		
Deaths										
Puerperal pyrexia‡ ..	132	11	11	1	—	142	4	16	1	1
Deaths		—					—			
Relapsing fever ..	—	—			—	—	—			—
Deaths										
Scarlet fever	1,340	62	230	12	34	1,733	121	172	20	56
Deaths	—	—	—	—	—	2	1	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	2	—	—	4	2	5	—	2	3	1
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	7	—	1	—	—	—	—	—	1	—
Deaths				—	—				—	—
Whooping-cough* ..	1,068	60	131	77	29	2,619	239	182	38	25
Deaths	7	1	3	—	—	11	4	1	—	1
Deaths (0–1 year) ..	327	42	63	37	25	324	46	79	29	18
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4,314	589	634	231	142	4,077	634	584	222	136
Annual death rate (per 1,000 persons living)			14·4	14·9	§			13·4	14·4	§
Live births	7,729	816	965	394	280	7,339	882	1030	593	350
Annual rate per 1,000 persons living ..			19·3	25·4	§			20·9	—	§
Stillbirths	203	21	38			222	25	30		
Rate per 1,000 total births (including stillborn)			38					28		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

H.R.H. the Princess Elizabeth will present prizes and certificates to students of the London (Royal Free Hospital) School of Medicine for Women on Thursday, June 21, at 3 p.m. in the Great Hall, British Medical Association House, Tavistock Square.

The forty-sixth annual meeting of the Association of Port Health Authorities of the British Isles is to be held in the City Hall, Cardiff, on June 14 and 15. There will be a tour of the docks and visits to the Royal Hamadryad Seamen's Hospital and the Llandough (Cardiff Municipal General) Hospital. Mr. D. G. Hoppins will read a paper on "The Port of Cardiff in Wartime," Mr. J. W. Wellwood on "The State and the Welfare of Merchant Seamen in Ports," and Col. P. G. Stock on "The International Sanitary Convention of 1944."

On Friday, June 15, at 4.30 p.m., a coloured film showing movements of the brain in concussion, etc., will be demonstrated by Lieut. Robert Pudenz, U.S.M.C., at the Royal Society of Medicine. By means of high-speed cinema-photography a monkey's brain has been investigated through a plastic calvarium. Lieut.-Gen. Sir Alexander Hood will preside.

The Queen's Institute of District Nursing Secretaries Association has arranged a National Conference of District Nursing at 10.45 a.m. on Saturday, June 16, in Crane Theatre, Hanover Street, Liverpool. The speakers include Sir Weldon Dalrymple-Champneys, D.M., Miss J. M. Calder, Miss E. J. Merry, and Dr. O. R. Belcher.

The East India Association (3, Victoria Street, S.W.1) announces that on Tuesday, June 19, at 2.30 p.m., at the Rooms of the Royal Society, Burlington House, Piccadilly, brief addresses on "Indian Health Problems: Some Recent Voluntary Efforts", will be given by Lieut.-Col. I. M. Orr, M.D., R.A.M.C.(ret.), Mr. Howard Somervell, F.R.C.S., and the Rev. J. C. McGilvray, bursar of Vellore Christian Medical College.

Lord Moran, P.R.C.P., will deliver the Cavendish Lecture before the West London Medico-Chirurgical Society at Kensington Town Hall on Tuesday, June 19, at 8.30 p.m. His subject is "The Art of Command."

The annual meeting of the Members of the Royal Medical Benevolent Fund will be held at 3.30 p.m. on Wednesday, June 20, at the Medical Society of London, 11, Chandos Street, W.1, when the financial statement for 1944 will be presented and the officers, committee, and honorary auditors elected for the current year.

A clinical meeting of the Middlesex County Medical Society will be held at Harefield County Hospital on Wednesday, June 20, at 3 p.m. Clinical demonstrations will be followed by a short paper by Drs. E. Nassau and P. F. Kennish entitled "An Analysis of Cases Admitted for Treatment from the Mass Radiographic Unit."

A special meeting of Fellows of the Royal Society of Medicine was held on May 24, at which eight elections were made to the Honorary Fellowship of the Society, the highest honour which the Society can bestow. The British recipients were Surgeon Vice-Admiral Sir Sheldon Dudley, Lieut.-General Sir Alexander Hood, Air Marshal Sir Harold Whittingham, and Sir Francis Fraser, respectively Directors-General of the Medical Services of the Royal Navy, the Army, and the Royal Air Force, and the Emergency Medical Service. The four foreign recipients were Colonel V. L. Gallemaerts, Colonel-General Smirnov, Dr. Karl Evang, and Colonel Frantisek Langer, representatives respectively of the medical services of Belgium, Russia, Norway, and Czechoslovakia. At the same meeting it was announced that the 1944–5 award of the Gold Medal of the Society had been made to Brigadier Sir Lionel Whitby. To the presidency of the Society Surgeon Rear-Admiral G. Gordon-Taylor was re-elected for a further term.

Princess Arthur of Connaught was the chief guest at a luncheon party on May 30 at the Mansion House in support of an appeal for funds to rebuild and equip the Marie Curie Hospital for cancer and allied diseases. Another guest was Lieut. Eve Curie, daughter of Mme Curie. The Lord Mayor presided. The main building of the hospital in Fitzjohn's Avenue, N.W., was totally destroyed by enemy action, and the x-ray wing was seriously damaged.

The difficulty of ridding clothing, etc., of lice and their eggs by baking the articles at a temperature of 212° F. for twenty minutes is that clothes—woollen articles particularly—are good insulators. The Industrial Gas Centres of the Gas, Light and Coke Company and the South Metropolitan Gas Company have provided a means of heating a disinfestation oven—a brick chamber open at each end, through which a conveyor carrying frames for the clothing and blankets is passed. Information on the method of heating, safety devices; and the tests of efficiency of the oven in killing lice and their eggs carried out by Dr. Busvine are contained in a memorandum received from Gas Industry House, London, S.W.1.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Disappearance of Psoriasis in Pregnancy

Q.—*A woman aged 22 had psoriasis in head, neck, elbows, and knees. Various treatments improved the condition, but it always returned. She got married and became pregnant; the rash disappeared at once, but reappeared soon after the baby was born. She has now had three confinements, and the same disappearance and return of the rash has happened each time. Would treatment with the male hormone be of any use? Possibly someone has already had similar cases, and treated them with a hormone.*

A.—Disappearance of the rash of psoriasis during pregnancy is met with occasionally. As it is not a constant phenomenon and as the reverse may occur, the interpretation in the light of present knowledge is difficult or impossible, and affords no precise indication for hormonal treatment.

Humidity of Temperature of Inspired Air

Q.—*In the B.M.J. of March 10, in reply to a question on air conditions and chronic bronchitis, it is said that the bronchial mucous membrane is atrophic and therefore unable to deal satisfactorily with changes of humidity and temperature. Is it ever the function of the bronchial mucous membrane, even when healthy, to affect the humidity and temperature of inspired air? Is this not the function of the mucous membrane of the nose, where the turbinate bones, acting like baffles, enforce a more prolonged contact of the incoming air with warm and moist mucous membrane? In my experience chronic bronchitics are unconscious and unwitting mouth-breathers in that automatically, before each act of coughing, air is inspired through the mouth, although the nose itself is free and unblocked. Automatically the nose, the natural air-conditioning plant of the body, is by-passed. Chronic bronchitics should, therefore, be taught to close the mouth at the end of each act of coughing and inhale slowly through the nose.*

A.—Normally, with quiet breathing, the nasal mucosa serves to warm and moisten the inspired air; but when the ventilation volume is increased, as during exercise, air is taken in also through the mouth and it is likely that part of the moistening and warming occurs in the lower respiratory passages. Even the atrophic mucosa must be warm and moist and able to exert some effect on the inspired air. But in doing so the mucosa loses water and heat, and it is unlikely that the atrophic mucosa can replace them as rapidly as the normal mucosa can. During coughing, as your correspondent says, air is likely to be inspired through the mouth. It is the drying of the atrophic mucosa and consequent irritation which should be avoided. Nose breathing should help to prevent this, but whether slow inhalation through the nose is always possible when coughing is reflexly induced is open to question. However, there seems to be no harm in trying.

Giant Urticaria

Q.—*A young farmer suffers from chronic urticaria; his eyelids, lips, and tongue swell, and wheals have appeared over his body, the largest being the size of a dinner-plate. Attacks occur most often in the evening. During the day he is usually free. No treatment is of any avail. What should be done?*

A.—Chronic urticaria, with or without "giant" lesions, may be related to many factors, among which focal infection, food allergy, or a psychological disorder may be the determining causes. It is remarkable how the removal of an infected tooth or the elimination of some unsuspected article of food may sometimes produce complete relief. As all physical measures of treatment have failed, psychotherapy should be considered. The possibility of oedema of the glottis should be kept in mind: severe attacks can be often reduced by 5 minims of adrenaline injected hypodermically and repeated every 15 minutes up to a reasonable limit.

Chronic Sinusitis and Swimming

Q.—*Is it safe to permit swimming in the case of a sufferer from chronic maxillary sinusitis? (I take it diving is absolutely contra-indicated.)*

A.—It should be safe to permit side and breast stroke; but such racing strokes as trudgeon crawl would be as risky as diving. In a small bath there would be some risk to other bathers, however.

Professional Secrecy and the Law

Q.—*As an M.O. at a mental hospital, am I legally entitled to tell the wife of a patient recently admitted the diagnosis of G.P.I., suggesting that she gets herself examined? Should I do this even if she is not under my medical care?*

A.—The test of the legality of an action is not whether it is specifically permitted by law but whether it is forbidden, or whether an action can be founded on it. In the present case there are two possibilities. (1) The doctor may be breaking a duty of secrecy; (2) he may be committing an actionable defamation. The duty of secrecy at law, apart from medical ethics, is not clearly laid down, and much doubt is felt whether it exists. Even if it does, it may surely be overridden by the need to protect the wife's health. Secondly, although to state of a man, either orally or in writing, that he is suffering from G.P.I. is doubtless defamatory, and gives a right of action, the action would fail if the doctor showed that his statement was true, or that it was made reasonably and in good faith to protect the wife's health.

Safe Milk for Children

Q.—*At what age would you allow a child to take unboiled milk? One may bring up a baby and infant on boiled or pasteurized milk, but obviously one cannot continue in modern society doing so indefinitely.*

A.—The short answer is that a child should have boiled milk until he is about 2 years of age and thereafter milk that has been efficiently pasteurized. It is surely easier to do this in "modern society" than in the last century—for example, since much more milk is now pasteurized. Moreover, legislation has been passed to make it compulsory, as soon as plant and personnel are available, for all milk to be pasteurized except from T.T. and "accredited" cows. When this becomes the practice all over the country the risks of liquid milk—not only for children—will be avoidable. Meanwhile, all milk for children should preferably be heat-treated. What the questioner is worried about probably is what happens when the child goes out to tea, or on holiday, or to a restaurant, or has milk at school. Procedure recommended in these situations is as follows: Tea parties, child take his own milk; holidays, especially if on a farm, milk to be boiled (a useful excuse is that it is too rich); at a restaurant—in London and large cities it will probably be pasteurized milk anyway, and if there is any doubt about it ask for it to be boiled or give the child something else; at school, inquire if the milk is pasteurized, and, if not, arrange for the child to have it boiled or as cocoa.

Acute Aspirin Poisoning

Q.—*Would you please state the symptoms of acute aspirin poisoning? Is there any evidence to prove it is a cumulative drug?*

A.—The symptoms of acute aspirin poisoning are those of salicylism. Deafness and headache occur first, and if the drug is continued or larger doses are given the patient suffers from vomiting, unconsciousness, delirium, dyspnoea, and deepened respiration. The pulse weakens and becomes irregular, epistaxis is common, and haemorrhage may occur from other parts of the body, such as haematuria and retinal haemorrhage. Idiosyncratic reactions may occur such as urticaria, erythema, or purpura. About 10% of asthmatics are aspirin-sensitive and develop violent paroxysms of asthma after taking the drug. A local gastric reaction may give rise to haematemesis. Aspirin is not cumulative in the ordinary sense—i.e., the drug itself does not accumulate in the body—but it may produce a cumulative effect by its action on the prothrombin of the plasma. Salicylic acid is related to the anticoagulant substance dicoumarol, and it is possible that continued dosage with aspirin might lower the prothrombin level to a haemorrhagic level.

Orchitis without Parotid Enlargement

Q.—*In a recent mumps epidemic in my unit (about 50 cases) I saw two cases of orchitis without any history of parotid enlargement, fever, sore throat, etc. Is this to be expected, or is it very unusual?*

A.—The mumps virus has particular affinity for certain tissues, which include the meninges, salivary glands, pancreas, testicle, and ovary. Normally the susceptibility of the salivary glands is much higher than testicular tissue; hence the virus tends to settle there first; but this is not invariably the sequence. Thus (*a*) orchitis preceding salivary gland involvement and (*b*) orchitis as the only manifestation of mumps have been encountered in the past. Both are uncommon. The factors which favour occasional resistance of all the salivary glands are unknown, but testicular susceptibility appears to bear a fairly close relation to sexual activity.

Prolactin

Q.—*Is there a lactogenic hormone which can be administered at parturition to stimulate the milk yield of the breasts in an otherwise normal woman of 35 years? Do the results justify the use of such a preparation?*

A.—There is a lactogenic hormone, usually called prolactin, secreted by the anterior lobe of the pituitary, and it is in large measure responsible for the initiation of lactation after parturition. It is available for clinical use and is administered by intramuscular injection. To stimulate lactation, treatment should be begun within a few hours after delivery rather than during labour, and a total of at least 1,000 i.u. should be given in divided doses during the first forty-eight to seventy-two hours—say, five injections of 200 i.u. each. The effect of such treatment is extremely variable and is, in any case, difficult to assess. There is good reason to question whether it is worth while, particularly as local reactions to the injections are not uncommon. However, the time is not ripe for a definite conclusion as to its merits, and meanwhile it is a treatment worthy of trial in special cases.

Nausea in Carcinoma of Stomach

Q.—*I am suffering from an advanced degree of cirrhous carcinoma of the stomach. My latest symptoms have been constant feeling of nausea with bouts of violent retching, with no result except frothy mucous. I have to take morphine occasionally, and this makes it worse. Can you suggest anything for my relief?*

A.—Morphine is rather apt to provoke vomiting, even in normal people. To prevent this it may be combined with atropine gr. 1/100, or dilaudid may be substituted, or opium by mouth. Wartime experiments on air-sickness and sea-sickness suggest that the two most effective remedies against nausea are barbiturates and hyoscine. Barbiturates usually have to be pushed to a sufficient degree to produce sleepiness, but hyoscine hydrobromide gr. 1/100 by mouth may relieve nausea and allow normal activity. It may be repeated two or three times daily. Lavage with a dilute solution of sodium bicarbonate, a teaspoonful to the pint, is the classical remedy for nausea and vomiting in carcinoma of the stomach; with practice it is not distressing and may be repeated two or three times daily. Injection of vitamin B_1 has been favourably mentioned, and older-fashioned remedies are tincture of nux vomica, 5 to 15 minims before meals, or a few drops of chloroform on a lump of sugar. Alvarez states that some women are able to relieve menstrual nausea by overbreathing till they become dizzy.

Sterilizing Paraldehyde

Q.—*In order to avoid any risk of injecting claustridia spores when giving intramuscular injections, how should paraldehyde be sterilized to avoid decomposition by oxidization?*

A.—The only method of ensuring the sterility of fluids which cannot be autoclaved is by filtration. Whether this is necessary is another question. We know of no evidence bearing on the possible bacterial contamination of paraldehyde, and of no record of an infection produced by injecting it; this, however, may only be because the practice is uncommon.

Haemoglobin and Plasma Protein Estimation

Q.—*Major-Gen. Ogilvie, in his article on May 5, speaks of bedside methods of estimating haemoglobin and plasma protein which have only been available within the last two years (paragraph on general health of the injured, p. 620). To what method does he refer?*

A.—The new methods referred to are those based on the determination of the specific gravity of whole blood and plasma by the copper sulphate method. This is based on the facts that plasma or whole blood dropped into a solution of copper sulphate of known gravity is encased in a sack of copper proteinate, and the gravity of this discrete drop is not changed for about 15 seconds. The rise or fall of the drop during this interval shows whether it is lighter or heavier than the solution. Copper sulphate solutions of known gravity are made with precision by diluting a stock solution, which is prepared either from weighed amounts of crystalline copper sulphate or from measured volumes of saturated copper sulphate solution. Standard copper sulphate solutions with gravities graded at 0.001 intervals suffice to measure the gravity of blood or plasma to ± 0.002. Three or four drops of blood or plasma and about a minute of time suffice for a determination. No temperature controls are needed. Line charts have been prepared for quick calculation of plasma proteins from plasma gravities, and of haemoglobin and haematocrit values from combined plasma and whole blood gravities. The haemoglobin values thus estimated appear, from comparison with precise oxygen capacity determinations, to be as accurate as haemoglobin values determinable by the better types of colorimetric procedures. The haematocrit values are less accurate, but are useful unless blood conditions are present which alter the specific gravity of the cells. If the blood cells are normal, cell counts also can be estimated from blood and plasma gravities. The technique is described in great detail in a paper from the Rockefeller Institute for Medical Research by R. A. Phillips, D. D. van Slyke, V. P. Dole, K. Emerson jun., P. B. Hamilton, and R. M. Archibald. Copies of the paper may be obtained from the Josiah Macy Jun. Foundation, 565, Park Avenue, New York 21, N.Y., U.S.A.

Care of Artificial Eye Socket

Q.—*What is the proper procedure for the day-to-day care of the socket in which an artificial eye is worn? Is it usual for there to be some redness and discharge in hot or smoky atmospheres? And, if not, what should be the treatment?*

A.—The amount of care required by an artificial eye depends upon the accuracy of the fitting. The better the fit the less trouble the eye will give. The eye should be taken out at night and the socket washed out with lotio acid. bor. night and morning. If there is a discharge, zinc sulphate gr. 1/4 should be added to the ounce of lotion. Any tendency of the lids to stick together in the morning should be combated by the application of clean vaseline to the roots of the lashes last thing at night. If the surface or edge of the eye should become rough, it should be repolished, or a new one obtained.

Local Sulphonamide Therapy

Q.—*What is the present view on local sulphonamide therapy? Is it contraindicated in all cases because of the danger of a patient developing hypersensitivity, or are some of the series worse, and/or some local conditions more prone to develop these? How would you desensitize a case?*

A.—Sensitization to sulphonamides has been observed chiefly after the powdering of wounds. Whether the amount used or nature of the lesion treated determines this effect is not clear. It seems probable that sensitization in these cases was made manifest only because so many of them were subsequently given sulphonamides by the mouth; after other forms of local use such treatment is much less likely to be given.

Whether the powder treatment of battle wounds has or has not been of value is one of the largest unanswered questions facing the medical historian of the war. The original evidence in favour of its use as a prophylactic in compound fractures in civilian practice appeared sound. For the more specific purposes of treating impetigo, a localized peritonitis, or an infected granulating area requiring a skin graft, local sulphonamide treatment is undoubtedly valuable. Penicillin will do most of these things even better, and is hence likely to supersede the sulphonamides in local treatment when supplies permit.

I know of no method of de-sensitization. (See also reply to a question published on Oct. 23, 1943, p. 533.)

INCOME TAX

Retirement from Partnership

"X. Y." ceased to be a member of a partnership as from March 1, 1945. He asks, "Am I liable to any income tax on the receipts for the last year?"

*** He is not liable to income tax on the source of income after March 1, 1945. The assessment for 1944–5 (presumably made on the basis of the earnings of the firm for 1943) covers the liability of all members of the partnership up to April 5, 1945. "X. Y." should therefore bear only tax on 11/12ths of his share of the 1944–5 assessment, and is not liable for any part of the tax to be assessed for 1945–6 on the basis of the earnings for 1945.

Purchase of Share of Book Debts

"BEE" bought a share in a partnership, paying £200 for a share of the book debts. Can he claim any deduction for this payment, seeing that he has to pay tax on his share of debts recovered by the firm?

*** No. The firm is presumably assessed on the basis of cash receipts, otherwise the point would not arise. The tax which "Bee" pays does not relate in fact to the debts he purchased; they may be included in calculating the profit for tax purposes, but the tax is paid for the year of assessment. If and when "Bee" sells his share of the partnership debts, he will not be liable to account for tax on the amount received—that will be a receipt of capital, just as the £200 is a payment of capital.

LETTERS, NOTES, ETC.

Health Education Lectures

Dr. ROBERT SUTHERLAND, medical adviser and secretary, Central Council for Health Education, Tavistock House, Tavistock Square, W.C.1, writes: I should be grateful if you would let your readers know that this council has now a balanced team of technical officers whose services are available to local authorities, educational institutions, and voluntary organizations for help in their health education work. This team consists of medical men and women with specialized experience in different health fields, two biologist-educationists, and an educational psychologist. Between them these officers are competent to cover most aspects of health and health education. Any of your readers who feel that they could make use of the services of these lecturers in any health education they may be carrying out can get further information from me.

Antiscorpion Serum

ALLEN AND HANBURYS LTD. write: In the *Journal* of April 28 (p. 618) Dr. Frank Marsh mentions that an antiscorpion serum was made before the war. We should like to point out that the Lister Institute makes a concentrated multivalent antiscorpion serum which we issue. This serum is obtained from horses that have been immunized against the venoms of the scorpions *Buthus quinquestriatus, Prionurus citrinus,* and *Buthus maurus.* The dose is the contents of one phial.

Clinical Photography

Dr. FRANK R. NEUBERT (London, S.W.15) writes: The medical profession has given surprisingly little attention to the art of clinical photography. Students are still entertained during lectures by lantern slides and epidiascope pictures which would, as often as not, disgrace the merest tyro in photography. Lecturers suffer them because they either illustrate, however badly, some rare condition about which they wish to speak, or are the only slides available. No general attempt is made to take advantage of modern photographic technique to produce pictures which would illustrate cases more clearly and add to the interest of the lesson. The same standard is accepted in illustrating textbooks, although modern works on dermatology provide exceptions, and some books on surgery owe much of their popularity to the quality of the illustrations. This state of affairs is due to the fact that, although most institutions have photographic apparatus of sorts, the men who use it are invariably laboratory assistants whose knowledge of and interest in photography are *nil*. Many doctors (whose work is shown regularly in salons and exhibitions) are expert photographers, and it is regrettable that more of their skill is not devoted to use of the clinical camera. Some diseases of which there are no good photographic records are gradually passing from our clinical ken. An opportunity exists for some firm or body interested in photography to compile a library of kinematic and static photographs, both in colour and in monochrome, from which writers and lecturers could obtain illustrations more worthy of modern medicine.

A Missing Infant

L. CLARE, divisional detective inspector, "D" Division, Metropolitan Police, Albany Street Police Station, N.W.1, asks us to state that about 4.30 p.m. on April 16 Maurice Stephen Jakubowicz, aged 8½ months, hair dark and sparse, eyes brown, well nourished, circumcised, vaccination mark on left arm, rash mark on both temple and back of head caused by eczema, top of left ear turned down was stolen from his perambulator outside Pemberthy's, 399, Oxford Street, W. Despite numerous inquiries this child is still missing, but on the same day its clothing was found near a static water tank a the back of Selfridge's. The tanks at the rear of Selfridge's hav been emptied without any further discovery. A photograph of the child appears outside every police station in the Metropolitan District, and all country forces have been given particulars and photograph. "It is thought that the child may be in need of medical attention, and therefore could you, in order to assist us, bring t the notice of your readers the fact that the child is still missing and how gladly we would receive any information. The father o the child is serving in the British Army, and is returning to th Continent shortly."

Disclaimer

Dr. W. EDWARDS (Ashtead) writes: May I disclaim responsibilit for the sensational article about myself which appeared in one o the Sunday papers on June 3? A reporter came during my morning surgery and produced the letter by me which appeared in las week's *B.M.J.* I understood he wished to quote it, and, as it ha been published, he plainly had every right to do so, whether objected or not. After leaving me he went on to the factory mentioned, where he obtained the story he actually wrote; but I knew nothing about this until it appeared in print.

Correction

We must apologize for a slip in the preparation of Dr. Pallot' letter for press (May 19, p. 714). His reference was to *Mrs.* Isab Wilde.

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DIODOQUIN FOR CHRONIC AMOEBIC DYSENTERY IN SERVICE PERSONNEL INVALIDED FROM INDIA

BY

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The problem of treating resistant amoebic dysentery cases is arousing great interest both in the Services and in civil life, and it is felt that a report on the trial of an amoebicide, new so far as this country is concerned, is worth recording, although it is realized that sufficient time has not yet elapsed to be sure of the prospects of a complete cure in the present series of cases. Two of them had received no previous specific therapy, but all the others had had repeated maximum courses of emetine injections (12 gr.), with or without any further gut-sterilizing treatment such as emetine bismuth iodide (E.B.I.) by mouth combined with yatren retention enemata, and all these cases had experienced anything from 3 to 9 relapses before treatment with diodoquin. The majority had received carbarsone or stovarsol and numerous courses of sulphaguanidine or sulphapyridine. These cases had become resistant, and it was felt that the best prospect of cure was to try some other amoebicidal drug chemically as far removed from emetine, or one of the arsenicals, as possible. On discussing our problems the Director-General of Medical Services obtained for us a supply of diodoquin (5,7-diiodo-8-hydroxyquinoline), a product of the Searle Laboratories of the U.S.A., which had been introduced in that country since 1935 and appeared to be the most promising of the oxyquinoline compounds. It had been reported on very favourably by Craig (1937) and D'Antoni (1942).

Properties of Diodoquin

Diodoquin is a tasteless non-toxic compound containing 63.9% iodine, while chiniofon and vioform contain 28.9% and 41.5% iodine respectively. Diodoquin is extremely insoluble in water, dilute acids, or alkalis; because of its insolubility it does not produce the unpleasant purgation often experienced with the use of the other hydroxyquinoline compounds when given orally. The makers state that it is not absorbed, but David, Phatak, and Zener (1944) found that in some cases it gave rise to pruritus ani, which developed on the 4th to 5th day of administration and persisted for some days after the drug was stopped; no symptoms of iodism were observed, and increases in the blood iodine level were very irregular, varying from 45.6 micrograms to 437.25 mg. in man and experimental animals. Their conclusions were that the toxicity of an insoluble drug like diodoquin may depend on such factors as hyperacidity or intestinal stasis rather than on the actual amount of drug administered. In the present series of 78 cases two cases of intolerance were observed and two patients complained of mild pruritus ani; in no case were there any serious after-effects, and the patients were pleasantly surprised, after their previous experiences with emetine and E.B.I., at the non-toxicity and efficacy of the new treatment. Diodoquin is opaque to *x* rays, and radiographs show an even distribution throughout the large bowel. Lamblia are not affected by diodoquin, but Hummel (1940) states that *Balantidium coli* responds well to treatment with the drug.

Treatment

Three tablets of diodoquin, 3.2 gr. each, three times a day for 20 days, was the standard dosage adopted. In addition, in another series of cases the diodoquin was combined with yatren retention enemata for 10 days, and a small series showing either amoebic hepatitis or other evidence of deep infections received emetine injections as well. A small control series treated with the standard combined E.B.I. and yatren course is included for comparison; there was no selection of cases for this control course. All patients were sigmoidoscoped before and after treatment, and in 15 cases treatment was carried out on the typical sigmoidoscopic appearances alone, the stools being negative, although in all these 15 cases *Entamoeba histolytica* had been found previously.

Series I: Cases treated with diodoquin alone by mouth.—26 cases were treated with diodoquin alone—three tablets t.d.s. for 20 days. 17 cases were apparently cured, and follow-up examinations of 3 stools were negative two months after discharge from hospital. Two of these cases had received no previous treatment for dysentery. In addition, three cases with positive sigmoidoscopic findings but with negative stools were treated, and the lesions had healed at the end of the treatment. There were two relapses, and four cases were resistant to treatment. In one case active entamoebae were present at the end of the course. In another, ulcers were still unhealed at the end of one course. In a third, amoebic abscess of the liver developed three months later, although the stools were negative on readmission. One patient had an acute relapse, with active entamoebae. This was a very chronic case which had previously had nine relapses after E.B.I., yatren, etc. Another patient had petechial haemorrhages present in his rectum at the end of one course, although his stools were negative; these had disappeared after a second course. One case relapsed four months after treatment.

Series II: Cases treated with diodoquin for 20 days + yatren retention enema for the last 10 days of the course. This treatment was initiated as it was felt that lesions in the rectum might not be exposed long enough to diodoquin in the lumen of the bowel and that this was probably the cause of the relapse in the cases treated with diodoquin alone by mouth. Logically, one should have treated these cases with diodoquin retention enemata. This was done successfully in one case, but as supplies of the drug were restricted it was not possible to use this method in the other cases. 39 cases were treated. Enough time has not yet elapsed for a two-months follow-up in all cases, but the results to date are as follows: Cures, stools positive for *E. histolytica* before treatment, 22; cures, stools negative before treatment, but sigmoidoscopy typical, 8; resistant, 2; relapses, 7.

Series III: Emetine hydrochloride, 6 to 10 gr. by needle + diodoquin concurrently by mouth for 20 days; the last 10 days the patient received yatren retention enemata without a preliminary bowel wash-out.—This treatment was carried out in those cases showing symptoms of hepatitis, gross deep ulceration of the rectum, or a marked leucocytosis. 13 cases were treated, but follow-ups are not yet due in all of them. Results: Apparent cures, stools positive for *E. histolytica* before treatment, 9; apparent cures, stools negative before treatment, 2; relapse, 1; resistant, 1. In one case petechiae were present in the rectum; after one course this patient was given E.B.I. and yatren, and a further sigmoidoscopy showed a normal mucosa.

Series IV: Emetine bismuth iodide + a cleansing bowel wash-out with 2½% sod. bicarb. solution, followed by 250 c.cm. of a 2½% solution of yatren as a retention enema and 10 days' carbarsone, 4 gr. b.d.—Standard combined course: Emetine bismuth iodide, 3 gr. in cachets by mouth, together with a cleansing bowel wash-out of 2½% sodium bicarbonate, followed an hour later by 250 c.cm. of 2½% yatren, which is retained for 6 to 8 hours. This is carried out for 10 days and is then followed by carbarsone, 4 gr. b.d. for 10 days. In this series 24 cases were treated; 18 were cured, 6 relapsing. There were 3 primary cases, which were all cured. Two of the relapsed cases were cured with diodoquin. In 5 cases examination of the stools was negative, but sigmoidoscopy showed either ulcers or active pits. Two cases were most resistant to all forms of treatment. One has since apparently recovered with a high-protein diet and vitamin B_2+liver injections, and is back to full duty but under surveillance. The second is still under treatment. A roster of cases is being kept, and a follow-up of stools at two-monthly intervals after treatment is being carried out as a routine in all cases of dysentery however treated.

Results

Series I and IV have been observed and had 3 stools examined two months or longer after discharge from hospital. Series II and III have not all completed their period of surveillance since discharge from hospital.

Series	Apparent Cures	Resistant at End of Course	Relapses	Approximate Percentage of Failures After One Course
I	20	4	2	23
II	30	2	7	23
IV	18	1	5	25

Results of Series III are not included owing to the small number of cases.

Intolerance to Diodoquin

Two cases of intolerance to the drug were encountered.

Case 1.—A patient was being treated on his sigmoidoscopic appearances. Localized hyperaemia was present in his rectum, but stools and swabbings were negative. On the 14th day of treatment with diodoquin he had abdominal pain, diarrhoea, and blood and mucus in his stools, which were full of *E. histolytica*. He responded well to emetine and a second course of diodoquin and yatren enemata, with no further ill effects and apparent cure.

Case 2.—A severe case showing numerous ulcers with Dyak hair sloughs in his rectum and active *E. histolytica* in his stools. On the 14th day of the course he complained of abdominal pain, diarrhoea, and headache. The diodoquin was stopped, and the symptoms were rapidly relieved by emetine. A further course of diodoquin, E.B.I., and yatren was well tolerated, and sigmoidoscopy showed complete healing of the ulcers.

Records of Two Chronic Cases

The histories of two severe cases are given below; one was treated with diodoquin alone, the other received a course of emetine+diodoquin. These cases are worthy of record, as the first exemplifies how, by erratic and insufficient initial therapy, a case is rendered emetine-resistant, and how quickly it responds to treatment with diodoquin. The second is of interest because of the long-standing and atypical nature of the symptoms and the rapid response to specific treatment once the correct diagnosis was made.

Case 3.—Man aged 29. The first attack started in July, 1942, in India, the patient having been over-seas since Jan., 1942. Typical onset, with abdominal pain and bloody diarrhoea; 10+ stools a day. Treatment was as follows: First attack, 4 injections of emetine hydrochloride and 3 days' carbarsone. First relapse (24/7/42), salts only; second relapse (12/8/42), salts only; third relapse (19/9/42), salts only; fourth relapse (12/10/42), 12 injections of emetine hydrochloride; 6 days' carbarsone. Fifth relapse (12/1/43), 12 injections of emetine hydrochloride; 10 days' E.B.I. Sixth relapse (12/3/43), 12 injections of emetine; 14 days' retention enemata (? type); 14 days' N.A.B. retention enemata. From this relapse until landing in England on Jan. 5, 1944, he had several further relapses and was under almost continuous treatment. Nothing brought about any great improvement with the possible exception of the first few emetine injections in each course; for after complete 26-day courses active entamoebae were still found in the stools. On arrival in the United Kingdom he felt better, and stools were negative. In Feb., 1944, he had diarrhoea, with blood and mucus. Treated with emetine hydrochloride, yatren, and E.B.I. at a Service hospital, stools were negative after 7 weeks. In June he relapsed again and active entamoebae were present. He was transferred to another Service hospital. The liver was then found to be enlarged 2 in. below the right costal margin. White cells, 11,600, with a normal differential. Treated with emetine hydrochloride 1 gr. for 3 days; followed by E.B.I. 3 gr. for 7 days, together with 2% stovarsol retention enemata; followed by carbarsone 1 tablet b.d. for 10 days. Stools were then negative, but in view of continued liver enlargement it was decided to give 10 further injections of emetine hydrochloride, followed by 7 days' E.B.I. and stovarsol enemata. At the end of these two courses active entamoebae were still present, and sigmoidoscopy showed typical amoebic ulceration on the posterior wall at 12 cm. A full course of diodoquin was then started (3 tablets t.d.s. for 20 days). On Aug. 27 the course was concluded; 4 stools were negative for *E. histolytica* and macroscopically normal in every way. The liver was not palpable. White count normal. There were no ill effects from diodoquin therapy. Further follow-ups two months later were negative.

Case 4.—Man aged 43. From 1919 to 1921 he was in India in the Army, and had had a few attacks of diarrhoea, in one of which he noticed blood and mucus. He was treated with castor oil and some white powder. He returned to England, was demobilized, and worked first of all for 10 years as a salesman and then for 10 years as a bus conductor in London. On Oct. 15, 1941, he enlisted in the R.A.F. He suffered all this time from recurrent bouts of diarrhoea, during which he sometimes noticed blood and mucus in the stools, and for 15 years was treated by his own doctor. He states that the attack started with a "terrific pain" in the abdomen, vomiting, and then diarrhoea, which relieved the pain. He was given castor oil and bismuth and placed on a milk diet; the symptoms would then subside in two to three days and he would be free from further attacks for three months, during which period he would pass one formed stool a day. He had never had a stool examined or been sigmoidoscoped, but got into the habit of treating his attacks himself without calling in his doctor. He served in Canada in the R.A.F. from 1943 to Oct., 1944. On his return the attacks became more severe and he reported sick to his Station M.O., who examined his stools and found numerous active *E. histolytica;* he was admitted to hospital. On examination he appeared to be prematurely aged. His abdomen was generally tender to palpation, especially over the sigmoid, which was thickened, and his liver was palpable and tender 2 in. below the costal margin. On recta examination a fungating, soft, acutely tender mass could be felt some 4 in. from the anus; it was suggestive of an adenocarcinoma A proctoscope revealed an intensely hyperaemic mucosa with typical raised crateriform ulcers and a protruding ulcerated mass at 4 in suggestive of a neoplasm or amoeboma; numerous active entamoeba containing red blood corpuscles were easily obtained on gently scraping this mass. The patient was given six daily 1-gr. injection of emetine together with three tablets of diodoquin daily for 2 days; in addition, he was given 200 c.cm. of 2½% yatren as a reten tion enema from the 6th to 20th days without a preliminary bowe wash-out, and stovarsol 4 gr. b.d. from the 20th to 30th days. O sigmoidoscopy on the 30th day a linear healing ulcer was seen a the site of the amoeboma; this was painful to the touch, but th sigmoidoscope was passed to 25 cm. and revealed no evidence o further ulceration although the mucosa was lax and rugose. H was sent on 14 days' sick leave, and on his return sigmoidoscop showed that the ulcer was completely healed, but the mucosa wa granular and hyperaemic at the site of the ulcer, although his stool were completely negative. His liver was no longer palpable o tender, and he said he felt a new man. In view of the long-stand ing history it was considered advisable to give him a 10-day cours of E.B.I. and yatren. On examination three months later sig moidoscopy revealed a normal mucosa, and six consecutive stool were negative.

Conclusions

The claims as to the efficacy of diodoquin in amoebias advanced by the makers have not been fully substantiated s far as the treatment of chronic amoebiasis is concerned, a approximately one-third of the cases have relapsed. The dru however, is very useful in cases in which, owing to inadequat treatment consisting of repeated courses of emetine hydr chloride by the needle, the entamoebae appear to have becom temporarily emetine-fast. Here a course of diodoquin has o many occasions effected a dramatic cure clinically, and in 77 of a small series of cases this cure appears to have been perma nent. The administration of a new well-tolerated drug suc as diodoquin has a good moral effect on patients who have pr viously had repeated courses of a depressing drug such as E.B. especially when they notice rapid clinical improvement follov ing its use. There is reason to believe that in these resista cases a synergistic effect is produced by diodoquin that rende their entamoebae once more sensitive to emetine. The greate advantage of diodoquin is that it can be taken concurrent with emetine injections in cases of amoebic hepatitis, theret saving time, and I feel that this is its most useful role in t treatment of active amoebiasis over-seas. I would, howeve suggest a course of 6 injections of emetine hydrochlori ogether with 3 tablets of diodoquin t.d.s. for 20 days, in a ontrolled series of primary acute amoebiasis over-seas, to be ompared with a similar series treated with emetine, E.B.I., and atren. In chronic established infections a cure will eventually e effected by a blunderbuss therapy of courses of E.B.I. orally nd yatren enemata, followed by the 20-days standard course f diodoquin and ending with a 10-days course of stovarsol r carbarsone. The diet, a non-residue one, should be as ourishing as possible; it should contain a relatively high proortion of animal protein supplemented by vitamin preparaons containing the B_2 complex. A course of sulphasuxidine,) eliminate secondary bacterial invaders, should be given, and cently penicillin has been successfully used in severe cases r the same purpose, although neither penicillin nor sulphaxidine has any direct amoebicidal effect.

Summary

Diodoquin appears to be the best of the oxyquinoline group of ugs in the treatment of amoebiasis, and is a valuable addition the therapeutic remedies available for the treatment of this sidious and intractable disease. It is non-toxic in therapeutic ses, and is well tolerated in all but a small minority of cases.

The practice of treating amoebiasis with emetine alone cannot too strongly condemned; only a small percentage of cases are red, and the vast majority are rendered more resistant to further eatment with emetine and less amenable to treatment with any her available drugs.

I wish to thank the Director-General of the R.A.F. Medical Serces for his interest in these cases and for obtaining the supplies diodoquin. I am indebted to Fl. Lieut. Daly, R.A.F.V.R., who as the medical officer in charge of the wards, for his careful cording and helpful criticism; to Miss Sage, senior laboratory chnician, for her painstaking examination of countless specimens; d to Sgt. Greenfield, A.G., laboratory technician, for his technical sistance.

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ESTORATION OF DIPHTHERIA IMMUNITY WITHOUT INJECTIONS

TOXOID PASTILLES BY MOUTH

BY

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ave long sought a means of immunization whereby injections uld be avoided entirely, but up to the present time I have t met with this degree of success. If, however, one could vise a method of *re-immunization* which could be applied to der children and adults without the production of functional sturbances of any kind a very considerable advance would ve been made.

So far as can be seen at present, the future of diphtheria munization will be concerned mainly with the treatment of ants aged 1 year, or slightly less. At this time of life the thod of administration is likely to continue to be the injecn. Considerable dosage of such antigens as A.P.T. can as rule be given without causing constitutional disturbance of y kind, at the same time bestowing an effective basal immuy. It is usually considered desirable, at the beginning of ool life, to boost this immunity by means of a further injecn of A.P.T., and this can generally be administered to young ojects without fear of producing sore arms or other ill effects. vertheless, there are fairly numerous persons of more mature —e.g., older school-children, hospital nurses, troops, etc. who, owing to various circumstances, may require remunization. Then one is confronted with the possibility sharp local or general reactions in some subjects, even when h a mild antigen as T.A.F. is employed, but more especially en injections of A.P.T. are given. Such results may occur en only Schick-positive reactors are inoculated, but when mmunizing injections are given to all and sundry, without vious Schick-testing to establish the need, the incidence and erity of local reactions and constitutional disturbance rise rply in adult age groups.

Jensen's (1937) method of instilling drops of formol-toxoid into the nostrils might have solved the problem if the procedure had not been rather impracticable, and if the danger of producing rhinitis could have been overcome (*Lancet*, 1941). It has not been thought worth while to pursue that form of treatment to any extent in this country.

In a limited number of subjects I demonstrated (Bousfield and King-Brown, 1938) that deep inhalation of the air of a room which was impregnated with finely atomized formol-toxoid was capable of producing an excellent rise in the antitoxin titre of the blood: this method I could not follow up, as experience showed that most of the volunteers became highly sensitized and developed allergic symptoms. I then attempted to pass formol-toxoid through the skin, in a neutral glycerin medium, with inconclusive results (Bousfield, 1944).

The present series of experiments is concerned with attempts to apply stimuli to the upper portion of the alimentary tract. The idea was suggested by the fact that, during an attack of diphtheria, absorption of some toxin from the mouth, fauces, and oesophagus might be a factor in the production of any subsequently acquired active immunity. If toxin *is* thus absorbed during the disease it seemed logical to investigate whether formol-toxoid, given in sufficiently large dosage, would be absorbed by *healthy* membranes in amounts which would provide an adequate stimulus.

I conceived the idea of a fairly firm gelatin sweet or pastille, containing about 100 Lf units of formol-toxoid, suitably sweetened and flavoured with some fairly neutral agent such as peppermint. I am variously indebted to Sir Alexander Fleming, Mr. L. B. Holt, of the Inoculation Dept., St. Mary's Hospital, and to Dr. Stanley White and the chief chemist of Messrs. Parke, Davis and Co., for the final production of the pastille, which I required, in the form of a gelatin disk. In preparing the disks the toxoid was added to the melted gelatin at a low temperature—about 40° C.—and the *p*H was adjusted to 6.5. The formol-toxoid which Mr. Holt supplied for the purpose was highly concentrated (2,000 Lf per c.cm.) and was of great purity: it was no less than 75% pure, in terms of protein, having been prepared by a method developed by Mr. Holt at St. Mary's Hospital.

Serum-antitoxin Tests on Adult Volunteers

As I personally am highly allergic to diphtheria antigens, I tried the effect on myself of sucking the toxoid disks—four each day, for seven days—and experienced no inconvenience of any kind. I then obtained five volunteers, bled them for preliminary antitoxin titration, and gave each of them 28 toxoid-gelatin disks to suck slowly, at intervals, four a day, for seven days. Fourteen days after the conclusion of treatment they were bled again, to see whether any rise in circulating antitoxin could be demonstrated as a result of the treatment.

Sir Percival Hartley kindly undertook all serum-antitoxin titrations for me; at his request neither the main purpose of the inquiry nor the details of the individual experiments were communicated to him, in order that the antitoxin determinations should be done "blind." The importance of this fact in considering results will not escape notice. The changes in the blood serum titres in my first five cases will be found in Table I.

Table I.—*Dosage, Four 100-Lf Disks Daily for 7 Days*

Case	Sex and Age (Years)	Previous Immunization or History of Diphtheria	Original Serum Titre (Units)	Titre 14 Days After Treatment (Units)
1	F 19	Diphtheria at 5 years; Schick-neg. at age 17	> 0·1 < 0·2	> 0·2 < 0·4
2	F 40	3 inj. diph. prophylactic 15 years ago. No post-Schick test	> 1·5 < 2·0	> 4·0, nearly 8
3	M 17	2 inj. 2 years ago, probably A.P.T. No post-Schick test	> 0·05 < 0·1	> 8·0 < 16·0
4	M 33	Had diphtheria at age of 6 years	> 0·02 < 0·05	> 1·5 < 2·0
5	F 45	Naturally Schick-negative 10 years ago	> 1·5 < 2·0	> 4·0, nearly 8

At this point it may be stated that none of the subjects who took the disks by mouth, in this or in subsequent experiments, experienced any inconvenience whatever, with the exception of one adult female who complained of persistent repetition of the flavouring element in the mouth. Constitutional symptoms were entirely lacking.

It will be noticed that all the subjects in Table I had previous experience of diphtheria antigens or of the disease, except Case 5, which was naturally immune and in which such experience can be assumed. All the cases showed a definite increase in antitoxin titre at the second examination, the change being very marked indeed in subjects 3 and 4, in which rises are of the order of 160 and 50 times respectively. These five subjects seem to demonstrate fairly conclusively that an effective boosting stimulus of toxoid had been passed across the mucous membranes, as I was unaware of any other form of extraneous stimulus to account for the increase of antitoxin. It seemed unlikely that five subjects, living in different homes, would all have chanced to come in contact with a stimulating dose of diphtheria infection.

The next step was to see whether a reduction of the number of toxoid disks would yield similar results. In this series only three of the disks were sucked daily by a further five volunteers. The results are shown in Table II.

TABLE II.—*Dosage, Three 100-Lf Disks Daily for 7 Days*

Case	Sex and Age (Years)	Previous Immunization or History of Diphtheria	Original Serum Titre (Units)	Titre 14 Days After Treatment (Units)
6	M 24	Blood antitoxin 1 year ago, 0·1 to 0·2 unit	> 0·1 < 0·2	> 8·0
7	M 18	3 inj. T.A.M., 1933; blood antitoxin, 1943, 0·01 to 0·02	> 0·01 < 0·02	> 0·05 < 0·1
8	F 19	3 inj. T.A.M. and Schick-neg., 1931	> 0·05 < 0·1	> 0·4 < 0·8
9	F 16	Blood antitoxin, 1943, 0·001; not immunized	< 0·001	< 0·001
10	F 18	Never Schick-tested or immunized	> 0·02 < 0·05	> 1·0 < 2·0

Four out of the five subjects gave a definite response to this reduced dosage, Nos. 6, 8, and 10 showing most marked improvement in antitoxin titre. Case 9 is of interest. This subject had apparently never had an effective primary stimulus in her life, and proved, furthermore, to be relatively difficult to immunize. When she failed to respond in the above experiment, I attempted to immunize her by means of three well-spaced injections of 1 c.cm. of T.A.F. A Schick test performed three months later was still definitely positive, and she required a fourth injection of T.A.F. to render her Schick-negative.

I then inquired whether the dosage of toxoid could be reduced still further. The original highly concentrated and purified toxoid, which Mr. Holt had supplied, had become exhausted. It was clearly not practicable to utilize such a refined product on a large scale on account of expense, and a relatively crude formol-toxoid, of about 50 Lf per c.cm. potency, was used for the preparation of the next supply of disks. Messrs. Parke Davis overcame the difficulty of including the larger volume of antigen in a disk of similar size to those supplied formerly. On account of the use of this relatively impure formol-toxoid, I again controlled the possibility of allergic trouble by sucking a number of the disks personally before handing them to others, without ill effect. Table III shows the effect of administering only two of these new disks (each containing approximately 100 Lf units) daily, for seven days, to a further group of five subjects.

TABLE III.—*Dosage, Two 100-Lf Disks Daily for 7 Days*

Case	Sex and Age (Years)	Previous Immunization or History of Diphtheria	Original Serum Titre (Units)	Titre 14 Days After Treatment (Units)
11	F 15	Immunized 2 years ago	> 0·1 < 0·2	> 0·2 < 0·4
12	F 14	Immunized early in life	> 0·05 < 0·1	> 0·05 < 0·1
13	F 16	Immunized at age of 4; re-immunized at 11 years	> 0·005 < 0·01	> 0·01 < 0·05
14	F 18	Immunized 5 years ago	> 0·01 < 0·02	> 0·05 < 0·1
15	F 19	Immunized at age of 11	> 0·01 < 0·02	> 0·05 < 0·1

It will be noted that the reduced dosage produced definite rises in the antitoxin titre in four cases out of five, though the improvement is not as great as was obtained by the use of three or four disks daily. No change was found in the titre of Case 12. This may indicate that the stimulus was insufficient or that the subject was unusually resistant to a stimulus the size of which would ordinarily be found to be moderately satisfactory. On the whole I am of the opinion that three 100-Lf disks daily for one week is the smallest dosage which should be applied to adults if a marked increase in the antitoxin concentration of the blood is sought.

It was now desirable to determine if the stimulation took place only between the lips and the lower end of the oesophagus or whether, in any circumstances, absorption of any undestroye toxoid took place through the gastro-intestinal membranes. expected that rapid destruction would occur in the stomach My first attempt was a failure. I dipped a large number o the disks into melted gelatin to coat them, the dipping being s rapid that I did not expect to harm the toxoid. One group o volunteers swallowed some of these coated disks rapidly wit water, thrice daily, while others sucked them slowly in the sam dosage, the total taken being 21 disks in each case. Clearly had damaged the toxoid in the dipping process, as neither thos who swallowed nor those who sucked showed any change at al in their antitoxin titrations, and I wasted a number of ver valuable volunteers.

The problem was then approached from a different angle Instead of dipping the disks in gelatin after manufacture som toxoid was put up in capsules in a gelatin mass. These coul be swallowed at once with a draught of water. Four subject undertook to do this, and the experiment was controlled b giving the same toxoid dosage in plain disk form, to be sucke slowly by another group. The results are given in Table IV.

TABLE IV.—*The Effect of (a) Swallowing 100 Lf. of Toxoid i Gelatin Mass, Thrice Daily for 7 Days; and (b) the Effect of Sucking Three 100-Lf Disks Daily for the Same Period*

(a) Effect of Swallowing Toxoid

Case	Sex and Age (Years)	Previous Immunization or History of Diphtheria	Original Serum Titre (Units)	Titre 14 Day After Treatme (Units)
26	F 19	Immunized 4 years ago	> 0·4 < 0·8	> 0·4 < 0·8
27	F 20	Nat. Schick-neg. 18 months ago	> 1·0 < 2·0	> 1·0 < 2·0
28	F 17	No history of either	> 0·1 < 0·2	> 0·1 < 0·2
29	F 32	Nat. Schick-neg. 6 months ago; reported to have had diphtheria twice	> 0·4 < 0·8	> 0·4 < 0·8

(b) Effect of Sucking Toxoid

Case	Sex and Age (Years)	Previous Immunization or History of Diphtheria	Original Serum Titre (Units)	Titre 14 Day After Treatme (Units)
30	F 37	Diphtheria as a baby	> 0·1 < 0·2	> 1·0 < 2·0
31	F 30	No history of either	> 0·1 < 0·2	> 0·4 < 0·8
32	F 19	Immunized 4 years ago	> 0·005 < 0·01	> 0·1 < 0·2
33	F 55	Diphtheria at 10 years	> 0·2 < 0·4	> 2·0 < 4·0
34	F 39	Nat. Schick-neg., 2 years ago	> 0·2 < 0·4	> 0·4 < 0·8
35	F 33	Positive diph. swab during attack of scarlet fever 10 years ago	> 0·05 < 0·1	> 1·0 < 2·0
36	M 24	Nat. Schick-neg. 2 years ago	> 0·4 < 0·8	> 0·4 < 0·8

From the above it will be seen that none of the subjects wh swallowed the toxoid showed any antitoxin rises, whereas all thos who sucked the disks showed an increase, with the exception Case 36. It is interesting that he sucked the residue of an ear supply of disks, all the other control cases having been given a ne batch. Case 36 may thus have been one of those individuals wh respond to stimuli only with difficulty, or the disks he sucked ma have lost Lf value.

Consideration of the results in the above table suggests mo strongly that the stimuli responsible for increases of titre tak place only between the lips and, at the lowest, the lower en of the oesophagus. The method will probably be limited use to such subjects as are old enough or intelligent enough suck the disks slowly.

I also desired to find out whether, in the case of persons wh had only negligible quantities of antitoxin in their bloods, th titre could be raised by repetition of the toxoid-sucking pr cedure at intervals. In my abortive gelatin-coated dis swallowing and sucking experiment I had come across thr volunteers who had less than 0.001 of a unit of antitoxin p c.cm. in their bloods. This suggested that they might nev have possessed any basal immunity, in spite of the fact th they were of mature adult age. Some weeks after the fi experiment I gave them a further 21 disks—one to be suck thrice daily—waited a fortnight after completion of the trea ment, and then repeated the 21-disks course. After a furth 14-day interval a third course of disks was given, and a fo night later the subjects were again bled. Sir Percival Hartl once more reported less than 0.001 unit of antitoxin in all thr cases. It thus seems probable that the method, at any rate its present form, does not provide a sufficiently powerf stimulus for the purpose of primary immunization. A higher concentration of toxoid in the disks, or a method of prolonging the stimulus, such as some form of chewing-gum, might still be made to operate as a primary stimulus. Further work on such lines is indicated.

Investigations on Children, using a Modified Schick Test

The next stage was to see if the treatment could be applied to children who, having been satisfactorily rendered Schick-negative by means of prophylactic injections some years before, had been found to have relapsed to the Schick-positive state. Circumstances did not permit of bleeding these children, so I had to work by the Schick standard. It was first necessary to determine the effect of the stimulus provided by the amount of toxin present in the test dose of 0.2 c.cm. of Schick toxin. I Schick-tested a large number of children immunized some years before and found that 21 cases had relapsed to Schick-positive. Without giving any further injections I retested these 21 children three weeks from the date of finding them Schick-positive. To my surprise no fewer than 16 of the 21 had become Schick-negative as a result of the stimulus provided by the former test. It was thus clear that a routine Schick test for the purpose of finding positive cases on which to test the toxoid disk was a complicating factor, making it difficult to select groups suitable for comparative tests. Accordingly I resolved to find out whether testing with a half-dose of Schick toxin produced a lower conversion rate. Twenty-six children who had relapsed to Schick-positive were thus identified from another large group of subjects who had been previously immunized by myself. When I tested these twenty-six children again three weeks later I found that 13 had become Schick-negative as a result of the stimulus provided by the previous test in the reduced dosage of 0.1 c.cm. This result was disappointing; but I could not take bloods, so I was forced to work on the half-Schick dose for sorting-out purposes if I wished to try the effect of the disks on children.

Using the half-dose Schick test, I identified a further group of children who had relapsed to Schick-positive; I gave 17 of them three toxoid disks daily for a week, and retested them 14 days after completion of the treatment. All proved to be Schick-negative then. Three other relapsed children were given only two disks per day for a week, and 14 days after conclusion of treatment two had become Schick-negative, while one remained positive.

Thus, so far as it is possible to infer anything from Schick-test-controlled work, the observations on the volunteers who were bled are supported by these experiments in the children. This was only to be expected, but it was necessary to find out whether children of from 4 to 14 years of age could, on the whole, be relied upon to suck the disks slowly enough. There seems to be good reason to believe that they can be trusted to do so. Experience might enable one to produce the disks as a really attractive sweet, and this would ensure that the parent would not be allowed to forget to administer the treatment.

I attempted to amplify the evidence by investigating children resident in an institution who had a history of some previous immunization or of having been Schick-negative in the past. In my sorting-out process to find relapsed cases the few Schick-positive readings which I obtained were mostly so pronounced that I felt doubtful about their alleged original natural Schick-negative state. In many years of practical experience I have not found that natural Schick-negative reactors relapse to the intense degree of positive reaction observed in these cases, though most of the subjects were supposed to have been naturally immune formerly. Administration of disks to the children was largely a failure, and, on the evidence which I have offered above in the blood–antitoxin tables, I am of the opinion that these children had probably never reached the Schick-negative level in the past. This may serve to confirm the opinion which I have stated above—that the disk treatment is insufficient as a primary stimulus, and will prove adequate only when the subject has, at some time previously, reached the degree of training in antitoxin production which is revealed by a negative Schick test. All relapsed cases *which were previously immunized by myself,* and which had three disks daily for seven days, proved to be Schick-negative 14 days later, as compared with the control group, in which one-half of 26 cases became Schick-negative as a result of the 0.1 c.cm. Schick-toxin stimulus when tested again at the same interval as the children who sucked the disks.

Effect of Disk Treatment on Subjects having only Small Quantities of Circulating Antitoxin

There will be those who will be especially interested in this aspect of the question, and, to save a further summarizing table, I would draw attention to the following cases: Cases 7 and 9 (Table II), Cases 13, 14, and 15 (Table III), and Case 32 (Table IV). I repeat that I was unable to obtain a response from any of my four cases which had less than 0.001 of serum-antitoxin.

The above work demonstrates, I believe for the first time, that antitoxin-producing stimuli can be passed effectively across the mucous membranes of the upper portion of a healthy alimentary tract. Much work remains to be done to verify my results and to determine whether the method is applicable in the case of other antigens, such as tetanus toxoid, haemolytic streptococcus toxin, and the like. I feel that the findings should be made known at this stage so that others, who may have greater opportunities, may pursue the matter.

Summary

A method of providing a stimulus to the upper part of the alimentary tract by means of toxoid-impregnated gelatin disks is described.

The method seems to be generally effective in subjects who have any demonstrable amount of antitoxin present in the blood, or who are definitely known to have reached the Schick-negative level at some time in the past.

Rises in serum-antitoxin content are very striking in some of the cases.

While I find no evidence that the method will suffice to provide an adequate stimulus for primary immunization, it appears to be generally applicable to children and adults who have ever been immune in the past, provided that the age and intelligence of the subject are sufficient to ensure that the disks are sucked slowly. Modification of technique might still render primary immunization feasible.

The treatment can be administered to immune and non-immune subjects impartially without fear of producing local or general reactions, and thus, in cases which are *known* to have been immune in the past, a Schick test is not essential before using this method of re-immunization.

In view of the findings in the case of diphtheria formol-toxoid there seems to be an indication for pursuing the investigations in the case of other antigens, such as tetanus toxoid, where a rise in antitoxin titre is sought in order to boost a previously bestowed immunity.

While attractive to needle-shy children, the greatest value of such a method might be in dealing with adults—e.g., nurses or men in the Services—when it is so important that constitutional disturbance shall be avoided.

More research will be necessary in the matter of stabilizing the disks, so that they could safely be given a *long* period of legitimate use before expiry date. It would also be necessary to eliminate more of the formalin in order to produce the disks in the form of a sweet which would be really attractive to children.

In addition to the help I have already gratefully acknowledged, I wish to thank Sir Alan Daley, Dr. Anderson (M.O.H., Heston and Isleworth), Dr. O. W. Roberts (medical superintendent, Dulwich Hospital), and Drs. Smith and Taylor, of the London County Council medical staff, for the kind provision of facilities. I am also greatly indebted to the nurses, health visitors, public health department staff, and sanitary inspectors who volunteered for the blood investigation experiments.

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According to reports in the Swedish press, Prof. Ragnar Granit, of the Neurophysiological Institution at the Carolinian Institute in Stockholm, has received a donation of 200,000 kronor (£11,765) from the Rockefeller Foundation. The grant is to be distributed over a period of five years. Recently it was decided to incorporate Prof. Granit's institution in the Nobel Institute of Medicine and to erect a special building for the institution in the neighbourhood of the Carolinian Hospital on the northern outskirts of Stockholm.

OBSERVATIONS ON SO-CALLED THYROTROPIC EXOPHTHALMOS

BY

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Exophthalmos is known to be one of the main features of Graves's disease. It was first described by Parry in 1815. Exophthalmos may vary greatly in degree and take very different courses. Whereas in most cases it is stationary and does not endanger the eyeball, in some cases the extreme protrusion of the globe may lead to oedema of the lids, injection of the conjunctivae, chemosis, lagophthalmic keratitis, ulceration of the corneae, and finally even to loss of the eye. These two entirely distinct forms of exophthalmos are therefore basically different, and the latter, owing to its progressive character, is termed "malign" exophthalmos.

Until a few years ago exophthalmos was assumed to occur with Graves's disease only, and thus to be of purely hyperthyroid origin. Of late, however, clinical and experimental investigations have clearly shown that, besides the thyrotoxic form, there must be another—to be attributed to the pituitary body: in particular, the thyrotropic factor of the anterior pituitary lobe was held responsible for its occurrence (thyrotropic exophthalmos).

Loeb and Friedman in 1932 produced exophthalmos in guinea-pigs by injecting an acid extract of anterior pituitary of cattle. This exophthalmos, however, always regressed when the injections were discontinued, and the same occurred under narcosis and after death. Experimentally produced exophthalmos must therefore differ fundamentally from that occurring in man. Marine and Rosen in 1934, and Smelser in 1936, produced exophthalmos in guinea-pigs by injecting thyrotropic hormone of the anterior pituitary lobe; such results were even more readily obtained when thyroidectomy had been performed prior to the injections. Friedgood in 1934 also found that exophthalmos due to the thyrotropic hormone deteriorated on reduction of thyroid function, particularly so when the basal metabolic rate fell.

As to the thyrotoxic form of exophthalmos, two factors must be considered most important from the aetiological point of view. The first is the contraction of Mueller's palpebral muscles owing to increased sympathetic stimulation. These muscles exert a pull on the upper and lower poles of the globe through connexion with expansions from tendons of the upper and lower rectus muscles to lid tissues. Contractions of these muscles tend to produce lid retraction and proptosis. Landstroem's circular muscle, too, exerts a direct concentric pull on the globe. It should be noted, however, that even now evidence that increased sympathetic tonus is responsible for the ophthalmic manifestations in human Graves's disease has not been uniformly established, since sympathectomy has proved entirely ineffective in the treatment of exophthalmos in man. The second factor is the adynamia of the recti which normally retract the eye globe. It is noteworthy that it is not merely of late that adynamia of the recti has been assigned a part in the development of exophthalmos; for Cooper (1849), later Moebius (1886) and Lemke (1894), and more recently Sainton and Hesse in 1931, and Plummer and Wilder (1935), have expressed the same opinion. One of us (H. Zondek) was able to show in 1938 that in one case adynamia of the eye muscles led to a condition resembling complete ophthalmoplegia which could be temporarily relieved by the use of prostigmin. The great significance of the adynamia and muscular metabolism in Graves's disease induced one of us (H. Zondek), in 1935, to classify a certain form of this disease as its "muscular type" (*Diseases of the Endocrine Glands,* 1935, p. 157; 1944, p. 162). A third factor is the occurrence of anatomical changes. Within the orbit they are generally not very marked, and in particular the extrabulbar muscles usually are of normal shape and consistence. In some cases, though, general wasting of muscle fibres, accompanied by loss of striation, fibrillation, and amorphous granulation of sarcoplasm, is found. (Burch, 1929; Naffziger, 1933). For details see the exhaustive paper by Mulvany (1944).

With regard to thyrotropic exophthalmos, the phenomenon of proptosis seems to play a far more important part in its development than the widening of the palpebral fissures. There is neither lid spasm nor raised sympathetic tonus. The globe cannot be pushed back into the orbit, and owing to increased retrobulbar pressure such attempts are very painful. With thyrotoxic exophthalmos this is not so. The strong pressure acting on the eyelids from behind results in lid congestion, oedema, and chemosis, which are probably due to compression of the palpebral venous arcades. The lids press on the corneae, and this and the lagophthalmos lead to ulcerations and necrosis in extreme cases. The most important cause of the proptosis must be sought in muscle disorders such as (1) diffuse extense fibrosis, (2) oedema, (3) abundant round-cell infiltration, and (4) a special type of degeneration resulting in fibrosis or disintegration and absorption of muscular fibres (Mulvany). From the subjective point of view it is typical that patients suffering from so-called thyrotropic exophthalmos complain of pains, epiphora, photophobia, diplopia, and difficulty in convergence, whereas patients with thyrotoxic exophthalmos are usually free from such troubles. So-called thyrotropic exophthalmos—which, by the way, mainly occurs in male patients—generally seems to assume far higher degrees of proptosis than the thyrotoxic; the so-called malign exophthalmos (see above) mostly corresponds to the thyrotropic. It remains to be seen, however, whether milder degrees of exophthalmos, and in particular those without any accompanying signs of hyperthyroidism, will also fall into this group.*

Which clinical facts lead us to the conclusion that exophthalmos is not in all circumstances of hyperthyroid origin? (1) It must be remembered that some cases of exophthalmos not only are not improved but are even considerably harmed by thyroidectomy (see Case III). (2) The thyrotropic hormone in the serum is abnormally high with so-called thyrotropic exophthalmos, whereas the opposite is true of the thyrotoxic form. (3) Thyrotoxicosis accompanying so-called thyrotropic exophthalmos is usually comparatively mild and in striking contrast to the degree of ophthalmic manifestations. (4) Exophthalmos may also occur with hypothyroidism. (5) We think that the association of exophthalmos with Hand-Schueller-Christian's disease may possibly shed some light on this problem. Many authors maintain that exophthalmos in these cases is due to mechanical processes only. This assumption, however, is not generally agreed upon. If this mechanical theory be not true of all cases the coincidence with diabetes insipidus that is more or less characteristic of this disease would, rather indicate involvement of the pituitary gland or the diencephalic nuclei, since the thyroid gland does not have any part in it.

We have examined three cases of excessive exophthalmos (one post-operative) which, according to the above differentiation, ought to be classified as the so-called thyrotropic type of the disease. How very rare such cases are is demonstrated by the fact that one of us (A. T.) found among 150,000 ophthalmic patients only these three cases.

Case I

A man 47 years old. Family and previous history negative. The patient had always been healthy until about seven years ago, when he contracted influenza. Thereafter he noticed for the first time some swelling of the eyelids and slight protrusion of the eyeballs. This condition remained stationary until about six weeks ago, when the globes grew more and more prominent. Three weeks ago he developed nervousness and profuse perspiration. He had lost 3 kg. during the past three years.

Examination revealed extreme exophathalmos, especially of the left eye (see below); no goitre; pulse rate, 104–110; blood pressure, 130/75 mm. Hg; no adynamia; no tremor; reflexes normal; visceral organs, nothing abnormal. Urinalysis: urobilinogen increased, otherwise nothing abnormal. Blood count: R.B.C., 4,000,000; Hb, 85%; W.B.C., 7,000; differential count, normal. Glucose-tolerance test: 103, 154, 147, 181, 176, 163 mg. per 100 c.cm. Limbus capillaries normal. Heart radiologically normal. Radiograph of the skull:

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* Just before this paper went to press we had the opportunity of observing a fourth case, which, although showing typical features of pituitary-diencephalic disorder such as high blood cholesterol level, deformation of the sella turcica, and changes in the osseous skull, lacked all signs of malignancy.

sella turcica enlarged; osseous outlines of the sella badly defined; frontal region of the skull considerably deficient in lime. B.M.R. + 60%. Eyes:—Chemosis and corneal ulcerations of the left eye. The degree of proptosis could not be measured on the left, the Hertel ophthalmometer going only as far as 30 mm., but was estimated to be about 35 mm. On the right it amounted to 30 mm.

The patient was given di-iodo-tyrosine (200 mg. a day for 10 days —i.e., a total of 2,000 mg.). When seen again after having finished this course the exophthalmos had become less (L. 30, R. 27 mm.). The limbus capillaries were of normal width and formation. When seen once more after the lapse of another week without any specific treatment, the pulse rate had dropped to 84 and the blood pressure to 115/80 mm. Hg. Exophthalmos—L. 28, R. 26 mm. No chemosis. Good lid closure. The corneal ulcerations were turning into scars. Surgical closure of the palpebral fissure, which had been attempted before the patient came under our observation but had not yielded any results, was now carried out without any difficulty.

Case II

A man aged 57. Family and previous history negative. The patient's left eye had been bad for two years, the right for one year. Otherwise he was all right until eight months ago, when he started complaining of loss of weight, heart palpitations, and nervousness. The basal metabolic rate was said to have been +40% six months ago. For the past three months the patient had been taking 15 drops of Lugol's solution a day.

Condition on examination:—Pronounced exophthalmos (see below); no goitre; pulse rate, 96; blood pressure, 155/70 mm. Hg; tremor of fingers and tongue; slight adynamia; visceral organs, nothing abnormal; reflexes normal. Urinalysis, nothing abnormal. Blood count: R.B.C., 4,600,000; Hb, 105%; W.B.C., 7,000; differential count, normal; blood calcium, 11.4 mg. per 100 c.cm.; phosphorus, 5 mg. per 100 c.cm.; cholesterol (two different readings), 294 and 375 mg. per 100 c.cm. Glucose-tolerance test: 88, 177, 170, 48, 183, 141 mg. per 100 c.cm. Limbus capillaries partly narrow, otherwise without abnormal findings. B.M.R. +19%. Fluoroscopic examination of the heart showed nothing abnormal. Radiograph of the skull: Sella turcica uniformly enlarged; very thin skull bones, especially the base, which was extremely thin and atrophic; vascular congestion, as made evident by widening of the meningeal vessels. Exophthalmos—R. 27, L. more than 30 mm.; congestion of ciliary vessels, insufficient closure of the eyelids; left optic disk pale but well defined.

The patient was given prominal and di-iodo-tyrosine (a total of 2,000 mg.) for 10 days. At the conclusion of this course his exophthalmos was found to have decreased by 1 to 2 mm. He was again given di-iodo-tyrosine, for five days (i.e., 1,000 mg.). After the lapse of another five days he felt much better; pulse rate, 4-90; blood pressure, 130/50 mm. Hg. The left eye could be closed better (on extreme closure there was about 3 mm. of uncovered globe left) and was less inflamed. He was then given 500 mg. of di-iodo-tyrosine a day for five days (i.e., a total of 2,500 mg.). When he was seen again he had lost almost all his general complaints; pulse rate, 76. The left eye could be closed almost completely (about 1 mm. uncovered globe left). Blood cholesterol, 90 mg. per 100 c.cm. Di-iodo-tyrosine was continued in reduced amounts (200 mg. a day for a week). Exophthalmos—R. 27, L. 29 mm. Thereafter the patient was submitted to *x*-ray irradiation of the pituitary gland. During this treatment the left eye seemed more inflamed and its closure less complete. Unfortunately the patient left Jerusalem directly after the course of irradiation was completed, so that its results could not be adjudged. He wrote after a few months, when he seemed to be rather satisfied with his general condition as well as with the state of his eyes; but he did not give any particulars, and had apparently not been seen by any doctors.

Case III

A man 46 years old. Family and past history irrelevant. For the past two months there had been diarrhoea, loss in weight, profuse perspiration, heart palpitations, trembling of the fingers, and progressive exophthalmos. The B.M.R. was + 25% in the beginning and + 15% after complete rest some weeks later. While resting the patient had gained in weight, but the remainder of the above symptoms were unchanged. The state of the patient's eyes had even taken a turn for the worse: the globes had steadily protruded, and consequently both eyes had got inflamed, lid closure had become insufficient, and the vision decreased.

Condition on examination:—Exophthalmos (see below); no goitre; pulse rate, 100; blood pressure, 145/65 to 175/90 mm. Hg; tremor of tongue and fingers; no adynamia. Visceral organs, N.A.D. Reflexes normal. Urinalysis, nothing abnormal. Blood count: R.B.C., 080,000; Hb, 80%; W.B.C., 5,800; differential count, normal; ood cholesterol, 182 mg. per 100 c.cm.; B.M.R. + 40%. Eyes: ellwag's sign positive; Moebius's and Graefe's signs negative. Exophthalmos—R. 24, L. 21 mm. (two months previously the spective measures had been R. 19, L. 16 mm.). Radiographs of e sella turcica were without pathological findings.

When we saw the patient again about five months later he had undergone thyroidectomy some four months before. He said that only one day after operation his sight had been clear, whereas afterwards he developed keratitis, conjunctivitis, and pronounced lacrimation. The eyes had protruded at a great rate (R. from 24 to 29-30 mm., L. from 21 to 24 mm., within four weeks). Graefe's, Moebius's, and Stellwag's signs positive. Lid closure accordingly became still more insufficient (R. 12, L. 3 mm.). The thyrotoxic symptoms had subsided, though gradually. The basal metabolic rate, which had dropped to + 15% after operation, had risen again to + 38% at a reading taken two weeks ago. (The patient admitted, however, that he had been very nervous at the time.) Exophthalmos was extreme (see above); pulse rate, 70; blood pressure, 135/80 mm. Hg; no tremor; no adynamia; normal reflexes; visceral organs, nothing abnormal; limbus capillaries on microscopical examination, normal. Radiograph of skull, nothing abnormal; B.M.R., + 29.5%.

The patient was given prominal and di-iodo-tyrosine (2,000 mg. within 10 days). When coming back after the lapse of three weeks he stated that for the first two weeks he had felt much better, lid closure having become easier and eye movements less inhibited. He had gained 3 kg. in weight, and made no complaint as to his general condition. Exophthalmos—R. 26, L. 22-23 mm.; B.M.R. +10%. Di-iodo-tyrosine was given again (100 mg. on alternate days for one month). When seen after the end of this course the patient was complaining of some nervousness. His eyes were not controlled on this occasion, but the exophthalmos appeared stationary, or even somewhat improved, and the signs of irritation were less pronounced than before. He was given quinine and prominal, and some time later *x*-ray irradiation of the pituitary gland. During irradiation the exophthalmos was: R. 25, L. 20 mm. General condition as above. The patient was given another course of di-iodo-tyrosine (a total of 2,000 mg. within 10 days). Thereafter he was able to close the left eye completely, whereas the right remained 4 mm. open on extreme closure. He was given quinine and di-iodo-tyrosine alternately (the latter amounting to another 2,000 mg.). One month later the patient stated that he was working hard and felt quite able to do so. Exophthalmos—R. 24-25, L. 20-21 mm. (See Figs.)

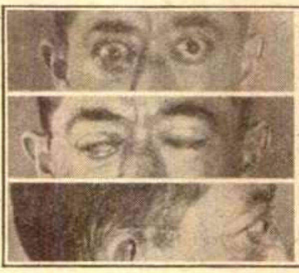
FIG. 1.
Case III before treatment

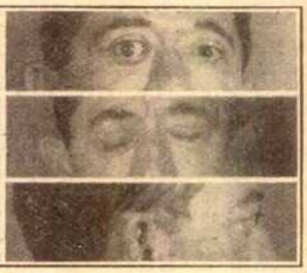
FIG. 2.
Case III after treatment

Di-iodo-tyrosine and quinine were given at regular intervals, and three months later another irradiation to the pituitary gland was started as the exophthalmos had remained stationary for the last few months. No visible results were seen after irradiation, so that two months later another course of di-iodo-tyrosine was given. When seen again the exophthalmos had scarcely changed (R. 23.5, L. 22 mm.), but the eye movements were free and easy. Lid closure was nearly complete. Blood cholesterol, 228 mg. per 100 c.cm. After one injection of a mercurial diuretic the patient felt much better subjectively, although the objective state had not greatly changed.

Discussion

The two cases of extreme exophthalmos accompanied by comparatively mild hyperthyroidism show more or less extensive changes in the osseous skull (bone atrophy round and above the sella turcica and moderate enlargement of it in Case I, extensive decalcification of the whole skull, and some uniform enlargement of the sella in Case II). Both cases had diabetic glucose-tolerance curves. These findings point to diencephalic or pituitary-diencephalic disorders. In Case II the blood cholesterol was found to be unusually high (in Case I, unfortunately, it was not examined), which suggests that this case cannot be designated as pure hyperthyroidism.* We should like to add that we often found such abnormally high blood cholesterol values in processes localized to the pituitary-diencephalic region. This matter will be reported upon on another occasion. Neither the above metabolic nor the osseous changes were met with in Case III (post-operative exacerbation of the exophthalmos).

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* Another patient who came under our observation just before this paper went to press also had an abnormally high blood cholesterol level.

With regard to the pathogenic part played by the thyrotropic factor in this connexion, the following facts ought to be taken into consideration; the results of the animal experiments as described above seem conclusive. (The most suitable animals for these experiments are guinea-pigs, less so rabbits and rats.) In our opinion, however, it is very doubtful whether the results of experimental work may be applied to human pathology without any reservation. According to knowledge acquired thus far, no influence whatsoever of the thyrotropic factor on volume and water content of the extra-orbital muscles has been established. Another argument against the pathogenic part played by the thyrotropic hormone is the fact that exophthalmos is very rarely encountered in myxoedema, although the production of the thyrotropic hormone in this disease is abnormally increased. This may serve as additional evidence against the unreserved application of animal experiments to human pathology. On the other hand, the posterior lobe is known to produce an antidiuretic factor, and since this is passed straight into the liquor of the third ventricle, the possibility of its contributing to the production of ophthalmic manifestations through water retention might at least be taken into consideration. Marine assumes that in addition to the anterior pituitary the gonads play an important part in the production of exophthalmos. For example, castration of male rabbits caused an existing exophthalmos to regress; the administration of testosterone propionate to the same rabbits caused the exophthalmos to recur (Marine, 1938). As to the relation of androgens and water metabolism, the fact was pointed out by Mulvany that the capon's comb inflates in response to androgens, presumably owing to rise of its water content. The relation of oestrogens to water metabolism is well known and need not be gone into here (see Zondek, *Diseases of the Endocrine Glands*, 1944, p. 53). The fact that in certain cases the exophthalmos rapidly deteriorates after removal of the thyroid, so that finally malign exophthalmos develops, may be at least partly explained by the following hypothesis: thyroidin is known to have a dehydrating effect; thus after its elimination a factor causing water retention will obtain dominance.

In brief, it may be said that the cause of so-called thyrotropic exophthalmos in man is not yet definitely known. Our cases make it appear probable that this type of exophthalmos is part of a complex disturbance originating in the pituitary-diencephalic centres. It is still open to doubt whether in the individual case one or more diencephalic centres or one or more pituitary hormones respectively ought to be considered as the primary seat of the disorder. We therefore raise the question whether these cases would not be more properly covered by the name of "pituitary-diencephalic" exophthalmos so as not to anticipate any undue conclusion. It is worthy of note that Daniels (1938) also attributed the type of exophthalmos described in this paper to diencephalic disorders.

Therapeutically, all three patients received an average of 200 to 300 mg. of di-iodo-tyrosine a day for two weeks, at three-weeks intervals. Two additionally had irradiation to the pituitary. Di-iodo-tyrosine apparently had a beneficial effect, although it cannot be stated with certainty how great a part of it has to be attributed to the irradiation. Thyroidin administration, which would appear plausible in light of the above argument, was in fact recommended for post-operative exophthalmos by Gasteiger (1931) and Mulvany (1944). In any event, it is noteworthy that in Case I medicinal treatment alone brought any considerable regress of the exophthalmos. It should also be noted that in Case III dehydration through a mercurial diuretic resulted in at least subjective improvement of the eyes. In the same case relief of the intra-orbital pressure through partial removal of the orbital roof (Naffziger), which for quite a time appeared the only possible way to safeguard the eye, was rendered unnecessary by medicinal treatment and local protective measures.

Summary

Three cases of exophthalmos are recorded which, according to the present classification, would have been designated as thyrotropic exophthalmos. The ophthalmic manifestations were of particularly severe degree in all these cases. Two of them presented marked decalcification of the skull bones and enlargement of the sella turcica; this finding points to involvement of the pituitary-diencephalic region. Both cases had diabetic glucose-tolerance curves. The abnormally high blood cholesterol level in two cases argues against hyperthyroidism. All three cases favourably responded to di-iodo-tyrosine. In one case (post-operative exacerbation of the exophthalmos) di-iodo-tyrosine, in combination with pituitary irradiation on two occasions, resulted in considerable improvement of the eyes (regress of proptosis, disappearance of chemosis and epiphora, etc.), and thus rendered surgical intervention unnecessary. In view of the fact that the part played by the thyrotropic hormone in the production of this type of exophthalmos is doubtful, while that of the pituitary-diencephalic system seems to be highly probable, the looser definition of "pituitary-diencephalic" exophthalmos is suggested.

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HEPATIC ENLARGEMENT WITH ASCITES IN CHILDREN

BY

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For many years cases of abdominal enlargement in coloured children in Jamaica, due to ascites and an enlarged liver, have attracted attention, but the aetiology of the condition remains uncertain. It closely resembles the disease among Indian children described by Sir Upendranath Brahmachari (1938), and called infantile hepatic cirrhosis. In our experience the fatal outcome is not so common, perhaps because the condition is not entirely the same or the cases seen by us are in an earlier stage. No cases of the acute type described by Sir Upendranath occurred in this series. The descriptions given by other observers known to us vary, but all are agreed that ascites and enlargement of the liver are present in every case. One member of the staff states that he observed five of these cases some years ago, and all were cured by a generous diet and improved living conditions; he followed them up for a period of over two years. Another member states that he has seen many of these cases and that in his opinion the majority are fatal sooner or later.

Report on a Series of Cases

This paper is based on a series of 18 cases observed by u over a period of about a year; of these 15 have been followe up for six months or longer, and two patients were found t have died, apparently of this disease. There were 11 males an 7 females, but this series was too small to warrant conclusion as to the sex incidence. The illness is a chronic one, beginnin between 1 and 10 years of age, usually in children who unti then had been well. It lasts for months or years, and in ou experience has ended in recovery in the majority of cases though other observers have had contrary results. The histor given is that the illness begins usually with fever, which may b intermittent, lasting for days or weeks, and is accompanie or followed by painless abdominal enlargement, of slight o moderate extent, which may progress slowly or rapidly, finall being greatly increased in size. Loss of appetite, nausea o vomiting, and irregularity of the bowels have been common, an in some cases paracentesis had been performed on one or mor occasions, with temporary relief, but with reaccumulation of th fluid in a short time. Slight jaundice is not uncommon, an the skin is dry and scaly, sometimes shiny, but never wrinkled there is no tendency to other skin diseases. Umbiblical herni occurs, probably because of the increased intra-abdominal pressure; oedema of the legs is rare. Shortness of breath frequently occurs, owing to mechanical interference by the enlarged abdomen. When first seen the tumid abdomen, wasted arms and legs, drawn facies, with bright but rather sunken eyes, the conjunctivae of which are sometimes stained a faint yellow colour, all give the child a striking appearance, which is easily remembered and readily recognized.

The disease is not familial, and probably not hereditary, as no history of its occurrence in any other member of the family or in the parents has been elicited; but the history beyond the immediate past is often undependable, and it is possible that some of the parents had suffered from the disease in infancy or childhood and had long forgotten.

The economic position of the majority of these patients is below the average, and investigation has shown that their diets not only are insufficient in quantity but are largely composed of carbohydrates and markedly deficient in meats, animal fats, and fresh fruits and vegetables. With one exception all the cases came from the poorer parts of the city of Kingston, and instances of this disease had not been noted by us in the rural parts of the island in which we worked for some years.

Clinical examination is essentially negative; only in the abdomen are positive signs discovered. The conjunctivae may be stained with bile, and the vessels may be pale owing to moderate anaemia; the teeth are usually good and the tongue remarkably clean. Enlarged and septic tonsils and adenoids, and cervical adenitis, are not more common in this group of children than in any other. Physical signs in the chest are usually normal; in a few cases a haemic murmur may be present or a few crepitations may be heard at the bases of the lungs. There are sometimes enlarged veins on the anterior abdominal wall; an umbilical hernia is not often present. The marked abdominal enlargement—due to free fluid and the enlarged liver, which were found in every case—made it impossible to decide which had preceded the other. The liver varied in size from one the edge of which was palpable only on deep inspiration to one which extended as far as or below the umbilicus. It was smooth and firm on palpation and not tender, and in several cases the left lobe appeared to be proportionately more enlarged than the right. The size of the liver varied, often rapidly, from time to time, but always remained palpable; the ascites varied in quantity with the size of the liver. In some cases the spleen was also enlarged, but as a rule only moderately. The quantity of fluid present varied, but was usually considerable, and as much as 100 oz. was removed at one tapping. The kidneys appeared to be unaffected, and there were no abnormal signs in the nervous system. The legs and arms were thin and weak, but all muscle groups seemed to share equally in the weakness and wasting.

In Table I the principal signs and symptoms are listed to show the frequency with which they were found in the present series of cases.

TABLE I

Sign or Symptom	Cases Examined	No. Found Positive
Abdominal enlargement	18	18
Hepatic enlargement	18	18
Ascites	18	18
Splenic enlargement	16	7
Jaundice	18	7
Fever	18	18
Dyspnoea	17	5
Umbilical hernia	16	2
Haematemesis	18	1

No cases of acute type were seen; all were subacute or chronic, and were observed for months without any marked deterioration in their condition becoming apparent, though periods of improvement and regression were common. The febrile attacks were usually short, lasting for a week or 10 days, and they occurred more often in the subacute type of case, in which a rise to 103° F. was seen and the child had the appearance of being seriously ill.

Chronic cases may be afebrile throughout their course, and usually after their acute onset pyrexia is not common unless an intercurrent disease supervenes. The chief feature of the illness is the painless and marked enlargement of the abdomen, which finally is so great that it brings discomfort and respiratory embarrassment, with an increased pulse rate; it may be the cause of the loss of appetite and vomiting. Paracentesis gives relief: at first it may be necessary every other day; later the child may be comfortable when tapped once or twice a week; and finally tapping becomes unnecessary. In fatal cases death is usually due to intercurrent disease, often a respiratory infection: one child died in hospital; the post-mortem findings of this case are given below.

Table II comprises a list of the special investigations made in order to throw light on the aetiology of the condition. In some cases it was not possible to carry out all investigations, because of the short time the patient was in hospital, the patient's condition or age, or unwillingness of the parents to consent.

TABLE II.—*Laboratory Investigations*

Pathological Findings	Number of Cases Examined	Number with the Finding	Number without the Finding
Moderate anaemia	18	13	5
„ leucocytosis ..	18	16	2
Low plasma proteins	10	9	1
Kahn negative	15	14	1
Urinalysis normal	15	15	0
Van den Bergh direct positive	13	3	10
„ indirect positive	13	8	5
Sedimentation rate increased	8	8	0
Fragility normal	12	12	0
Blood urea normal	7	7	0
Blood sugar normal	7	7	0

The findings of the single post-mortem examination were largely negative, as pathological changes were observed only in the lungs, liver, and spleen. Congestion and oedema were present in the lungs, but no areas of bronchopneumonia were found. In the liver there was a fine cirrhosis of pericellular type resembling Hanot's cirrhosis, with areas of subacute hepatitis, in which the liver cells showed cloudy swelling and degeneration. The spleen was somewhat fibrosed. In one case an exploratory laparotomy was performed, and it was found that the omentum had lost its fat and was made up of large blood vessels, chiefly veins, in a fine membrane of fibrous tissue. These vessels were adherent to the abdominal wall, and appeared to be acting as an alternative route for the return of blood from the abdominal viscera, in place of the partially occluded portal circulation.

Discussion

The condition is undoubtedly one in which the liver has been damaged. Its rapid enlargement and subsidence suggest an acute inflammatory or toxic condition—that is, a hepatitis—but the source of the toxic agent is not certain. That the disease is infective in nature is supported by the increased sedimentation rate and the fever, and by the recovery of most cases, presumably when the infection had come to an end. The occurrence of ascites only, without dropsy of the limbs, suggests obstruction of the return of blood through the liver, and the low protein content of the ascitic fluid is in favour of an obstruction and not of inflammatory changes in the peritoneal membrane itself. The enlargement of the left lobe of the liver suggests that the site of origin of the toxic agent, if one exists, is in the stomach or spleen—probably in the former, because splenic enlargement is not constant. The toxic agent is not known: it is suggested that the patient's diet, which has been deficient for a considerable time, has reduced the natural resistance of the gastric or duodenal mucous membrane, on which an infection has established itself, and from which toxins have been derived and have damaged the liver, causing its enlargement.

The evidence in favour of a dietary deficiency as the primary cause of the disease is: (1) It is known that the diets of the class from which the patients in this series are drawn are frequently inadequate and unbalanced, and mechanically irritating material is often given to infants or young children: these patients received an even more unsuitable diet than most persons of this class. (2) A balanced and generous diet, alone, produced an improvement which in some cases was marked. (3) The administration of glycocoll in one case appeared to bring marked improvement, which ceased when it was withdrawn. (4) Another member of the staff once observed that improvement in the diet and hygienic conditions brought about an apparent cure in five cases.

The syndrome may be produced by toxic damage of the liver cells, resulting in chronic hepatitis or cirrhosis, or the toxin may cause inflammation or thrombosis of the portal vein, resulting in narrowing or occlusion; the most likely position would be in the smaller radicles. The obstruction and possible damage to the portal vein may also be responsible for the low serum protein, through failure to absorb part of that ingested from a diet already protein-deficient.

Treatment

In three cases special treatment was tried: two were given a concentrated preparation of vitamin B_1 without success; one case appeared to improve remarkably during administration of glycocoll, but relapsed when the treatment was stopped. In all the others only general supportive treatment with rest and a full diet was tried, with some improvement in a few of them.

In a small number of cases seen after this series had been treated dried yeast was administered in doses of 6 or 8 dr. a day with striking results: all improved, and two cases were apparently cured in a few weeks. The explanation of this result is uncertain. It may have been due to the vitamin B complex, in which yeast is rich, or to replacement of protein, of which yeast contains over 40%.

Summary

Cases of hepatitis of unknown aetiology are described. It is possible that they are caused by a dietary deficiency, permitting easy damage of the gastric or duodenal mucous membrane, which becomes infected; the toxin absorbed from this focus damages liver cells or the portal vein, or both, resulting in phlebitis and finally cirrhosis, causing obstruction and partial failure to absorb a particular food constituent from a diet already deficient in that respect.

We would like to thank the Hon. Major T. J. Hallinan, Director of Medical Services, for permission to publish this paper, and other members of the Medical Services for their help.

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DARK-ADAPTATION STUDIES IN PATIENTS WITH DISEASES OF THE SKIN

BY

ARTHUR PORTER, M.D., M.R.C.P.

AND

E. W. GODDING

It is well known that an adequate supply of vitamin A is essential for the formation of normal epithelial structures. The basal cells are not apparently affected, and the keratinized epithelium resulting from deficiency of vitamin A is soon replaced by normal cells when the vitamin is given in sufficient quantity. Marked deficiency, whether occurring naturally or experimentally, produces characteristic changes in the skin, the earliest signs being roughness and dryness developing into phrynodermia and follicular hyperkeratosis. These changes are well known, and have been fully described (Bicknell and Prescott, 1942a; and many others). It is possible that slight or moderate deficiencies, though insufficient to produce observable changes in the skin, might render it more liable than usual to the development of dermatitis and infective and other disease conditions generally. It was considered interesting, therefore, to examine the correlation between vitamin A nutritional status and the incidence of skin diseases.

There appear to be only two methods which are likely to yield the required information: blood vitamin A estimations and dark-adaptation measurements. The former of these methods was used by Cornbleet, Popper, and Steigmann (1944), who estimated the plasma vitamin A and carotenoids in 55 dermatological cases and compared the levels with those found in controls. Vitamin A was above the lower normal limit in all, but low levels were present in one case of pityriasis rubra pilaris and two of disseminated lupus erythematosus.

The information obtainable from blood vitamin A and carotenoid estimations is at present limited by the technique employed. Such estimations as are usually carried out provide little evidence beyond the subject's ability to absorb vitamin A and carotenoids from the intestine, and a development in technique (e.g., serial estimations during a test period on a deficient diet) is clearly required if information is to be obtained regarding liver storage capacity. A refinement in technique is also required (e.g., estimations to be made in relation to time and content of a controlled diet) if the present so-called "normal" range of values is to be reduced to useful limits. Such development and refinement in technique would seem to be of importance, since clearly some reduction below a normal blood vitamin A level would be necessary before vitamin A nutrition of the tissues can suffer—unless, of course, the defect is one of tissue utilization.

A combination of blood vitamin A estimations and dark-adaptation measurements has useful possibilities, but first a correlation must be established between the two methods. At the moment Yudkin (1941a) considers estimations of blood vitamin A valueless for diagnosing mild deficiencies.

Dark-adaptation measurements have been used successfully to evaluate the vitamin A nutritional status of groups of people (e.g., Kohn, Milligan, and Wilkinson, 1943), it being usual for the diagnosis of A deficiency to rest upon a significant change in adaptation following the administration of the vitamin. Moreover, the changes in dark-adaptation are regarded by the majority of workers to be the earliest observable sign of a deficiency (see Bicknell and Prescott, 1942b). In the absence of a therapeutic test the results are clearly less reliable, since the causes of impaired dark-adaptation are many (Godding, 1945).

It was not possible to complete the therapeutic tests in the present investigation, but as there was no significant difference between the two groups in respect of age, ametropia, and social status, and as certain other known causes of poor dark-adaptation had been eliminated from both groups, it was thought highly probable that any discrepancy between the dark-adaptation measurements in the two groups would reveal mainly differences in metabolic and nutritional status, vitamin A being included as probably the main factor concerned.

The Investigation

A group of skin cases was provided by the out-patient department of St. John's Skin Hospital and a control group by friends of patients attending the near-by Royal Dental Hospital. Approximately 100 subjects were tested in each group. The skin condition required was a lesion not associated with parasitic infections—e.g., scabies; otherwise, the cases were taken as they appeared. The 103 cases tested were made up as follows: acne (var.) 7, alopecia 7, boils 1, cheiropompholyx 1, Darier's disease 1, dermatitis (var.) 44, eczema (var.) 16, Fox-Fordyce disease 1, impetigo 1, keratosis folliculosis acneformis 2, leuconychia 1, lichen (var.) 3, lupus erythematosus 1, mycosis pedis 1, pityriasis rubra pilaris 1, plantar wart 2, psoriasis 5, pust. bacteride 1, urticaria 3, varicose ulcer 1, seborrhoea 1, sycosis barbae 2. It will be observed that dermatitis accounts for nearly 50% of the cases.

From both groups the following were excluded: subjects under 16 and over 45, subjects with uncorrected refractive errors of less than 6/24 either eye, obvious muscular defects (e.g., squint), opacities of the media and ocular disease conditions generally, subjects with a history of general disease conditions, particularly gastritis, gastric and duodenal ulcer, liver

Table I.—*Comparison of the Test and Control Groups*

	Total	Sex		Age			Average Age	No. Wearing Glasses	No. with Uncorrected Vision less than 6/6 (R. or L.)
		M.	F.	15–25	26–35	36–45			
Skin cases	103	49	54	27	45	31	29·8	13	22
Controls	101	34	67	50	33	18	26·9	14	15

dysfunction, and recent infection. Pregnant and nursing mothers were also excluded.

The apparatus used for the dark-adaptation test was that described by Yudkin (1941b), with the addition of a means of stabilizing the voltage. The procedure was as follows:

Method.—Each subject was generally examined as indicated above, and the test explained and demonstrated. They were put into the dark-room at 10-minute intervals. Before entering the dark-room no subject had been in the hospital less than half an hour, to safeguard against the effects of exposure to previous high brightnesses (Craik and Vernon, 1942). At the end of the first subject's 30 minutes' dark-adaptation time the test was made, and so on with the remainder at 10-minute intervals. By this arrangement the intervals between subjects entering the dark-room and being tested were balanced so that all were dark-adapted for 30 minutes. The test object (arrow) was first shown at a brightness which could be seen fairly easily, and the brightness decreased until the threshold reading was obtained. The test was then continued to 40 minutes. As under the conditions of the test the expected difference between the readings at 30 minutes' and 40 minutes' dark-adaptation time is not more than 0.1 μμl log unit, subjects showing greater amounts than this were re-tested. In addition all readings of 3.83 μμl log units and over were confirmed. The threshold measurements of brightness seen at 30 minutes' dark-adaptation time expressed as log μμl were those taken.

The measurement of dark-adaptation by means of such "final" threshold measurements, while not yielding the same amount of information as can be obtained by a "full" test, is nevertheless the most useful single measurement which can be taken (Yudkin and Robertson, 1943), since it has been shown that the threshold measurements at 30 minutes' dark-adaptation time are always affected if dark-adaptation has been impaired through lack of vitamin A. The results are shown in Table II.

TABLE II

	Total No.	Threshold Reached, Logμμl, at 30 minutes, D.A. Time							Mean Threshold Logμμl
		3·40	3·53	3·72	3·84	3·93	4·01	4·14	
Skin cases	103	8	45	32	10	2	5	1	3·679
Controls	101	8	36	39	14	1	2	1	3·683

Comment

There is thus no significant difference between the mean threshold values of the two groups. The values obtained seem to be rather high (cf. Yudkin, 1941c), although these absolute values should be accepted with some reserve, as the standardization of the instrument has not been checked for some time.

Two cases of particular interest appeared in the skin group—one a case of Darier's disease and the other a case of pityriasis rubra pilaris; the latter, which has been fully reported elsewhere (Porter and Godding, 1945), responded to vitamin A therapy, and good correlation was established with the dark-adaptation results. The former will be discussed along with other cases of Darier's disease in a further paper.

Summary

A dark-adaptation test revealed no significant difference between a group of skin cases and a group of controls.

It is highly probable that with the safeguards applied the results ndicated a similarity in vitamin A nutritional status between the wo groups.

We have to acknowledge with thanks the co-operation of the oard of management and administrative staff of the Royal Dental Hospital in providing the facilities which enabled us to carry out he tests on the control group; and to thank the Crookes Laboraories for the loan of the dark-adaptation apparatus and for generous upplies of vitamin A.

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Medical Memoranda

Tubercle Bacilli and Urea

In the *Journal* of May 16, 1942 (p. 609), I recorded in a short paper the bactericidal action of urea in saturated solution on an equal volume of a strong suspension of human tubercle bacilli in distilled water—the resulting mixture containing, of course, a half-saturated solution of urea. In July, 1944, I had the pleasure of receiving a letter from Dr. R. M. Humphreys, late senior physician, Sudan Medical Service, stating that he and his assistant, Dr. Abdel Halim of the Khartum Civil Hospital, had had good results in treating a local civilian with (*a*) dry powdered urea on the skin ulcerations resulting from infection of the needle-tracks from a tuberculous pyopneumothorax, and (*b*) the use of a half-saturated urea solution as a replacement fluid in the same patient. The ulcers healed quickly under the urea powder, and the fluid, after eight removals, washings-out with sterile saline, and replacement with 300 c.cm. of half-saturated urea solution, became at last completely sterile for tubercle bacilli. It is to be noted, too, that the washings of the first fluid introduced, though found to contain many acid-fast bacilli, were sterile from the point of view of culture.

This communication recorded such favourable results and seemed so much what I had expected that I decided to make a few more experiments with urea; these are here set forth:

Three cultures—human, bovine, and avian—were obtained from the National Collection of Type Cultures, and subcultures were put up with saturated urea solution, the method being identical with that previously described. In the course of a month all three exposed to the saturated urea solution remained apparently sterile. There was a growth of tubercle bacilli on the "second dilution" capsules, except in the case of bovine tubercle, and in all lesser concentrations. The controls, of course, grew well. At a subsequent subculture from the apparently sterile capsule of human tubercle bacilli a very small growth was obtained—a fact which led to a further trial with the use of a more carefully saturated urea solution. On this further trial the saturated solution + t.b. was typically negative for tubercle bacilli both on the original capsule and on subculture.

It would seem that strains of tubercle bacilli vary somewhat in their sensitivity to urea. It may be added that the fluids containing saturated urea and t.b. and the controls containing only t.b. were inoculated into guinea-pigs and that *neither* animal developed tuberculosis. This is curious, as the "control" was positive and should have killed. The strain is being further investigated.

With the assistance of Major Elliott, chemist at the R.A.M.C. College Laboratories, and Cpl. Johnson, R.A.M.C., I made the following further observations: (1) Saturation point is reached with approximately 92.3 g. of urea to 100 c.cm. of distilled water at 19° C. (2) Saturated urea has a *p*H of about 6.8 (brom-cresol-purple). (3) The mould *Penicillium notatum*, suspended in saturated urea, was apparently unaffected. (Control in saline.) (4) A suspension of tubercle bacilli in half-saturated urea solution was divided into two parts. Half was subjected to dialysis, half not, and the two were compared after 48 hours. The result was: undialysed portion, 55.2 g. of urea per 100 c.cm.; dialysed portion, 0.013 g. of urea per 100 c.cm.

It would appear, then, that a strong suspension of tubercle bacilli, killed by 48 hours' contact with a saturated solution of urea, can be freed of urea by dialysis and retained as a dead bacterial suspension for any purpose required.

My thanks are due to Dr. R. St. John Brooks of the National Collection of Type Cultures; to Col. F. S. Irvine, C.M.G., D.S.O., commandant of the R.A.M.C. College; to Lieut.-Col. W. R. M. Drew, Professor of Tropical Medicine; and to Major W. A. Young, Major Elliott, and Cpl. R. I. Johnson, R.A.M.C., for invaluable help.

S. LYLE CUMMINS, C.B., C.M.G., M.D.

Recurrent Ectopic Gestation on the Same Side as Previous Salpingectomy

The case reported here may be found to be of interest not only because of its rarity but also because, if the possibility of recurrence is recognized, the chances of this unfortunate accident occurring may be lessened at the first operation.

CASE HISTORY

The patient, a woman aged 35, her occupation at the time being welding, was admitted to Tilbury Hospital on April 3, 1944, complaining of lower abdominal pain. The time of onset had been 4 days before; the pain had later become less severe, but on the day of admission had returned with increased intensity. The date of the last menstrual period was Feb. 4, 1944; there had been no vaginal bleeding of any kind since then. Her periods were regular, usually lasting 7 days every 28. She had three children—the youngest 10 years of age—and had suffered from a vaginal discharge previous to the birth of this child.

The history was that the patient had been admitted to the same hospital on Aug. 24, 1933, and operated on for an ectopic gestation on the left side. At the operation she was found to have a pelvic haematoma, with a mass surrounding the left tube and ovary; the left tube and ovary were removed. Recovery was uneventful.

When examined on the present occasion the patient was quite pale; pulse 100, temperature 97.6°, blood pressure 75/60; chest N.A.D. The abdomen was slightly distended, with some rigidity of the lower part and marked tenderness, especially in the left iliac fossa. On vaginal examination there was a muco-purulent discharge but no suspicion of blood. The cervix was lacerated and somewhat soft. The fornices were extremely tender, but the shape and size of the uterus could not be made out owing to abdominal tenderness and rigidity. A tentative diagnosis of ectopic gestation was made, but owing to the patient's history it was decided to watch her for a short period. As after two hours the pulse rate was rising, operation was decided upon, intravenous plasma being given beforehand. Nitrous oxide, oxygen, and ether anaesthesia was employed. The old infra-umbilical scar was excised and the abdomen opened. The pelvis was full of clotted blood. On examination of the uterus the left tube and ovary were found to be absent; the uterus was the size of a 6 to 8 weeks pregnancy. The left cornu of the uterus was eroded and in fact ruptured during the handling of the organ, extruding a small foetus, age 6 to 8 weeks. Owing to the size and nature of the rupture it was found necessary to perform a subtotal hysterectomy. The patient's recovery, apart from a mild tonsillitis, was uneventful, and she was discharged on April 26. Examination of the uterus showed an ectopic pregnancy arising in the intramural portion of the tube that had previously been removed.

Comment

Although cases of recurrent ectopic gestation are relatively common, the literature on the subject reveals very few cases in which the extra-uterine pregnancy has recurred on the same side, and still fewer in which the recurrence followed salpingectomy on the same side. Wetterweld's (1927) case did not have the tube removed in the first instance, and in the case reported by Bracht the recurrence was in the ampullary portion of the tube. Bello *et al.* (1929), Saass (1930), and Nizza (1933) all reported cases of ectopic gestation recurring on the same side as previous surgical intervention, and Scipiades (1934) recorded a case of recurring tubal pregnancy on the same side as previous surgical intervention, with a living child born at term. Apart from these examples, this type of case appears to be a very rare form of accident.

I would like to thank the staff of Tilbury Hospital for their help in compiling this case report.

Tilbury. SIDNEY GEE, M.B., B.S.

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JOINT TUBERCULOSIS COUNCIL

The Joint Tuberculosis Council, at its last meeting, discussed several matters of interest to the tuberculosis world. On the recommendation of the Joint Education Committee (upon which the Council and the National Association for the Prevention of Tuberculosis are represented), the Council approved the draft constitution for a Tuberculosis Educational Institute. This institute will arrange courses, lectures, and demonstrations for the education of doctors, nurses, almoners, and social workers in tuberculosis. It will, it is hoped, act as an information centre in all matters connected with tuberculosis education, and will recommend candidates for N.A.P.T. scholarships. The institute will suggest lines of research in tuberculosis, and will generally facilitate and encourage the study of the subject in Great Britain by visitors from over-seas. It will work in co-operation with university postgraduate centres and will give them all possible assistance. The Joint Education Committee also recommended the N.A.P.T. to award two £50 scholarships for health visitors, and two scholarships of similar amount for student almoners. The Council's Committee on Reorganization of the Tuberculosis Services (which at this meeting was renamed the Committee on Development of the Tuberculosis Services) was asked to consider and report upon the present situation in relation to the proposal National Health Service (with particular reference to the recent negotiations between the Ministry of Health and the B.M.A.). The Council decided to approach the Spens Committee with representations that tuberculosis clinicians should be dealt with, in any scheme of salary revision for practitioners engaged in public work, on the same basis as specialists in other branches of medicine.

Reviews

ARTHRITIS AND ALLIED CONDITIONS

Arthritis and Allied Conditions. By Bernard I. Comroe, M.D., F.A.C.P. Third edition, enlarged and thoroughly revised. (Pp. 1,359; illustrated. 60s.) London: Henry Kimpton.

The arrival of a third edition of this important work within five years of its first appearance is ample testimony to the place it has gained in the literature of rheumatic diseases. Advantage has been taken to rewrite some chapters and to bring the whole up to date, and a good deal of fresh matter has been added, increasing the 750 pages of the first edition to 1,359 in this one. The needs of the general practitioner have been studied and a new chapter presents a diagnostic digest of the average arthritic problem; there is also a new chapter on treatment in general practice, while the valuable feature of the first edition of presenting summaries in "box form" so as to be easily available to the individual with little time for reading is preserved.

The sulphonamides are dealt with in the light of the most modern knowledge, and a chapter on penicillin has been added, though its use in arthritic conditions appears to be limited. The chapter on massage has been enlarged with very helpful illustrations, while other forms of physiotherapy are fully described, enabling the practitioner to prescribe exactly what he wishes to be done instead of leaving it to the masseuse, as is so often the case. One of the most striking features is a chapter on mistakes in the diagnosis and handling of patients with arthritis and allied conditions, which will be read with profit by the most experienced workers in this branch of medicine. The possible mistakes number 238, a formidable array, and it is a temptation to quote some of the most striking; but one deserves the attention of our rulers and governors whose attention may be drawn to it, since it is unlikely that they will come across it otherwise. "Mistake 63 is the lack of sufficient funds for investigative work and lack of adequate hospital facilities for the care of arthritic patients." It is pointed out that in the U.S.A. there are not more than 200 free beds for rheumatic cases as compared with 100,000 for tuberculosis, though arthritis and allied complaints are more common than the sum of all tuberculosis, cancer, diabetes, and heart disease.

HUMAN AND ANIMAL PARASITOLOGY

Introduction to Parasitology, With Special Reference to the Parasites of Man. By Asa C. Chandler, M.S., Ph.D. Seventh edition. (Pp. 716; illustrated. $5.00 or 30s.) New York: John Wiley and Sons; London: Chapman and Hall.

This book has grown considerably since its original appearance over twenty-six years ago. Its title has been changed several times to meet its increasing scope, and now it reaches the seventh edition four years after publication of the sixth. The book is thoroughly up to date, and anyone who wishes to obtain a comprehensive view of human and animal parasitology can hardly do better than secure a copy and read it carefully from cover to cover. The author has kept himself informed of the many advances in knowledge in the fields of protozoology, helminthology, and entomology which have been made during the war, and has incorporated all of them. Thus, to name only three of the new additions, mention is made of the trypanocidal action of aromatic diamidines, of the successful transmission of lishmania infections by the bite of sandflies, and of the remarkable insecticidal properties of D.D.T., particularly with reference to its effect on the louse and the influence this has on the spread of typhus fever.

The main descriptions in the book relate to the parasites of man, but sufficient information is given of parasites of animals to make it of use to veterinarians as well as to medical men. Short accounts of spirochaetal, rickettsial, and virus diseases are included. There are no coloured plates in the book, but the black-and-white illustrations, of which there are over 300, are adequate. Systems of classification are not over-emphasized, and when inserted are in smaller type arranged in such a way that they can be disregarded by the reader who is not particularly interested in this branch of the subject. It seems unnecessary to say anything more about the work. It is a good one which can be thoroughly recommended.

THE PREMATURE BABY

The Premature Baby. By V. Mary Crosse, M.D., D.P.H., M.M.S.A., D.R.C.O.G. Foreword by Leonard G. Parsons, M.D., F.R.C.P., F.R.C.O.G. (Pp. 156; illustrated. 10s. 6d.) London: J. and A. Churchill. 1945.

This excellent book has been written by Dr. Mary Crosse from her extensive and intensive study of the problem over the past fourteen years at the special unit in the grounds of one of the maternity homes of the city of Birmingham. In recent times it has become increasingly known that the results being obtained at this unit were extraordinarily good, and all concerned with the care of the newborn will be grateful for having the details of how this has been achieved set out so clearly and with such confidence. Dr. Crosse deals with how the premature baby should be managed not only in hospital but also in the home. Essentially the methods adopted are simple and practical—so far as it is possible to simplify what can often be quite a complicated procedure. In thirty pages Dr. Crosse tackles the complex programme of feeding, and a small criticism of this section is that the harassed practitioner who has to arrange for the artificial feeding of a premature baby is given plenty of choice but little direct lead. A concluding chapter on general statistics and an appendix with the Birmingham figures sum up the whole matter. As Prof. L. G. Parsons says in his foreword, the results under Dr. Crosse's skilful guidance have so far been unrivalled in this country. Their successful imitation would represent a substantial saving of life in the newborn period. There is othing set out in this book which could not be done by other uthorities.

Notes on Books

The horrible fact that so many children have been found in the oncentration camps in Germany and the countries liberated from German oppression lends added point to the reprint of a pamphlet, ublished last year by the Ling Physical Education Association, on he *Use of Exercise in the Post-War Rehabilitation of Children in Occupied Countries* (Hamilton House, Bidborough Street, W.C.1; rice 2s., postage 3d.). The compilers of this pamphlet advisedly ook an objective view of the probable conditions contingent on German evacuation, and, like the members of the Parliamentary elegation who visited the Buchenwald camp, regarded intentional understatement as the most telling way of bringing home the horror of the Nazi regime. The report is based on the expert medical and ducational knowledge of people who have seen the effects of malnutrition on children. After its original publication lectures and lasses, based on its teaching, were given to teachers and volunteers f many different nationalities, including groups from the Czechoslovak Social Welfare courses, the British Council's course in Social Welfare for Allied Nationals, the Society of Friends, the French .T.S., the Ling Physical Education Association, and the International Women's Service Groups; and instruction was given in he types of defects most likely to be seen among malnourished hildren, and in graded physical activities likely to benefit those whose condition did not necessarily warrant immediate admission o hospital. The pamphlet includes general considerations to be bserved in the physical re-education of the children, the sources f teachers likely to be available, and a chart of defects and eformities resulting from starvation.

Aids to Psychiatry is the fifth edition of Prof. W. S. DAWSON'S tle book in twenty years—a tribute to its popularity with students nd practitioners. Admittedly severely concentrated and, of course, places sketchy, this edition has been brought up to date and covers practically everything about the psychoses, psychoneuroses, nd amentia which is commonly required by the non-specialist. etails are not given of specialized treatment such as the presently opular shock therapy or of psycho-analysis, but they are mentioned, which is all that is required for those who cannot and ought not to ndertake such treatment. There is a useful chapter on differential agnosis in certain symptoms and syndromes, and finally a short hapter deals with what mental hygiene and child guidance are doing the field of prevention. The book is of pocket size and may be ofitably dipped into in leisure moments. It is published by aillière, Tindall and Cox at 6s.

The seventh edition of T. J. MACKIE and J. E. MCCARTNEY'S *andbook of Practical Bacteriology* (E. and S. Livingstone; 17s. 6d., lus 7d. postage) differs little in the main from its predecessor, the uthors having adopted the convenient method of incorporating ew material in an appendix, which now extends to 43 pages. In bench-book this has something to recommend it, since the customed user then finds all descriptions of new methods assembled one place.

Preparations and Appliances

ENDOMETRIAL BIOPSY CURETTE

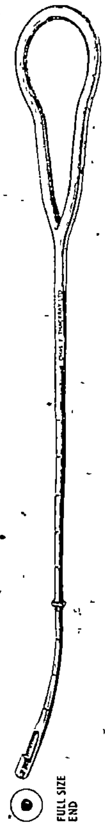
Mr. LINDSAY O. WATT, F.R.C.S.Ed., assistant honorary surgeon to the Derbyshire Hospital for Women, writes:

This endometrial biopsy curette has been designed with several added features to give information in sterility investigations. The instrument has a total length of 10½ in. and is constructed with a shaped handle to permit a firm and comfortable grip. The neck of the instrument is curved to allow more easily the curettage of the anterior wall of the uterus. The specially designed cup is as short as possible, allowing a biopsy to be taken from close to the fundus of the uterus, and so give a much larger and longer strip of endometrium for histological section. The large sharp prominent edge of the curette cup enables one more often to get a sample of atrophic endometrium, as in menopause or epimenorrhoea, where obtaining endometrium is often difficult.

The head of the curette is large and the end is rounded, the overall diameter of the cup being 3/16 in. The design is such that the minimal compression of the biopsy guarantees the least distortion (size and shape of the glands) in the ensuing histological picture. The shape of the groove proximal to the cup facilitates the extraction of the specimen from the curette.

The notches at 1/2-in. intervals graduate the instrument to a total distance of 5 in. from the distal end, the first notch being placed at a distance of 1 in. from the end; a node is also placed at 2½ in. from the end of the curette. When the curette is inserted into the nulliparous cervix the head of the instrument is arrested at the internal os. In this way the length of the cervical canal can be measured. In the anteverted or/and anteflexed uterus slight forward curving movement of the curette easily passes it through the internal os into the corpus of the uterus. By passing the curette up to the top of the uterine cavity the corpus of the uterus can be measured and its relation to the cervix (infantile, etc.) can be estimated.

In some anteflexed uteri of infantile type it is occasionally necessary to dilate the internal os with a 3- or 4-mm. uterine sound before passing the curette from the cervical canal through the internal os, otherwise slight difficulty may be experienced in removing the curette from the corporeal cavity.



One would advise that the quadrant from which each sample is taken should be noted on the patient's case paper. If several samples of endometrium are taken at weekly intervals biopsies repeated in error from the same site will give a fallacious result due to the regenerating endometrium.

The instrument is now available in stainless steel and is manufactured by Charles F. Thackray Ltd., Park Street, Leeds.

LIVER EXTRACT FOR INJECTION

"Wellcome" injection of liver extract is stated by Burroughs Wellcome and Co. to be prepared by a special process designed to conserve the therapeutically active principles of liver while eliminating inert or antigenic substances. It contains a full representation of the components of the vitamin B complex normally present in liver. Each batch is tested clinically before issue and the strength is apparently of the order of 2 units per c.cm. Many clinicians prefer a liver extract of this type, in which the haematinic principle is not too highly purified or separated from other potentially active fractions of the liver.

A third group of Belgian professors representing the Belgian Fondation Universitaire is now visiting Britain for a fortnight at the invitation of the British Council. They are meeting British scientists and medical men and are visiting universities or research institutions in London, Reading, Oxford, Cambridge, Newcastle, Aberdeen, Edinburgh, Liverpool, and Greenwich, and the I.C.I. works at Billingham. The delegates are: Dr. F. H. Van den Dungen, professor of science and applied science at the University of Brussels; Prof. A. E. Michotte van den Berck, Faculty of Medicine (Experimentary Psychology), Louvain University; Prof. A. E. Gratia, Faculty of Medicine, Liége University; Prof. J. A. H. Rodhain, Director of the Institute of Tropical Medicine, Antwerp; and Prof. E. J. M. P. Mertens, Faculty of Science, Louvain.

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RETURN FROM STALAG

It is one of the paradoxes of the day that release and reaction from the emotional tension of war may for some time lead to more rather than less difficulty in human affairs. The first large groups of Service men to be repatriated are prisoners of war from Germany; and while the proportion of those who have suffered serious organic damage is less than it might easily have been, the problems of resettlement likely to be presented by returned men in general are illustrated only too clearly by the difficulties of these repatriates and their families. In clinical work, in discussion with friends, and in casual conversation, it is borne in upon the doctor that years of life over-seas produce changes in men, and indirectly in their families, from which recovery is neither immediate nor easy. The returned men themselves remark, sometimes with dismay, that we in this country are strange and that we do not seem to understand the effects of war on human personality. On the other hand, wives and families say that returned men are preoccupied and uncertain and that it is difficult to predict their reaction to various plans made to please them. These are the inevitable results of the reunion of two groups who have been leading widely different lives. The experience, the outlook, and the ways of each group differ, and there is an inevitable period during which the plans and expectations of the repatriate and of those at home move out of the world of dreams in which they have lived during the years of separation and are brought together on a basis of reality.

The fundamental difficulty from which repatriated Service men suffer appears to be an incomplete assimilation of the discovery of human insignificance in the face of external dangers and powerful internal emotions. There is nothing particularly extraordinary in the discovery, for most people are compelled to make it at some time in their lives, even in peacetime; but in war the discoveries crowd fast upon us, and many variations of this same theme are presented in a short space of time. From the moment the soldier joining his regiment discovers the intensity of feeling with which he misses his companions his life enforces the same lesson. The prisoner of war learns with poignant force at the moment of capture, and during the immediately succeeding period, that his identity as a person is of no significance; he is only one more body. It is only too clear to him that if his guards cannot be bothered with him they can rid themselves of an incubus by shooting him and reporting that he tried to escape. He realizes that others can contemplate his fate with the same frigid detachment with which in the past he himself has read, say, of famine in China. It is from these deep springs that there arises the common complaint of repatriated men that they are "not wanted." The real point is that a cold and dispassionate Fate does not want any of us in the paternal and affectionate way we somehow expect.

The prisoner of war lives for months or years in an environment which is hostile or indifferent, except for those people who share his fate with him. During this period he has also to realize that the lessons of civilization seem to have been learnt only on a superficial level. It is common to hear a returned man say that the behaviour of a few of his fellows was incompatible with what might be expected, for example, of an officer. He will talk of pettiness, of thefts, of lethargy, all as matters of surprise. We may be sure that he has been equally surprised by the power and intensity of similar feelings in himself, and this at a time when his "self" has been displayed as a being of little or no moment. With slight variations the same can be said about those soldiers who have not been taken prisoner. Lord Moran has described the deterioration following on the continuous expenditure of spirit in war. There is no doubt of the accuracy of this picture; the important thing is that the expenditure arises not only from the need to meet external dangers but from the need to tolerate the existence of internal turmoil which seems to have no other controlling force than the "self" which is so discredited in its owner's eyes that he feels it is totally incapable of its task. On return to this country the soldier meets many people whose self-esteem has suffered no diminution comparable with his own. He feels that he knows more about life than those of us who have been at home, but he also feels a crippling lack of confidence which we at home do not appear to feel. As a result he thinks that he recommences civil life at a disadvantage. It may take him many years to recognize and to admit the truth of the lesson that Fate has taught him, for it is hard for any of us to believe that the lesson is a good one to learn. If he learns it he is no longer discouraged by the self confidence of ignorance and immaturity. But before thi point is reached he suffers from a plethora of difficultie which do nothing to further either his self-confidence o his amiability. As has already been hinted, this does no prevent him from insisting that he is "exactly like othe people." And this is natural enough, because he means that other people would be exactly like him if they knew as much about life as he did. Unfortunately, they do not and no amount of unconscious effort on his part to mak them feel as insecure about him as he does about them can produce the equilibrium he desires.

There is no need to go into subsidiary difficulties, suc as over-sensitiveness to frustration, intolerance of loneliness, and intolerance of company, which affect the repatr ated man, and particularly the returned prisoner of wa The important thing is that the physician should grasp perhaps by recalling his own position twenty-five year ago, the all-pervading effect of deep emotional insecurity Nor is it necessary to give a detailed account of the way in which a prisoner of war, denied physical mobility, achieve mental freedom to go where he will, when he will. Th point is that on his return he tends to find real freedom disappointing and frustration-ridden substitute for the freedom he achieved in imagination. Any attempt to "treat" the returned prisoner of war, or any other returned Service man, because he has "symptoms" of this kind puts the physician in an untenable position with regard to the "patient"; but it should not be difficult for these men to obtain the comfort of understanding from a doctor who has seen, and will continue to see, people in the height of their powers, and with the security of material possessions, struck down by disease or domestic catastrophes of other kinds. It should be easy for the doctor to place himself in a sympathetic relationship with Service men who may be suffering from an overdose of such experiences. Medical men do not consider themselves "ill" or "queer" because they belong to one of the few classes who, in ordinary peacetime life, are really aware of, and indeed must accept, the fundamental insecurity of home, possessions, and fame. It should not therefore be difficult to discard any idea of 'illness" when dealing with this aspect of the problems f the returned soldier; and, whatever theoretical views he doctor may hold about such matters, at least the heoretical views need not be obtruded. If he can talk s man to man, encouraging his patient to face life's in-ecurity much as a doctor must, he will be employing sychiatric machinery; but the machinery need not cause rritation by creaking. Any man who cannot be helped long by easy conversation on this basis must be considered ith some care. In many cases acute strain should be isibly dissipated by such superficial methods; if it is not he doctor should see the red light. Emotional disorders xist in peacetime; the air of the Stalag is not so salubrious hat they cannot thrive there as well, and it may be that sychiatric disorders are better handled with the advice of e psychiatrist.

ENAL LESIONS DUE TO SULPHONAMIDES

he chief ill effects of sulphonamide therapy are urinary obstruction, sensitization reactions (fever and rash), and lood changes (agranulocytosis or acute haemolytic aemia). In good American practice the relative fre-uency of these toxic symptoms after the administration sulphathiazole is given as renal calculus in 2.8% of tients, sensitization phenomena in 6.2%, and agranulo-tosis and haemolytic anaemia only in rare cases; ter sulphadiazine renal calculus occurred in 1.5% of the tients.[1] The cause, symptoms, and treatment of urinary struction due to the sulphonamides are now well known. he sulphonamide is filtered off from the blood in the omerulus of the kidney in solution in the glomerular fil-ate; but as this fluid passes down the tubule water is sorbed, until eventually the less soluble compounds such sulphapyridine, sulphathiazole, sulphadiazine, and their etyl derivatives are precipitated as crystals, which cause struction. The blockage may occur in the lower parts the renal tubules, in the collecting tubules, or in the eter, especially at its opening into the bladder. The mptoms of this obstruction are (1) pain, which may be located in the loins and radiate to the groin, or may be felt in the abdomen generally; (2) diminished output of urine proceeding to complete anuria; and (3) macroscopic haematuria. In the presence of any one of these symptoms urinary obstruction should be diagnosed, the sulphonamide discontinued, and steps taken to relieve the obstruction. If the obstruction is incomplete it usually suffices to increase the fluid intake either by mouth or by parenteral infusion and to give alkalis to render the urine alkaline, and thereby increase the solubility of the sulphonamide crystals. But if anuria has persisted for 12 hours, or oliguria (less than 500 c.cm. a day) for 24 hours, an increased fluid intake is harmful, leading to waterlogging of the body, and ureteric catheterization should be undertaken without delay. Urinary obstruction is prevented by maintaining a good flow of urine through ensuring a large fluid intake (6 pints a day), by keeping the urine alkaline (this may require 6 grammes of sodium bicarbonate or more a day), and by watching closely for any diminution of renal flow; this is best arranged for by having the 24-hour volume of urine prominently recorded on the temperature chart.

In addition to the lesions due to obstruction it is sometimes maintained that sulphonamides may cause other renal injuries. In one type of case the renal lesions form part of a more widespread syndrome set up by sensitization of the body to sulphonamides. Sensitization is usually manifested as drug fever or as a sulphonamide rash; when administration of the sulphonamide is stopped the symptoms subside. But in some cases, such as those described by Lederer and Rosenblatt,[2] the pathological reactions progress because the correct diagnosis has not been made or because of factors still unknown, and the patient rapidly goes downhill and dies. Small areas of focal necrosis are found scattered throughout the viscera, including the kidney. The mode of production of these lesions is not clear. Usually there is no evidence that the kidney suffers more severely than other organs, or that the renal lesions have a major responsibility for death when it occurs. Besides these lesions of hypersensitivity, some observers maintain that sulphonamides may cause degenerative changes in the cells of the renal tubules by direct chemical action.[3] Young[4] and Rosenblatt and Grayzel[5] have described marked degeneration of the renal tubules at necropsy of patients who had received sulphonamide drugs for rather obscure conditions. The interpretation of such cases is difficult. The renal lesion might have been due to the original infection for which the sulphonamide was given, or to sensitization; in Young's four cases there was a preliminary (? sensitizing) course of sulphonamide, followed after an interval by a second (? precipitating) course. It might have been due to obstruction by crystals which were dissolved before death. Other observers have described degeneration of the epithelium of the tubules in cases in which urinary obstruction was caused by masses of sulphonamide crystals: the degeneration may have been secondary to the obstruction rather than due to a chemical action of the drug upon the cells. According to Vilter

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Dowling, H. F., and Lepper, M. H., *J. Amer. med. Ass.*, 1943, **121**, 1190

[2] *J. Amer. med. Ass.*, 1942, **119**, 8.

[3] Gross, P., Cooper, F. B., and Morningstar, W. A., *Amer. J. Pathol.*, 1942, **18**, 101.

[4] *Urol. cutan. Rev.*, 1944, **48**, 536.

[5] Ibid., p. 556.

and Blankenhorn[18] nephrosis due to sulphonamides, though rarer than obstruction by crystalline deposits, is more dangerous, since it is less amenable to treatment. In their series it occurred between the first and fifth days. There are no premonitory symptoms. It may or may not be accompanied by oliguria and/or albuminuria. The most important indication of all is elevation of the blood urea; if this is present nephrosis should be suspected and sulphonamide administration stopped at once; further treatment is palliative, and "heroic" measures should be avoided. Nevertheless all such descriptions of renal degeneration brought about by a direct action of sulphonamides upon the tubules should be regarded with reserve.

THE SENILE OFFENDER

Much is heard in these days about juvenile delinquency, but the problems of the aged delinquent tend to be forgotten. A tardy interest is now being aroused in the medicine of old age, and Dr. W. Norwood East has just prepared the ground for a similar movement towards the study of crime in relation to senescence and senility.[19] The problem, as he shows, is increasingly important, for the percentage of aged persons in the population is rapidly growing. During the ten-year period ending in 1938 nearly 14,000 persons of 60 and over were found guilty of indictable offences. Dr. East's clinical experience suggests that, as age advances, personality seems to become a more important factor than environment in leading to crime. In young and middle-aged persons a first offence is only now and then an early indication of mental abnormality. In an elderly person it should at once arouse suspicion of senile degeneration. Many habitual criminals are not deterred by age from committing crime, and there is almost no upper age limit.

The official statistics throw little light upon the mental background associating crime with senescence and senility. If, however, growing old is as natural a process as growing up and senescence is the counterpart of adolescence, it becomes practically important to differentiate criminal behaviour which is associated with senescence from that which can be attributed to the mental diseases of senility. Criminal behaviour may be due to an unexpected jolt suffered by a tottering personality. Ageing is not always a uniformly progressive and unobtrusive reduction of physical and mental power. A physical illness, grief, or other severe emotional disturbance may quicken mental deterioration. An outstanding evidence of senescence is the failure to exercise the authority of former years. An employer who becomes for practical purposes the employee of his partner may be forced to take part in a fraud without fully understanding its implications and may be left to face the consequences alone. Nowadays the occupations as well as the amusements of aged persons tend to become less social, less varied, more solitary, and more proprietary. Unless the problem of leisure is treated with much consideration the aged person may adopt an undesirable pattern of life, and crime may result from a new habit of relieving tedium by alcohol or some other time-passing appeasement. Just as intellect and emotion deteriorate in senescence, so does the power to will, and hence the power to inhibit illegal behaviour. Senescence passes into senility when the impairment of mental and moral vigour becomes excessive, the mental activities being imperfectly synchronized, and when initiative, judgment, and perseverance fail and social maladjustment results. The practical difference between senescence and senility in criminal cases is measured in terms of social adjustability and the capacity to deal with personal problems as they arise. When an aged person is implicated in criminal proceedings it is well to differentiate senile and arteriosclerotic dementia from other psychoses. This need applies with particular force to the differential diagnosis of the depressive and manic varieties of senility from manic-depressive disease in the aged. Prognosis will largely depend on previous history. In early senile dementia crime is usually trivial, but serious crimes are rather frequently associated with depressive, manic, and paranoid dementia. In depressive cases attempts at suicide are common, and homicide, often altruistic in purpose, is not rare. Hallucinations and delusions often underlie crimes of violence. Sometimes acute or chronic alcoholism is superadded, especially in cases of marital jealousy. The conduct and mental condition of a senile offender should be compared with his own standards of former years as well as with the standards of so-called normal persons.

Dr. East concludes that a knowledge of the mental background of the aged offender may suggest the most suitable way of dealing with him and of protecting society from his misconduct. The modification in his culpability should be considered by the court before sentence. The weaknesses of the aged offender may, he suggests, claim our sympathy if not our respect.

MUSCLE NECROSIS AND INFECTION

A reaction peculiar to a particular experimental animal i a frequent source of fallacy and misleading analogy: later when fully understood, the experimental findings ma be usefully applied to conditions in man. An excellen example of this sequence is given by recent investigations of "shock" in the dog. This animal's tissue characteristically contain clostridia as normal flora. When muscle was excised, crushed, and re-implante under sterile conditions the animals died in what Prinzmetal and his colleagues[2] term "toxic shock." They contrast this with the "extravasation shock" brought abou by local loss of fluid. The former was delayed in onse for many hours, and the local loss of fluid was sligh according to the authors' figures for plasma volume. A necropsy the site of re-implantation was grossly contaminated with pathogenic streptococci, staphylococci, an clostridia. These authors[3] found that if sulphamerazin was inserted locally or administered within six hours "toxi shock" did not appear. Some benefit was obtained eve after seventeen hours' delay, but no protection was seen i treatment was delayed for twenty-four hours. A simila observation was made when removal of the crushed musc prevented the appearance of toxic shock. A finding c some interest is that the concentration of sulphonamid was three times higher in traumatized tissue than in norm muscle. This is difficult to explain, for although the extr cellular phase of muscle, normally about 15%, ma increase after injury to 75% (judged by chloride distr bution in experimental and human crushing injury), sulpl anilamide, like urea, is distributed in the water of bot compartments.[4] Sulphamerazine may perhaps distribu itself differently.

Necrosis, caused by occlusion of the blood supply muscle in the dog at open operation, has given similar result Aub and his colleagues[5] have shown that the plasma-lil fluid seeping from such injured muscle in 9 out of 32 animals caused a slowly developing and fatal shock when injected into other normal dogs. There was a close correlation between the clostridial counts of such fluids and their toxicity, which appeared to be chiefly due to exotoxin. Uninfected exudates were without significant physiological effect. Complete protection was conferred by injecting the recipient with antitoxin. In the rabbit, on the other hand, ischaemic necrosis of muscle by pressure without external injury[6] produces only "extravasation shock." The amount of plasma loss is proportional to the volume of tissue damaged. There is no infection and no delayed "toxic shock."

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[18] *J. Amer. med. Ass.*, 1944, **126**, 691.

[19] *J. ment. Sci.*, 1944, **90**, 835.

[1] Wilson and Roome, *Arch. Surg.*, 1936, **32**, 334.

[2] Prinzmetal *et al.*, *War Med.*, 1944, **5**, 74.

[3] Freed *et al.*, *Surgery*, 1944, **16**, 914.

[4] Sise, *Proc. Soc. exp. Biol.*, N.Y., 1939, **40**, 451.

[5] Aub *et al.*, *War Med.*, 1944, **5**, 71.

In man the response to muscle damage resembles that seen in the rabbit more closely than that in the dog; infection, when it occurs, is implanted from without rather than developed locally. Aub and his colleagues showed that no clostridia could be cultured from sixteen human muscle biopsies. Clinically, cases of muscle necrosis seen in this country without an external wound, as in the crush syndrome, have not been complicated by local infection, though such necrotic tissue would make an excellent medium for anaerobic bacteria. It seems probable, however, that if contamination through an external wound occurred growth would be rapid: it is in these circumstances that the findings of Prinzmetal and Aub and their associates in the dog can be applied. Prophylaxis by débridement and by administration of sulphonamide or penicillin is essential. This applies also, as is generally ecognized, to the more usual wounds involving muscle without prolonged pressure ischaemia, especially if there s any interference with blood supply. In this type of case, in which an external wound is associated with damage both to muscle and to vessels, the mortality is high, due occasionally to anuria, sometimes to infection, and sometimes to fat embolism from associated fractures. The experimental findings again emphasize the need for prophylactic treatment based on an early clinical assessment of the type and extent of damage sustained.

LEPROSY IN THE BRITISH EMPIRE

Sir Leonard Rogers has written a pamphlet entitled "The Foundation of the British Empire Leprosy Relief Association," a body which lately came of age,[7] but the pamphlet also epitomizes the history of the treatment of leprosy and urveys the extent of the problem in the British Empire. The author describes it as the "simple fact" that until thirty years ago the outlook for sufferers from leprosy was little better than in the times of Naaman the Syrian. The only measure up to then in common use was compulsory egregation, or, in plain language, imprisonment for life with no hope of recovery. The man who is chiefly responsible for an achievement should not also be its historian, or modesty will prevent him from giving an adequate ssessment of his own labours, but the work of Sir Leonard Rogers himself, briefly recounted in this publication, in obtaining the injection of the soluble sodium salts of the fatty acids of chaulmoogra and other oils intramuscularly, nd still better intravenously, is well recognized. As a result of this and other advances the problem of lowering the incidence of leprosy resolved itself into discovering and treating new infections in as early a stage as possible. The British Empire Leprosy Relief Association was founded in 1923. It must have been a daunting experience for those concerned, including Sir Leonard Rogers himself, to find Mansion House appeal, supported by a former Viceroy f India and two Secretaries of State, which aimed at a quarter of a million pounds, bring in only about one-sixtieth of the expected amount. But the officers of B.E.L.R.A. did not permit themselves to be discouraged, and gradually it acquired a workable income, and has managed not only to exist but to carry on enterprises surprising in their variety and range, of which a summary is given in this pamphlet.

The extent of the leprosy problem in the British Empire, when stated in figures, looks formidable enough. It is estimated that there are 1,200,000 lepers in India, 750,000 in the parts of Africa over which the British flag flies, and 50,000 elsewhere in the Empire. Fortunately, the problem is much simplified now that it is known that only from 200,000 to 400,000 of this total are nodular or lepromatous cases, requiring isolation. Sir Leonard Rogers discusses the essential points in the policy of B.E.L.R.A. for handling infective and non-infective cases, and the care of household contacts and of children born to lepers. On the need for further research he points out that a reliable curative drug for every type and stage of leprosy is still lacking, despite the intensive work of the last thirty years, and that care should be taken in speaking of the "cure" of such a disease at all, because even in the more amenable early stages relapses may occur. For this reason B.E.L.R.A. has put laboratory research and epidemiological studies and surveys in the forefront of its programme. Here the remarkable discoveries in the field of chemotherapy in recent years whereby a number of widespread and dangerous diseases have been combated hold out hopes of similar success against leprosy. In its twenty-one years B.E.L.R.A. has demonstrated that if given enough money it can greatly reduce, and perhaps at length eradicate, the most dreaded of all diseases.

BIRMINGHAM UNITED HOSPITAL

Birmingham United Hospital, which includes the General Hospital and the new Queen Elizabeth Hospital at Edgbaston, now has a ten-years history. Its latest annual report puts on record the work of a busy year. The General Hospital has been unable to bring all its beds into use, but its emergency in-patient work and its vast out-patient and casualty service have been fully maintained. The Queen Elizabeth Hospital has had 12,366 in-patients, of whom more than one-fourth, admitted from D-Day (June 6 of last year) until the end of 1944, were wounded men from the fighting Services. The ordinary peacetime capacity of the Queen Elizabeth Hospital is 576 beds, but the average daily bed occupation throughout the year was 648. The new hospital is now firmly established in its service not only to the city but to wide areas of the Midlands. A note is made in the report of the fact that one recommendation of the Goodenough Committee has been anticipated in Birmingham. The Vice-Chancellor of the University and the Dean of the Medical Faculty are members of the board of management of the United Hospital, and more formal arrangements for cross-representation have now been agreed in connexion with appointments to the staff both of the medical faculty and of the hospital. Another development, if present proposals go forward, is that the cancer service for the Midland area will largely centre around the United Hospital.

The Dissolution Honours announced on June 7 include a Viscounty for Lord Addison, M.D., F.R.C.S., Leader of the Labour Party in the House of Lords since 1940; and a Barony for the Right Hon. Sir Douglas Hacking, Bt., M.P., who has been a Crown nominee on the General Medical Council since 1932. Both awards are for political and public services.

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[6] Bywaters and Popyak, *Surg. Gynec. Obstet.*, 1942, **75**, 612.
[7] See *British Medical Journal*, May 12, 1945, p. 672.

BRIDGING THE GAP

REALISM AND HUMANISM IN MEDICAL TRAINING

BY

Ff. ROBERTS, M.D.

The most astonishing feature of the discussion raging on the medical curriculum is that the faults now so eloquently admitted are no new discoveries but have been well known for a considerable time. In 1932, to go back no further, the *Lancet* published a series of articles in which almost everything was said that is being said to-day. Deans of medical schools and others have uttered brave words which have been completely ineffective. Many of the medical members of the Goodenough Committee and of the witnesses whom they heard are those who, although occupying, or having occupied, influential positions, have failed to put their house in order. Two important groups of the profession the committee ignored: general practitioners, who are no mean judges of their training; and junior teachers, who are still young enough neither to have settled into an academic groove nor to have forgotten the difficulties which they experienced in their student days.

The Goodenough report must be judged not by the acclamation with which it has been greeted, particularly in the lay press, but by the answers which it gives to the following questions. Does it show a sufficiently fundamental insight into the problem? Does it take into account the inertia which is inherent in medical education? Has it succeeded in ascribing that inertia to human limitations, to the nature of medicine, to under-estimation of the difficulties of the problem, or to any other cause? Finally, do its proposals differ substantially from those which have been so frequently suggested, and have they any better prospect of attainment?

The chief problem is how to bring about a closer relationship, or, as the Goodenough Committee puts it, how to bridge the gap between the pre-clinical and clinical stages. Accepting this metaphor, we have to face the following facts. First, bridges already exist where the gap is narrowest. These are simple departures from the normal which can be adjusted physiologically, such as the treatment of myxoedema with thyroid extract. They, however, are exceptional; in general the gap is and must for long remain unbridgable, though of course it is slowly being narrowed. Secondly, wherever a reliable bridge is built there is no delay in using it. The vitamins furnish the best example. Thirdly, bridges have long existed without their being recognized until formally opened and strengthened for heavy traffic by the scientists: the East India Company gave their sailors fresh fruit 300 years before vitamins were discovered. Fourthly, it is fatally easy to build bridges strong enough to the outward eye but incapable of bearing the strain of practical use. Facts incontrovertible in the laboratory are applied to clinical medicine in a manner quite unwarranted. The best examples are the indiscriminate use of the hormones and the ready acceptance of the biased blurbs of research propagated by commercial travellers.

Fifthly, bridges are imagined where they do not exist. The problem is over-simplified by the popular tendency to present medicine merely as the study of disordered function. Disease, it is said, is dis-ease. But medicine is concerned with the infinite variety in relationship between three factors: the causative agency such as infection, malignancy, or degeneration; the reaction of the body to that agency; and the efforts of the body to continue its functions under adverse conditions. A picture of life being carried on in a bombed town is but part of the whole scene of desolation, and neither explains the cause of the catastrophe nor suggests the remedy. In some conditions, such as carcinoma of the oesophagus, the disorder of function is very simple. In others, such as appendicitis, it does not exist, because we do not know the function of the organ concerned. In others it is too obscure to be tracked down to any particular organ. Every radiologist knows how often cases are referred to him with a provisional diagnosis—"? stomach, colon, appendix, or gall-bladder." We may note also the wide difference in disorder of function shown by such closely allied conditions as intrinsic and extrinsic carcinoma of the larynx. Nor must we forget that preoccupation with disorder of function is the commonest cause of failure to discover the true nature of the disease. The best answer, however, to those who believe that disease is mainly disorder of function is provided by the existence of what we call functional disease—one of the best jokes that Nature plays on Man or Man plays on himself.

In demanding that medicine must be taught "as a smooth and logical development" of the pre-clinical subjects the Goodenough Committee has formed a conception of medicine which bears little resemblance to reality. It presents Hygeia as a pin-up girl flamboyantly overdressed in scientific finery, and it remains to be seen whether she proves more inspiring in this glamorous guise. If the medical schools transfer their worship to this new deity one of two things is bound to happen. The first is that the cleavage between physiology and medicine may be healed, but only to be replaced by a more disastrous cleavage between an artificial form of medicine and medicine as it really exists. The second and more probable result will be that the attempt will prove abortive, because the true nature of medicine will assert itself.

The Mixture as Before

The Goodenough report hashes up the old catchwords: less factual knowledge, ruthless pruning, better co-operation between pre-clinical and clinical teachers, and more attention to principles. Factual knowledge must of course be curtailed, but let us not fall into the error of minimizing its importance. There is nothing inherently wrong with factual knowledge provided that the items are related to one another. Every subject is in substance a mass of facts, and the student who, having a well-ordered mind, can memorize them must progress faster than the student not so endowed. As for "ruthless pruning," no metaphor could be more inept, as will be obvious to anyone who considers the original horticultural connotation of the term. If the sequence of thought is not to be utterly destroyed the necessary curtailment of the curriculum must be carried out not with ruthlessness but with the utmost circumspection. With the need for co-operation between pre-clinical and clinical teachers I have previously dealt. Here I need only repeat that the sole obstacle is the will to achieve it. Pre-clinical teachers have always had free access to the wards and to clinical material; they have failed to make use of these facilities because their own inclinations and interests lie in a different direction.

As for principles, we may well ask what these are and where they are to be found. The term "principle" is simple enough when applied to human conduct. In the physical world the facts of observation and experiment lead to the formulation of principles (more accurately termed laws) from which further facts can be predicted. The law of Avogadro, the periodic law, the phase rule, and Le Chatelier's principle form the basis of physical chemistry. But in the textbooks of physiology principles or laws are few and far between. There are, to give only a few instances, no laws concerning the functions of the spleen, cerebral localization, fat absorption, pituitary function. Physiology is concerned not with *principles* but with *facts* which have been obtained by experiment and observation and from which *functions* are deduced. Only in exceptional instances has knowledge of these functions been integrated into principles. And this applies with even greater force to topographical anatomy, which by its very nature is totally devoid of principles. How wide of the mark, then, is the Goodenough report when it says that "in the pre-clinical period students . . . are concerned primarily with the principles of the normal structure and functions of the human body."

Experience

We therefore see how superficial are the remedies proposed for bridging the gap. Our planners having failed us, let us turn to the educationists, starting from their main principle—a principle known to Aristotle and thus enunciated by Sir Richard Livingstone: "That almost any subject is studied with much more interest and intelligence by those who know something of its subject-matter than by those who do not; and, conversely that it is not profitable to study theory without some practical experience of the facts to which it relates."

How far is this principle applied in medical training? In the whole of physics and nearly the whole of chemistry every proposition can be proved by class experiment. The same is true of biology and anatomy in so far as these concern structure. This, however, is not to say that the presentation of these subjects is ideal. There must be something seriously wrong with the teaching of physics to make it possible for the Medical Research Council to publish a lengthy report (No. 161, 1931) based on the fantastic notion that a liquid expands when the tension to which it is subjected is removed. But the fact remains that these subjects are taught vividly by direct experience.

On the death, in 1907, of Sir Michael Foster, the first professor of physiology at Cambridge, his successor, Prof. J. N. Langley, wrote: "The primary idea of Foster's teaching was that scientific instruction should be based upon first-hand knowledge, and that a student must see and do things for himself in order to gain a real and lasting hold on any scientific subject."

How has the teaching of physiology lived up to this ideal? Some of the facts can be demonstrated on the human body, others in the test-tube and on lower animals, but by far the greater part of the subject is learnt indirectly from books. The whole of metabolism, absorption of food, blood formation, and the functions of the brain, semi-circular canals, cochlea, and reproductive organs are learnt in this way. Even the teachers have little, if any, first-hand knowledge of them, for they themselves have only learnt them from the books, with the result that the information when it reaches the student is second-, third-, or *n*th-hand. Let us take a typical example from a current textbook.

> "Suppose that a decerebrate cat be also deprived of its labyrinth. If the head be rotated about the long axis of the trunk so that the chin moves towards the left shoulder it will be found that the left fore limb extends and that the right fore limb suffers decreased extension. Experiment shows that it is the turning of the 'atlas' vertebra on the 'axis' which brings about this modification of postural tone . . . Suppose in another experiment that the neck be bent so that the right ear approaches the right shoulder. It will be found that the extensor tonus in both left front and left hind limbs is diminished. . . ."

This passage is by no means exceptional. There are pages and pages of the same kind of thing. It is all remote from experience, and the student has to make a mental image of it as best he can for examination purposes. It is true, of course, that many of these experiments cannot be demonstrated to a class, but what a splendid field this is for the cinematograph! Not only the cinematograph but even simple direct methods of demonstration are woefully neglected. Few students are shown the movements of the human stomach radiologically. doubt whether many pre-clinical teachers have seen them. This fascinating subject is too commonplace for them; they find it less trouble to teach it from the book descriptions of xperiments on the cat. The first principle of every teacher should be to present every part of his subject as realistically s possible.

The Value of Unexperienced Facts

But even if this were done there would remain a hard core of undemonstrable facts which would still have to be learnt indirectly. What is the intellectual value of subjects remote from experience? Let us turn again to Livingstone:

> "A schoolboy, who may know nothing of the realities which history or literature or politics or economics deal, can get this training from their study; their facts and theories are to him counters with which he learns to use his brain in these and related subjects; to argue a case and weigh evidence, to distinguish the relevant from the irrelevant, to seize the point at issue, to arrange his thoughts and marshal facts to support a theory, to discover when a statement is proved and when it is not, to reason logically and express himself clearly—in fact to play the great game of the intellect."

How do the pre-clinical subjects stand up to this test? As an example we may consider what the student learns about the cause of the bile-flow? In one book he reads, among other things, that "the contraction of the gall-bladder is brought about by the entrance of fatty foods into the duodenum. The contraction may be brought about by the hormone cholecystokinin, which passes via the blood stream from the duodenum to e gall-bladder." There the fact stands in all its hideous nakedness and gloomy isolation, without any other reference to cholecystokinin, a fact to be learnt and memorized. And there are hundreds of facts stated just as baldly. In another book the subject of pancreatic and biliary secretion is described with a wealth of detail. Among the causes of bile secretion, we are told, is the injection of secretin. After describing the other causes the author sums up by saying "that the expulsion of bile promotes pancreatic secretion by aiding the transference of secretin into the blood, and it augments the flow of the bile itself." If the student were not exhausted by the morass of facts through which he had floundered he might have sufficient freshness to reflect that here is a double vicious circle. For if the excretion of bile from the liver stimulates the formation of secretin, and if the formation of secretin in turn stimulates the excretion of more bile, why does the excretion of bile once begun ever stop? Similarly, if the excretion of bile stimulates the excretion of more bile why does the process ever stop? The student is bludgeoned into passive acceptance of orthodox teaching. Where is any scope to argue a case—to weigh evidence and to reason logically? The truth is that the pre-clinical subjects are very far from providing that training in "scientific thought and criticism" which, according to the Goodenough report, should be carried into clinical medicine.

As facts have accumulated with the years, their presentation has degenerated. Langley wrote of Foster's *Textbook of Physiology* (1876 edition): "The distinguished characters of the work are its good literary style, and its suggestive and impartial manner of discussing physiological questions. . . . A host of medical practitioners, who could not bring themselves to study *arid physiological facts* [italics mine] read it with equal pleasure and profit." Of how many modern textbooks could this be said? It is significant that Foster spent two years in general practice. Perhaps the experience so gained at least contributed to his warm human outlook. The true remedy lies not in the ruthless pruning of facts but in a fundamental reform in their presentation.

The Introduction to Clinical Medicine

The Goodenough Committee stresses the bewilderment which students feel on entering the wards, but it has entirely missed the important point that this bewilderment is felt in the measure that they have been led to expect "an easy transition" between the pre-clinical subjects and medicine. In the pre-clinical lectures they have been led to believe that a cerebral tumour must present a pretty physiological exercise in location, but they are soon disillusioned, for they find people talking in quite a different language, about headache, vomiting, and optic neuritis, and they may find reliance being placed on radiological rather than on physiological evidence. It comes as a rude shock to them to learn that the cases which present the classical pictures so dear to those with little experience are the few which have been carefully selected in the textbooks for the teaching of physiology, not for the teaching of medicine. Similar instances could be given from other branches of medicine. The student soon learns to discard his previous theoretical instruction, and who can blame him? In preferring the real to the unreal, the direct to the indirect, is he not obeying a sound human instinct?

Since structure is taught more directly and more vividly than function, the student enters the wards with a bias towards a structural and against a functional interpretation of phenomena, a bias which he retains throughout life. He fails to appreciate what is almost the first principle of medicine—namely, that wherever anatomical and physiological criteria are in conflict the physiological criterion should nearly always be accepted. On the advent of the radiological investigation of the digestive system failure to observe this principle sent the profession hurtling down an abyss of error from which it is only now painfully emerging. The number of patients who are told that they have "dropped stomachs" and who are provided with quite useless belts shows how much we have to learn about the wide variation in the size, shape, and position of organs which is compatible with normal function.

Yet even the teaching of structure fails. The student spends an immense amount of time in dissection, but his fingers are completely insensitive to the feel of the abdomen, muscles, joints, axillae, and groins. Nor is this failure rectified in the wards, for there he approaches the patient with a bias towards the abnormal. *Thanks to their training, there are many doctors who have a less intimate knowledge of the body than medical auxiliaries.* Masseuses often know better what they are feeling, and radiographers often know better from the clinical appearance of an injured arm whether the elbow, forearm, or wrist should be radiographed. The clinical acumen which these auxiliaries acquire is not surprising; it only shows how exuberant is the growth of curiosity when fertilized by opportunity and sheltered from the icy blast of pedagogy. I fear to pursue this line of thought lest it lead me to the conclusion that the whole of the student's curriculum can be debunked.

Intellectualism

We therefore see how fundamentally ill adapted, both culturally and vocationally, the pre-clinical course is for the training of doctors. The root-causes are three. First, promotion in the academic field is the reward of capacity for research rather than for the ability to teach ordinary minds. Research workers have so often said that students derive great benefit from contact with them that the plain man has not dared to question it. But while admitting that students should be taught by original minds we may very humbly question the doctrine that a man is a better teacher of things with which his students will come into daily contact *because* he is engaged in a research problem quite unrelated to their future work. Secondly, teachers are not taught how to teach. The Goodenough Committee recognizes this fact, but its remedy is singularly inept. The committee suggests the inspection of medical schools, but in a form foredoomed to failure so far as the quality of teaching is concerned, because the inspection is not to be carried out by a completely independent body. Thirdly, the evils of our methods of teaching and examination are such as automatically perpetuate themselves. The system to which students are subjected is the very system which produces the type of teacher by whom those students are taught. For by this system it is primarily the faculty for memorizing unexperienced facts which opens the doors to an academic career. Those who possess this faculty cannot put themselves in the place of those who are not so gifted, hence the neglect of the cinematograph and other simple means of demonstration. This too the Goodenough Committee has failed to understand. While it starts from the principle that the basic training should be the same for general practitioners and consultants, it abandons this excellent principle at the first opportunity, giving its warmest benediction to the establishment of an undergraduate school for "carefully selected students" who are to become "teachers, investigators, and consultants rather than general practitioners." Could any scheme be better devised for widening the gulf between the intellectuals and the rest of humanity?

The committee pays lip-service to the cause of humanism, but in reality comes down heavily on the side of intellectualism. It heartily endorses the self-satisfied words of one of its witnesses: "In the last limit [whatever that may mean] it is essential to place trust in those engaged in teaching and research." The tendency on the part of those whose interests lie mainly in research to enlarge and complicate their subjects regardless of their importance to students is apparently uncontrollable from within, and must therefore be controlled from without. It is precisely because no such control has been exercised that medical training has come to such a sorry pass. To the teacher-researcher the report promises an earthly paradise, but what does it do about the really simple things which affect the ordinary man? Are its proposals calculated to correct those faults which are so obvious to all who have eyes to see: the failure to arouse curiosity; the failure to teach observation and the memorizing of observations; the failure to teach students to marshal facts, to reason, and to use their common sense? The fundamental cause of the failure of the curriculum is the stranglehold by intellectualism on a subject which is essentially human and practical, a stranglehold which the Goodenough report is designed not to relieve but to intensify.

> "... the art and practic part of life
> Must be the mistress to this theoric."

Reports of Societies

URINARY COMPLICATIONS OF PREGNANCY

A joint meeting of the Sections of Urology and of Obstetrics and Gynaecology of the Royal Society of Medicine was held on May 24 for a discussion on urinary complications of pregnancy. Mr. F. McG. **Loughnane**, president of the Section of Urology, was in the chair.

Mr. **Joel Gabe** first described the changes which occurred in the urinary tract during pregnancy. As early as the third month there were changes in the upper urinary tract. The anatomical changes most often seen were dilatation of the calices, the pelvis, and the ureter as far down as the pelvic brim. The abdominal ureter was often elongated and might become tortuous, kinked, and laterally displaced. Kinking usually affected the upper third of the ureter and might be so marked as to obstruct ureteric catheters. Even before the uterus was large enough to exert pressure certain physiological changes occurred—namely, atony, relaxation, and stasis. These were generally regarded as due to the action of hormones elaborated by the placenta. If the urine of pregnant women were injected into virgin rabbits changes were produced in the urinary tract of the rabbits like those observed in the pregnant animal. It had also been shown that the amount of prolan B and oestrin excreted in the urine increased during pregnancy.

The stasis and atony which occurred were the perfect prerequisites for infection, and it was remarkable that this did not happen more often. Stasis was found in 73% of primiparae and 45% of multiparae. When excessive it might cause temporary renal impairment, but normally the total renal function was unaffected and there were no changes in the blood chemistry. After normal pregnancy retrogressive changes occurred in 60% of women within two weeks of delivery, and intravenous pyelograms were usually normal by the tenth day of the puerperium. Ureteral atony might persist for a fortnight or longer.

Calculus

After discussing some bladder complications Mr. Gabe spoke at length on urinary calculus, which was not, he said, strictly speaking, a complication of pregnancy, but rather a complication which occurred during pregnancy. If a woman was known to harbour a calculus she should be advised to have it removed before embarking on any future pregnancy. Calculus in the urinary tract was commonest at the ages between 30 and 50 whereas the majority of pregnancies were before 30. During pregnancy calculi in the kidney and ureter were found in about equal proportions and very rarely in the bladder. The symptoms in the early months were the typical ones of pain and haematuria, but after the fourth month a calculus was more likely to give rise to infection than to pain, and the kidney might be found enlarged from pyonephrosis. During the period of general atony calculi seldom passed spontaneously. Caliceal calculi were less harmful as a rule than those in the pelvis.

Generally the policy of waiting until after the termination o pregnancy was justified if there were no symptoms, if renal function was good, if infection was minimal, and if the stone because of its position, was unlikely to give rise to trouble otherwise the procedure to be adopted depended upon the stage of pregnancy and the site of the stone. Serious complications such as pyelonephritis, perinephric abscess, oliguria, anuria, an uraemia, required urgent treatment. An operation in the firs four months was much easier to carry out than later on, particularly upon the ureter, and there was a longer period fo the wound to heal soundly. For ureteral calculi cystoscopi methods of removal should, of course, be tried in all suitabl cases, and if the calculus could not be removed by this mean obstruction might be overcome by pushing it up into a mo dilated part. Advanced pregnancy was no absolute contraindication to operation if the patient's condition required i but, generally speaking, a conservative attitude should b adopted.

Tuberculosis of the Urinary Tract

Tuberculosis of the urinary tract complicating pregnanc was infrequent and usually presented itself as a sterile pyuri Although pregnancy was occasionally tolerated surprising well, most cases were made worse by it. The symptoms were exacerbated, the renal function deteriorated, and pyelographic films showed increasing destruction. The spread of tuberculosis during pregnancy might be due to lowered resistance and to increased demand for calcium, resulting in decalcification of nodules and liberation of tubercle bacilli. Usually severe bladder symptoms were present; frequency was marked both day and night. When tuberculosis developed on the top of pyelonephritis the change in the symptoms was marked and abrupt, and the organisms responsible for the pyelonephritis might disappear from the urine. Extensive lesions might develop in the course of a month. Early interruption of the pregnancy followed by nephrectomy gave the best results. Palliative treatment was indicated in cases affected by chronic urinary tuberculosis without untoward symptoms.

Mr. Gabe then briefly discussed neoplasms and solitary kidney, and in conclusion strongly advocated a full urological nvestigation in all cases with a previous history of urinary isease, and for all patients slow to recover from an attack of yelitis or who readily relapsed. If some of these complications, which were known to lead to chronic ill-health and even o-invalidism, were to be prevented, closer co-operation must obtain between the general practitioner, the obstetrician, and he urologist. As routine measures microscopical and bacteriological examination of the urine and an increasing use of intraenous pyelography were minimal requirements.

Pyelitis in Pregnancy

Miss GLADYS DODDS gave some observations on 287 cases of nte-natal pyelitis admitted to University College Hospital during e period 1927–44. The average age of the patients was 25.4 ears, and 185 were primiparae. The infection occurred most ommonly before the twenty-fifth week of pregnancy. The onset the majority of cases was sudden, with acute stabbing pain ferred to one or other side of the abdomen, often associated ith shivering, occasionally with frequency of micturition, and ss often with vomiting. The acute stage lasted on the average days, and thereafter the patient's general condition improved. a small number of cases—just over 10% in this series—the sease ran a more unfavourable course, the temperature remaining high, the general condition not improving, and anaemia ossibly developing as a result of the prolonged sepsis.

Of these 287 cases 2 patients died after the pregnancy had rminated—one a day after spontaneous premature labour the 29th week, and the other 9 days after hysterotomy at e 23rd week. On post-mortem examination one of them owed a mild degree of pyelonephritis and the other a pyelophritis with acute inflammation of the kidney, pelvis, and eters.

The early patients, 186 in number, were treated with large ses of alkalis, occasionally with acids and hexamine, and ly 4 so treated had sterile urine during the pregnancy. The cond group of 37 patients were treated by ketogenic diet or mandelic acid, and 5 of these had sterile urine after treatment. The third group of 64 patients were treated with sulphamides, and in 36 of these the urine became sterile during egnancy, the majority of them within one week of starting atment. Of these 64 patients, 7 were not readmitted to spital for subsequent delivery, and were therefore lost to servation. Of the remaining 57, 1 died, 3 had induced labour cause they did not respond to treatment, 1 aborted, and went into premature labour spontaneously during the first ute attack of pyelitis. Of the other 50 only 4 had recurnt acute attacks of pyelitis (a recurrence rate of 8%) during e pregnancy. Five had an acute recurrence of infection in early puerperium, and 3 of these, on investigation, were und to have hydro-ureter and hydronephrosis.

Out of the total number, 236 of the patients with ante-natal elitis were subsequently delivered in hospital of a viable etus. Signs of toxaemia developed in 73 cases before the d of pregnancy, and 2 patients had eclampsia. The incidence toxaemia was thus 30.9%, which was lower than that of the rmal clinic population. The incidence of toxaemia in 1,864 ent consecutive deliveries at University College Hospital s 36%.

Injury to Bladder during Childbirth

Prof. CHASSAR MOIR discussed the problems set by injuries the bladder resulting from parturition, and spoke in particular of two classes of cases—namely, patients with stress incontinence of urine and patients with leakage of urine from a vesicovaginal fistula. Stress incontinence, or incontinence on effort as it was sometimes called, was one of the commonest of gynaecological symptoms. It was the result of the stretching of the vaginal walls and supports which took place during childbirth. The usual treatment of cystocele by vaginal operation gave a very satisfactory result in the majority of cases, but it had to be admitted that stress incontinence was not invariably or necessarily permanently cured by such an operation, and a small number of women—perhaps 5%—reported back at varying dates with a return of stress incontinence, though the uterine prolapse or cystocele appeared to be completely cured. A possible explanation was that the shape of the lower part of the pelvis, formed by the symphysis and the lower pubic rami, varied considerably in different women. In some it might be impossible to brace the urethra and bladder neck well forward against the symphysis, and in such cases the functional result must remain unsatisfactory.

Prof. Moir discussed various methods which might be followed after failure with the simple plastic operation, and specially commended the Goebel-Stoeckell operation, with its recent modification (1944) by Aldridge, of New York.

> A ribbon of fascia from the muscles of the anterior abdominal wall is dissected up on both sides; the upper ends are free, but the lower ends are left attached to the pyramidalis muscles. A dissection is made through the vagina on both sides of the upper urethra and a passage made to meet the abdominal dissection above. The two fascial ribbons are now brought down and united below the urethra to form a supporting sling for that organ. Finally, the vaginal dissection is closed as for a simple colporrhaphy.

He had at first thought this to be an unnecessarily extensive and elaborate procedure, but he had since performed it himself in two resistant cases, with complete cure in one and a very satisfactory result in the other. The second patient he showed to the combined Sections.

Vesico-vaginal Fistulae

Prof. Moir then dealt with the subject of vesico-vaginal fistulae, once the most dreaded of childbed injuries. There were two forms of this injury after childbirth—one of them caused by operative trauma and the other by prolonged pressure of the foetal head. In the latter type there was necrosis of the bladder wall, but urine might not escape until after 8 or 10 days, when sloughing took place. He believed the vast majority of fistulae were curable by vaginal operation. He had read with disappointment certain recent publications in which the writers took such a gloomy view of the treatment of fistula that they advocated almost as a routine measure the immediate transplantation of the ureters. No doubt good results could be obtained from this operation, but the cost was high.

The essentials for success in the vaginal operation—which he firmly believed was applicable to almost every case of vesicovaginal fistula—were: (1) good exposure; (2) excision of scar tissue; (3) the use of inert and non-irritating suture material (not catgut, unless the infolding of a deep layer was obviously required); (4) drainage of bladder by a catheter connected to a Bunsen-bottle apparatus to ensure constant gentle suction; and (5) the keeping of the patient face down, or substantially face down, for the first 5 or 7 days after operation, the stitched area being then at a higher level than the rest of the bladder. Here Prof. Moir showed tables illustrating his own series of operations concerning 24 fistulae in 23 cases. In every case a closure was effected by the vaginal operation. All the fistula cases save three were cured by one operation. The three in which two operations had to be carried out were, respectively, a patient with seven previous operations, and another with eight previous operations, in each case with most extensive scarring of the vagina, and a patient who had suffered a massive sloughing of the cervix, vagina, and bladder after radium therapy for carcinoma of the stump of the cervix. Finally he quoted Schmitz:

> "One of the greatest causes of failure in fistula operation must be attributed to a lack of understanding of the problem involved on the part of the person who first failed to close the opening. The percentage of bad results mounts rapidly after each attempt at closure. The time to close the fistula is at the first sitting."

Correspondence

Blood Transfusion

Sir,—Dr. Rice Edwards (June 2, p. 780) justly points out that some of my statements on blood transfusion are open to criticism. Speaking as I was on the application of the lessons of war to civil practice I wished to avoid losing the outline of those lessons by digression into detail. I discussed transfusion in relation to the urgent resuscitation of the previously healthy man who has been wounded or injured. In this connexion the statement that "we know no limits in amount or rate of administration other than the needs of the patient" is correct; but to the second statement, that "fit men can take any amount of O (IV) blood," it might have been wiser to add "given by a skilled transfusion officer." The rapid administration of six pints of blood to a man not rapidly bleeding at the same time is not transfusion according to the needs of the patient, nor would a skilled transfusion officer have fallen into the error.

Walshe has told us that as facts accumulate the need for their synthesis and integration increases correspondingly. There is a danger that the mass of observations that have been published in relation to shock may cloud that native hue of resolution which should be the spirit of the resuscitation ward. We must endeavour to keep in touch with the mass of valuable research work that is in progress on "wound shock," but we must leave philosophic doubt behind when we come to the side of the pale listless man on the stretcher who has just been brought in from the battlefield or the factory. It is in the treatment of such cases that the broadcasting of memoranda intended for scientific eyes alone has been unfortunate. Dozens of kidneys are damaged beyond recovery by anoxia for every one that is blocked by corpuscles or myohaemoglobin. Hundreds of men die from blood given too late, too slowly, or in insufficient quantities for every one who suffers a reaction.

The resuscitation officer must find by observation and question if blood has been lost and approximately how much, and he must replace it rapidly and completely. He soon learns to assess his patient, to assess the blood in his bottles, to assess and treat reactions. During the Eighth Army's campaign in the Middle East some 100,000 bottles of blood were distributed by Lieut.-Col. Buttle and administered in the field by his officers. I believe I am right in saying that no fatal or even serious reaction was recorded in this service.

I am unrepentant in condemning the giving of blood during straightforward operations. Blood transfusion is not the way to combat shock that is not due to blood loss, and a smooth operation should lead to smooth convalescence without biochemical assistance.—I am, etc.,

London, N.W.8. W. H. Ogilvie.

Technique of Venepuncture

Sir,—Dr. J. W. Shackle must forgive us if we point out that all that his letter (May 26, p. 749) demonstrates is that if is possible for an expert clinical pathologist to take a needle out of a distended vein before releasing the tourniquet and not produce a haematoma. His technique is not the usual one, nor is it safe if the syringe is not sterile. His own statement that it is safe will not be admissible as evidence until he has followed up a large series of his venepunctures after an interval of six months, for the incidence of homologous serum jaundice is capricious and the incubation period is long enough for patients to be lost out of sight. What we were trying to determine in our paper (*Journal,* May 5, 1945, p. 625) was how the icterogenic virus could be passed from one patient to another via a communal syringe when the *usual* technique of venepuncture for withdrawal of blood is followed. Now the usual technique is undoubtedly to release the constriction *before* the needle is withdrawn, and we demonstrated that as a result of this manœuvre there is a reflux of blood into the vein. We have just gone to the trouble of examining every book on our bookshelf in which the technique of venepuncture is described and we find they are unanimous in their recommendations:

"If the tourniquet is not released before the needle is withdrawn, blood will pour out by the puncture wound and in a few seconds a haematoma will form." (Beck, *Laboratory Manual of Haematologic Technic,* 1938, p. 24.)

"*Before* withdrawing the needle, the constriction is released." (Harrison, *Chemical Methods in Clinical Medicine,* 1937, p. 305.)

"Remove the tourniquet *before* withdrawing the needle, otherwis extravasation will occur." (Hutchison and Hunter, *Clinical Methods* 1937, p. 587.)

"Release the tourniquet and then withdraw the needle." (Kolme and Boerner, *Approved Laboratory Technic,* 1938, p. 581.)

"Release the tourniquet and then withdraw the needle. If th tourniquet is not released before the needle is withdrawn, a haematoma will be produced." (Kracke, *Diseases of the Blood,* 1941 p. 598.)

"It is essential to remember to release the tourniquet befor taking out the needle, as failure to do this is the commonest caus of an unsightly bruise or haematoma." (Stewart and Dunlop *Clinical Chemistry in Practical Medicine,* 1937, p. 18.)

"When sufficient blood has been obtained, remove the tournique and then withdraw the needle, this order being necessary to avoi a haematoma." (Whitby and Britton, *Disorders of the Blood,* 1942 p. 511.)

"The needle should not be withdrawn until the tourniquet ha been released to prevent the formation of a haematoma." (Wintrobe *Clinical Haematology,* 1942, p. 200.)

The only variation is in the description of venepuncture fo special purposes, such as determination of haematocrit percentage or blood gases. In these cases we are advised to releas the tourniquet before even withdrawing the blood. Nevertheless, some blood must be allowed to enter the syringe to sho that the needle is in the vein, and therefore some reflux mus occur when the tourniquet is released:

"Est ist also unbedingt nötig, nach Einführung der Kanüle di Stauung . . . wieder aufzuheben." (Naegeli, *Blutkrankheiten un Blutdiagnostik,* 1923, p. 7.)

"If a tourniquet is used, it must be released as soon as the needl enters the vein." (Stitt, Clough, and Clough, *Practical Bacteriolog Haematology and Animal Parasitology,* 1938, p. 291.)

In our paper we indicated that reflux might be avoided b inserting the needle upstream into the vein. Dr. Shackl suggests that it can also be avoided by removing the needl before releasing the tourniquet. We condemned subterfuges o this kind, because reflux due to negative dynamic pressure not the only way in which infection may be transmitted whe an unsterile syringe is used for venepuncture. In particula it has to be remembered that the cross-sectional area of th piston of a 10-c.cm. syringe is nearly 1,000 times greater tha that of the needle and that therefore an accidental displaceme of the piston of no more than 1/20 mm. is sufficient to forc liquid from the syringe back into the vein. A slip of th piston of this amount, which is imperceptible even to a stea hand, may easily occur when the piston is released after withdrawal. Also, it is not usual to dry the communal syrin after rinsing between cases and therefore the interior contai a little fluid. Dr. Shackle is aware of one consequence of th in his insistence on a tight piston. Unless it is tight, the pist may slip down the barrel after the sterile needle has be fitted, and if it is pushed home again some of the moisture the syringe will be forced up to the tip of the needle. D Shackle may avoid this hazard with his tight piston, b suppose he stabs the patient, withdraws the piston, and blood comes. Even worse, suppose only a little blood com and he realizes he has transfixed the vein. One can't belie these things never happen to Dr. Shackle, even after 50,0 venepunctures. Now what happens? We are afraid he w stop trying to withdraw his piston and it will be sucked ba and drive a little of the contents of the syringe on to the of the needle.

The final question is whether Dr. Shackle would take syringe with which he had just aspirated a streptococ empyema and use it for venepuncture in this way. We ce tainly shouldn't. We have now learned that blood fro apparently healthy men and women may contain an icteroge virus and we must regard any syringe which has been us for venepuncture as possibly infected. To an increasing ext nowadays venepunctures are being performed by orderli technical assistants, and graduates with non-medical qualifi tions, who are not expert pathologists and who have not h the discipline in asepsis which doctors and nurses sho acquire by working in surgical wards and in surgical theatr This trend is inevitable if medical man-power is to be used the best advantage. We believe that these people must be taught methods with a maximum safety factor; in other words, they must use completely sterile apparatus.

At this stage of the war it is admittedly hard to obtain and store large quantities of sterile apparatus, but the difficulty can be overcome. The Record syringe is tricky to clean and it does not stand frequent sterilization by heat; it is not an instrument for routine use. All-glass syringes are to be preferred as they are easily sterilized, complete with needle, by dry heat or by autoclaving; they also stand boiling well. Where very large numbers of specimens have to be taken, the difficulty can be met by using either a needle alone or blood-collecting tubes as figured by Stitt, Clough, and Clough (*loc. cit.*, p. 881, Fig. 28). Dr. Shackle will remember these tubes were in routine use at Guy's Hospital over fifteen years ago. In the future one hopes that the pathological services will supply sterile evacuated venules of the Behring type, which could be recovered and used again, as now happens with the M.R.C. transfusion kits. In any event, we believe that we must take the risks of venepuncture rather more seriously than Dr. Shackle if we are to make pathological investigations safe for the patient and protect ourselves from unjustifiable criticism.—We are, etc.,

K. A. G. Mendelssohn.
L. J. Witts.

Radcliffe Infirmary, Oxford.

Masking Syphilis with Penicillin

Sir,—The following may be of interest.

A soldier exposed himself to venereal infection in North-West Europe on Oct. 10, 1944. He developed a discharge on Oct. 14; gonococci were demonstrated, and 20 grammes of sulphathiazole were given in four days; the discharge ceased, but returned after three days and gonococci were present again. On Oct. 23 100,000 units of penicillin were administered in five injections of 20,000 each at three-hourly intervals. The discharge cleared rapidly, but on Dec. 13, 1944, a small ulcer appeared on the glans penis with a mild balanitis. On Dec. 13, 14, and 15 dark-ground examinations were negative and the Kahn reaction was negative on the first of these days; simple washes were applied and the sore healed in seven days. On Dec. 31 three small ulcers appeared on the margin of the prepuce and *Sp. pallida* were present; the Kahn reaction was negative: 2,400,000 units of penicillin were given over a period of 7½ days, and on Jan. 8, 1945, the sores were healed. The incubation period was therefore approximately 64 days, reckoning from Oct. 10 to Dec. 13, 1944, or 82 days reckoning from Oct. 10 to Dec. 31.

This case illustrates well the effect of a comparatively small amount of penicillin in delaying the appearance of a syphilitic sore, and suggests that every case of gonorrhoea treated with penicillin should be kept under careful observation for syphilis; we do not yet know for how long this should be, but probably three months as a minimum, and it may be that a period of six months, which is routine in the Army, is safer.—I am, etc.,

T. E. Osmond,
Brigadier; Consulting Venereologist to the Army.

London, S.W.1.

Diarrhoea in Chronic Malnutrition

Sir,—Non-infective diarrhoea associated with diminished food tolerance and generalized malnutrition is fairly common in my experience among the aged sick admitted to this hospital. These cases present features analogous in many respects to those seen in returned prisoners of war who suffer from malnutrition and dietetic diarrhoea. In combination with a controlled food intake (vitamin and mineral supplements where indicated) I have found crude liver extract to be a useful adjunct in the treatment of these cases. Four c.cm. daily is given parenterally into anaesthetized areas for a period of one week, and then on alternate days for a further week. I have found dietary restrictions unnecessary in most cases after this period. Relapse is uncommon if tolerance to a well-balanced diet is achieved. However, in those cases where clinical evidence of a vitamin-B-complex deficiency is pronounced at the outset weekly injections are continued for longer periods.

My sole case of a returned prisoner of war who showed chronic malnutrition and a non-infective diarrhoea did well with this treatment. He was free of diarrhoea by the third day and on the seventh day was demanding, successfully, a normal diet. Hypoproteinaemia, anaemia, and pitting oedema of the extremities were present in this case. In addition, there was activity in a right lower lobe bronchiectasis.

In view of the topical importance of this subject I would suggest that controlled observations might be made on the value of this therapy (if such has not already been done), particularly at centres where a sufficient number of cases present themselves.—I am, etc.,

P. Harvey,
Senior Resident Physician.

St. Stephen's Hospital, S.W.10.

Carbachol and its Antidote

Sir,—To Prof. J. H. Burn's letter (June 2, p. 781) I reply with diffidence. Any statement from so eminent a pharmacologist must command respect. I venture to submit two criticisms.

First, the undergraduates and carnivora of Oxford, who have all survived their carbachol experiences, are not patients handicapped by disease and operation. Secondly, Prof. Burn admits that if atropine injection is delayed until "carbachol has brought the patient to the point of death" all is not well. But is not such a delay inevitable, since house-surgeons have numerous duties? To the true pharmacological latent period of the action of atropine must be added other valuable moments—the resident must be found, he must decide whether the collapse is serious or not, he must find a vein.

Prof. Burn's criticism of my use of "often" in relation to hypertension observed in patients who have received 100 mg. of carbachol is quite fair. It was a *lapsus calami*. In the trial of the "moryl" case, in addition to the clinical records of the deceased, those of two patients who survived a dose of that magnitude were in evidence. These cases all showed gross hypertension, although atropine had not been given. I imagined that the nicotinic actions on ganglia and adrenals had been greater than the muscarinic effects. I was not certain that ventricular fibrillation could be excluded as a cause of death in the fatal case. Indeed I must dissent on a third point. I have more than once seen adrenaline produce ventricular fibrillation in cats untainted by chloroform.

I am also under the impression that the work of Starr and his colleagues showed that the action of atropine against carbachol symptoms was slower and less certain than that against other choline esters. *Tot homines, quot sententiae.* Atropine should doubtless be given as antidote for collapse due to a therapeutic dose of carbachol. I am not satisfied that the pressor action which seems to have obtained in the cases mentioned above would have benefited by injection of atropine. In the case of collapse due to a small dose of carbachol I should prefer as antidote a parasympatholytic agent devoid of central effect on the cardio-inhibitory centre.

There is perhaps a need for a fresh inquiry, based on clinical data, into the safety of carbachol used as a pharmacological catheter.—I am, etc.,

Hugh Dunlop.

London, W.1.

Treatment of Impetigo

Sir,—A former teacher of mine used to say that if you were prepared to be sufficiently meticulous in the dressing of the lesions of impetigo it did not really much matter what medicament you used upon them; they would eventually get well. The authors of the article on impetigo (May 19, p. 699) seem to have come to much the same conclusion. It is certainly to their credit that they appear to be willing to spend twice daily upon each of their patients about the same length of time as they must have spent in the writing of the article; but in case some of your readers conclude that there has been no advance in the treatment of the disease in the last thirty years, I feel the following remarks are justified.

First, the authors have written *Faust* without Mephistopheles, for although they do not mention it, the prime "villain of the piece" in impetigo is not the poor sulphonamides but a coagulase-positive *Staphylococcus aureus*, and one has no right to dismiss antiseptics and "sulphonamides" without taking this into account. It is as illogical to employ sulphanilamide for impetigo as it would be to use streptococcal antiserum for a man with boils. In an army over-seas, jealous of its man-power for battle, one has sought to achieve a "time to cure" not of 10.4 days, still less of 22, but rather of 5 or 6 and, recently especially, one has begun to succeed. From experience gained there I think it safe to conclude that in the post-war world only two drugs will be considered—namely, penicillin and sulphathiazole. Two methods of using them are as follows:

1. *Penicillin.*—Use freshly prepared solution, 200 units per c.cm. Shave the parts, remove crusts, then spray with the solution, allow to dry, and leave exposed. Repeat the spraying twice daily for 4 or 5 days.

2. *Sulphathiazole.*—Use as a 15% lanette wax cream. Shave and remove crusts, then apply the cream; and cover with lint and secure with bandage or strapping. Leave untouched for 4 days. If not wholly cured then, remove the crusts once more from the unhealed parts, re-apply cream and dressing, and leave 2 days more only. Do not use the cream further on that patient.

The penicillin is probably slightly the more effective and for the patient is certainly the more pleasant. But the rapid deterioration of penicillin at room temperature is a serious drawback. Far-seeing dispensing chemists should now be buying refrigerators and will presently, I dare say, be delivering a penicillin spray to the doctor, twice daily, at surgery hours.—I am, etc.,

B.L.A. H. A. DEWAR,
Major, R.A.M.C.

Therapeutic Use of Quinine

SIR,—I have been repeatedly informed that there is at present a restriction on the therapeutic use of quinine, other than for the treatment of malaria. I would appreciate any reliable information about the legal position, and would like to suggest that the law (if any) restricting its use should be perpetuated in regard to the use of quinine as a means of reinforcing a medical induction. In my capacity of obstetric consultant I have encountered three cases in six months where intra-uterine death of the foetus occurred following the use of quinine for induction. There was no obvious reason for carrying out the induction, and there was no other apparent reason for the death of the foetus. Stillbirth is still one of the major tragedies of midwifery, and even an infrequent cause should be completely eradicated. Quinine should be reserved for the extinction of the anopheles, and not applied indiscriminately to the human race.—I am, etc.,

Cambridge. OSWALD LLOYD.

*** By an Order made by the Ministry of Supply (S.R.O. 1942/2668), quinine and allied drugs, both natural and synthetic, may be used only for the control of malaria. The one exception is that quinidine may be used for treating cardiac arrhythmia. The restriction, however, was imposed to conserve quinine, not intra-uterine life, and will doubtless be removed when the supply of quinine again becomes adequate. Its effect on the parturient patient and foetus does not concern the Ministry of Supply, and legislation of the kind suggested by Dr. Lloyd would have to be part of an Act of Parliament.—ED., *B.M.J.*

Rheumatism and Orthopaedics

SIR,—I had the privilege of hearing Sir Adolphe Abrahams deliver the inaugural lecture at the postgraduate course on rheumatic diseases, organized by the Rheumatic Unit at St. Stephen's Hospital, L.C.C., in March this year—an address which subsequently appeared in the *Journal* of May 12 (p. 671). Sir Adolphe reviewed comprehensively the whole subject and emphasized particularly the pitfalls in the diagnosis of "rheumatism," suggesting that this, together with differential diagnosis and treatment, should be primarily the domain of the general physician.

I have for long emphasized to students of the rheumatic diseases that, e.g., rheumatoid arthritis is not exclusively a disease of joints, but is, in fact, a general systemic disease with secondary manifestations in the joints, just in the same way that pulmonary tuberculosis is acknowledged to be not purely a disease of the lungs but actually a general systemic disease with secondary manifestations in the lung. Both these diseases necessitate a full knowledge of general medicine, for they may at one time or another simulate almost any disease in general medicine (*Postgrad. med. J.*, January, 1944). It follows, therefore, that they are or should be primarily the concern of the general physician rather than of the ultra-specialist if successful results are to be achieved. The ultra-specialist may not look beyond his own more limited province, which has meant, in the case of rheumatoid disease, that the local joint manifestations may have been treated without relation to the general background of the patient. It is my firm conviction that the rheumatic diseases must resume their rightful place within the province of the general physician if any success in their radical control is to be achieved; for successful results are obtainable if the disease is diagnosed in its early manifestations, and if adequate facilities for treatment over a prolonged period of time are readily available. For these reasons such terms as "rheumatologist," "phthisiologist," are anachronisms which should be abolished. On the other hand, there is a purely medical side to orthopaedic work which is concerned with the prevention, as opposed to the treatment, of deformity which comes within the domain of the general physician specially interested in the rheumatic diseases.

A scheme to ameliorate the position and to control the rheumatic diseases should, in my view, be planned on a regional basis, with adequate in-patient accommodation and diagnostic facilities for long-term treatment on sanatorium lines, in specialized units within the framework of a general hospital rather than in a specialized hospital. Such a system offers the outstanding advantage of facilities for collaboration between the physician and his expert colleagues, such as the orthopaedic surgeon, the physical medicine specialist, the pathologist, the biochemist, surgeons of specialized departments, the psychiatrist, the masseuse, the social worker, the dietitian, the occupational therapist, etc.

No one wishes to belittle the invaluable restorative work of the orthopaedic surgeon—an important member of the team—in the sphere of the rheumatic diseases, but the underlying principle should hold good, that in the interests of the control of this widespread scourge the rheumatic diseases must return to their rightful place within the province of general medicine. —I am, etc.,

London, W.1. PHILIP ELLMAN.

Artificial Respiration

SIR,—It is with some trepidation that I enter this correspondence as my experience of artificial respiration consists of three cases of drowning, although I have had plenty of experience of it in anaesthetic practice. It was while trying to resuscitate one of these cases that I found a method of artificial respiration which I think is superior to any of the usual methods. This case was in a child. When I started Schäfer's method I could get no result and I found his mouth and pharynx full of vomitus. This was cleared away, but on restarting Schäfer's method more of the stomach contents were regurgitated and very little air could be either expressed or inspired. I picked up the child, put a leg over each shoulder with the trunk hanging down in front of me, facing me. I then began pressing the thorax against my own body and immediately a stream of water and vomitus issued from the child's nose and mouth. Subsequently air could be heard going to and fro into the lungs in greater quantity than before, and with very little effort on my part. The child's lips, ears, and cheeks became pink, showing circulation and oxygenation to be good, but I was unable to revive him.

The advantages of this method are:

1. Owing to the head hanging vertically downwards the tongue, which in Silvester's and Eve's methods falls back and obstructs the airway, tends to come away from the posterior pharyngeal wall and so frees the airway.
2. The hanging-down position allows free drainage of the lungs, mouth, and pharynx of inhaled material and vomitus.
3. The position ensures filling of the right side of the heart and so facilitates the pumping action of the thorax on the circulation and increases the cerebral blood pressure.
4. As the arms are hanging down there is a considerable pull on the pectoralis muscles, which helps the elastic recoil of the chest on inspiration as in the Silvester method.

5. As the body is in close contact with the rescuer's body, some heat is derived, which is of great importance in helping revival (Eve, *Brit. med. J.*, 1943, **1**, 535).

6. Furthermore, in this method the rescuer can, if he is strong enough, walk with patient to a place of safety or to where resuscitative apparatus is available (e.g., in a factory) while continuing the artificial respiration.

7. The thorax with this method is not compressed by the weight of the body as it is in Schäfer's method.

8. If difficulty is experienced with the airway, artificial respiration may be carried out with one hand while the tongue and jaw are held forward with the other.

9. No apparatus is required.

In some cases it would be easier to hang both legs over one shoulder, or if necessary the rescuer can be sitting and some of the weight taken by the patient's feet. The main disadvantage is that the method cannot be used with an obese patient.—I am, etc.,

Glasgow. ANDREW TINDAL, M.B., D.A.

Congenital Defects and Rubella

SIR,—I have read the annotation on congenital defects and rubella (May 5, p. 635) and think that the investigation which I am making at the Infants' Hospital, London, in connexion with rubella during pregnancy producing deafness in the child may be of interest.

Questionaries have been sent to past and present patients of my own, and to addresses kindly provided by the principals of various deaf schools. Those sent to parents of children over 5 years of age have brought in little information, chiefly, I think, on account of the fact that after a lapse of years the mother's recollection of happenings during pregnancy is not clear, and also the varied and sometimes slight symptoms of rubella. I am therefore confining myself to children born after the 1939–40 epidemic of rubella, and figures are very significant.

Deaf children born in 1940–1: Boys 55, girls 30—total 85.

History of rubella during first 4 months of pregnancy: Boys 11, girls 13—total 24.

Some of these children also have defects of the eyes, and at least three have defects of the eyes and heart. In all these 24 cases rubella was diagnosed, and there are at least six more where it seems extremely probable that the mother suffered from it without it being recognized. Of the remaining 61 cases, in 7 the deafness is hereditary, and in 13 was caused by meningitis. Of the 41 unaccounted for, 11 had measles and 3 whooping-cough during the first three years of life.

It may also be of interest—as this is a point on which so far have not found any literature—that out of 85 deaf children, 3 are left-handed or ambidextrous, 16 of these having left-handedness in the family; 11 are right-handed, but have left-handedness in the family. The percentage of left-handedness in deaf children is even higher in the wider range of ages.—am, etc.,

SYLVIAN M. MARTIN, L.C.S.T.,
Speech Therapist, Deaf Mute Clinics,
Infants Hospital, and Metropolitan Ear, Nose and Throat Hospital, London.

Intravenous Arsenic in Anginous Glandular Fever

SIR,—I have been much interested in the article by Lieut.-Col. Shirley Smith and Major Trevor Shaw (April 28, p. 581). Their observations on the beneficial effect of intravenous rsenic injections in cases of anginous forms of glandular fever re an important confirmation of the therapeutic results obtained in this disease by Friedemann and Elkeles (*Dtsch. med. Wschr.*, 931, **26**, 1). Three patients were treated with 0.15 g. neosalvarsan intravenously; 24 hours after the injection the emperature dropped to normal and a striking improvement of the severe throat lesions and of the general condition occurred. Two patients were treated by repeated painting of their tonsils with neosalvarsan 0.3 g. in 10 c.cm. of glycerin. In these cases similar good results were obtained within 48 hours.

In 9 out of 17 cases of anginous glandular fever large umbers of Vincent's organisms were found in the throat lesions. In some of these cases no Vincent's organisms were detected from swabs taken from the surface of the tonsillar membranes, and only on removing the membranes by dissecting forceps could the spirochaetes and fusiform bacilli be found. The frequent finding of Vincent's organisms, the successful treatment with arsenic, and the increase of mononuclear cells in the blood are features also met with in Vincent's angina. Although the clinical picture and the Paul-Bunnell test should assist in differentiating glandular fever from Vincent's angina and other throat lesions, it seems likely that aetiologically some of the anginous forms of glandular fever are only more severe and generalized reactions to Vincent's angina.—I am, etc.,

London, W.1. A. ELKELES.

Oxaluria in Tropical Climates

SIR,—In the *Journal* of April 28 (p. 590) there is an article by Col. J. M. Black on oxaluria in British troops in India. Of 77 cases admitted for urological conditions, oxaluria was a feature in 43 (55%), being associated with renal colic in 20, with haematuria in 15, and with epididymitis and cystitis in 8 cases. Col. Black considers that diet (tomatoes and strong tea) plus inadequate fluid intake cause oxaluria; haematuria binds the crystals of oxalate together with fibrin and a calculus results. He surmises that excessive formation of vitamin D by sunlight may be another factor favouring tropical lithiasis.

The subject of tropical lithiasis is very interesting; the condition is widespread, and has been studied extensively in South Africa, Mesopotamia, and America, as well as in India (by Sir Robert McCarrison). Conditions favouring stone formation in the urinary tract are: (1) an alkaline ash diet, high in calcium; (2) dehydration of the body; (3) avitaminosis A; (4) any infection of the urinary tract.

Oxaluria is very common in tropical countries and is harmless if certain rules are observed. They are: drink plenty of plain water that is not too "hard" ("plenty" means three gallons a day per man in hot weather); take adequate vitamin A in the diet; avoid infections of the urinary tract; take adequate vitamin C (the haemorrhages in eight of Col. Black's cases were probably due to "inapparent" scurvy). The excessive formation of vitamin D by sunlight is not, I think, a factor in the formation of urinary stones unless the "rules" are badly infringed. Among the "infections" of the urinary tract to avoid should be included schistosomiasis.—I am, etc.,

Portsmouth. FRANK MARSH.

Starvation in India

SIR,—It is sad to think that the findings of the Bhore Committee investigating the cause of so much ill-health in India are already being discounted, the reason being that India cannot afford to put matters into such a condition as is necessarily precedent to making the people into a healthy and prosperous nation.

The report of the recent Bengal Famine Inquiry Committee has revealed a shocking state of things. Over a million-and-a-half Indian people have been starved to death, due in part to neglect by both Central and the Provincial Governments. Such a wholesale "slaughter of the innocents" is a horrible disgrace, and unless some strong measures are taken by this country the near future of India is very black. We have been told of how the starved inhabitants of Greece were reduced to such a state of weakness that they lent themselves to be tools of any clamorous leader, so that with difficulty the risings were put down. In a sub-continent like India, where perennial starvation has reduced the people to a low level, the conditions are being prepared for the next world war. A look at the map of the eastern hemisphere shows that India is the centre of the British Commonwealth, being equidistant from Great Britain, South Africa, and Australia, and if we hesitate to do the right thing by the Indian people now at once, however expensive it may be, the English language alone will be all that is left to us.

The children of India need milk. Milk has been of striking benefit to the school-children of this country as well as to pregnant mothers. If milk is necessary for the people of Great Britain it is equally important for milk to be distributed to the people of India. We talk of the illiteracy of European countries, but it is not to be compared with that of our fellow citizens in India. It is only something of which we ought to be ashamed. Mothercraft classes such as I pioneered also have been of great value to this country, as evidenced by the presence of so large a number of young happy mothers with healthy contented children. Are Indian babies and mothers to be placed on the same footing? Are quarrels between British and Indian politicians and governments to continue to the disgrace of both?

If we, as a profession, both individually and collectively, bring pressure to bear on the Government, which seem to be unable to realize the seriousness of the situation or to know what they ought to do, they may be made to realize their responsibility before it is too late.—I am, etc.,

Swansea. G. ARBOUR STEPHENS.

Shall We Nationalize Medicine?

SIR,—I have just read Lord Horder's article "Shall We Nationalize Medicine?" (March 17, p. 357). Lord Horder attempts to detach himself from "this business of right and left," but succeeds in presenting only a case against State medicine. Without finally assessing which system is likely to provide the better all-round service, I feel that it is only fair to point out some of the weaknesses of Lord Horder's argument, and to say something of the other side.

Does he, for instance, imagine that the happy doctor–patient relationship, the importance of which he rightly stresses, flourishes to the same degree in the crowded out-patient department as in the private consulting-room? In the Army we have learnt much of the defects as well as of the advantages of what is really a State medical service functioning under abnormally difficult conditions. Our conclusions will differ according to our experiences, but I would say that one thing which does not seriously suffer is the doctor–patient relationship, except, of course, by military necessity, as when casualties have to be evacuated from forward to base areas, and continuity of treatment is interrupted in consequence. Indeed in many respects the doctor–patient relationship is far more honest and beyond reproach than in civil practice. Psychological patients are not put off with a bottle of medicine, and the "constant attender" or "near-malingerer" is promptly told the truth.

Moreover, paradoxical though it may sound, the Service doctor wields far more power than his colleague at home. No commanding officer could survive a medical report which said that the morale of his men was poor, that psychological illness was in consequence prevalent, that the barracks were dirty, and the standard of nutrition low. Yet every panel doctor knows that these are the causes which bring the majority of his patients to the surgery, and in Signals phraseology, he can do nothing, repeat nothing, about it.

Let us admit that in the preservation of our liberties we have fostered a system which shuts its eyes to most of the main causes of illness. Let us remember that psychogenic ailments are the commonest of all, and that our system has done little or nothing to prevent or to cure them but much to encourage them. Let us realize that though the privileged few can practise for their privileged patients a system of medicine probably freer from hypocrisy than that of any other country, the majority are still doomed to dispense bottles of medicine in overcrowded surgeries to patients whose real problems they have never had time to consider or investigate. Let us try to preserve as much as possible of the values of the voluntary hospital, but do not let us forget the disgrace of their waiting-lists. Let us in fact realize that as a profession we have failed in many respects, and in that spirit of modesty try to reconstruct boldly, preserving our liberties only if they do not conflict with the good of the service as a whole.—I am, etc.,

India. ROBERT PLATT.

The Integration of Medicine

SIR,—How delightful to read such a discourse as appears in the opening pages of the *Journal* of May 26! As a reminder of the method as well as the substance of an address we could wish for nothing better. Dr. Walshe's dissertation on the integration of medicine is a timely statement of some of the problems constantly present in the minds of those who have a real interest in the future organization of medical teaching, and more especially in regard to the extending system of whole-time teachers in the various departments of a medical school. The integrative forces are unlimited in their scope and value for the teachers and the students, if only to maintain in constant focus the interrelationships of apparently diverse phenomena and facts. In regard to the students, the earlier that the idea can be inculcated the better. The art of diagnosis lies largely in the integrative process, bearing in mind that clinical experience is a dominant factor. With this in mind, therefore, it would follow that the clinical method, when properly and fully integrated with the ever-widening scene of collateral observational or experimental data, is the medium in which a medical school should live.

Persons holding key positions in a teaching centre cannot afford to overlook Dr. Walshe's wise words, more especially the following: "Thus it happens that those responsible for the training of our successors too often find themselves imparting unrelated categories of information and partial and often conflicting generalizations culled from different fields of medicine, and it is becoming nobody's business and seems less and less within anyone's capacity to teach medicine as a whole, or to build into a coherent body of knowledge the several contributions of the specialists." In short, Dr. Walshe's address should be read and re-read until the ideas therein permeate the mind and leave a "proportional representation" in the general build-up of our future medical teaching.—I am, etc.,

Birmingham. A. V. NEALE.

SIR,—Dr. F. M. R. Walshe's oration on the integration of medicine (May 26, p. 723), which is full of wisdom, suggests to me—and I am sure to many others—that a course of lectures on medical practice by senior general practitioners of wide experience should be made *compulsory* in all medical schools. Then only will we get a proper appraisement of the clinical methods and elaborate techniques with which students are forced to acquaint themselves to satisfy the examiners. They should be delivered to all students in their final year, or, better still (since the curriculum is already overloaded), now that independent practice is not permitted (or at least discouraged), when a postgraduate appointment is being held in an accredited hospital they might be delivered during those fruitful months. Without these essays in practical experience by men who know, the young doctor suffers bewilderment and frustration when he first goes out into the world to stand on his own feet.—I am, etc.,

C. H. REINHOLD,
Winchfield, Hants. Colonel, I.M.S. (ret.).

Medical Missions

SIR,—I have just returned from India after 22 years as a medical missionary, and my *Journal* for March 3 forwarded thence has only just reached me. I was, of course, delighted to see the annotation about medical missions (p. 303), but I should like to correct the impression that is inevitable if one reads the quotation near the end of the article: "Dirty, lonely, unpleasant, uncomfortable service, the mission hospital stands for that." No doubt there are some mission hospitals which "stand for that"; but I have been operating daily for over 20 years in a theatre where just as much trouble is taken about asepsis as in a London hospital, and I know dozens of medical missionaries in India who have been doing similar work. There is no excuse for a medical mission hospital being "dirty." Certainly, when a cholera epidemic is on, and one has to go about in small farmhouses or even hovels, one is up against dirt. But even in these places entirely sterile intravenous infusions can be given, and are usually the best means of saving life.

As for being lonely, that is a matter of circumstance, and in many mission hospitals there are far too many patients and far too much work to allow of loneliness, and several or many colleagues, both European and national. Unpleasant? No, a thousand times no. Service of one's fellow men in the name of Christ may be arduous, but is never unpleasant. As a medical missionary for over 20 years, may I say that I have never ceased to be thankful that in 1922 I decided to take up this work. But may I emphasize, too, that he who would be a medical missionary, besides being sure of his "vocation," should also be a well-trained man (or woman), with two or three years of postgraduate experience, and should also be pre pared for responsibility, if it is thrust upon him, and equally ready to take a humble position as a junior colleague of Chinese, Indian, or African, if circumstances so direct. The mission field has no use for second-rate men or women.—I am, etc.,

Cambridge. T. Howard Somervell, F.R.C.S.

Housing the Returned Consultant

Sir,—Major H. B. Stallard (June 2, p. 787) correctly draws attention to some of the present difficulties in London for housing the consultant. This state of affairs has engaged my attention since the early part of the present year, and official figures I have obtained from a reliable source disclosed the facts that in the area between Oxford Street and Marylebone Road the Army have requisitioned at least 3 houses (one empty for the past two months), the Air Force 8 houses, and the Ministry of Works no fewer than 45 houses. In the House of Commons on May 10 Sir Ernest Graham-Little, on a question to the Minister of War, received the reply: "I regret that I am at present unable to release any of these houses." To a further question asked by Sir Ernest on May 31 Mr. Churchill replied: "The majority of the houses in the Harley Street area requisitioned by Government Departments are used to house American officers, so as to reduce the pressure upon the limited hotel accommodation of London; as offices for French Missions and branches of the French Embassy; and as hostels. The possibility of reducing the number retained is being examined with the occupying authorities and any houses which can be vacated will be released. Five requisitioned houses now vacant are being released immediately."

The present difficulties are, however, further complicated by the sale of property in this area, and tenants who might have considered themselves reasonably secure find that they may be under notice to seek other accommodation which at the moment does not exist.

This unfortunate state of affairs could be greatly eased if the 56 houses presently occupied were all released and returned for their original purpose as professional premises. The present occupants of these houses, such as the Merchant Navy Club, Canadian Y.M.C.A. Club, and various branches of our Allies, could be equally and comfortably housed in a number of the many empty houses in Regent's Park. The same suggestion applies to the professional area in Mayfair.—I am, etc.,

London, W.1. Norman P. Henderson.

An Examination Paper for Nurses

Sir,—The current practice of adding to the nurse's curriculum studies on a par with those of a medical student has already evoked much protest from the profession. Apparently more is needed, and a signal addition is that of your correspondents (May 26, p. 751) who cite a recent examination paper. The corollary is obvious. One who studies enough to ensure passing such tests in medical subjects deprives her patients of proficiency in nursing.

Which is it to be? Nurses or pseudo-doctors? Let us insist that the General Nursing Council redresses the balance and gives pre-eminence to ward training in the practical *art of nursing*. If a girl has any wits a good sister will soon sharpen them: if she has not, then she may be ornamental but she is certainly useless to patients and should go. We are confronted with a deplorable dearth of nurses, and over-weighting the syllabus with medical science is calculated to aggravate the shortage. Let them get their simple studies over in a preliminary course and then get down undistractedly to what is their dominant interest—practical work in the wards. The sister will have a greater responsibility, and she must be chosen not only for outstanding quality as a nurse but after a year's postgraduate training to fit her for her duties as teacher also.

There is only one essential prerequisite for an entrant to the nursing profession, and when one is a patient one becomes painfully aware of it: not, Has she got the school certificate? but, Does she care? If she cares, she will soon master the technical side of her work.—I am, etc.,

Bristol. A. Wilfrid Adams.

Medical Students and Belsen Concentration Camp

Sir,—As the medical students from the London teaching hospitals are to-day leaving Belsen concentration camp I should like to take this opportunity of paying a tribute to the work that they have carried out during their stay. They arrived at a time when conditions in this horror camp were still indescribable; the first and only problem was the production of order and supervision of feeding in the huts to save the lives of those that had to wait their turn and to ensure the speediest evacuation of those that could be saved. The work of this type that they carried out is beyond praise, and entirely by their initiative a hospital area was formed in the original camp in which the worst cases that had to wait to the last were nursed and undoubtedly saved. Working, too, under the worst possible conditions, individual supervision of all the other huts was carried out and treatment where possible commenced. Later, when the whole camp had been evacuated, they were able to take full advantage of the wealth of clinical material available, and to carry out work of an entirely medical nature. This they did with equal zeal and enthusiasm.

The experience, apart from its medical side, has, I feel, given them a unique opportunity in that they were given the heaviest of responsibilities and their initial efforts depended entirely on their own initiative. One and all they threw themselves into the task with unbounded enthusiasm; they worked long hours in the worst possible conditions and never spared themselves. The results speak for themselves, and the fall in the death rate was, I am sure, largely due to their magnificent work. Thousands have cause to be grateful to them that their lives have been saved. The units of the R.A.M.C. in Second Army are no less grateful for the help that was so generously given.—I am, etc.,

Glyn Hughes, Brig.,
D.D.M.S., Second Army.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

Dr. W. L. H. Duckworth will retire from the position of Master of Jesus College on Sept. 30 under the age limit. After gaining first-class honours in Parts I and II of the Natural Sciences Tripos he was elected a Fellow of Jesus College in 1893 and in 1905 graduated M.D. and Sc.D. Dr. Duckworth was University Lecturer in Physical Anthropology 1898–1920 and Reader in Human Anatomy from 1920 until his election as Master of Jesus College in 1940. He represented the University for three years on the General Medical Council.

In Congregation on June 8 Prof. E. D. Adrian, M.D., F.R.S., was appointed to represent the University at the 220th anniversary of the Academy of Sciences of the Union of Soviet Socialist Republics in Moscow and Leningrad, June 15–28.

On the recommendation of the Faculty Board of Medicine additional qualifying examinations in anatomy and physiology will be held in December next, on dates to be fixed by the Board of Examinations.

During the month of May the titles of the degrees of M.B., B.Chir were conferred by diploma on Mrs. R. C. A. Hunter, of Newnham College.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At a meeting of Council, held on May 26, with the President, Mr. Eardley Holland, in the chair, the following were admitted to the Fellowship:

Caroline A. Elliott, E. A. Gerrard, R. J. Kellar, Meave Kenny, F. R. Stansfield. *In absentia:* G. S. Adam, A. M. Hill, J. J. Kearney, W. K. McIntyre, B. T. Mayes, H. K. Pacey, F. Stabler, G. A. Thompson.

The following were admitted to the Membership:

Amelia E. Burch, E. G. Collins, Jadwiga Karnicki, Gladys E. Keith, Dorothea M. Kerslake, Dorothy M. Shotton, B. G. G. Spiers. *In absentia:* J. P. O. Erskine, A. B. Hay, Sybil G. Mocatta, Dorothy J. Thompson.

At the annual general meeting of the College, held on May 26, with the President, Mr. Eardley Holland, in the chair, the following were elected to Council in place of those retiring by statutory rotation: *Representative of the Fellows:* Malcolm Donaldson. *Representative of the Members:* D. B. Fraser.

Obituary

W. L. SCOTT, *M.C.*, M.D.

We regret to announce that Dr. William Logan Scott, chief medical officer to the General Post Office, died at Winchester on June 1 after a short illness. He was born at Tollcross, in Lanarkshire, on Sept. 14, 1888, son of Alex Scott, M.D., and from Glasgow High School went to the University of Glasgow, where he graduated M.B., Ch.B. in 1911 and proceeded M.D. in 1934. After three years in house appointments at the Sheffield Royal Infirmary he became assistant M.O. at the Chelsea Infirmary in 1913 and then moved to the staff of the North-Western Fever Hospital, Hampstead. He served throughout the last war with the R.A.M.C. and was awarded the Military Cross. For two years after the armistice he worked as medical assessor to the Pensions Appeal Tribunal at the House of Lords, and then in 1921 became assistant M.O. to the G.P.O. at St. Martins-le-Grand. When Sir Henry Bashford left the G.P.O. to become Treasury Medical Officer in October, 1943, Dr. Logan Scott succeeded to the post of chief medical officer.

Sir Henry Bashford writes: The death, at the age of 56, after a tragically brief illness, of Dr. W. L. Scott, chief medical officer to the Post Office, will be most deeply deplored by the whole Department, which he had so faithfully served for more than a quarter of a century, both as clinician and administrator. He brought to his work a gay and breezy common sense, combined with a very wide and practical knowledge of his profession. He was associated with many researches in the sphere of sick absence in industry, particularly in respect of the subject of quarantine, upon which he had published two very valuable papers. He was also president of the Post Office Ambulance Centre. Scott was a man of wide interests and many hobbies—carpentering, painting, shooting—to all of which he brought a characteristic enthusiasm. He was the most delightful of companions in bright hours and dark, with an original wit and good spirits that never flagged; and he was the soul of kindness to all in trouble. For his widow and son the deepest sympathy will be felt by all who knew him.

GEORGE H. S. MILLN, M.B., CH.B.

Dr. GEORGE HERBERT STEPHENS MILLN, physician in charge, of the *x*-ray and electrotherapeutic department of the Dundee Royal Infirmary, was killed in a motoring accident on May 30 when driving to keep an appointment at the Adamson Hospital, Cupar, where he was honorary radiologist. He was born at Tayport in 1882, son of William Milln, an engineer officer of the Royal Navy. He graduated M.B., Ch.B. with second-class honours at the University of Edinburgh in 1903, and served as medical officer in the Navy until 1911. He retired with the rank of surgeon commander, R.N., on the Emergency List and was later posted as surgeon captain, R.N.V.R. He became an assistant in the *x*-ray department of the Dundee Royal Infirmary, and in 1926 was promoted to the visiting staff and made lecturer in radiology and electrotherapeutics in the University of St. Andrews. Dr. Milln was also medical officer in charge of radium at the Dundee Royal Infirmary, and honorary radiologist to the Arbroath Infirmary and the Dundee Dental Hospital and School. He joined the B.M.A. in 1913, had been treasurer of the Dundee Branch and of the City of Dundee Division, and held office as president of the Branch in 1937-8.

Dr. R. P. Mathers writes: The sudden tragic death of George Milln in a motor accident has taken from us a man of outstanding ability and popularity, whose cheery personality enlivened any gathering, whether social or professional. As a naval surgeon he served in many parts of the world until 1913. After his retirement he was appointed radiologist to Dundee Royal Infirmary, but in August, 1914, he again joined up and saw much active service, taking part in the Battle of Jutland. On his release with the rank of surgeon commander in 1920 he took up his work again as radiologist and gave constant and faithful service to Dundee Royal Infirmary and many other institutions in the district. In his early days the radiological department was a small affair, and Dr. Milln was mainly responsible for its rapid and extensive growth and reorganization to its present high standard of efficiency. His personal interpretation of skiagrams was always most practical and helpful, and the large circle of his colleagues who came into contact with him in the course of work will miss him greatly. He took an active part in the affairs of the B.M.A. His chief recreation was golf. The sympathy of all who knew him goes out to his bereaved wife and daughters.

We regret to announce that Mr. ROBERT SHARP LAWSON, honorary surgeon to the Leicester Royal Infirmary and president of the Leicester and Rutland Branch of the B.M.A., died on May 27. He entered the University of Edinburgh as an arts student and graduated M.A. in 1906, and four years later took the M.B. and Ch.B. degrees, with first-class honours. Having served as house-surgeon at the Edinburgh Royal Infirmary and the Royal Hospital for Sick Children, he was for some years demonstrator in the anatomical department and assistant in the pathological department of Edinburgh University. He held a commission as temporary surgeon, R.N., during the last war and obtained the F.R.C.S.Eng. diploma in 1916 after postgraduate study at St. Bartholomew's. On his return to civilian life he was appointed medical superintendent and surgical registrar at the Dreadnought Hospital, Greenwich. Settling in practice at Leicester Mr. Lawson was elected to the visiting surgical staff of the Royal Infirmary and became consulting surgeon to the Carlton Hayes Hospital. He was a Fellow of the Association of Surgeons of Great Britain and Ireland, a member of the British Orthopaedic Association, and a member of the Provincial Surgical Club of Great Britain.

It is now known that Dr. HERMANN BALEAN died on Jan. 19 of this year from acute anaemia at Stanley Internment Camp, Hong Kong, aged 69. He was a student of the London Hospital, where he won the Price entrance scholarship in science and a scholarship in anatomy and biology, the senior Letheby scholarship, and the Hutchinson prize. He graduated M.B.Lond. in 1901, M.D. in 1903, and B.S. in 1905, and obtained the F.R.C.S. in 1908 after serving as senior resident accoucheur and house-surgeon at the London Hospital. Dr. Balean was for many years honorary lecturer in anatomy at Hong Kong University and collaborated in papers on lupus erythematosus published in the *British Journal of Dermatology* and on the effects of acid on blood in the *Journal of Physiology*. He joined the B.M.A. in 1902 and was appointed a member of the Hong Kong Medical Board in 1937. With his wife he was interned by the Japanese after the fall of the island.

Dr. JOHN HALLY MEIKLE, who died on May 25 in an Edinburgh nursing home, was the second son of the Rev. Gilbert Meikle, of Inveraray. He entered Edinburgh University, and graduated M.A. with honours in 1889 and B.Sc. a year later; he then travelled by sailing ship to Australia round the Cape of Good Hope and spent several years teaching at a boys' school in Adelaide and fruit farming with his elder brother. He returned to Scotland in 1896 to begin the study of medicine, and qualified as M.B., C.M.Ed. in 1901. After practising for a short time in Edinburgh he became senior assistant and bacteriologist to the City Hospital, took the D.P.H. in 1904, and proceeded M.D. in 1906, with high commendation for his thesis. In the same year he was appointed to the newly created post of medical officer to the Edinburgh School Board, becoming responsible for the organization and administration of the school medical service from its inception until he retired in 1930. Dr. Meikle had been a member of the B.M.A. for over 40 years. He was one of the original members of the Edinburgh Medico-Sociological Society and took a great interest in its work.

Dr. LACHLAN GRANT, who died at his home at Ballachulish, Argyll, on May 31, was one of the senior medical officers in the Highlands and Islands Medical Service. He spent all his professional life (over 50 years) in the Highlands, and acquired a wonderful knowledge of Highland problems as they affected the Highland people. The writer of these notes was one of Dr. Grant's predecessors in Ballachulish in 1889-92. Lachlan Grant, whose home was then in Ballachulish, was a boy of 18. A friendship followed our first meeting, and, soon after, the boy told me that he wished to become "a doctor" if his father would permit him to remain in the Highlands and practise among the people. He chose Edinburgh University, and in 1894 graduated M.B., C.M. (with distinction), M.D. in 1896, took a D.P.H. in 1911, and later F.R.F.P.S. Glasgow. The prosperity of Ballachulish in those far-off days depended entirely on the flourishing slate quarries. A large number of men was employed on the "slate face." The men were an exceptionally fine type physically. They were intelligent and interested not only in slate quarrying as an art but in political problems connected with the Highlands. Lachlan Grant was not only a "good doctor" for them and their wives and children, he was also interested, they recognized, in Highland problems. And so it was that during his fifty years' service in Ballachulish, Glencoe, Kinlochleven, and Glen Etive, and the rest of that wonderful and historic piece of country, Lachlan Grant was the man to whom the people turned in adversity, for he was not only a skilful physician but a sympathetic friend and adviser. Ballachulish mourns his loss. To his devoted wife and family we offer our sympathy.—J. B. S.

The death has occurred at Middlesbrough of **JAMES RONALD McCURDIE** at the early age of 57 and after a long and painful illness bravely borne. Qualifying M.B., Ch.B. at Glasgow University in 1912 he spent two years as house-surgeon at Middlesbrough before joining the R.A.M.C. at the outbreak of the last war. He served throughout and was awarded the Military Cross, retiring with the rank of major. Returning to Middlesbrough he started in private practice and was soon appointed honorary surgeon to North Ormesby Hospital. Right up to the time of his death his hospital was the centre of his professional life, and he gave largely of his time and talents to its clinical and administrative affairs. He served on the governing council for many years as a representative of the honorary staff. He was largely responsible for the raising of the Home Guard in his district and was appointed its colonel. McCurdie had served for a period as chairman of the Cleveland Division of the British Medical Association, and was on its Executive for a number of years. For four years he was chairman of the Cleveland Local Medical War Committee, and brought to the conduct of its deliberations that care and grasp of its business which characterized everything he did. The funeral took place at St. John's Church, Middlesbrough, and was attended by many of his professional colleagues, by whom, as well as by a large circle of friends and patients, he is much missed. He is survived by his widow, to whom much sympathy is extended.

We regret to announce that Dr. **HAROLD JAMES PHILLIPS**, medical officer of health for Worthing, died suddenly at Southlands Hospital, Shoreham, on June 3 after a short illness. He studied medicine at University College, Dublin, graduating B.Sc., M.B., B.Ch. in 1920 at the National University of Ireland, and proceeding M.D. in 1927; he took the D.P.H. with honours in 1931. Dr. Phillips entered the public health service as assistant medical officer under the Kent County Council, was then deputy M.O.H. and school medical officer for the county borough of Hastings, and after that M.O.H., school medical officer, and medical superintendent of the isolation hospital of the borough of Ashton-under-Lyne. In 1938 he succeeded Dr. R. H. Wilshaw as M.O.H., school medical officer, and medical superintendent of the isolation hospital of the borough of Worthing. He was the author of a report on endocrine disturbances in school-children in Kent, and published in the *Medical Officer* a paper on faucial conditions as contributory factors in rheumatism. A memorial service at St. Paul's Church, Worthing, on une 8, was attended by the mayor, aldermen, and councillors, with the chief officers and staff of the Worthing Corporation.

The following well-known medical men have died abroad: Dr. **SALLES GUERVAN**, a leading surgeon in Rio de Janeiro during the first quarter of the present century, aged 75; Dr. **ASTROGILDO MACHAD**, head of the division of bacteriology of the Oswaldo Cruz Institute, aged 61; Dr. **ALEXANDER ACHILLE SOUQUES**, a leading Parisian neurologist, aged 89; Dr. **BERNARD CUNEO**, professor of surgical anatomy and surgeon to the Paris hospitals, aged 71; and Dr. **MAURICE PÉHU**, honorary physician to the Lyons hospitals and an eminent paediatrician.

The Services

Lieut.-Col. (Temp.) N. J. P. Hewlings, R.A.M.C., has been awarded the D.S.O. in recognition of gallant and distinguished services in North-West Europe.

Repatriated.—Capts. J. Graham Jones, R. P. Lawson, M.C., J. G. McGavin, G. B. D. Scott, and C. J. P. Seccombe, R.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Capt. **WILLIAM DONALD WILSON**, R.A.M.C., who was killed in action in Western Europe on April 24, went from Wigan Grammar School to Liverpool University, where he won the gold medal for surgery, the A. C. Rich prize, and the Lord Derby prize. After aduating M.B., Ch.B. and serving as house-surgeon at the Liverpool Royal Infirmary he joined the R.A.M.C. in 1943.

Medical Notes in Parliament

Wheat Germ in Flour

Sir E. GRAHAM-LITTLE asked the Minister of Food on May 15 what proportion of the flour used in this country was derived from wheat imported from abroad in the form of grain, not flour; what was the proportion of the whole stock of wheat germ distributed by the Ministry which was allotted to making bread; and whether flour which was supplied for biscuit and self-raising flour was deprived of wheat germ before that allocation was made.

Col. LLEWELLIN: The proportion of imported wheat used for flour milling varies from time to time in accordance with the supply position. The present proportion of imported wheat in all flour produced in this country is 47%. It is estimated that about 70% of the total available germ is in the flour supplied to the bakery trade for bread-making purposes, but a further considerable percentage is included in the flour used by confectioners and in flour used in the home for bread, confectionery, and other food purposes. The flour supplied specifically for the manufacture of biscuits and self-raising flour is "M" flour from which the germ has been removed.

Medical Demobilization

Sir JAMES GRIGG on May 29 told Major C. Taylor that the ordinary release regulations would apply to the R.A.M.C. as to the rest of the Army. He did not anticipate that the "military necessity" clause would be frequently applied to other ranks and general duty officers. It would probably have to be applied to specialist officers much more freely in view of the overall shortage of such officers and of the difficulty of obtaining from civil life replacements which were likely to be necessary. A number of doctors were due to be released under the ordinary working of the scheme. His difficulty was not of releasing doctors under Class B but of releasing those whose turn came under Class A. The need of the civil population for doctors was more likely to be met under Class B. It was a new idea to him that it would be necessary to have recourse to Class B for doctors.

Dr. HADEN GUEST suggested that where medical officers were to be released under Class B as essential for civilian needs, Sir James Grigg should ensure that their rights as regards 56 days' leave were safeguarded.

Food of German P.O.W.s

Sir JAMES GRIGG on May 29 repeated that non-working German prisoners of war had never received more of the nationally rationed items of food than civilians in this country. In view of the world-wide shortage of food it had been decided that the normal scale for these prisoners held by His Majesty's Government must be further reduced. Instructions had been issued for a new scale providing approximately 2,000 calories of all items, irrespective of whether these were rationed for civilians in this country or not. He said 2,000 calories was substantially less than the average civilian consumption in this country. Suitable additions of non-rationed foods, mainly bread and potatoes, would be made to cover the minimum extra needs of working prisoners. Otherwise they would receive the same scale as non-working prisoners.

Pneumoconiosis

Replying to a debate on May 29 (reported in these columns on June 9, p. 826) Major LLOYD GEORGE said he had been keenly interested in medical services since he went to the Ministry. On that subject the Government had laid down its policy in the White Paper, and the Ministry had, despite the shortage of medical men, made a start. It had another doctor at headquarters and another in each region. They would study local conditions, the local incidence of disease, and problems of that sort which they had been asked to investigate. The Ministry of Fuel was co-operating with the Medical Research Council on the arrears of examinations of men for pneumoconiosis and silicosis. They had been able, with the help of Sir William Jowitt, to double the panels working on pneumoconiosis. At the head of the panel was a man experienced in these diseases who trained the new man under him. He had a loan of a radiological unit, which would help in the matter.

Treatment after Discharge from Forces

Mr. STOKES opened on May 31 a discussion about the discharge of men from the Services before they had left hospital but when it had been decided that they were no longer of use to the armed Forces. He said this practice was particularly hard on men suffering from facial wounds, whose plastic treatment took a long time.

Mr. Petherick, replying for the War Office, said that if, after invaliding, a Service man still required treatment the Ministry of Pensions was notified under the continuity of treatment scheme and arrangements were made for the man's further treatment elsewhere. If the treatment had been given in an E.M.S. hospital the man could be retained there if that was in his medical interest. He might be transferred to a Ministry of Pensions hospital or an E.M.S. hospital nearer his home. When treatment had been given in a Ministry of Pensions hospital the man was retained in that hospital. These arrangements did not apply in cases of tuberculosis, nor to certifiable mental patients, who, when invalided, were transferred to the care of the responsible local authority. In most cases a final decision was reached in a few weeks or months on whether a man was going to be fit for return to active service. He then had a medical board. If found unfit for return he was discharged after 56 days. In place of his Service emoluments he passed to the appropriate rate of disablement pension and was handed over to the Ministry of Pensions. The Regulations provided that a man should continue on Service rates of pay for eight months. This might be extended to nine months in psychotic illness where further detention in a Government hospital might avoid certification. The period might also be extended until artificial limbs were fitted. It had been decided that men with tuberculosis might continue on Service emoluments for eight months while they received treatment in civilian or military hospitals. The period of eight months represented a considerable advance on previous practice. All cases of men disfigured facially had to be dealt with sympathetically, and the War Office was considering whether it could make some special arrangement.

Dr. Morgan said medical boards should come to a decision only when a man had reached the stage where the question was not of actual treatment but whether he should be passed from the Service Department to the Pensions Department. The men should be examined by independent medical boards, independent of Service remuneration and promotion.

Mr. Hopkinson inquired whether in Dr. Morgan's profession a certified medical man would give a wrong decision because he thought it was going to be to his advantage in a Government Department. Dr. Morgan said medical men were human and sometimes made mistakes. He made no charge against the profession.

Medical Enlistment and Demobilization

In reply on May 31 to Major Haden Guest, Mr. Willink said the numbers of medical men and women recruited from Great Britain and Northern Ireland into the medical branches of the Services up to May 24 last were 2,405 in the Royal Navy, 12,200 in the Army, and 2,564 in the R.A.F., making a total of 17,169. The figure for the Army included a number recruited for work with the Indian Medical Service. The proportion of the total number recruited to the total on the *Register* was 27.5%. The proportion of the number recruited to the total of active practitioners was 31.3%. The proportion of general practitioners in the Services was 21.4%. Mr. Willink said he was not yet able to state the number of medical men and women expected to be demobilized in the first six months after June 18. That depended on various factors, including the decision of the Service Departments whether an officer's retention was necessary on military grounds.

Mr. Palmer inquired whether any civilian doctors were to be called up. Mr. Willink said he did not like to reply on that point, but it might be right and just that those who had not been out should take their turn.

Medical Personnel (Priority) Committee

On May 31 Major Haden Guest further asked Mr. Willink to state the composition of the Medical Personnel (Priority) Committee and to say whether the work of this committee was to be continued. Mr. Willink replied that the Medical Personnel (Priority) Committee consisted of Sir Geoffrey Shakespeare as chairman, and twelve medical men representing the several branches of the profession and the Service Departments. The committee and its chairman had done most valuable work. There was no intention of bringing it to an end so long as general questions affecting the release and continued recruitment of doctors were still likely to arise for their consideration. Mr. Willink later circulated a list of the committee as follows:

Sir Geoffrey Shakespeare (chairman), Sir Girling Ball, Major-Gen. R. J. Blackham, Prof. J. Crighton Bramwell, Dr. J. A. Brown, Dr. W. M. Knox, Air Cdre. D. McLaren, Surg. Rear-Admiral A. E. Malone, Lord Moran, Prof. R. M. F. Picken, Prof. Sydney Smith, Mr. H. S. Souttar, and Sir Alfred Webb-Johnson.

Medical News

At a meeting of the Council of the Imperial Cancer Research Fund on June 7 Prof. H. R. Dean was reappointed chairman for the ensuing year and Sir Hugh Lett, Bt., was re-elected vice-chairman. The Council met at the laboratories of the Fund at Mill Hill and made a detailed inspection of the research work which is being carried out. Dr. L. Foulds was re-elected Elizabeth Wills Allen Fellow, and Dr. R. J. Ludford Alice Memorial Fellow. The Council received a letter from Mr. J. W. Johnson, of Stockport, accepting the office of Life Governor of the Fund.

The annual general meeting of the British Association of Physical Medicine will be held at 11, Chandos Street, W., on Tuesday, June 26, at 4.30 p.m.

The annual meeting of the Faculty of Radiologists will be held at the General Infirmary at Leeds on Friday and Saturday, June 29 and 30. The business meeting on Friday morning will be followed by a discussion on "The Treatment of Melanoma." In the afternoon papers will be read on "Advances in Radiological Technique." The annual dinner will be held at the Great Northern Hotel on Friday evening. Saturday morning will be devoted to a discussion on "Primary Malignant Tumours of Bone."

An exhibition of the care of the wounded entitled "Out from the Battle!" arranged by the Red Cross and St. John War Organization, with the co-operation of the War Office, is being held in the grounds of Clarence House, The Mall, London, S.W., from 11 a.m. to 7 p.m. on week-days and from 2 p.m. to 7 p.m. on Sundays until July 31. It was opened on June 12 by Lieut.-Gen. Sir Alexander Hood, D.G.A.M.S. The exhibition illustrates the work done for the British wounded by the Army Medical Services and the Red Cross and St. John War Organization.

The Royal Society for the Prevention of Accidents has issued from Terminal House, 52, Grosvenor Gardens, S.W.1, a provisional programme for the National Safety Congress which will take place in London on June 18–24. The main sessions will be held at the Institution of Civil Engineers, for discussions on post-war trends in industrial accident prevention, on group activities, and on the influence of training on accident prevention. The technical sessions will be held at the Industrial Museum, Horseferry Road.

The Queen has signed a message, as president of St. Mary's Hospital, warmly commending the scheme for the post-war reconstruction and extension of the hospital, which was founded 100 years ago.

A deputation from the National Association for the Prevention of Tuberculosis met the Secretary of State for the Colonies (Col. Oliver Stanley) on May 31 to discuss various matters connected with the prevention of tuberculosis in the British Colonies. The members of the deputation were the Duchess of Portland, chairman of council, N.A.P.T., Dr. R. A. Young, vice-chairman, Col. Walter Elliot, M.P., Prof. Lyle Cummins, Mr. H. A. Baker, treasurer, the Earl of Morton, and Dr. J. H. Harley Williams, secretary-general. Sir Austin Hudson, M.P., was unable to attend owing to Parliamentary duties. The suggestions discussed included the possibility of further surveys similar to a recent survey on tuberculosis in the West Indies promoted by the N.A.P.T., the offer of scholarships to colonial health officials for the study of tuberculosis work in this country, and the development of antituberculosis propaganda in the Colonies.

Twenty-five blind ex-prisoners of war were among the guests of Sir Ian Fraser, M.P., chairman of St. Dunstan's, at a luncheon in London on June 5, to welcome home from Germany Major David L. Charters, the Birkenhead ophthalmic surgeon, who had twice declined repatriation in order to continue his treatment of the men while in camp, and to thank Lord Normanby, who helped to organize the camp braille and the vocational instruction school which developed with the use of materials sent by the British Red Cross.

Alderman W. E. Jameson, M.B., C.M., Mayor of Hastings from 1940 to 1944, was presented on June 6 with the honorary freedom of the borough in recognition of his courage and devotion to duty during the war.

Dr. Edward Irving Pownoll Pellew succeeds his cousin, who died on June 7, as eighth Viscount Exmouth. The new peer, a great-grandson of the first viscount, was born on May 3, 1868, son of the late Capt. P. W. Pellew, R.N., and was educated at Clifton, Trinity College, Cambridge, and St. Bartholomew's Hospital, qualifying M.R.C.S., L.R.C.P. in 1901. During the last war he served with a commission in the R.A.M.C. as officer in command of 37 M.A.C. at Péronne on the Somme, and was awarded the O.B.E. and the French Ordre de Mérite Agricole. In recent years he has lived at Château de Bellevue, Larion, near Pau, in the Basses Pyrénées.

The Lord Mayor of London and the Lady Mayoress visited the Treloar Hospital at Alton on June 4, when a special ward block was named in memory of the late Sir Henry Gauvain, M.D., F.R.C.S. The Lord Mayor was received by the trustees of the hospital—Lord Burnham (chairman), Miss Florence Treloar, Sir Alexander Maclean, and Mr. William Baker—and members of the staff. The Bishop of Winchester offered a dedicatory prayer, after which the party went through the wards and special departments.

Mr. L. Graham Brown, F.R.C.S., has been adopted as the Liberal National candidate for Luton at the General Election; and Dr. H. B. Morgan is seeking re-election as Labour candidate for Rochdale. Dr. Guy Chandley Milner is standing as an Independent candidate for Orpington (Kent).

A luncheon was held in Nottingham on June 6 for the purpose of announcing the scheme to establish an East Midland Vocational Training College for the disabled. The initiating committee, formed from the Regional Orthopaedic Hospital at Harlow Wood, Nottinghamshire, has in mind to add to its work by establishing a vocational training college which shall cater for the ex-Service, ex-mine, and ex-industry disabled. Dame Georgina Buller described the work which on similar lines is being carried out at Exeter and at Leatherhead, where two colleges of this nature are under her foundation. A film depicting the training of the disabled was shown. The luncheon was attended by representatives of the British Legion, the Red Cross Society, and interested associations of the four counties, Derbyshire, Leicestershire, Lincolnshire, and Nottinghamshire, to whom an appeal is being made for the capital sum of £70,000. The building of this college will form the final stage in the plan for which Her Grace, Winifred, Duchess of Portland, was originally responsible in the area, and to which she has devoted a great part of her life.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* notifications were fewer in the following infections: measles by 2,718, whooping-cough 213, diphtheria 102, dysentery 60, and scarlet fever by 45.

Whooping-cough was less prevalent throughout the country, and most areas also showed a small fall in diphtheria, the 396 notifications being the lowest ever recorded; a fall of 21 cases in Yorks West Riding was the largest local decline. The fall in the incidence of measles was greatest in London and the surrounding counties, where the epidemic has persisted for some weeks longer than in the north; decreases on last week's totals were as follows: Surrey 286, Essex 216, Derbyshire 207, London 205, Southampton 183.

A large outbreak of dysentery occurred in Shropshire, where the cases rose from 0 to 57. The largest of the other returns were Lancashire 36, London 34, Staffordshire 31, Middlesex 27, Essex 23, Surrey 18, Warwickshire 18, Northumberland 16, Hertfordshire 15, Gloucestershire 14, Kent 10, Leicestershire 10, Yorks West Riding 10.

In *Scotland* measles notifications fell by 66 and those of whooping-cough by 55, while a small rise of 9 was recorded for scarlet fever, and for diphtheria 5. The total for dysentery remained almost unchanged: the largest returns were Glasgow 35, Edinburgh 23, Aberdeen 13.

In *Eire* whooping-cough notifications fell from 77 to 18. Twenty-three new cases of diarrhoea and enteritis were reported from Dublin C.B.

Quarterly Returns for Scotland

During the first quarter of 1945 there was a birth rate of 16.9, this being 0.9 below the average of the five preceding first quarters. Infant mortality was 68 per 1,000 registered live births, being 24 below the five-years average, and the lowest rate for any March quarter. Maternal mortality was 2.9 per 1,000 live births, and 0.1 above the rate for the first quarter of 1944, but 1.5 below the five-years average. The general death rate was 14.6 per 1,000, an increase of 0.7 over the first quarter of 1944, but 1.9 below the five-years average. Deaths from the principal epidemic diseases numbered 258, as compared with 390 in the March quarter of 1944. The chief causes of death under this heading were influenza 107, measles 44, whooping-cough 42, diphtheria 29, cerebrospinal fever 28. The death rate from all forms of tuberculosis was 81 per 100,000 and that from respiratory tuberculosis was 63, these rates being 6 and 4 respectively below the five-years average.

Week Ending June 2

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,233, whooping-cough 982, diphtheria 436, measles 10,455, acute pneumonia 486, cerebrospinal fever 44, dysentery 458, paratyphoid 8, typhoid 8. Three cases of typhus fever were imported.

No. 21

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended May 26.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945 (a)	1945 (b)	1945 (c)	1945 (d)	1945 (e)	1944 (Corresponding Week) (a)	1944 (b)	1944 (c)	1944 (d)	1944 (e)
Cerebrospinal fever	50	3	29	—	3	57	4	31	1	2
Deaths		—	1				—	1		
Diphtheria	396	24	132	73	16	507	21	126	58	25
Deaths	10	1	—	1	—	6	—	5	4	—
Dysentery	374	34	107	3	—	274	27	88	—	1
Deaths					—				—	—
Encephalitis lethargica, acute	—	—	—	—	—	3	—	2	—	—
Deaths		—					—			
Erysipelas			41	5	6			37	3	2
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				32					13	
Deaths	40	—	10	9	3	47	11	8	12	3
Measles*	11,408	614	385	61	15	2,662	217	429	260	25
Deaths	9	1	—	1	—	—	—	2	5	—
Ophthalmia neonatorum	81	5	16	1	—	71	2	15	—	—
Deaths										
Paratyphoid fever	3	—	—	2 (B)	1 (B)	4	—	7 (B)	3 (B)	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	487	28	3	4	6	774	53	3	5	6
Deaths (from influenza)	6	—	3	—	—	19	3	2	—	1
Pneumonia, primary			204	28				206	24	
Deaths		23		9	12		24		14	5
Polio-encephalitis, acute	3	—				—	—			
Deaths		—					—			
Poliomyelitis, acute	6	—	—	—	—	7	—	2	—	—
Deaths		—					—			
Puerperal fever		4	9		—		2	15		—
Deaths										
Puerperal pyrexia‡	117	5	9	1	—	165	4	19	2	2
Deaths		—					1			
Relapsing fever	1	—			—	—	—			—
Deaths										
Scarlet fever	1,295	65	239	16	28	1,853	117	217	32	53
Deaths	1	—	—	—	—	2	—	—	—	1
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	8	1	1	3	4	9	1	7	4	1
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	6	—	—	—	—	—	—	—	1	—
Deaths				—	—				—	—
Whooping-cough*	855	44	76	18	22	2,427	241	150	53	16
Deaths	7	—	3	—	—	23	6	2	—	—
Deaths (0–1 year)	301	28	54	43	24	363	55	53	32	22
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	3,937	475	586	223	124	4,361	630	606	226	115
Annual death rate (per 1,000 persons living)			13·3	14·4	§			13·9	14·7	§
Live births	6,775	736	897	374	286	7,965	933	988	563	303
Annual rate per 1,000 persons living			17·9	24·1	§			20·1		§
Stillbirths	211	23	30			215	23	44		
Rate per 1,000 total births (including stillborn)			32					43		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London*. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Safe Dosage of Vitamin B

Q.—*A case has come to my notice in which the patient has been taking daily 200 mg. nicotinic acid and 3 pulvules of a compound containing 1 mg. of vitamin B_1 and 0.1 mg. of riboflavin per pulvule. This has been the daily dose for four months. Are there any dangers in large doses of vitamin B?*

A.—It is quite harmless. The total daily intake of B vitamins with these preparations would be 3 mg. of vitamin B_1, 0.3 mg. of riboflavin, and 200 mg. of nicotinic acid. The doses of the first two vitamins are within physiological limits, and although 200 mg. of nicotinic acid represents about ten times the daily physiological requirement, no harm is likely to come from the consumption of this quantity. If taken in one dose it may cause flushing of the face and pounding in the head, but these effects are quite transitory.

Adrenaline and the Heart

Q.—*What is the treatment of an overdose of adrenaline in a non-asthmatic subject? As some persons are very sensitive to adrenaline, what precautions should one take to minimize the risk, especially when using adrenaline in a local analgesic? As an overdose gives rise to all the symptoms of auricular fibrillation with acute or sudden onset, can this latter condition be caused in individual sufferers not receiving injections of adrenaline by an overaction of the supra-renals or by some alteration in their secretion? Has the quantity of adrenaline circulating in the blood of patients suffering from auricular fibrillation been tested?*

A.—The question appears to be based on a misunderstanding of some of the facts. The statement that an overdose of adrenaline gives rise to all the symptoms of auricular fibrillation is incorrect. It gives rise to violent palpitations, a very greatly increased force of heart beat, and an intense rise of blood pressure, but not to fibrillation. Only in combination with chloroform does adrenaline cause fibrillation, and then the ventricles are involved. It is the chloroform rather than the adrenaline which is to be blamed for this occurrence, and likewise, when cardiac irregularities follow the use of adrenaline together with a local analgesic, it is the local analgesic and not the adrenaline which is to blame. Adrenaline as a normal secretion of the suprarenal glands is a substance against which the body has its own method of protecting itself; this method is by rapid destruction. No steps more efficient than those which are taken by the body itself can be devised to deal with a sudden excess of adrenaline in the blood stream. Very large amounts of adrenaline (e.g., 15 minims of 1 in 1,000) can be injected intravenously into a cat without other effect than temporary collapse due to cerebral anaemia. There is no reason to suppose that an over-action of the suprarenals can lead to auricular fibrillation in a human subject. In tumours of the suprarenal medulla there occurs sudden liberation of adrenaline into the blood stream. The crisis is unpleasant, but is attended by nothing worse than palpitations and a temporary rise of blood pressure.

Staphylocoagulase

Q.—*Are all pathogenic staphylococci coagulase-positive? Would you give, for the benefit of the non-bacteriological reader, a brief description of the test and discuss its significance. Is there, for example, any connexion between the coagulase activity of staphylococci and the thick pus of staphylococcal infections?*

A.—The production of staphylocoagulase is by far the most constant character of *Staphylococcus pyogenes*, as well as being much more easily and rapidly demonstrable than any of the cultural characters on which reliance was placed in the past. To perform the test for it a tube containing a small quantity of sterile citrated plasma, which may be diluted if economy is desired, is inoculated heavily with the staphylococcus and incubated for up to four hours: a solid clot is formed, usually in less time than this, by positive strains.

Correlation between coagulase production and pathogenicity is almost perfect. When coagulase-negative strains are found in the presence of definite infection, some other cause for this should be sought, either in the shape of another bacterium or in some cause of lowered resistance to bacterial attack. The fibrinous nature of the exudate in staphylococcal infections is attributable to the action of staphylocoagulase in the body.

Haemorrhagic Tendency in the Newborn

Q.—*A newborn child developed the first day of his birth symptoms of cerebral haemorrhage, the diagnosis being confirmed by a lumbar puncture; the child died the third day after birth. Delivery was normal, easy, and no instruments were used. The father and mother are young and healthy and have no syphilitic antecedent or symptoms. This was their first child, and they are anxious in case the tragedy should occur again. What might have been the cause of the cerebral haemorrhage, and what prophylactic treatment might be used?*

A.—With the early development of bleeding, such as is described in this case, the cause must be regarded as trauma in the widest sense rather than any haemorrhagic tendency, which tends to develop after the first day. It should be remembered that some degree of moulding of the foetal head occurs even in the most normal of labours, and hence a tentorial tear *may* be found despite the essentially non-traumatic nature of the delivery described for this case. The chances of this recurring are very small, whereas the haemorrhagic tendency is liable to be a familial complaint. But it would be wise, in view of this history, to use in any subsequent labour a prophylactic dose of vitamin K. This should be given to the mother as 20 mg. of a synthetic analogue not less than 2 and not more than 12 hours before delivery, and the baby should also be given a dose of 0.5 to 1 mg. after birth. It may be fair to comment on this case that the mere finding of blood in the cerebro-spinal fluid does not necessarily establish a diagnosis of intracranial haemorrhage, and in any case it is a procedure fraught with a certain amount of danger for an already ill baby.

Gargling as Prophylaxis

Q.—*Is there any medical reason for gargling as a prophylactic measure (i.e., any evidence that it is of any benefit at all)?*

A.—We know of no evidence that gargling with anything will protect against a prevalent air-borne infection. Its effect must obviously be so transitory that very frequent repetition would be the only logical way of employing it for this purpose.

Treatment of Smallpox

Q.—*Does the injection of soluble liver extract hold any place in the treatment of smallpox? Some months ago an Indian colleague informed me that a single injection of 1 to 2 c.cm. of a liver extract, administered early in the disease, prevented pustulation, thereby shortening the duration of the illness, preventing scarring, and diminishing the severity of general manifestations.*

A.—The validity of this claim could be tested only over a large series of cases of variola major with suitable controls. Minimal pustulation and subsequent scarring in smallpox is a natural phenomenon in partial immunes—hence the value of any remedy is very difficult to assess over a small number of cases. Sulphonamides might be expected to limit the amount of secondary infection of skin lesions, but the answer to this, too, requires considerably more experience than has been available in this country.

Treatment of Dental Abscess

Q.—*Why do so many dentists refuse to extract a carious tooth with abscess until the swelling has subsided? Is such delay ever justifiable?*

A.—Adequate drainage of an alveolar abscess must be obtained, and if this can be done only by the extraction of the tooth concerned then the tooth must be sacrificed without delay. It is quite justifiable at times to attempt to save a front tooth if the abscess can be drained through the root canal. Many dental abscesses, by the time they are seen by the dental surgeon, have already pointed through the alveolus and are discharging or are about to discharge into the mouth, and it may be wise in these cases to wait until the swelling has subsided and the patient's general condition has improved before removing the tooth.

Local analgesics are contraindicated in these cases, and when the dentist has not the advantages and facilities of immediate general anaesthesia he may well be tempted to wait a few hours if he has reason to think that drainage will occur spontaneously.

Non-specific Asthma

Q.—*A man of 50, employed before the war as gardener-handyman, suffered from asthma apparently due to fumes in coke-boiler-house. During the war he has been in the N.F.S. and was free from asthma. On resuming his old employment the asthma has returned. It is not a garden reaction, for he continued gardening while in the N.F.S. He is anxious not to lose his present job. Can anything be done to help? Would a gas-mask be of use?*

A.—Some sufferers from hay-fever are relieved by breathing through a gas-mask and the same might well be true of the present patient. The fumes of the coke-boiler-house are presumably non-allergic and release a latent asthma in a non-specific way, as exertion or emotion might. It is therefore unwise to conclude that the patient is not sensitive to something in his work or place of employment, and it would be better to consider all possible causes for his asthma quite dispassionately, as asthma is so often multi-determined.

Function of Alkaloids in Plants

Q.—*Is anything known of the natural part played by the various alkaloids isolated from plants? What, for example, is the physiological action of the opium alkaloids in the poppy?*

A.—The significance of alkaloids for the plants that form them has been the subject of much discussion. Since they have never been shown to have any direct effect in the plants' economy, their alkaloids are usually regarded either as waste-products of protein degradation (analogous to urea in animals) or as nitrogenous reserves. Alkaloids of complex constitution, such as the morphine group, which remain undecomposed at the death of the plant, or which are "excreted" by abscission of parts such as leaves, can only be considered as waste products. Alkaloids, usually of less complex constitution whose formation is reversible like hyoscyamine and nicotine, are spoken of as "reserves." The very low concentrations in which they occur must prevent them from being of much significance. The "survival value" attaching to their toxicity to grazing animals also appears to be of little practical importance. The presence of alkaloids in certain plants is due to their possession of unusual enzymes. Any results of this metabolic kink are secondary, and so far as can be said at present none of them is important.

Habitual Abortion

Q.—*A woman aged 31, with a child 2½ years who was six weeks premature, has in the last six months had two miscarriages at three months, both of which were thought to be due to a retroverted uterus. The first occurred a few days after the retroverted gravid uterus had been replaced. Two weeks after the miscarriage the uterus was found to be in a normal position. During the last pregnancy, examination was carried out two weeks after the first menstruation was missed; the uterus was found to be retroverted and was replaced. Miscarriage occurred 10 days after the third menstruation was missed. The uterus was palpable per abdomen just before abortion began. On both occasions there had been slight haemorrhage at the second month. The first child was born in the Tropics; the first miscarriage was in South Africa, and the last in the Tropics. What advice would you give about future pregnancies? Even if a Gilliam was thought advisable, it could not easily be done in the Tropics. Should a Hodge pessary be used when pregnancy starts, or even before? Would hormone therapy help, and how should it be carried out? Or would the miscarriages more likely be due to the abnormal position of the uterus? The patient is healthy and anxious to start another pregnancy soon.*

A.—Retroversion, dating from the first puerperium, is a possible factor in the causation of the abortions, but it can hardly be the only one, because the position of the uterus was corrected in the third pregnancy and yet abortion occurred several weeks later. Moreover, it is difficult not to associate the premature labour with the two abortions and to regard it as additional evidence of an "abortion habit." If no general disease or other local abnormality can be found then treatment must be largely empirical. Another pregnancy should be deferred until six months after the time of the last abortion. The retroversion should be corrected and a Hodge pessary fitted just before conception is attempted. If all goes according to plan the pessary should not be disturbed until at least the sixteenth week of pregnancy, when it should be gently removed with a minimum of interference to the uterus. Apart from this, vaginal manipulations or examination should be avoided once pregnancy has occurred. Twice-weekly intramuscular injections of progesterone should be begun as soon as the first period is overdue and continued until the thirty-second week of pregnancy. Thyroid gr. 1 nocte, and vitamin E 3 mg. b.i.d., might also be given throughout pregnancy, and an adequate intake of iron, calcium, and the other vitamins assured. The patient should be instructed to live as quiet a life as possible, avoiding, in particular, coitus, riding in mechanically propelled vehicles, horse-riding, and heavy work.

Although quinine does not ordinarily cause abortion, it might in a susceptible individual; so if the patient lives in a malaria district and takes this as a routine, the possibility should be kept in mind.

Spina Bifida Occulta

Q.—*A female child now aged 2½ years was operated on one year ago for spina bifida occulta. No attempt to crawl or walk had been made; there had been attacks of diarrhoea and pyelitis. The bladder was distended and dribbled every few minutes. The child had appeared normal in every respect up to the age of 9–10 months. At operation a mass was found in the lower end of the spinal canal attached to the conus, which extended to the bottom of the theca. The nerves appeared normal. The posterior portion of the mass was removed and microscopically was found to consist of normal nerve tissue and distorted nerve tissue plus an area suggesting central canal tissue. Shortly after operation the child began to put on weight and to crawl. She is now able to walk about 100 yards with assistance. Dribbling of urine continues as before. In addition there is no control over the anal sphincter now. The anus is often half open and small pieces of faeces are passed 7 or 8 times daily. For the past six months electrical treatment in the form of a direct galvanic current has been carried out to legs and anus. The urine is kept acid and a strict watch is kept on the child's general health, which is excellent. Can any further curative or prophylactic treatment be carried out? What has been the history of similar cases? Is there a possibility that sphincter control may develop? What references are there in the literature to such cases?*

A.—Spina bifida occulta does not as a rule cause symptoms so early in life as in this case. The early symptoms may have been due to the extended growth or adhesion of the conus. Inasmuch as walking has improved since the operation it is possible that further improvement may occur in the matter of sphincteric control, though Elsberg states that in his experience "long-existing bladder disturbances due to spina bifida occulta have been little benefited by surgery." On the other hand Stockmeyer mentions the case of a girl aged 6 suffering from spina bifida occulta accompanied by incontinence of urine and faeces and weakness of the legs in whom control over the urine and faeces was regained merely by rest in bed. I have been unable to find any exactly similar case to that narrated in the question, but clearly no further operative treatment is indicated, and the best procedure would seem to be to continue the excellent measures at present being carried out. Reference may be made to Elsberg, C. A., *Surgical Diseases of the Spinal Cord*, 1941, p. 184, New York; Stockmeyer, Karl M., *The Value of the Surgical Treatment of Spina Bifida*, 1925, Berlin; Ingraham, F. D., and Swan, H., *New Engl. J. Med.*, 1943, **228**, 559.

Certifying Sanity

Q.—*How can a person who was certified some years ago, and who was "relieved" after three weeks in a mental hospital, be certified as sane?*

A.—There is no statutory certificate of sanity in England or Scotland. A certificate signed by one or more registered medical practitioners stating that in their opinion a named person was sane at the date of the certificate has no more and no less value than any other medical certificate. It is admissible as evidence in a court of law without the appearance of the signatory only if he is dead, or unable to attend, or out of the country, or untraceable, or if to call him would cause undue trouble or expense.

Antispasmodics for Whooping-cough

Q.—*In view of the laryngeal spasm so important in pertussis, has adrenaline ever been used in treatment, and, if so, with what results?*

A.—Antispasmodics have been extensively used in whooping-cough. Ephedrine is normally preferred to adrenaline for its more prolonged effect and the fact that it can be given by mouth. A suitable preparation is the elixir ephedrin. hydrochlor. with the dose adjusted to allow ephedrine gr. 1/4 twice a day for a child of 1 year and a corresponding reduction for younger children. Generally speaking, antispasmodics are disappointing in whooping-cough. Further, children do not tolerate ephedrine particularly well, and it should be used with caution.

Idiopathic Pigmentation

Q.—*A male patient has a patch of light brown discoloration on his forehead, extending the whole length of the forehead and about 1 in. in breadth. It appeared after wearing a metal eyeshade to protect his eyes from the glare of the electric light in his office. The metal of the shade was in direct contact with the skin of his forehead. There is no erythema and no scaling; no pain or itching; no evidence of pityriasis capitis or seborrhoea. Scraping shows no fungus present. Soothing lotions—e.g., lot. calaminae oleos. cum ichthyol.—have been applied with no success.*

A.—As the duration of the condition is not mentioned nor when the eyeshade was discontinued, idiopathic pigmentation cannot be excluded. Various metals, especially nickel, are potential skin irritants and may cause both irritation and pigmentation. It is assumed that the patient has not lived in the East. Bathing with peroxide of hydrogen 10 vols. may succeed, or application of 1 in 1,000 perchloride of mercury lotion.

INCOME TAX

Recommencement of Work

P. H. was away from work through illness for one and a half years, restarting in October, 1942. He has been assessed as follows:

Year to April, 1943: On the amount of the profits for the six months to April, 1943, £x
„ „ 1944: On the amount of the profits for the year to October, 1943, £x + £y
„ „ 1945: On the amount of the profits for the year to October, 1944, £y + £z

He points out that this means that £x and £y have entered twice into the calculations and asks if this is correct.

⁂ The basis above is legally correct—assuming that P. H. restarted work as a practitioner on his own account. It has to be remembered that the previous year's profits are adopted only as a basis of assessment. In fact when P. H. has paid the tax assessed for 1944–5 he will have paid tax for the 2½ years to April 5, 1945, and have paid on 2½ years' profits only. If he should find that his profits for 1944–5 were smaller than the amount of the assessment, he should consult the inspector of taxes as to an adjustment to the "actual" amount. There is no provision in the Income Tax Acts for any relief in respect of the period when P. H. was unable to carry on his professional work.

Earnings of Married Woman

W. M. has about £20 a month deducted from her salary of £600 a year. Is this correct?

⁂ Yes, if her husband's income is sufficient to cover the whole of the allowances to which he is entitled—i.e., £140 as a married man, £100 in respect of two children, and the earned income relief, and the £165 chargeable at the lower rate. If his income, as correctly assessable, is below, say, £450, the matter should be raised with the inspector of taxes on the ground that the *husband's* income has apparently been over-assessed.

LETTERS, NOTES, ETC.

A New Covering for Skin Dressings

Dr. J. E. M. Wigley writes: In answer to Dr. R. Stopford-Taylor's comment (June 2, p. 794), I think he has missed the point of my note. Stannard silk is a different product from the old "green protective" oiled silk in that it is impregnated with a special synthetic resin. This renders it incapable of sticking to moist and other surfaces, as I pointed out in my note—a property which I have not found possessed by ordinary oiled silk. Still, I agree with Dr. Stopford-Taylor's implied quotation, "There is nothing new under the sun."

Radium for Mooren's Ulcer

Dr. A. J. Durden Smith (Northwood, Middlesex) writes: In your issue of May 5, under "Any Questions?" there is a question asked about the treatment of Mooren's ulcer. I find myself entirely in agreement with the answer except with the statement that the application of radium "has been suggested." This is surely rather an understatement of the case. I have myself treated many cases of this condition by radium with varying results, but with some undoubtedly good ones. The damage of the ocular apparatus from the beta rays of radium is, I think, negligible. I only write because this is a condition which, as the answer suggests, is hardly amenable to any form of treatment, and this form of radiation does offer a chance of cure in a certain number of cases.

Perionychia

Dr. H. G. Langdale-Smith (Hereford) writes: In "Any Questions?" (*B.M.J.*, May 19) the question of treatment of perionychia is raised. For some time I have treated this condition by a combination of Bier's induced hyperaemia and sulphonamide therapy, and this has superseded all other troublesome procedures. One gramme or more of a suitable sulphonamide is given at 10 a.m., 2 p.m., and 6 p.m. At midday, 4 p.m., and 8 p.m. a constricting band is applied to the arm of the affected hand, which is immersed in warm Dakin's solution for 10 to 15 minutes. This is repeated in a week's time. Whether the concentration of sulphonamide in the blood of the fingers is increased by this method I do not know, but the effect is generally very satisfactory.

Treatment of Inevitable Abortion

Dr. Josephine Barnes (London, W.C.1) writes: May I join issue with you on the question on "inevitable abortion" (May 26, p. 757). I agree in principle, but I cannot help taking exception to the remark in the first paragraph: "Oxytocin (5 units intramuscularly) is perhaps preferable to pituitrin." Prof. Chassar Moir, acknowledged as the greatest living authority on this subject, I think, states in his critical review on oxytocic drugs and their use (*J. Obstet. Gynaec. Brit. Emp.*, 1944, **51**, 247) that for the aborting uterus "a greater effect can be obtained from the use of 'normal' extract than from the purified oxytocic fraction." He elaborated this point further in the article. I think it is not generally realized that oxytocin (pitocin) is relatively inactive in early pregnancy in the intact human uterus. See also your annotation on Prof. Moir's paper (*Journal*, Dec. 16, 1944, p. 796). I also disapprove strongly of active intervention in infected cases. I always leave them alone unless there is dangerous haemorrhage, because of the risk that interference may spread the infection.

X-ray Treatment of Dupuytren's Contracture

Dr. Bernard Leggett (Forest Gate, E.7) writes: On page 793 of your issue of June 2 I note *x*-ray therapy is advocated for the above condition. In the boom of ultra-violet-light treatment in the nineteen-twenties ultra-violet light was advocated for *x*-ray burns, in spite of the strong probability that the effects of electromagnetic waves with varying time for erythema production would be cumulative. Even after Phaler in the U.S.A. by animal experiments showed that ultra-violet light accelerated *x*-ray burn changes, ultra-violet light was still advocated for *x*-ray burns. I suggest that whoever is responsible for your journal publicly advocating *x*-ray treatment for Dupuytren's contracture carries out *x*-ray treatment as a "cure-all" rather than on rational grounds. Conditions amenable to *x*-ray treatment are widespread, but I have always grouped such conditions as (1) those where *x*-ray treatment is the method of election—i.e., acne, (non-cystic) thyroid hyperplasia, warts, etc.; (2) those conditions of varying causation, such as pruritus, where there is reasonable chance of success and the attempt is warranted; (3) those conditions where there is no histological reason to expect good results; and (4) conditions where *x*-ray treatment is definitely contra-indicated. I would place Dupuytren's contracture in the last category, and some months ago, when a professional patron rang me to inquire respecting my treating a Dupuytren's contracture, I declined the case. It has been advocated by many that the real effect of *x*-ray treatment is very simple—i.e., that in most cases the effect is to cause irritation and induce fibroblastic reaction, so that with acne the skin is "hardened" by the formation of connective tissue and, in the thyroid, the adenomatous tissue is restricted by the formation of connective tissue. Since Dupuytren's contracture is due to the excessive growth of connective tissue, there would appear to be no more adverse treatment possible than to give *x*-ray treatment.

Head Rupturing through the Perineum

Dr. Margaret B. Fox writes from the Duchess of Teck Hospital, Patna, Bihar: An Indian girl of 19 years, a primipara, was admitted to hospital on February 25, 1945. She was in labour, and ten minutes after admission the membranes ruptured and the head appeared at the vulva. The vulva did not dilate up normally, but a rupture appeared in the posterior part of the perineum, which rapidly increased in size with the bearing down of the head. A median episiotomy was performed and the baby delivered. The rectum was intact and the levator muscles widely separated in the midline, leaving smooth edges. The mucous membrane was torn, up to the cervix. The tear was repaired in the usual way, and the patient went home on the 14th day. The measurements of the bony pelvis were quite normal.

Penicillin and Other Drugs

Major C. F. Garfit (Lahore) writes: I read the medical memorandum on penicillin in ophthalmic therapeutics by Major A. J. Cameron (Feb. 17, p. 222) with interest, as this is the first time I have seen reference made to the effect of penicillin on the drugs commonly used in ophthalmic practice. As regards Major Cameron's findings with adrenaline hydrochloride, it at once occurred to me that in making his experiments perhaps he used the liq. adrenalin. hydrochlor. *B.P.* or a similar preparation. This preparation contains 0.5% chlorbutal and so possibly this substance might have played its part in the result; 0.3% free dilute hydrochloric acid is also, of course, present. While for practical clinical purposes his result is the one that counts, since liq. adrenalin. hydrochlor. *B.P.* is the preparation normally used, nevertheless the point seems to be of some interest. Perhaps Major Cameron could kindly clear up this point.

Medical Golf

The Stratford Division (B.M.A.) Golfing Society has arranged a competition for the Scottish Bowl to be held at Thorndon Park on Thursday, Sept. 27. The competition is open to all golfers in the Division who are members of the B.M.A. There is no annual subscription for 1945. The hon. sec. is Dr. A. J. Buchan, 69, Belmont Road, Ilford. (Tel.: Ilford 0555.)

Correction

A mistake in the review of *Human Embryology* (June 9, p. 808) must be corrected. The opening words in the last sentence of the second paragraph should of course read "The inclusion of sections on foetal *physiology*. . . ."

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THE TOXICITY OF 2,2-*bis* (*p*-CHLORPHENYL) 1,1,1-TRICHLORETHANE (D.D.T.)

BY

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AND

F. BURGESS

The introduction of the new synthetic insecticide 2,2-*bis* (*p*-chlorphenyl) 1,1,1-trichlorethane (D.D.T.) demands that possible hazards to man be determined and potential dangers safeguarded against. We describe in this paper investigations on the toxicology of D.D.T. which we carried out during the period April, 1943, to March, 1945. These have been the subject of several reports to the Ministries of Production and of Supply, at whose request we have prepared the following account.

Methods

Our material embraces a variety of laboratory animals as well as human volunteers. Toxic effects and fatal doses (L.D.50) were determined in rats, guinea-pigs, and rabbits, D.D.T. being administered by various routes, in single or repeated doses, and dissolved in a number of solvents. Both crude and pure samples of D.D.T. were employed ; the former is said to contain 5% sulphuric acid, but appears to behave similarly to pure D.D.T. Some experiments on the action of D.D.T. powder on healing of experimental wounds were also done. Human experiments were chiefly confined to the wearing of garments and underclothes impregnated with D.D.T. In all cases a close watch was kept for the development of toxic effects, and exposed animals were the subject of careful pathological examination at death or when the observational period had elapsed. Various investigations were made on selected subjects, including blood and urine examination and body-weight determination throughout the course of exposure. These will be described in the appropriate sections. Necropsies on animals were performed immediately after death or, frequently, when the animals were moribund. Microscopical examination of all the important organs and tissues, including the central nervous system in representative cases, followed upon preparation of paraffin and frozen sections. Tissues were fixed in 10% formol-saline and 10% formol-alcohol, embedded after passage through the alcohol series, and many sections stained with Ehrlich's acid haematoxylin and eosin and Weigert's iron haematoxylin and van Gieson as a routine procedure, and often with Heidenhain's azan method, v. Kossa's method for calcification, the prussian-blue method for iron, Weigert's elastica method, and Turnbull's Jenner method for bone marrow. The Scharlach-R fat stain was employed with frozen sections after 10% formalin fixation. The central nervous system was dissected out with very great care so as to avoid disturbance of relationships and trauma from handling. After prolonged fixation in 10% formol-saline, transverse wedges of tissue, a few millimetres thick, were removed at the level of the anterior third of the frontal lobes, at the level of the hypophysis, through the middle of the cerebellum and pons, and at the commencement of the medulla. Such wedges included the whole of the cerebral tissues in a cranio-caudal direction. Paraffin sections were stained with the usual haematoxylin and eosin and van Gieson methods, with toluidine blue, and with the Marchi method. Sections from the main levels of the spinal cord were also prepared from a limited number of animals.

ANIMAL EXPERIMENTS

Single Doses.—Single doses of D.D.T. were administered to groups of at least 5 animals by skin application—the skin area being shaved 24 hours previously—by stomach tube, and by subcutaneous and intramuscular injection. For skin application we used solutions of D.D.T. in ether, kerosene, dimethyl phthalate, and dibutyl phthalate. The two latter solvents have their uses in insect control. For gastric and subcutaneous administration we dissolved D.D.T. in medicinal liquid paraffin and a small amount of tragacanth. About 400 animals were used in these experiments. For skin application of single doses the L.D.50 for our rabbits was 300 mg./kg., for guinea-pigs 1,000 mg./kg., and for rats 3,000 mg./kg. Results were in close agreement when ether and kerosene were used as solvents. For subcutaneous injection the L.D.50 for rabbits was 250 mg./kg., for guinea-pigs 900 mg./kg., and for rats 1,500 mg./kg. Liquid paraffin was the solvent. For gastric administration the L.D.50 for rabbits was 300 mg./kg., for guinea-pigs 400 mg./kg., and for rats 800 mg./kg. Control animals given the largest amount of solvents used in the above tests, but without D.D.T., were unaffected. Results of tests in which dimethyl phthalate and dibutyl phthalate were employed as solvents were substantially in agreement with the above, though we did not carry out subcutaneous tests. Although the L.D.50 levels were definite enough in most cases, a certain number of animals died after doses lower than these levels. Generally speaking, the lowest dose which produced some casualties was about half to two-thirds that of the L.D.50. Even so, it is apparent that the toxicity of D.D.T. when given in solution by various routes as single doses is not high.

Repeated Administration of D.D.T.—Repeated skin application of D.D.T. has been carried out with various solutions and emulsions of D.D.T., with the dry powder, alone or mixed with pyrophyllite, and through the agency of impregnated cloth. The effect of repeated gastric administration has also been investigated, and some experiments in which animals were frequently exposed to heavy mists of D.D.T. in chambers were performed. Precautions against licking contaminated skin were always taken.

1. Solutions or Emulsions

(i) 10% Kerosene Solution.—Five rabbits were given daily skin applications of 100 mg./kg. D.D.T. as a 10% solution in kerosene; 5 guinea-pigs and 5 rats received 200 mg./kg. All of the rabbits were dead after 6, the guinea-pigs after 12, and the rats after 14 applications. All showed clinical features of D.D.T. poisoning and severe inflammation of the skin.

(ii) 1% Kerosene Solution.—Five rabbits, 5 guinea-pigs, and 5 rats were given daily applications, each 2 hours in duration, of 50 mg./kg. D.D.T. as a 1% kerosene solution. No rabbit survived more than 16 applications, no guinea-pig more than 18, but only one rat died during a series of 20 applications. Nervous symptoms were uncommon, but fatal cases showed severe liver damage. Skin irritation occurred in all. Similar groups of rabbits, guinea-pigs, and rats received daily applications of 10 mg./kg. D.D.T. Rabbits survived 20 such exposures without clinical signs of intoxication, and no pathological changes were found when they were killed off. Skin irritation, however, was present. Two guinea-pigs died after 11 applications, both showing moderate liver damage. The other three received 14 applications without ill effects. None of the rats were affected by 14 applications. Control experiments with kerosene alone showed that skin irritation developed and sometimes animals died from this. It is obvious that kerosene may have accounted for some of the deaths in the above experiments. This was more especially the case with rabbits.

(iii) 1% Ethyl Alcohol, Acetone, and Ether Solutions.—Groups of 5 rabbits, 5 guinea-pigs, and 5 rats received daily applications, each lasting 2 hours, of 10 mg./kg. D.D.T. as 1% ethyl alcohol, acetone, or ether solution. With ethyl alcohol as solvent, 2 of 5 rabbits died after 9 and 12 applications respectively; with acetone as solvent, 1 of 5 rabbits and 2 of 5 guinea-pigs died after 7, 7, and 9 applications respectively; with ether as solvent, 1 of 5 rabbits and 2 of 5 guinea-pigs died after 13, 7, and 8 applications respectively. No rats died during the experimental period of 14 applications. All fatal cases showed moderate or severe liver damage but no nervous symptoms.

(iv) Emulsions.—(*a*) Emulsion I (Geigy), composed of 15 parts D.D.T., 30 parts toluene, 15 parts hexamethylenetetramine, 36 parts sulphonated castor oil, and 4 parts ammonia, was diluted 1:100 with water. Five rabbits, 5 guinea-pigs, and 5 rats received 14 daily applications each of 5 c.cm./kg. diluted emulsion (about 7.5 mg./kg. D.D.T.). Two guinea-pigs died from intercurrent infection after 14 applications. No clinical features of D.D.T. intoxication were seen in any of the animals, and the skin at the site of application was not inflamed. At the termination of the experiment all animals were killed and their main organs examined microscopically, but no pathological changes were found.

(*b*) Pymulso concentrate Mark X, containing 1% w./v. D.D.T. and about 0.2% pyrethrins, diluted 1:10 with water, was applied on 12 occasions in daily doses of 5 c.cm./kg. to the skin of 2 rabbits, 4 guinea-pigs, and 6 rats without giving rise to any evidence of skin irritation, intoxication, or pathological change in their organs.

(*c*) Pymulso concentrate Mark XI, containing 2% w./v. D.D.T. and 0.4% pyrethrins, diluted 1:20 with water, was applied in daily doses of 5 c.cm./kg. on 12 occasions to 2 rabbits, 4 guinea-pigs, and 6 rats. No ill effects were observed in the skin or organs when the animals were killed at the end of the experiment.

(*d*) Pymulso special, containing 0.5% w./v. D.D.T. and 0.02% w./v. pyrethrins, was applied on 5 occasions in doses of 5 c.cm./kg. (25 mg./kg. D.D.T.) to the skin of 5 rabbits and 5 rats. Although no symptoms of D.D.T. intoxication developed, the skin became severely irritated. Experiments were discontinued at this stage. Microscopical examination of the main organs disclosed no pathological change attributable to D.D.T.

(*e*) Special pymulso concentrate, containing 10% w./v. D.D.T. and 0.4% w./v. pyrethrins, diluted 1:20 with water, was applied on 15 occasions in doses of 5 c.cm./kg. to the skin of 5 rabbits and 5 rats. Each application, equivalent to 25 mg./kg. D.D.T., lasted 2 hours, after which the emulsion was removed with water. No inflammation of the skin developed, and the animals appeared normal throughout the experimental period. They were killed and their organs examined microscopically, but no pathological changes attributable to D.D.T. were found.

It is apparent from these experiments that the manner of preparing the D.D.T. suspensions is important for toxic effects and that some of the pymulso suspensions are more suitable than others.

2. D.D.T. Powder

Groups of rabbits, 4 animals in each group, were given 16 daily applications of 50 mg./kg. and 10 mg./kg. D.D.T. powder on the shaved skin of the back. Each application lasted two hours. During the experimental period no symptoms developed, there was no loss of weight, and the organs and skin showed no pathological changes when examined microscopically at the end of the experiment. Three rabbits, 3 guinea-pigs, and 3 rats received 9 daily applications, each of 2 hours' duration, of dry 5% D.D.T. in pyrophyllite, in doses of 200 mg./kg. (i.e., 10 mg./kg. D.D.T.) for rabbits and guinea-pigs, and 500 mg./kg. (i.e., 25 mg./kg. D.D.T.) for rats. No skin irritation developed. The animals appeared normal throughout the experimental period, and when killed showed no pathological changes in their organs. Two rabbits, 2 guinea-pigs, and 2 rats received similar treatment, the powder being wetted on application to the skin. No ill effects developed.

3. Impregnated Cloth

Lint was impregnated with 0.5% D.D.T. in benzene and allowed to dry. Portions of this lint containing known amounts of D.D.T. were placed in contact with the shaved skin of rabbits and kept there for 7 days by means of strapping. Five rabbits were so exposed to a dose of 100 mg./kg. D.D.T., five to 50 mg./kg., five to 25 mg./kg., and five to 10 mg./kg. The skin at the site of application of impregnated lint remained healthy. No symptoms of D.D.T. intoxication developed and no pathological changes were found in the organs when the animals were killed at the end of the 7 days.

Repeated Oral Administration of D.D.T.

Ten rabbits and 10 rats were given daily doses of 50 mg./kg. D.D.T. by stomach tube in the form of a 5% suspension in liquid paraffin and tragacanth. Symptoms of D.D.T. intoxication appeared in 8 rabbits, one showing marked tremors after 4 doses (total of 200 mg./kg. D.D.T.), one after 5 doses (total of 250 mg./kg.), two after 9 doses (total of 450 mg./kg.), one after 13 doses (total of 650 mg./kg.), and three after 16 doses (total of 800 mg./kg.). Four animals died after 8, 10, 11, and 20 doses respectively. The remaining 6 rabbits were killed when they had each received 20 doses—i.e., a total of 1 g./kg. D.D.T. Microscopical examination of the organs from all of the rabbits showed slight to moderate liver necrosis in 8; most marked in the 4 animals that died. In all cases necrotic areas presented signs of resolution and liver-cell regeneration without any fibrosis. Slight tubular degeneration occurred in the kidneys of these 8 animals, with calcification in one only. Other organs were unaffected. Rats proved much more resistant, for none of the group of 10 died during a period of 30 doses—i.e., they survived a total dosage of 1.5 g./kg. D.D.T. Moderately severe intoxication appeared in 4 rats after the 28th dose (total of 1.4 g./kg. D.D.T.). All were examined microscopically. No pathological changes were found in any of the organs; the animals showing signs of D.D.T. intoxication presented no abnormality, strange to say.

Repeated Exposure to D.D.T. "Mist"

Thick "mists" of D.D.T. were put up in a cubic-metre chamber by spraying, with an air-driven mechanical sprayer, 15 g. of D.D.T. in about 30 c.cm. of acetone. This gave a nominal concentration of about 1:1000 D.D.T. at the start of the experiment. Four rabbits, 5 guinea-pigs, and 10 rats were exposed to this mist for 2 hours on 11 occasions during 14 days. Two rabbits died after 8 and 9 exposures, one guinea-pig after 9 exposures and four after 10 exposures, one rat after 4 exposures, three after 5, two after 6, one after 8, two after 9, and one after 10. All showed clinical evidence of D.D.T. poisoning. Evidently rats and guinea-pigs are more sensitive than rabbits to this form of intoxication. But such exposures are severe and probably well out of proportion to practical affairs. A further experiment was carried out in which 5 rabbits, 5 guinea-pigs, and 5 rats were exposed under similar conditions for 2 hours daily on 6 separate occasions to a mist produced by spraying 5 g. of D.D.T. in 20 c.cm. of acetone. This corresponded to an initial concentration of about 1:3000 D.D.T. No symptoms of intoxication developed and no pathological changes were found in the organs when the animals were killed at the end of the experiment.

Clinical Features and Pathological Changes in D.D.T. Poisoning

With large single doses of D.D.T. administered by any route the first signs of intoxication appear in 12 to 24 hours. The animal is cold to the touch, its fur is ruffled, and diarrhoea may be present. It seems to be nervous and very sensitive to stimuli. Muscular weakness sets in about this time, starting in the muscles of the back and soon involving the hind limbs. Fine and, then coarse tremors develop in these regions, the animal shaking violently for hours on end. Movement becomes restricted, staggering, often spastic. The forelimbs are seldom affected, so that the animal can partly support itself or even drag its immobile hind quarters about. Anorexia leads to a rapid loss of body weight. Death may occur in 24 to 48 hours or be delayed for several days. Respiration fails, but the heart continues to beat until the end and sometimes for a few minutes after breathing ceases. Convulsions are rare. In animals tha recover, nervous and muscular signs may develop and last fo some days, eventually disappearing without apparent after effects. No evidence of permanent damage has been seen in such cases.

Pathological examination of acute fatalities reveals little change in the organs. Pulmonary oedema is frequent, and a terminal manifestation. Mild or moderate damage of the live and kidneys, similar to that found after repeated administration of D.D.T., may be present, but is not constant. Occasionally the heart muscle contains more fat in its fibres than is normally the case, and the adrenals may be haemorrhagic. A careful examination of the central nervous system has failed to convince us of specific disturbances, even in the most severely affected animals. Degeneration (chromatolysis, vacuolation, pyknosis) and sometimes destruction of a few anterior horn cells in the thoracic and lumbar regions of the spinal cord have been noted, but are not pronounced. The axons of the cord appear unaffected and the higher levels of the brain and brain stem show no changes. Prolonged search of many sections stained by special histological methods has proved of no assistance in locating the seat of nervous disturbance.

With repeated administration of D.D.T. there are loss of body weight, anorexia, and sometimes diarrhoea. When doses are small nervous symptoms do not develop, but with moderate doses tremors and weakness may come and go. Hypersensitiveness to sounds and other stimuli may be striking. Some animals apparently recover from these effects only to die at a later stage; others continue to shake until the end. Death in most instances is quiet, and apparently the result of exhaustion. A different pathological picture is seen, the liver being severely damaged. Numerous areas of focal necrosis or large areas of centrolobular necrosis are uniformly distributed throughout the organ (Fig. 1).

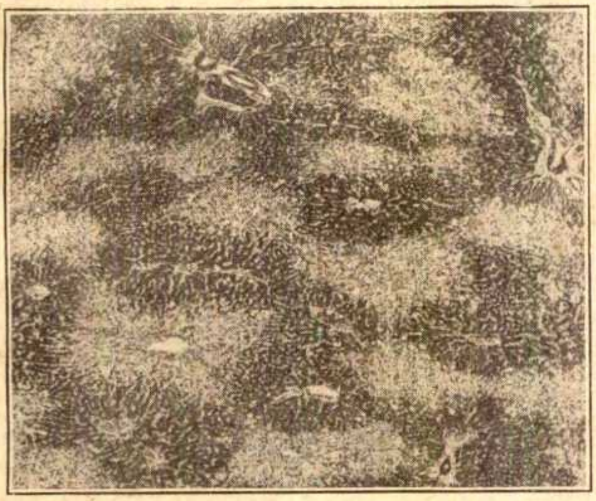

FIG. 1.—Liver of guinea-pig which received daily skin applications of D.D.T.—50 mg./kg. in kerosene—over 9 days. The dark areas are normal liver cells, the pale areas centrolobular necrosis. H. and E. (×30.)

There is much fatty degeneration, with cloudy swelling of liver cells surrounding the necrotic areas. Bile ducts are not affected. Polymorphonuclear leucocytes infiltrate the dead tissue in the early stages; later, mononuclear cells may be numerous. The degree of liver injury is sufficient to account for death. In less severe cases, and especially if D.D.T. be discontinued, necrotic material is removed in the course of a week or two by autolysis and solution as well as by phagocytic activity. Repair is complete, no fibrosis developing even when exposure to D.D.T. is prolonged. Calcification is sometimes seen in some of the necrotic areas. The kidneys, too, are affected, but renal damage is slight compared with that in the liver. Tubule cells show degenerative changes, including fatty deposition and calcification (Fig. 2); sometimes portions of the tubules are necrotic, but glomeruli escape, being congested at the most. The guinea-pig is especially susceptible to calcification. Casts appear in the collecting ducts and Henle loops, but are not numerous. The heart often undergoes mild or moderate fatty degeneration of its muscle fibres, and small focal areas of necrosis have been seen, sometimes infiltrated with polymorphonuclear leucocytes and occasionally undergoing calcification (Fig. 3). Similar necrotic and infiltrated areas have been rarely met with in voluntary muscles. Apart from the more or less rare occurrence of adrenal cortical haemorrhage, the other organs are not affected. A close study of the thyroid gland has failed to convince us of any significant alteration in its structure, but hydropic degeneration and destruction of some of the "water-clear" cells of the parathyroid have been detected during the early stages.

Repeated skin application of D.D.T. in kerosene or in some emulsions may lead to acute inflammation with destruction of the epidermis in places, much oedema of the subcutaneous tissues, and sometimes haemorrhage. Repair follows rapidly when D.D.T. is discontinued. Changes in the blood picture are induced by a large skin application of D.D.T., but are slight with repeated small doses. The haemoglobin percentage tends to decrease, but the red cell count remains unchanged when rabbits are given a large skin exposure. These findings indicate a mild secondary anaemia toxic in origin. Abnormal red cells are not found in the blood. Leucocytosis is also pronounced, starting on the second or third day after exposure usually, neutrophilic cells being mainly concerned. We have noted that animals showing such a response are those which give clinical features of D.D.T. intoxication. In other words, leucocytosis is an intimation that the toxic level is being reached. For that reason it is a useful warning of approaching danger. No characteristic features have been found in the bone marrow of such animals beyond signs of increased white cell production.

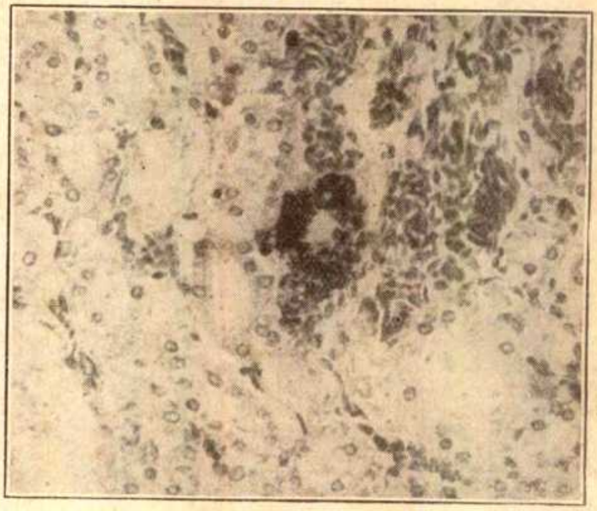

FIG. 2.—Kidney of guinea-pig treated as Fig. 1. The dark annular mass at the centre of the field is a necrotic tubule which has calcified. Near by are necrotic tubules infiltrated with leucocytes and mononuclear cells. v. Kossa and neutral red. (× 350.)

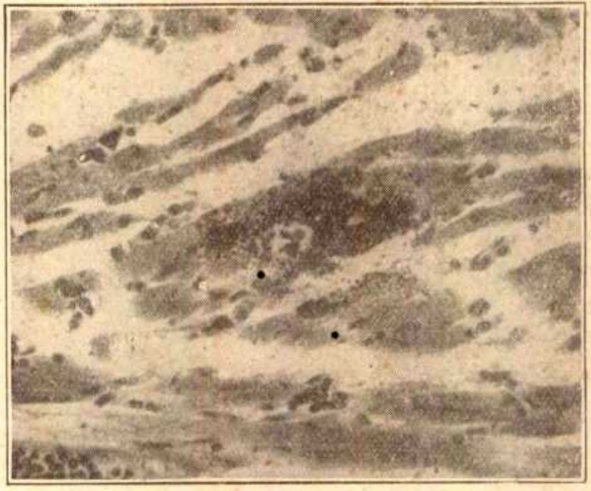

FIG. 3.—Heart muscle of guinea-pig treated as Fig. 1. The dark mass at the centre of the field is a necrotic area of muscle which has calcified. v. Kossa and neutral red. (× 350.)

In rabbits exposed to large skin doses of D.D.T. we have obtained evidence of a rise in blood calcium values. Of seven rabbits investigated for 2 to 12 days after skin application of 200 mg./kg. D.D.T. as a 10% kerosene solution, all showed increase in blood calcium during the first 2 or 3 days, followed by a transient fall below normal levels in most cases. Animals with nervous disturbances showed the most striking changes in blood calcium, although the calcium increased in some animals which were free from nervous signs. We have also obtained similar, though not so pronounced, results in several rabbits of a group of 5 given repeated small skin applications of D.D.T. The increased blood calcium values did not persist, however.

Effect of a Single D.D.T. Contamination on the Healing of Skin Wounds

It is of interest to know whether D.D.T. contamination might influence the healing of wounds, since this possibility might arise in soldiers wearing garments impregnated with D.D.T. We have employed the method described by Young, Fisher, and Young (1941) for the study of healing of experimental wounds. Thirty unselected male rabbits, average weight 2 kg., were given standard circular skin wounds, 1 cm. diameter, on their shaved backs. Immediately after operation the animals were segregated into three groups of 10. Group 1 served as a control, the standard wounds being untreated apart from applying dry dressings. Group 2 rabbits had their wounds sprinkled with 10 mg. of D.D.T. powder immediately after operation: a sterile spatula was used to distribute the D.D.T., which covered the wound almost completely. Group 3 constituted a further control, 10 mg. kaolin being spread over the wound surface. This experiment was an attempt to control the physical property of a powder which must come into consideration when dry D.D.T. is used; it turned out to be a failure, because the kaolin apparently exerted effects on the healing of the wounds. Sepsis was not seen in any animal, and healing went on uninterruptedly. On the third day after operation tracings of the wound outlines were made on "cellophane," and the surface area was estimated in square millimetres. This was repeated at intervals until healing was complete as judged by epithelization of the wound surface and separation of any scab. The mean daily rate of healing was estimated for the period between the third day and completion of healing. Results are summarized in the table together with the statistical constants.

Table showing Mean Daily Rate of Wound Closure in Rabbits

	Number of Rabbits (n)	Mean Daily Rate of Wound Closure (sq. mm. per day)	Standard Deviation (σ)	Standard Error of Mean $\left(\frac{\sigma}{\sqrt{n}}\right)$
Control group ..	10	7·56	2·30	0·77
D.D.T. group ..	7	8·31	1·74	0·70
Kaolin group ..	9	5·02	0·66	0·23

Three of the rabbits of the D.D.T. group and one of the kaolin group died from a pasteurella infection which is not uncommon in our stock.

It can be shown that there is no significant difference between the mean daily rate of closure of wounds in the control (untreated) group and the D.D.T. group. Wounds given one application of D.D.T. powder immediately after their production heal at the same rate as uncontaminated wounds.

OBSERVATIONS ON HUMAN SUBJECTS

Observations were made on human subjects, (1) wearing undergarments impregnated with D.D.T., or (2) working in contact with D.D.T. The first group comprised 52 soldiers, the second 6 workers who were in daily contact with D.D.T. under laboratory or workshop conditions. These trials were carried out in the late autumn and early winter of 1943.

Trials with Impregnated Undergarments

(i) Twelve soldiers volunteered to wear woollen vests, long woollen drawers, and angola shirts impregnated with 1% D.D.T. (dry weight basis). Each man was examined before the trial began and at frequent intervals thereafter; examination included a careful inquiry into past and family history, the present state of health, and physical examination with full investigation of the blood picture and urine. The two latter were repeated at least once, either completely or in part. The men carried out partial military duties during the period of the trial, and on numerous occasions underwent severe exercise to induce copious sweating. The garments were worn throughout the day and night for 18 to 26 days. No symptoms of absorption of D.D.T. developed and the blood and urine remained unaltered. No loss of weight occurred. Two men showed slight dermatitis of the axillary and calf regions, but in both cases, despite the impregnated clothing being worn continuously, this disappeared within 3 days when treated with calamine cream. It does not seem likely that D.D.T. was responsible for the skin irritation, especially as one subject volunteered the information that he was susceptible to skin rashes associated with new clothing.

(ii) Forty volunteers were divided into two groups of 20 each. Group 1 wore vests, drawers, and shirts impregnated with 1% D.D.T. (dry weight basis) for 26 days without changing these garments. In no case were there features attributable to absorption of D.D.T., and physical examination at the end of the trial proved negative. One man developed a slight skin rash on the 10th and 23rd days shortly after taking a bath, but it faded rapidly and could scarcely be connected with D.D.T. Another man showed small spots on his arms on the 18th day, but these disappeared in a day or two. A third had slight acne, which was not made worse by wearing the impregnated garments. It was not possible to examine the blood or urine in this group. Group 2 had weekly changes of underclothes (prepared as in the previous groups), so that each man wore four separate lots of freshly impregnated garments, each set for a week at a time. Some of these men did not wear drawers. One man developed a small papular rash on his forearms on the 18th day, but this disappeared by the 21st day. Another man had some acne for a short period. A third showed slight dermatitis of the wrists, but this likewise cleared up rapidly after application of calamine cream. No subject experienced any ill effects suggestive of D.D.T. absorption. On the last day of the trial all seemed perfectly fit. The blood and urine were not investigated.

Contact with D.D.T. in the Laboratory and Workshop

Six male workers in the Chemistry Section, Porton, were kept under observation during a period of 77 days, in which they were more or less actively engaged in work concerned with D.D.T. The work was classified as (1) laboratory scale, (2) bulk impregnation scale. The latter included such duties as making up large volumes of D.D.T. solution, impregnation of clothing, distillation of residues. Protective clothing, gloves, and gum-boots were worn. Contact through spilling occurred at times. There was also exposure to carbon tetrachloride. Two men had fairly severe exposure in the course of bulk impregnation of garments over 14 and 15 days. One, though having no abnormal symptoms and appearing fit, showed a rise in blood calcium from 11.2 mg. per 100 c.cm. before contact to 18 mg. per 100 c.cm. on the 15th day, falling to 13.4 mg. two days after he left off working with D.D.T. The other man remained perfectly well during his exposure period. The four cases with less severe exposures presented no abnormal features. In no instance was there evidence of skin irritation.

These human trials on 52 soldiers wearing undergarments impregnated with D.D.T., and the laboratory and workshop observations, suggest there is little risk of local skin irritation and general systemic effects attributable to D.D.T., even with prolonged exposure. In many of these experiments there were ideal conditions for absorption from hot sweaty skin.

Discussion

Our investigation shows that acute exposure to D.D.T., applied to the skin, injected subcutaneously, or administered by stomach tube, is tolerated in large amounts by a variety of animals. Repeated administration of much smaller doses is also possible, though there is some evidence that cumulative effects may occur. It is nevertheless true that D.D.T. can exert toxic effects. These are characterized by striking nervous signs, especially muscular weakness, incoordination, and widespread fine and coarse tremors, when the lethal level is approached; and severe damage to the liver, which presents evidence of cell necrosis and functional impairment, when much smaller amounts of D.D.T. are repeatedly absorbed into the system. For that reason it is essential to have some idea of toxic levels of the agent, and the factors which may promote its entry into the body. Although it is not known what is the fatal dose of D.D.T. for men, it can be assumed that this lies somewhere within the range of lethality for experimental animals, hence the importance of collecting such toxicological data. Already there exists much information on this subject, which we summarize below, and to which our own experiments contribute. The ultimate decision whether D.D.T. may be safely employed as an insecticide must depend on how and in what amounts it is used, the precautions taken against accidents, and the elimination of conditions which may assist in the absorption of the compound. Each of these factors is corollary to the other, and no one can be neglected.

Careful studies of D.D.T. have been made by several groups of American workers, with whose results we are substantially in agreement. Woodard, Nelson, and Calvery (1944), using mice, rats, guinea-pigs, rabbits, and chickens, conclude that for oral administration of D.D.T. dissolved in corn oil the L.D.50s are as follows: mouse, 448 mg./kg.; rat, 180 mg./kg.; guinea-pig, > 562 mg./kg.; rabbit, > 400 mg./kg.; chicken, > 300 mg./kg. They stress the fact that its action may be irregular, owing perhaps to irregularities in absorption. Toxic doses were higher for intramuscular, intraperitoneal, and subcutaneous injection. The solvent, too, is important, for toxic doses were higher when D.D.T. was suspended in gum acacia. Toxic effects were more readily obtained with solutions than with suspensions. Diets containing D.D.T. were fed to rats, mice, guinea-pigs, and chickens for 3 days to 20 weeks. Ill effects appeared in rats and mice when the food contained D.D.T. to the extent of 500 parts per million, in guinea-pigs with 1,000 p.p.m., and in growing chicks with less than 500 p.p.m. A wide variation in individual susceptibility was noted. Clinical features and pathological changes were similar to those we have described above.

Draize, Nelson, and Calvery (1944) also studied the effect of the application of D.D.T. to the skin. Powders containing 5% D.D.T. produced no evidence of systemic disturbance or irritation of the skin in rabbits, even when a total amount of 4 g./kg. was applied. In similar acute experiments a 10% solution of D.D.T. in corn oil was applied at dosage levels of 390, 600, and 940 mg. of D.D.T./kg. Apart from slight skin erythema, which persisted about 2 days, no ill effects were experienced. In further experiments rabbit skin-doses amounted to 1.17, 1.8, and 2.82 g. of D.D.T./kg. in dimethyl phthalate and to 0.975, 1.5, and 2.35 g. D.D.T./kg. in dibutyl phthalate. No deaths occurred at any of these dosage levels, although all animals showed symptoms of intoxication, which were very severe at the highest levels. The material, it is true, was poorly absorbed, for approximately 25% of the largest doses could be accounted for on the skin dressings. Subacute experiments were also carried out; 0.5 c.cm. of a 5% suspension of D.D.T. in diethylene glycol monoethyl ether was applied daily for 3 weeks to a 2.5 sq. cm. area of the back of each of 6 albino rabbits. A mild erythema developed during the second week of application, but apparently no toxic symptoms. Ninety-day experiments on rats, guinea-pigs, rabbits, and dogs were performed, using a 30% solution of D.D.T. in dimethyl phthalate. The rabbits, rats, and guinea-pigs were inuncted at dosage levels of 150, 300, 600, and 1,200 mg./kg., the dogs at levels of 300, 600, and 1,200 mg. D.D.T./kg. None of the dogs showed any symptoms of toxicity. Careful microscopical examination of their organs disclosed little change apart from slight to moderate degenerative changes in the livers and some monocellular infiltration of the gall-bladder. We find it difficult to attach much importance to these histological findings. Rabbits, rats, and guinea-pigs appeared equally susceptible to such inunctions. Wide individual variations were encountered. The authors state that inunction of doses as low as 0.5 ml. of a 30% solution of D.D.T. per kg. per day (150 mg. per kg. per day of D.D.T.) may cause death in some cases after 30 days. Some animals survived 6 to [illegible] doses of 600 and 1,200 mg. D.D.T./kg. We would point out that when these doses are expressed in total amounts of D.D.T. administered the amounts tolerated are impressive, even in the experiment in which 150 mg./kg. was applied for 30 days. Obviously the solvent is highly important in such tests, for in our own tests, with different solvents, we observed deaths after the application of much smaller total amounts of D.D.T. It is a matter of great importance, therefore, to make sure that the solvent does not encourage absorption of the insecticide.

Draize *et al.* report that patch tests in human beings and the daily contact of hands of operators with 30% solution of D.D.T. in dimethyl phthalate produced no evidence of irritation. They also describe moderate leucocytosis in animals and successful attempts to sensitize guinea-pigs to D.D.T. The pathological investigations connected with these experiments are separately described by Nelson *et al.* (1944). The main macroscopic features were scaliness or hyperkeratosis of the skin, a pale liver or one showing darkened centrolobular areas, occasionally slight pitting of the kidneys, pulmonary infection in a few animals, chiefly guinea-pigs, occasionally focal haemorrhages in the gastric mucosa, jaundice in one dog, and slight or moderate atrophy of muscles and viscera due to lessened food intake. The surface of two rabbits' gall-bladders was mottled, with oedema of the wall in one. Microscopical findings fell into two groups: (1) those found regularly, and (2) inconsistent changes. Among the former are included moderately severe liver damage in all species except chicks ("little or no liver damage"); focal necrosis of small segments of voluntary muscle, especially with higher doses; hyperkeratosis of skin; and, in rabbits, slight focal epidermic necrosis. Colloid depletion and epithelial desquamation in the thyroid seemed to be common in dogs, rabbits, and guinea-pigs, but not in mice (only two examined). Inconsistent changes include an increased incidence of "spontaneous" encephalitis and focal nephritis of rabbits, gastric mucosal haemorrhages and necrosis, myocardial necroses, haemolytic pigmentation in the gastro-intestinal tract, bone-marrow hyperplasia, and inanition testicular atrophy. The central nervous system was thoroughly searched for lesions, but with negative results. Some information about the response of large animals to D.D.T. are included in this paper. Three cows, three sheep, and one horse received 100 to 200 mg./kg./day of D.D.T. for 3 weeks (one week for one cow and one sheep), either mixed with the food or in capsules when the appetite fell off, as usually happened. Two of the cows developed slow tremors or shaking, especially in the hind legs and neck; none of the other animals of this group developed tremors. None died. Slight fatty degeneration of the liver was found in one cow, and very slight focal necrosis of this organ in another cow. One sheep had slight central necrosis of the liver. Other lesions included atrophy of the spleen, probably inanitional, terminal subendocardial haemorrhages, and very slight focal necrosis of voluntary muscles. No other lesions attributable to D.D.T. were found. It will be seen that the significant changes described by these authors closely agree with those we have observed, with the exception of thyroid alteration, which did not impress us.

In a study of the pharmacological action of D.D.T., Smith and Stohlman (1944) give data for toxicity to animals. They assess the L.D.50 for rats and rabbits given D.D.T. in 1 to 5% solution in olive oil by stomach as 150 and 300 mg./kg. respectively. Two cats receiving 100 and 200 mg./kg. survived. Another cat died after 200 mg./kg. Of eight cats receiving 300 mg./kg. 62% died.

Symptoms were typical and similar to those described by other observers. Cats showed persistent extensor opisthotonos with fine and coarse muscular twitchings, especially of the muscles of the head and neck, lasting for several days, after single oral doses of 300 mg./kg. Rats fed 1,000 parts per million in a semisynthetic adequate diet containing 18% casein died in from 18 to 80 days, but survived 3 months' feeding with 500 p.p.m. D.D.T., though showing tremors and hyperexcitability. In rabbits daily oral administration of 50 mg./kg. D.D.T. in olive oil resulted in death in from 15 to 23 days after a total dose of 0.75 to 1.25 g. per kg. had been given. Parenchymatous liver degeneration with centrolobular necrosis was the most pronounced finding in these. Mild anaemia developed, but white cell counts were not abnormal. Two cats receiving 50 mg./kg. every day or every second or third day developed the characteristic features of poisoning and died—one within 12 days after a total dose of 500 mg./kg., the other within 15 days after a total dose of 300 mg./kg. A third cat, which received 4 doses of 90 mg./kg. within 10 days, died with typical tremors, ataxia, spasticity, paralysis, and terminal extensor rigidity. Skin absorption occurred when 5% solution of D.D.T. in dimethyl phthalate was applied daily over 12 to 14 days in amounts equivalent to 100 mg./kg. D.D.T. The addition of 10% cyclohexanone to such solution did not increase toxicity. Smith describes a useful method for the estimation of D.D.T. in the tissues, body fluids, and excreta, and gives valuable figures for the organ contents. D.D.T. was found in the urine, blood, liver, kidneys, and central nervous system in experimental poisoning.

Lillie and Smith (1944) report on the pathological findings in the animals studied by Smith and Stohlman. The spinal cord of one cat displayed partial tigrolysis of anterior horn cells with pericellular vacuolation; in another cat Nissl bodies were absent from these cells and pericellular and paranuclear vacuolation present. The liver of cats showed fine fatty degeneration, increasing with longer periods of ingestion of D.D.T. A single focus of coagulation necrosis was found in the liver of one cat. The spleen and kidneys showed no definite changes. Focal haemorrhages occurred in the lungs of one cat, congestion and serous exudation in another. Rats receiving daily doses by stomach equivalent to two-thirds of the lethal dose showed some myelosis and haemosiderosis of the spleen, cloudy swelling, fine fatty degeneration and hyaline casts in some kidneys, hydropic central fatty degeneration, congestion, atrophy, and isolated necrotic cells with some fibroblastic proliferation in the liver. Partly organizing foci of coagulation necrosis were found in this organ in two animals. The brain of rats, killed 3½ to 5½ hours after large doses orally, presented vacuolation of some nerve cells, tigrolysis, and basophilic reticulation of cytoplasm of cells in tegmentum pontis only. Feeding D.D.T. produced fatty and hyaline change in the liver and inconstant fatty change in the proximal convoluted tubules of the kidneys. Rabbits killed in less than five days showed moderate to finely marked centrolobular fat in the liver, splenic haemosiderosis, and occasionally fatty change in the kidneys. Liver lesions were more severe, including centrolobular degeneration and necrosis, in rabbits repeatedly fed on olive-oil suspensions of D.D.T. (50 mg./kg./day total amounts, 0.9 to 1.3 g./kg./day D.D.T.). The brain and spinal cord showed vacuolation around large neurones. The remaining organs were not affected or showed very slight inconstant changes.

Hazards from the use of aerosols, mists, and dusting powders containing D.D.T. have been investigated by Neal *et al.* (1944). Dogs, rats, and guinea-pigs exposed to initial concentrations of 54.4, 12.44, and 6.22 mg./litre D.D.T. in air for 45 minutes under static conditions apparently develop no toxic signs or symptoms. Mice tolerate 6.22 mg./litre if the aerosol contains only 6% sesame oil, but if the concentration of the latter be increased to 9.5% toxic features are seen. Higher concentrations than 6.22 mg./litre cause symptoms and death in a few hours, with pathological changes in liver, kidney, spleen, and spinal cord. The chronic toxicity of aerosols was also carefully investigated. Two puppies were exposed for 45 minutes to a concentration of 12.2 mg. D.D.T./litre, using 1% D.D.T., 6% sesame oil, and 93% freon, on 2 successive days in one week and on 4 successive days in the following week. They showed no signs of intoxication and gained weight. Their organs were unaffected. Ten mice, covered with gauze to prevent fur contamination and exposed in the same way, showed no toxic symptoms, but one died from an unknown cause 3 days after the last exposure. Ten unprotected mice died with typical symptoms of D.D.T. poisoning. Ten mice protected against ingestion showed slightly delayed and somewhat less severe symptoms than unprotected animals, the majority dying 5 days after exposure. Pathological changes in mice included enlargement and fatty change of liver cells with variable congestion, fatty change in proximal and distal convoluted tubules with occasional hyaline casts and congested glomeruli, haemosiderosis of spleen, chromatolysis, occasionally vacuolation, and karyolysis of many of the anterior motor neurones at various levels of the spinal cord. Daily exposure of 2 monkeys and 10 mice for 45 minutes, 5 days a week, over 5 weeks, to intermittent concentrations of 0.183 mg. D.D.T./litre in air—prepared by dispersion every 15 minutes of 1.5 g. aerosol containing 5% D.D.T., 10% cyclohexanone, and 85% freon—caused no toxic effects. If repeated 3 times daily for 4 weeks mice were affected, but monkeys showed no signs of intoxication. The organs of the monkeys were normal; the mice presented rather indefinite liver changes, some nuclei showing various stages of karyolysis. Two human subjects were kept for 1 hour daily on 6 consecutive days in a sealed chamber, 14,750 litres capacity, in which was dispersed every 15 minutes 10.40 g. aerosol containing 5% D.D.T., 10% cyclohexanone, and 85% freon. Neither showed symptoms. Exposure to 10.40 g. of a similar aerosol dispersed every 5 minutes for one hour daily on 5 consecutive days was likewise without ill effects apart from some irritation of the eyes and upper respiratory tract. Higher concentrations of D.D.T. in air cannot be built up by repeated dispersion of an aerosol, as the D.D.T. settles out so rapidly and sticks firmly to any surface. In other words, the maximal aerosol concentration is tolerated by man. Daily exposure for 3 hours, over 4 weeks, to concentrations of 12.48 mg./cubic metre of pure D.D.T. in air, using 10% D.D.T. pyrax dust, produced no toxic effects in dogs. One dog presented microscopical evidence of healing acute liver necrosis. Mice exposed in the same way to 13.9 mg./cubic metre pure D.D.T. experienced intoxication, possibly due t licking dust from their fur. Daily insufflation of 100 mg./k pure D.D.T. 6 days a week for 7 weeks caused toxic symptom and damage of liver, kidneys, and nervous system in one of dogs after 18 days. A fourth dog receiving 100 mg./kg. for weeks and thereafter 200 mg./kg. in 8 fractions for 5 weeks di not show any definite symptoms, though it lost weight an vomited once. Daily oral administration over 7 weeks o 100 mg./kg. pure D.D.T. in 4 fractional doses caused no toxi manifestations in dogs. Rabbits exposed for 48 minutes dail over 4 weeks to a heavy mist of 1% D.D.T. deobase mixtur showed some irritation of the mucous membranes of the eye upper respiratory tract, and skin, but no evidence of poisonin

Neal *et al.* conclude that the use of D.D.T. in 1 to 5% solutio in 10% cyclohexanone with 90 or 85% freon as aerosols shoul offer no serious health hazards when used under condition required for insecticidal purposes. Powders of D.D.T. containing concentrations up to 10% also present no serious risk owing to the relative insolubility of D.D.T. and the large particulate size of the dust. Sprays of 1% D.D.T. deobase mixtur should be safe. Ingestion of massive doses of D.D.T., howeve is dangerous.

Conclusion

It is apparent from this summary of American investigation and the results of our own experiments that animal tests, thoug indicating the toxic features of D.D.T., make it clear there is wide margin of safety in its use as an insecticide. We ha always maintained that, provided a maximum concentration 0.5% D.D.T. be insisted upon for sprays, there is no reason anticipate any danger to man. Only gross carelessness wou be likely to lead to serious features. Even with long-continue exposure to such sprays it is difficult to see how ill effects wou be incurred. On the other hand, we are convinced that me handling higher concentrations should take precautions again skin contamination. Cleanliness is essential, the use of glov and protective garments advisable. In spraying concentrat the use of respirators is advocated. We are in agreement wi other workers that dry powders of D.D.T. present no danger absorption from the skin. It is only when oily solvents a employed that such risks are likely to arise; and here aga there is much variation according to the type of solvent use Moreover, it is our experience that ample warning of t approach to toxic levels is given in the form of anorexi muscular weakness, and fine tremors. If at this stage D.D.T. discontinued complete recovery is the rule in animals. Ev when liver damage has developed, a fatal issue is not necessari inevitable, for the organ may still retain its capacity regenerate if further D.D.T. absorption be prevented. Difficul arises when liver degeneration sets in without premonito symptoms or associated nervous signs and a fatal degree hepatic insufficiency may be reached without warning. We ha learned to attach importance to rapid decrease in body weig in such instances. Other features of value in assessing tox absorption are the development of anaemia and leucocytos A rise in blood calcium may also be suggestive, though it is t inconstant to be of any great diagnostic value.

Animal investigations of a new compound have their val and must of necessity be the first approach in the assessment toxicity risks, but they can never completely replace observatio on man. Such limited data as we have been able to colle together with the few American tests on human subjects, indica that under practical conditions there is little reason to exp danger to health. Increasing experience of the handling D.D.T. in factories, in the field, and in Army services seems bear out these conclusions. Nevertheless, it must be emphasiz that there are risks when carelessness leads to the contaminati of body surfaces with concentrated oily solutions of D.D.T.

Summary

An experimental investigation of the toxicology of D.D.T. on variety of animals is described, together with observations on hum subjects exposed for some time to this compound.

D.D.T. is tolerated in fairly large amounts when administered single or repeated doses. Toxic levels are not easily reached wh dilute solutions suitable for insecticidal purposes are employ Danger to health is likely to arise only from careless use concentrates.

Prolonged contact with undergarments impregnated with D.D.T. has not produced any local or general disturbance in human subjects.

D.D.T. poisoning is characterized by nervous symptoms and the development of severe damage to the liver. Premonitory symptoms and changes in the blood picture give warning of the onset of the toxic stage.

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ACUTE POISONING DUE TO PETROL VAPOUR

BY

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On July 3, 1942, it became necessary, for security reasons, to place a charge of explosive in the vicinity of a large storage-tank used for aviation spirit. A boring had been made alongside the tank a month previously, the last 12 feet being completed on the day of the accident. Into it a workman descended, and as petrol had been leaking from the tank into the boring he wore an oxygen-breathing apparatus. This had been carefully tested beforehand and found to fit accurately. About 10 minutes after e had descended those above saw that he was behaving oddly. He was standing at the bottom of the boring, holding on to a ross-bar and reeling drunkenly. His mate, who was near by, was immediately informed, and, though unprotected from the fumes, he promptly climbed down in the pit to render assistance. Arrived at the bottom, he could see that petrol was floating on some water there, and the air was filled with the fumes, so that is eyes smarted. He called for a rope and started to heave his mate, who was heavier than himself, laboriously from one horizontal strut to another up the vertical sides. After the first minute or two he could scarcely breathe owing to a sense of constriction in his chest, and he felt sick and began to retch. Nevertheless e persisted doggedly and had heaved his mate on to the top strut, within reach of the helpers above, when he was overcome y dizziness and fell to the bottom again. The shock of the fall rought him to his senses, and he once more began to climb. He had again reached the top strut, when he completely lost consciousness. This time, fortunately, he was seized from above and pulled to safety.

Case I

When the first workman had been lifted out it was found that he had ceased to breathe, and artificial respiration had to be employed for half an hour before normal breathing could be restored. The patient then became restless and violent and had to be given half a grain of omnopon to keep him quiet during transit to hospital. On admission there, soon after, he was still semiconscious, but sisted attempts at examination. He was cyanosed and his respirations were slow and shallow. The pulse was strong—75 a minute—and there was no fever. He was given continuous oxygen with a B.L.B. mask, and in a few hours had regained consciousness. Next day he complained of discomfort in the right iliac fossa, and examination revealed tenderness in this region. He was now perfectly rational and showed no cyanosis. Examination of the cardiovascular and respiratory systems revealed no abnormal physical signs. The urine contained no albumin or sugar, nor were abnormal amounts of lead detected in urine or faeces. A blood film showed no punctate basophilia.

By the fourth day he felt well, apart from slight residual discomfort and tenderness in the right iliac fossa, which persisted till the 12th day. He was discharged from hospital on the 14th day and remained well subsequently. There had been no sequelae when he was heard of two years later.

Case II

The second workman had also stopped breathing when carried to a place of safety. Spontaneous breathing, however, returned after artificial respiration had been applied for five minutes, and he regained consciousness shortly after. He then complained of a choking sensation and a feeling as of a ball in his chest, and felt that he could not take a deep breath. In the ambulance on the way to hospital he had several attacks of abdominal pain. These had become very severe when he reached hospital and were recurring frequently, being associated with much restlessness and excitement. A third of a grain of morphine failed to give relief, so that evipan was injected slowly into a vein till a quiet sleep was procured. In a few minutes, however, he was again restless, and became so violent that it required four people to hold him down. Further evipan had to be given, and this produced an adequate depth of sleep. Next day the pain had returned, but was less severe, and was readily controlled by morphine. There was also retention of urine, requiring catheterization, and headache was still severe.

On examination he was perfectly rational. His pupils were small but equal and reacted to light. The knee- and ankle-jerks were equal and active, and the plantar responses flexor. There was marked abdominal tenderness and guarding, especially in the epigastric region. Examination of the alimentary system proved otherwise negative, and no abnormal signs were found in the cardiovascular or respiratory system. On flexion of the cervical spine there was complaint of pain in the chest. The temperature, pulse, and respiration rates were unaffected. There was no albumin or sugar in the urine, and no abnormal amounts of lead were detected in urine or faeces. A blood film showed no punctate basophilia. The cerebrospinal fluid was clear and colourless, had a pressure of 150 mm., with protein 36 mg. per 100 c.cm., and no increase of globulin or cells.

Attacks of abdominal pain requiring morphine for relief continued till the fourth day, headache being troublesome up to the third day. A urinary infection then supervened, but this responded rapidly to sulphanilamide. The patient was discharged from hospital on the 18th day, having made a complete recovery. A cough developed soon after discharge and persisted for a year. When seen two years later he was in excellent health.

Factors in Toxicity of Petrol

Originally motor spirit was derived entirely from petroleum by simple distillation. From the crude petroleum the portion distilling up to 150° C., and known as raw benzine or naphtha, was first separated, and from this, by re-distillation, petrol boiling at 50–140° C. and pure benzine boiling at 120–150° C. were obtained. Petrol so produced is known as straight-run petrol, and consists largely of pentane, hexane, and heptane. Petrol is also obtained by "cracking" or splitting up the higher paraffins in the petroleum; it then contains olefines as well. The hydrocarbons in these two types of petrol are subject, when used as a motor spirit, to "knocking," or detonative explosion with air. Petrol containing a high proportion of octane is less prone to this fault. As neither crude nor cracked petroleum yields petrols containing an appreciable amount of octane, this is made by the re-forming of either "cracker" gases or straight-run petrol into branched-chain hydrocarbons such as iso-octane (2 : 2 : 4-trimethylpentane) by processes of catalytic combination. Such processes are used particularly in the production of aero spirit. Unfortunately the toxicity of the aliphatic hydrocarbons increases in proportion to the specific gravity and boiling-point (Tschernikow *et al.*, 1935). N-octane, for example, is seven times as toxic as pentane. It is possible that the iso-octane in aero spirit may not be quite so toxic as n-octane—as dimethyl hexane, for instance, is only three times as toxic as pentane. Petrol produced by "cracking" petroleum has a toxicity similar to that of straight-run petrol (Lazarew, 1929).

Aero spirit was the toxic agent in the cases here described. It has a 10% evaporation point of 75° C., whereas in ordinary winter motor spirit the 10% evaporation point is 52° C. The final boiling-point is 180° C., as compared with 140° C. for motor spirit. Like the latter, it may contain a small percentage of benzene and other aromatic hydrocarbons, and these are of still greater toxicity. Benzene, or benzol, which is normally obtained from coal-tar distillation but is also present in certain petroleums, particularly those from Borneo, Rumania, and Galicia, should not be confused with benzine, which comes solely from petroleum, as already described. As benzine and motor spirit differ but little in composition, the clinical picture in such intoxications is also alike, and the group will therefore be considered as a whole.

Lead tetra-ethyl is not a hazard except to those who produce or blend it or to cleaners of storage-tanks in which evaporation and concentration may have occurred. The amount normally present in petrol is too small to be toxic.

The concentration of petrol vapour required to produce toxic symptoms in man was investigated by Fieldner, Katz, and Kenney (1921) after the death of a rescue worker who entered a petrol tank wearing a half-hour type of oxygen-breathing apparatus. They found that 1 part per 1,000 produced drowsiness at the end of 15 minutes, and vertigo, ataxia, and nausea after one hour, and 7 parts per 1,000 definite intoxication in 5 minutes. In dogs Haggard (1921) found that 10 parts per 1,000 caused convulsions or spasm, 20 parts unconsciousness, and 25 parts death. The effect was similar to that of ether, but the stage of excitement was replaced by convulsions, and the stage of surgical anaesthesia was very brief. Susceptibility is an important factor in toxicity, tolerance resulting from repeated exposure (Machle, 1941).

Circumstances in which Poisoning Occurs

Severe cases of poisoning by inhalation have occurred for the most part in workmen entering benzine tanks or stills to clean or scale them (Foulerton, 1886; Jansen, 1937; Rambousek, 1913), or while emptying such containers (Stiefler, 1928; Petrie, 1908). Coste and Wolz (1935) have recorded two fatal cases due to overflow of petrol filters in a confined space, and Wichern (1909) a case of severe poisoning due to benzine left overnight in the conduit leading from a benzine storage-tank. The victim may become unconscious so rapidly that he is unable to save himself or call for assistance, and may be found dead some hours later. Similarly in excavations or in the pit of a garage (Petrie, 1908; Plummer, 1913), a small amount of petrol may result in dangerous concentrations of vapour, as, being heavier than air, it collects at the bottom.

Mild intoxication is frequent in rubber factories, where it is known as "naphtha jag." While cleaning the rubber churns, for example, workmen may be overcome by the fumes, and in the dipping-room, where they work over large tanks of rubber dissolved in naphtha, severe poisoning may result, as the temperature of the room is kept above 90° F. to aid evaporation. A fatal concentration of the vapour may be found in the drying cupboard in which rubber-leather fabric is hung during its manufacture (Floret, 1927). Kulkow (1926) described mass poisoning when the ventilation system broke down for three-quarters of an hour in a factory making galoshes. In all some 90 persons were affected, 30 requiring transfer to hospital.

The use of petrol in any enclosed space such as a garage may give rise to toxic concentrations. Potts (1915) has described how a man filling automobile tanks fell over unconscious, remaining so for several hours. Permanent damage to the central nervous system, with ocular palsies and pyramidal and cerebellar signs, resulted. Painters working with quick-drying paints in interior decoration may complain of mild symptoms. Lives have been lost from benzine fumes in a carpet-cleaning establishment (Hamilton, 1925).

Leakage or spilling of petrol has been a frequent cause of severe poisoning, as from a bottle of petrol broken in a druggist's cellar (Siemon, 1896), or while cleaning the engine-room of a ship (Johnstone, 1941). Even drawing off benzine into cans in an ill-ventilated room such as a back shop or cellar may result in unconsciousness and death (Floret, 1927). In the home the use of petrol or benzine for cleaning clothes has at times had serious consequences, as when the clothes are soaked in a basin indoors. Petrol has also been used to clean the scalp by pouring it over the hair (Houghton, 1908). This incidentally causes, in addition to general symptoms of intoxication, severe pain and oedema of the scalp. The use in a bedroom of a floor polish containing petrol may result in severe poisoning if ventilation is poor (Roth, 1933).

It is rare for petrol fumes from an internal combustion engine to cause poisoning. Carbon monoxide is a much greater danger. Johnson (1913), however, has described how a number of workmen were affected on several successive days when a petrol engine was used in a tunnel. Carbon monoxide was excluded in this instance. Poisoning from petrol fumes while driving a motor-car is extremely uncommon. Only when the vehicle is manœuvred in a small closed garage while running on a very rich mixture is intoxication likely (Box, 1908).

In wartime petrol may have to be dispatched over-seas in cans stacked in the hold of a ship. If too great a load is put on these the cans in the lower layers may collapse and petrol escape into the hold, thus exposing dock-workers to a high concentration of the vapour. Rudd (1944) has described how in such circumstances men have become unconscious two or three times in one day. Another wartime aspect mentioned by the same author is poisoning due to petrol floating on the sea after the sinking of a tanker. Sailors in lifeboats, intoxicated by the fumes, sprawled over the gunwale and were drowned while sitting in their seats.

Symptomatology

Mild poisoning from petrol or benzine fumes is common in industry, producing symptoms like those of alcoholic intoxication. There is excitement, or euphoria with a tendency to hilarity and, particularly in women, fits of uncontrollable hysterical laughter or crying. Men often become irritable and prone to quarrel. Those who have gained tolerance through repeated exposure may fail to show such emotional changes, and suffer simply from slight tremor of the hands, which makes fine work difficult (Hamilton, 1925; Kulkow, 1926).

From higher concentrations there is in addition irritation of the respiratory mucous membranes, resulting in a dry tickly cough and a sense of constriction in the throat. If exposure is continued the victim becomes ataxic, drowsy, and dull, and may complain of headache, vertigo, nausea, weakness, and irritation of the skin. The vision is blurred, and a burning pain is felt in the chest and abdomen and a feeling of pressure over the heart. In addition there may be tonic contraction of the flexors of the hands and twitching of the muscles of trunk and limbs (Rudd, 1944).

When still greater concentrations are present there is disorientation. The victim shouts abuse at those around and adopts a pugnacious attitude, so that his rescue is fraught with danger both for himself and for rescuers, who may forfeit their lives in the attempt. Hallucinations may be present. If exposure continues, delirium and coma supervene, and there are tonic and clonic convulsions—sometimes in one limb at first, later generalized. Convulsions may not appear till the victim has been removed to the fresh air (Machle, 1941).

If removed to a normal atmosphere the patient may recover quickly if exposure has been short, but later he falls into a deep sleep, from which, however, he can be roused. If exposure has been more prolonged coma may continue for several days and terminate even then in respiratory arrest. As the coma lightens, twitching of the arms and legs may occur, so that the limbs beat against the floor and the teeth chatter violently as though in a rigor. As consciousness returns vomiting sets in, headache is severe, and there is throbbing pain in the abdomen and in the extremities. The patient remains confused for many hours, however, and may relapse into coma from time to time. He is emotionally unstable, and may become pugnacious, throw himself about, or burst into hysterical laughter. When recovery finally ensues it is usually rapid, though vomiting, abdominal pain, and headache may persist for several days and stupefaction and inertia for a week or more.

If the concentration of the vapour is very high the victim falls to the ground unconscious almost immediately, and if not promptly rescued dies of respiratory arrest (Rambousek, 1913).

Physical Signs

Cyanosis is usually present during the stage of coma, and may be deep; the breathing is laboured and stertorous, and the skin cold and clammy. The pulse in the early stages is rapid and weak and may be irregular, but when motor unrest is present it becomes full and bounding. Later, pulse and respirations are slow and feeble and the temperature subnormal. The blood pressure falls as peripheral failure supervenes. Acrocyanosis may be marked. The pupils are dilated and may be unequal, and conjugate deviation, strabismus, or nystagmus is often found. The tendon reflexes are diminished or absent in quiet coma, but when convulsions and motor unrest are present they are often exaggerated, the plantar responses extensor, and clonus present. There may be neck rigidity (Machle, 1941; Plummer, 1913).

The urine sometimes contains traces of albumin and sugar. Unlike benzol, petrol and benzine are not excreted in the urine in conjugation with sulphates (Wichern, 1909). A blood count often shows a moderate reduction of haemoglobin and erythrocytes, and an increase of bilirubin in the serum, but there may be haemoconcentration. A polymorph leucocytosis is frequent and the percentage of eosinophils may be increased. Blood changes are, however, not prominent as in benzol poisoning. Sometimes there is a rise of blood urea, but not sufficient to cause confusion with uraemia. The cerebrospinal fluid is not altered.

Prophylaxis and Treatment

Prophylaxis.—Where petrol is handled in enclosed places adequate ventilation must be assured, so that, when exposure is likely to be prolonged, concentrations of 1 part per 1,000 are not exceeded. Too much faith should not be placed in an oxygen-breathing apparatus, especially when the concentration of petrol vapour is likely to be high, as the fumes have great penetrative power.

Treatment.—The victim should be removed at once to the fresh air. If breathing has ceased, artificial respiration will be required, and oxygen, if available, should be given, preferably with 5% of carbon dioxide. The clothes, as they are saturated with petrol vapour and may be contaminated by the liquid, must be removed and the skin cleansed. Sedatives are required if there is much restlessness, paraldehyde or chloral hydrate generally sufficing. In very violent patients intravenous pentothal may have to be used. A dose of 0.5 g. dissolved in 10 c.cm. of distilled water is injected slowly till a quiet sleep has been procured. The remainder of the dose is then injected intramuscularly to prolong the action of the intravenous dose. Careful supervision must be exercised during the first four days lest respiratory arrest, circulatory failure, or convulsions supervene. In circulatory failure adrenaline should be avoided, as it tends to cause pulmonary oedema (Machle, 1941).

Pathology

The macroscopic changes are found for the most part in the lungs, which are hyperaemic and oedematous and show petechial haemorrhages and extravasations of blood. The bronchi are inflamed. There may also be haemorrhage into the serous cavities and the subserous tissues, and into the mucosa of trachea, gastro-intestinal tract, and bladder. The meninges, brain, and spinal cord are hyperaemic and oedematous, and show petechial haemorrhages. The kidneys are oedematous. Histologically, cloudy swelling and fatty degeneration are found in the liver and in the proximal convoluted tubules of the kidneys. The cerebrum is congested, and there are perivascular extravasations of blood. The nerve cells of the brain and spinal cord show chromatolysis, loss of lipoid, and dendritic degeneration. There is swelling or disappearance of myelin (Jansen, 1937; Machle, 1941).

Sequelae

Mild neurasthenic symptoms, such as headache, sleeplessness, and anorexia, are common after petrol poisoning. Evidence of organic change in the nervous system is, however, not infrequent, particularly epilepsy (Floret, 1927), but also lesions of the pyramidal, cerebellar, or sensory tract simulating disseminated sclerosis or other organic nervous disease (Potts, 1915). The signs may be of scattered lesions or be hemiplegic or of more local distribution. Memory and intellect may be impaired. Sometimes the peripheral nerves are involved, often only a single nerve, such as the sciatic nerve (Jansen, 1937) or one of the cranial nerves, such as the hypoglossal. Retrobulbar neuritis has been recorded. These symptoms and signs may not become evident for several months after the accident, and recovery may take many years, or the disability be permanent. An early and fatal complication, described by Floret (1927) is necrosis of the skin of the face and of the mucous membrane of the mouth and throat, following an erysipelas-like eruption. Pneumonia may occur, but is more common after the inhalation of liquid petrol—as when it is drunk—than of vapour.

Summary

Two cases of acute poisoning due to petrol vapour are described. The aetiology, clinical features, and pathology are reviewed.

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MONO-ARTICULAR OSTEO-ARTHRITIS OF THE HIP

TREATMENT BY ACID INJECTION

BY

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During the past nine years I have treated over 1,200 cases of arthritis by intra-articular acid injection, comprising chiefly those of osteo-arthritis, of traumatic arthritis, of so-called "menopausal" arthritis, and of rheumatoid arthritis in the residual deformity stage. Owing to war conditions, effective statistical analysis of results has been impossible; it may, however, be legitimate to gauge the value of the treatment from the increase in the number of patients referred to my two hospital clinics annually—from 56 in 1940 to 186 in 1944. I estimate that over 70% of cases of all types have been rendered free from pain and with sufficient restoration of function to allow of a return to their normal occupation.

Mono-articular arthritis of the hip-joint, however, occupies an unenviable pedestal of intractability among joint affections. According to MacMurray (1943), "local treatment of the affected joint by hot packs, hot mud packs, radiant heat, etc., results in a more or less temporary relief of pain, but produces little interruption in the progress of the disease. Electrical treatment by ionization has proved to be of little or no value, and its use is followed in some instances by a considerable increase in the pain and tenderness." Manipulation has its advocates for early cases; fixation by plaster or other support will give relief from pain; deep *x*-ray therapy is said to effect improvement in about 10% of cases—the Freiburg authorities claimed that 33% of their cases were relieved by deep therapy. As none of these measures has in my experience arrested the disease process and has rarely returned the patient to economic circulation, it seemed that an analysis of the condition of the cases treated by joint acidification in one year might afford some indication of its usefulness or otherwise in this baffling disorder.

The rationale of acidification of arthritic joints is based on my observations on the *p*H of synovial fluid in various conditions (Waugh, 1936, 1938): in chronic osteo-arthritis of the hip this appeared to be consistently on the alkaline side—even as high as 8.8. It has been shown by Smith-Petersen that the use of the vitallium cap after excision of the head of the femur is followed by the generation of a layer of fibrocartilage in the acetabulum and over the stump of the neck: I have not so far been able to obtain a similar specimen from the hip-joint after acidification; but examination of the cartilage removed from the head of the tibia in a case of osteo-arthritis of the knee, which had received a long and successful course of this treatment, showed a covering of fibrocartilage 1/32 in. thick, covering the whole weight-bearing surface.

Warren Crowe (1944) has reported his results in 400 cases of all kinds, using acid potassium phosphate. I prefer lactic acid, as more closely approximating a natural acid found in the tissues: some difficulty was experienced in obtaining a stable preparation of constant *p*H, but this has been overcome.

Technique.—Briefly, the technique consists of (1) an injection each week of 15 to 20 c.cm. of a solution of lactic acid of a *p*H of 5.8, together with procaine, into and around the joint; (2) followed by very gradual manipulation, and flexion-abduction-extension exercises, without weight-bearing, consistently and perseveringly carried out by the patient.

Analysis of Cases

The cases described are of the hospital out-patient class, referred to me either by the physiotherapy department or directly by their own doctor. In all, 142 cases have been examined and 108 treated in this way during the last five years. Owing to removals, bombing, and other causes, I have not been able to attempt a complete follow-up of these cases: I have, however, investigated the result obtained in 26 consecutive cases which were referred to me in the year 1942; and I find that between 50 and 60% of these patients obtain enough relief from pain and recovery of function to be able to carry on their normal occupations, including housework and shop assistant's work in women, and shipyard work—riveting—and even in two instances coal-hewing, in men.

In this condition it is extremely difficult to establish any scientific criterion of success or failure of treatment. Pain, the patient's chief disability, is a subjective matter; with the possible exception of the demonstration of the narrowed joint space, radiography is an indifferent guide to the clinical condition; nor does limitation of range of movement bear any constant mensurable relation to the clinical condition. For a number of years I have made my own percentage assessment of the degree of overall disability. For example, when a patient is for all practical purposes confined to bed he is assessed at from 90 to 100% disabled; others able to get about, but with considerable difficulty, at 70 to 80%. These assessments are entered on the patient's case-sheet at the beginning of treatment, while on completion a final assessment of the degree of disability remaining is made. While this is a purely clinical method of estimation and dependent on the surgeon's personal observation, I find it the most useful means of ascertaining whether the patient has improved under treatment.

Discussion

The chief contraindication to suitability for this form of treatment is extreme loss of joint space, particularly in the outer and upper quadrants of the joint, as seen by radiographs. The amount of osteophytic outgrowth does not in itself, however, govern the suitability of the case for acidification. Extreme loss of joint space indicates extensive destruction of the articular cartilage, and, apart from the unlikelihood of obtaining effective regeneration of joint surface by fibrocartilage, the mechanical difficulty of reaching the space of the joint with the needle is almost insuperable. Five of the 26 cases come into this category, of which two were successfully dealt with by oblique osteotomy; no treatment was given to the remaining three. Three cases failed to continue treatment after the first or second injection, and must be written off. Of the remaining 18 cases, all of which I have examined within the last few months, four were in-patients and carried out what I regard as the complete course. These are naturally the most successful. Three appear to be almost completely free from symptoms: one, a housewife who had been confined to bed or a chair for a year previous to treatment, is now fully active, does all her housework, and can stand in queues and do her shopping. By her own account she is practically free from pain or any disability. There is still some limitation of range of movement, particularly inward rotation. Her original classification was in the 90 to 100% class; I estimate her total disability now as under 10%. The two remaining male cases were those of a coal-miner and a slinger at an ironworks; both are free from pain, but have rather greater limitation of range of movement; they have returned to full work at their heavy occupations. The fourth case is a failure; for a year after finishing treatment this patient continued fairly well, but his condition has since deteriorated. The remaining 14 patients—nine men and five women—were treated purely as out-patients. The average disability figure at the first examination I put down as in the region of 60%; only three (men) are relative failures, in that after completion of treatment the disability figure is still in the region of 40%. The other 11 are all sufficiently recovered to carry on a useful existence, and, in several cases, hard physical work, without complaint of pain; their average remaining disability figure I put at well under 20%. Two of them have returned in recent months, as they felt they were getting more pain. They have been given a further course of six injections; this appears to have cleared up any return of symptoms.

Results in 18 Cases of Mono-articular Osteo-arthritis of the Hip treated by Joint Acidification

	No.	Results		
		Very Good	Good	Poor
In-patients . .	4	3	0	1
Out-patients . .	14	4	7	3

It is not easy to obtain a solution which remains constant; I use that made for me by Brady and Martin, Newcastle-upon-Tyne, which is reliable.

Summary

The method of treatment of osteo-arthritis by intra-articular acid injection is outlined.

Non-operative methods of treatment of mono-articular osteo-arthritis of the hip are itemized.

The results of acid injection in 18 cases are analysed.

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TORSION OF A PEDUNCULATED GASTRIC CYST

BY

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AND

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Cysts of the stomach are rare and few cause symptoms. We describe in detail one case of clinical importance and mention three others in a short discussion upon gastric cysts.

Case Report

Clinical History and Examination.—A woman aged 62 had felt rather full in the abdomen for two years and had noticed a swelling in the right iliac fossa for about four months. She had been troubled with constipation and hiccups also. On palpation of the abdomen a freely movable globular tumour about the size of a grapefruit was found. It was not tender and could be pushed right up under the costal margin. A long-pedicled ovarian cyst was diagnosed and its removal advised.

On laparotomy the tumour proved to be a cyst in the peritoneal cavity with a long pedicle attached to the greater curvature of the stomach. The pedicle was twisted about five times, and the cyst, although not necrotic-looking, was discoloured in places. There were patches of fibrinous exudate and a portion of lightly adherent omentum upon its surface. Muscle fibres of the muscularis of the stomach were observed running from the greater curvature right down the pedicle to the cyst wall. The cyst was removed without difficulty and the patient made an uninterrupted recovery. Subsequent questioning yielded no information indicating when the torsion had occurred.

Pathological Examination.—The specimen consisted of a cyst, 11 by 10 by 7.5 cm., the outer surface of which was greyish blue, smooth, and marked prominently by veins, and a flat layer of adipose omentum was attached over an area 18 by 14 cm. The wall consisted of greyish-white or brown tissue from 1 to 5 mm. thick. The content was a sepia-coloured fluid and clotted blood in about equal amounts. Most of the clot was deposited upon the inner surface of the cyst, and it contained several fragments of grey tissue up to 1 by 0.5 cm. The wall was composed of connective tissue, which in most places was loose and oedematous and in others fibrotic. In a few places in the wall there were bundles of smooth-muscle fibres, but epithelium was everywhere absent. There were foci of lymphocytes, plasma cells, and eosinophil leucocytes, and many patches of recent haemorrhage; evidence of old haemorrhage in places was shown by intracellular or extracellular granular haemosiderin and haematoidin and by impregnation of collagen fibres with ferric and ferrous salts which stained deeply with Ehrlich's haematoxylin. Numerous spindle-shaped areas of proliferated cells and relatively little collagen lay in the wall. The majority of the cells were spindle-shaped, but others appeared to be spheroidal, and in most the cytoplasm was vacuolated or diffusely dropsical. Some of the cells in a few spindles could be identified almost certainly as muscle cells, but the remainder were undifferentiated. In parts of the wall containing bundles of muscle fibres the spindle-shaped thickenings lay in close association with the bundles. No axis cylinders could be seen in the spindles in Bielschowsky preparations. The spindles appeared to result from regeneration of muscle by proliferation of undifferentiated connective-tissue cells, the differentiation into muscle cells being abortive. The haemorrhage in the wall of the cyst was continuous with the deposit of clot upon the inner surface, and the fragments of grey tissue in the clot were spindle areas of cellular proliferation which had become separated off from the wall as the result of haemorrhage.

Discussion

Many gastric cysts in cases reported in the literature were symptomless and were discovered at necropsy. Others gave rise to symptoms which appeared in infancy or at some later age, even in late adult life. Symptoms were variable, but abdominal pain, vomiting, loss of weight, and swelling of the abdomen were the most common. In no reported case was torsion described, but in Tchernisher's case (according to Gray and Wood, 1938) the cyst was attached to the stomach by a long stalk as in our case. Haemorrhage had occurred in the wall of the cyst in the cases of Weichert (1929) and Ladd and Gross (1940), but its cause was not mentioned.

The size and number of cysts occurring in any reported case varied. Three cysts were present in the Cabot case 14242 (1928) and Pancotto's case (1927); and in that of Askanazy (1923) there were numerous cysts. Askanazy described very minute cysts, and Tchernisher (according to Gray and Wood) one the size of an adult head.

According to structure there are four types of gastric cyst. The most common type is the *enterogenous cyst*, which lies in the muscularis mucosae, submucosa, or muscularis in any part of the stomach, but particularly in the pyloric region and commonly at the greater curvature. They probably arise from epithelium separated off from the gastric mucosa during development, but growth of this epithelium into cysts may occur at any time of life. Bikoff (1938) ascribed the origin of a cyst—the size of a hen's egg—which had been removed from the greater curvature to the duct of ectopic pancreatic tissue. It was more likely to be enterogenous, since it was lined with a layer of columnar epithelial cells and a few gland-like structures lay in a subjacent layer of connective tissue. Enterogenous cysts are lined with a single layer of epithelial cells, columnar in most, and they lie upon a layer of connective tissue which in some instances contains a variable number of tubular glands. The formation of well-developed typical gastric mucosa is probably uncommon. A muscularis mucosae is usually present. In the cysts of Wendel (1911), Ferraro (1942), Askanazy, and Pancotto the mucosa was of gastric type, while in the Cabot case the lining mucosa was described as being atrophic gastro-intestinal.

Enterogenous cysts lined with gastric mucosa are not limited to the stomach. Seydl (1938), for example, described such a cyst in the lower posterior mediastinum, and peptic ulceration of the cyst had caused perforation into a bronchus and fatal haemorrhage from an eroded artery.

The following is a description of two enterogenous gastric cysts which, although very small, probably represent the rests from which large cysts of clinical significance arise.

In a female infant of 1 hour, which had absence of the left dome of the diaphragm, diaphragmatic hernia, hypoplasia of the left lung, and coarctation of the aorta, a cyst, 3 mm. in diameter, projected into the greater omentum from the greater curvature at the junction of its middle and upper thirds. It lay in the muscularis and had a muscularis mucosae and a mucosa in which straight tubular glands were very few but like those in the stomach. In the other example a cyst, 3 by 1 mm., was found in the microscopical section of the pyloric region of a part of the stomach removed from a man of 61 because of chronic peptic ulceration. The cyst lay in the muscularis mucosae and was lined with a layer of cubical or short columnar mucous cells.

The second type is a *dermoid cyst*, in which there are two examples only. These cases were inadequately described by Gray and Wood (1938), and no histological data were given.

The third type is that *due to septa*, of which there is only one example. In this case (Metz, Householder, and De Pree, 1942) the cyst was the middle of three compartments of the stomach formed by two complete septa. Gastric mucosa lay on each surface of the septa.

The fourth type is that in which the lining is destroyed, so that the *origin is unknown*. Ladd and Gross described a cyst of this type lined with haemorrhagic necrotic tissue. Our cyst, which had undergone torsion, was of similar type, and the following is a description of another example.

A man aged 68 had had attacks of "the gastric," consisting of belching chiefly, for two years, and abdominal pain, loss of weight, and frequent vomiting for nine days before admission to hospital. A mass was palpable in the right upper quadrant of the abdomen. Death occurred from bronchopneumonia 10 days after admission. The lower two-thirds of the oesophagus had a rough, opaque, bile-stained lining; and microscopically the inner part of the wall was necrosed and undergoing peptic digestion, but the muscularis mucosae was hypertrophied and ghosts of cells probably indicated that inflammation had been present. Mild oesophagitis and cardiospasm probably accounted for the gastric symptoms. A cyst, 8 by 6 cm., lay in the pylorus and had a thin wall of fibrotic connective tissue in which there were few cells in most places and slight lymphocytic infiltration in others. The inner surface was necrosed and undergoing digestion in places. The anterior part lay in the submucosa, but posteriorly the cyst passed through the muscularis into adipose connective tissue to reach the anterior surface of the normal pancreas. The adipose tissue adjacent to the cyst wall showed areas of fat necrosis, which was of pancreatic type in that lipolysis and saponification had occurred. It was evident that the cyst contained ferments which had destroyed the lining epithelium and had caused the fat necrosis. The fact that the latter was of pancreatic type is insufficient evidence for one to ascribe the cyst to ectopic pancreatic tissue in the pylorus.

It is probable that cysts of this type, with absent epithelium, are enterogenous, and that the lining has been destroyed by ferments or circulatory disturbance.

Summary

A case of torsion of a pedunculated intraperitoneal cyst of the stomach, in a woman of 62, is described. The cyst was probably enterogenous, and an epithelial lining had probably been destroyed in consequence of torsion.

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The following statement on bread policy has been authorized by the Executive Council of the Food Education Society (29, Gordon Square, W.C.1): (1) The Food Education Society regrets that the Government has reduced the extraction rate of the wheat grain for bread flour to 80% on inadequate scientific and clinical data, especially at a time when the position in regard to food supply in general is so uncertain. (2) There is good reason to think that any reduction below 80% would be detrimental to the health of the people and should not be put into effect without further inquiry and experience. (3) The Society is strongly of the opinion that a specification for the post-war loaf is highly desirable, as in the case of other basic foods.

PATHOLOGY OF RUPTURED PLANTARIS

BY

G. BLUNDELL JONES, F.R.C.S.Eng.&Ed.
Captain, R.A.M.C.

Very little is known of the exact pathology of the lesion described as "ruptured plantaris" because the condition does not require operation and its morbid anatomy is therefore seldom seen. The following case report shows, however, that actual rupture of the belly of the plantaris muscle does occur, and that its clinical features tally exactly with the textbook descriptions of "ruptured plantaris."

Case Report

Sgt. X., aged 31, was admitted to hospital after an accident in which he had been thrown from a motor-cycle while travelling slowly. He complained of severe pain in the left calf region, and was under the impression that he had received a direct blow on the calf. Further questioning showed that he had slid across the road and been brought to a stop by the sole of his left foot hitting the kerb, thus producing forcible dorsiflexion of the ankle.

Examination revealed no evidence of direct injury to the calf, and there was no bruising. He was tender over the whole of the upper third of the leg posteriorly, but acutely so over the site of the plantaris muscle. There was a transverse incised wound over the tendo Achillis 2½ in. long, 3 in. above the ankle-joint. There was no other injury.

The wound was excised under gas-oxygen anaesthesia; the incision involved skin and fascia only, the tendo Achillis being exposed but showing no evidence of damage. On the medial side, a little deeper in the wound, it was noticed that the plantaris tendon was lying slack, and gentle traction upon it resulted in the delivery of the entire tendon and half the muscle belly ruptured transversely about its middle. The lower end of the tendon was detached and the whole removed. The wound was sutured.

Pain in the calf persisted for 2 to 3 weeks and staining of the skin of the leg by effused blood, with some oedema, appeared 3 days after the injury. Dorsiflexion of the ankle beyond a right-angle was painful for 4 weeks and was relieved by raising the heel of the boot. Physical treatment was aided in the early stage by local infiltration with novocain (Campbell, 1938; Smiley, 1939.)

The wound over the tendo Achillis, which allowed the inspection of the plantaris tendon, was presumably incidental, as the deeper structures showed no sign of injury. The plantaris must therefore have been ruptured by indirect violence applied in dorsiflexion of the ankle.

Discussion

The clinical features of "ruptured plantaris" are well known. The average age of 8 cases seen by me was 30, and it is essentially a lesion of relatively young healthy tissues. Classically, a tennis player reaching back for a shot produces a forced dorsiflexion of his ankle; a sudden pain occurs, and he thinks he has been struck on the calf by his partner. Pain increases during the next few hours, and swelling of the leg followed by bruising is seen in 2 to 3 days. A painful acutely tender area over the plantaris muscle belly in the upper third of the calf is present at first, but later pain is felt only when the ankle is dorsiflexed beyond the right angle. The period of recovery lasts about three weeks.

The pathology of the lesion is the subject of much doubt. It is variously supposed to be a subcutaneous rupture of the plantaris tendon, a partial or complete tear of the muscle fibres or the musculo-tendinous junction of the plantaris, or a rupture of some fibres of the soleus or gastrocnemius muscles. The case described shows that, sometimes at least, the symptoms are produced by rupture of the plantaris muscle belly, and the following facts and observations support the view that the clinical syndrome is always so produced.

The plantaris is absent in 7.5% of subjects, according to Gruber, quoted by Quain (1892). Pilcher (1939) found the muscle absent or rudimentary in 16 of 100 consecutive post-mortem examinations, and states that the deficiency is more common in women than in men. The frequency of occurrence of the plantaris muscle is thus compatible with its presence in every case showing the classical clinical picture of rupture.

Greater tension per unit area is developed in the plantaris on forced dorsiflexion of the ankle than in the other calf muscles, because the length of the plantaris belly is only one-fifth of the total length of muscle and tendon; whereas one-half the total length of the soleus and gastrocnemius is composed of muscle fibres. I exposed the tendon in a number of cases for use as a graft in the repair of hernia, after the method described by Pilcher (1939). In each case, when the ankle was fully dorsiflexed the plantaris was seen to be as taut as a bow-string, while the tendo Achillis still showed elasticity. It seems reasonable to postulate, therefore, that in healthy tissues the sequence of events in increasingly violent dorsiflexion of the ankle is: (1) partial tear of the plantaris; (2) complete tear of the plantaris; (3) rupture of the other calf muscles in addition, or the tendo Achillis. Where the tissues are not healthy the order may be altered, as seen in the easy rupture of the tendo Achillis of elderly or syphilitic subjects. The first two of the above possibilities are the lesions occurring with the strain causing the "ruptured plantaris" syndrome.

An attempt was made to rupture the plantaris in a fresh young healthy cadaver by seizing the tendon with a haemostat and pulling. This caused rupture at the point seized, but when local damage was prevented by looping the tendon round a wooden peg, strong traction caused the muscle to tear through the middle of its belly. This, together with the findings in the case described, proves the weakest part of the muscle to be its contractile fibres.

The site of tenderness in 8 cases of "ruptured plantaris" seen by me was over the plantaris muscle belly. This is strong evidence pointing to the muscle itself as the site of the lesion.

Conclusion and Summary

The lesion described as "ruptured plantaris" is in fact a partial or complete tear of the fleshy fibres of the plantaris muscle. The case report correlates the clinical syndrome with a complete rupture of the plantaris muscle belly. The anatomical features of short muscle belly and long tendon cause this muscle to be subjected to greater tension than the other calf muscles—a fact which is well demonstrated by exposure at operation. The weakest part of the muscle is its belly, as proved by the experiment in the cadaver and the findings in the case described. The classical type of trauma causing the lesion in healthy tissues, together with the location of tenderness distinguish plantaris rupture from other similar lesions.

I am indebted to Lieut.-Col. A. F. L. Shields, commanding officer of the hospital in which the case occurred, for permission to publish it.

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Medical Memoranda

Cavernous Sinus Thrombosis

There can be no doubt that treatment with penicillin has considerably improved the prognosis of cavernous sinus thrombosis. In a leading article in the *Lancet* (1945) it was pointed out that "chemotherapy is likely to cure just that type of case where the outcome was formerly almost hopeless—spread of infection from anterior veins draining a septic lesion of the face—because a lesion here is plainly visible, and any divergence from routine healing, or signs of more deep-seated mischief become rapidly obvious, so treatment can be begun in time." In addition, treatment with penicillin may result in a cure even when its administration has been delayed for any reason, and Johnstone (1945) has reported a case in which administration was not begun for 10 days, and yet the patient was completely cured.

It may be of interest to record the following case, in which penicillin was not given until 6 days after the onset of the illness, and in which recovery was complete.

Case History

Miss A., aged 23, a ledger clerk, was admitted to hospital on the evening of Jan. 12, 1945, as a case of erysipelas. The illness had begun suddenly on Jan. 8, with headache, limb pains, and vomiting. On the 9th she was put to bed, and since the afternoon of the 11th had been given a total of 6 g. of a sulphonamide. On examination she had an area of erythema extending from the right cheek to the forehead and spreading across the nose. It was extremely tender and slightly raised. Both eyelids were oedematous. Her temperature was 103.2° F., pulse 120. She was immediately given 2 g. of sulphadiazine, followed by 2 g. 4 hours later, then 1 g. 4-hourly, with pot. cit. and plenty of fluids.

On Jan. 13 her condition was much the same, but her eyelids were more swollen—she could not open her right eye at all. The temperature was swinging between 99.2° and 101° F. during the day. At 10 a.m. on the 14th her temperature was 100.2° F. and the eyelids were worse. The right eye was definitely proptosed, and the left slightly so, and both showed early chemosis. She complained of feeling "dopy," was apathetic, and was rather slow in answering questions. A diagnosis of cavernous sinus thrombosis was made. At 2 p.m. the temperature was subnormal, but there were some petechiae on her eyelids and body. Treatment with penicillin was begun with a dosage of 20,000 units 3-hourly, intramuscularly. The sulphadiazine was discontinued. During Jan. 13 and 14 the patient had several rigors.

On Jan. 15 her temperature had risen again, there was marked chemosis of the conjunctivae of both eyes, with a blue discoloration of the eyelids, and she felt extremely drowsy. She complained that when she managed to open her eyelids a little she found that the vision of her right eye was blurred, but her left one was normal. Her pupils were small but reacted to light; and her external ocular movements were grossly restricted. It was impossible to examine the ocular fundi. Her general condition was worse, and a course of sulphathiazole was started—1.5 g. 4-hourly. All day she was extremely drowsy, with a swinging temperature.

On the morning of the 16th the temperature was normal. She still felt very drowsy, but had had 2 gr. of phenobarbitone in the early hours of the morning. Her eyes were painful but definitely less swollen, and the condition appeared much more localized. A boil on the right side of her nose was beginning to point—there had been no evidence of this previously, as the whole cheek had been swollen; hot fomentations were ordered. Her temperature rose again to 101.4° F. that night, and the next morning to 102.2° F. At this time the local condition was very much better and there was less chemosis, but a few fresh petechiae were present on the trunk and she complained of a stiff neck. All meningeal signs were equivocal. Her spleen was not palpable. By that night the temperature had dropped to normal and risen again to 100° F., and she was complaining of very severe pain in the head and neck. During the night there was a discharge of thick green pus from the boil on the nose, from which *Staph. aureus* was subsequently grown. The temperature was down again in the morning and the patient was much better subjectively. The sulphathiazole was reduced to 1 g. 6-hourly.

On Jan. 19, 20, and 21 the temperature was still swinging, but never reached 100° F. The eyes were practically normal. The sulphathiazole was stopped on the 19th, after a total of 34 g. had been given. On the night of the 22nd, the temperature having been normal for 36 hours, the penicillin was stopped after a total dosage of 1,320,000 units. On Jan. 23 the patient complained of double vision, and had a left external rectus paresis. On the 26th this was no better. The optic disks were apparently normal except for slight blurring of the nasal side of each. On Feb. 7 she complained of tenderness in the distribution of the right supra-orbital nerve, which had troubled her for about a week.

The patient was discharged on Feb. 14 feeling perfectly fit but for slight diplopia on looking to the extreme left, and with what she called her "old face again."

Discussion

But for penicillin this patient would almost certainly have died. Although no blood culture was done, the swinging temperature and the occurrence of petechiae and rigors indicated that she had a septicaemia. There may also have been meningeal involvement in view of the severe pain in the head and neck, with equivocal meningeal signs. Lumbar puncture was not carried out, as the pain was well relieved with 1/6 gr. of morphine and did not recur with the same severity; and little more could have been done therapeutically if it had been definitely known that meningitis was present, except perhaps the administration of penicillin intrathecally.

Prof. Garrod (1945) found that sulphathiazole *in vitro* "somewhat reduces the rate of disinfection by penicillin." Does the present case bear this out *in vivo*? Would the patient's condition have improved more rapidly with penicillin alone? The temperature had not come down to below 100° F. permanently until after the sulphathiazole was stopped; 36 hours after that it had become normal for good, and penicillin was discontinued 36 hours later. But probably the temperature would have settled just as quickly had the sulphathiazole been continued. However, with no bacteriological test and no apparent lesion causing the thrombosis in the early stages, it was not justifiable to do anything but give full doses of penicillin and a sulphonamide.

I am indebted to Dr. J. C. McEntee, acting medical superintendent, for permission to publish this case; and to Drs. Bamforth and Saward, of St. Thomas's Hospital, for generously supplying the penicillin.

Grove Hospital, L.C.C. **Brian V. I. Greenish**, M.B., B.S.

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Reviews

ANTIMALARIAL DRUGS

Antimalarial Drugs. General Outline. By O. Temkin and Elizabeth M. Ramsey. (Pp. 110, with Bibliography. No price given.) National Research Council: Division of Medical Sciences. Issued by the Office of Medical Information (under grants of the Carnegie Corporation and the Johnson and Johnson Research Foundation). Washington. 1944.

The war in the Pacific compelled careful revision of our methods for controlling malaria, and the loss of Java and its quinine supplies necessitated the overhauling of our choice and use of antimalarial drugs. The present volume is a careful review of the information available in the published literature about such compounds, and it has been compiled as a basis for the revision which the military situation demanded. The first part of the work describes the quinine situation in wartime, the principles on which the antimalarial compounds pamaquin (plasmoquine) and mepacrine (atebrin) were discovered, and the general pre-war opinions about antimalarial drugs as set out in the Third and Fourth General Reports of the Malaria Commission of the Health Organization of the League of Nations, issued in 1933 and 1937 respectively. A list is included of the main compounds studied during the pre-war years, with indications of their action upon avian, simian, and human malaria. Detailed summaries are given of the literature concerning the pharmacology, antimalarial activity, and toxicology of quinine, mepacrine, and plasmoquine. Subsequent sections deal with other compounds, such as thio-bismol, which show minor degrees of antimalarial action. Nowadays, when new means are being sought to produce radical cure of *vivax*-malaria, the summary of information about neoarsphenamine is timely. The antimalarial action of this compound is limited to *P. vivax*, and it does not extend to *P. falciparum*; and even with *vivax* malaria, although neoarsphenamine will usually cut short the immediate attack of malaria, most reports agree that it is no more effective than quinine or mepacrine in preventing a subsequent relapse. Antimonials, mercurials, amidines, and derivatives have all been reported to show antimalarial action under certain conditions, but in no case have the facts suggested that these compounds would be valuable for general clinical use. Owing to new information which has been gained since 1942, and which is still confined to confidential reports and military instructions, the section on "Treatment Plans of Malaria under Present War Conditions" is more valuable as history than as a guide to immediate conduct.

The review should prove valuable to the investigators who are now engaged in studying the use of the compounds under war conditions, and it is mainly for them that it has been compiled; but to the general student it would prove misleading on many points, for it omits all the newly acquired information, which is now restricted to confidential American and British reports, and which considerably modifies pre-war views in many particulars.

GENERAL THERAPEUTICS

The 1944 Year Book of General Therapeutics. Edited by Oscar W. Bethea, M.D., F.A.C.P. (Pp. 447; illustrated. 18s. 6d.) Chicago: The Year Book Publishers; London: H. K. Lewis and Co.

The *Year Book of General Therapeutics for 1944* is a useful book which can be strongly recommended to all doctors. It is small, well printed, and well written; it describes recent advances in treatment during the current year. The clarity of the exposition of difficult subjects is remarkable, and new procedures are described with caution and moderation. All the articles consist of summaries of published papers. The scope of the book can be gauged by a brief mention of some of the topics. There is a description of the use of caudal analgesia in midwifery: procaine hydrochloride in 1.5% solution is given by continuous drip by way of the sacral hiatus. There has been great enthusiasm for the method in the U.S., where it has been hailed as providing "dramatic relief of all pain" in labour. The book contains very useful sections on sulphonamides and penicillin, and a good account of the use of penicillin in syphilis. The treatment of burns is included, and antimalarial drugs have a section to themselves.

Janeway's work on the use of gamma globulin in measles is well described. This has arisen out of the work of Cohn at Harvard on the fractionation of pooled human plasma, first undertaken to provide a concentrated albumin for the purpose of giving transfusions to wounded soldiers. It has also a medical use for patients suffering from oedema because of persistent albuminuria. As a by-product of the preparation of albumin, the antibodies present in the gamma globulin fraction of human plasma have been prepared. These are a substitute for convalescent serum or adult serum in measles prophylaxis. Adult serum may carry hepatitis or other diseases due to a filter-passing agent, and some doctors do not use it for that reason. The gamma globulins carry the protecting antibodies but are free from any infecting agent.

The book also includes a clear account of the Rh factor in blood transfusion. The great progress which enterprising and able American clinicians are making in therapy at this time is well illustrated throughout.

ORAL IMMUNIZATION

Oral Methods of Immunisation. By Burton Bradley, M.B., Ch.M., M.R.C.S. (Pp. 87. No price given.) Sydney: Deaton and Spencer Pty. Ltd.

The administration of bacterial vaccines by the mouth has continued for many years without gaining general recognition as an orthodox and reliable procedure, and at the same time without suffering utter condemnation as the reverse of this. It is notoriously difficult to prove the efficacy of such a proceeding statistically, in terms of expected attacks prevented, especially when the disease is a normally uncommon one, such as enteric fever. Another method of approach is barred to us by the unfortunate lack of any dependable method of estimating immunity to most bacterial infections: the presence or absence of an easily demonstrable antibody, such as agglutinin in the blood, is almost certainly not a full and true reflection of the degree of resistance of the body. In the present state of knowledge, therefore, anyone is entitled to his opinion on this subject, and Dr. Burton Bradley in a small book published in Australia and entitled *Oral Methods of Immunisation* pronounces very strongly in favour of this method. He rightly distinguishes between two different purposes for which oral vaccines may be given—the prevention or treatment of intestinal infections, on Besredka's principle of local immunization, and that of infections elsewhere, when it must be assumed that the antigen is absorbed and immunizes the body as a whole. Bradley advocates both, and claims success in treating rheumatism and infections of the air passages and of the skin. His own experiences are only briefly described, most of the book being occupied by a chronological review of the literature of this and closely related subjects. This is strongly partisan and rather uncritical, but may be found useful as a guide to some of the literature. The book contains an astonishing number of misprints, only a few of which are corrected in a list of errata: no fewer than 19 words are mis-spelt in a list of the names of 43 journals on a single page (87).

Notes on Books

Dr. D. Haler's *Aids to Clinical Pathology* (Baillière, Tindall and Cox; 6s.) combines the functions of two previous books in this series, and covers the whole field of clinical pathology, including post-mortem technique, histology, haematology, microbiology, and biochemistry. No book of such size can be a complete guide to all these subjects, even for the elementary worker, but it contains much practical information. If we conceive the purpose of the book aright, it might be improved by recognizing that efficient work demands the use of other works on special subjects, and thus omitting descriptions of such things as animal parasites, and possibly even of individual species of bacteria, devoting the space so saved to fuller descriptions of methods of examining specimens.

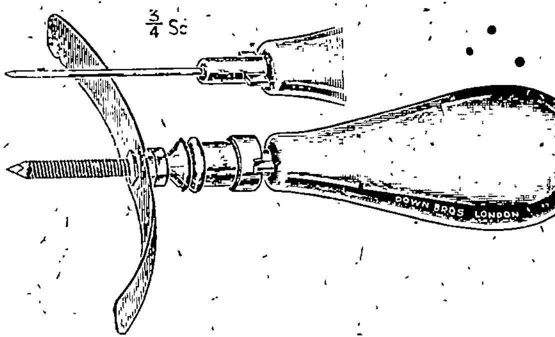
The Bacon Library of the American Hospital Association (18, East Division Street, Chicago 10, Illinois) has compiled a bibliography of the published writings of the late S. S. Goldwater, M.D. Dr. Goldwater, who died in October, 1942, was an outstanding hospital administrator. Although serving New York City as Commissioner of Health and later as Commissioner of Hospitals, the greater part of his professional life was spent as administrator of Mount Sinai Hospital in New York City. At the time of his death he was president of the Associated Hospital Service of New York City. He wrote on many subjects in the hospital and medical field. Copies of this 15-page bibliography may be had without cost from the Bacon Library.

Preparations and Appliances

A NEEDLE FOR INTRATIBIAL DRIPS

Dr. Leslie A. Gibbons writes from Redhill, Surrey:

The needle here illustrated has been made for me by Messrs. Down Bros. It consists of a hollow screw which can be screwed into the tibia (or sternum for sternal puncture) by means of the trocar-screwdriver. There are two nuts on the shaft of the needle. One nut holds a flexible metal strip and can be adjusted up and down the needle merely by twisting the nut. This is simply fixed by the other nut.



The technique is as follows. A small incision is made in the anaesthetized skin over the selected part of tibia. The metal strip is adjusted to the depth of needle required and fixed. The needle is now screwed into the tibia, fixed in position by bending the strip round the leg, and strapped by elastoplast or strapping. The trocar-screwdriver is removed and the drip connected as usual.

My thanks are due to Mr. Guy Drew, of Messrs. Down Bros., for arranging the production of the needle, and also to Mr. Norman E. Pitt, F.R.C.S.

AN OPHTHALMIC DRESSING

Dr. Allan H. Briggs, M.Sc., D.O.M.S., honorary ophthalmic surgeon, County Hospital, Lincoln, writes:

The standard form of dressing used in many hospitals for eye operation cases and injuries consists of Gamgee pads applied direct to the eye and held in position by a bandage. This has a number of disadvantages in practice. The pads tend to become soaked in serum or discharge, which adheres to any raw surface, and the soaked dressings tend to dry, forming a stiff adherent plaque, which can sometimes be detached only with difficulty. The stiffened dressings do not permit free drainage and they may become displaced, permitting the lids to be opened beneath them, sometimes with injury to the cornea of the eye beneath.

Experiments have been conducted for some time to try to devise a more satisfactory form of dressing, and it has been found that the use of a small piece of tulle gras applied direct to the injured eye beneath the Gamgee dressings is a very great advantage. The vaseline-impregnated net (in which sulphonamide or other drugs can be incorporated if desired) is easily applied and is comfortable in use. Its stickiness is sufficient to tend to keep the closed lids in position, and it permits the free escape of tears, serum, or discharge. Dressings can be easily removed and the tulle gras renewed if desirable.

No claim is made for originality in putting forward this suggestion, which must have been in use in many places already, and tulle gras is the standard dressing employed by many plastic surgeons for a number of years. The advantages and convenience of employing it as a routine dressing for ophthalmic operation cases and injuries are so marked I have felt it justifiable to give the idea some publicity in the hope that ophthalmic surgeons will find it useful.

In applying the tulle gras it is found that on cold days it is sometimes a little difficult to detach a suitable piece from the standard boxes of four-inch squares with delicate ophthalmic instruments. On the other hand, if the preparation is left to warm on a convenient sterilizer it is liable to be forgotten and too much vaseline melts out of the gauze. For convenience a special size of two-inch squares is being prepared for ophthalmic work, and they will be on the market shortly.

I have to thank the makers of several forms of tulle gras, notably Messrs. T. J. Smith and Nephew, and Messrs. Optrex, for providing material for experiment, and more particularly Messrs. Allen and Hanburys, who have been unfailingly helpful in preparing the standard two-inch-square dressings.

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BIOSYNTHESIS OF VITAMINS IN THE HUMAN GUT

It has long been known that some animals synthesize certain vitamins either in their tissues or through the agency of their intestinal flora. Rats, cats, and dogs do not suffer from scurvy; they make their own vitamin C. Synthesis of the B vitamins has been demonstrated in the rumen of herbivora and the caecum of the rodent. This synthesis is effected by symbiotic micro-organisms, such as the cellulose-splitting bacteria. If poorly absorbed sulphonamides, such as sulphaguanidine and succinylsulphathiazole, are given to rats fed on purified diets they inhibit the growth and metabolism of the intestinal flora, which then cease their synthetic activity. By the inclusion of these sulphonamides in diets containing known members of the vitamin-B complex it has been shown that the intestinal flora in the rat can synthesize vitamin B_1, iboflavin, nicotinic acid, pyridoxine, biotin, folic acid, pantothenic acid, and inositol.[1] A fall in the level of prothrombin in the blood occurs as well, showing that these ulphonamides interfere with the production of prothrombin, probably by inhibiting the biosynthesis of vitamin K in the gut.[2] The synthesis of vitamin E by the intestinal flora has also been demonstrated.[3] This ynthetic activity of the bacteria in the gut has been confirmed by studies *in vitro*.[4]

How far do these findings apply to man? Does bioynthesis of some vitamins occur in the human intestine? The first human studies on the subject were made in 1943 by Najjar and Holt,[5] who gave nine adolescent males a ynthetic diet adequate save for vitamin B_1, which was absent from the diet. Of the nine volunteers five showed igns of vitamin-B_1 deficiency and had no vitamin B_1 in the stools. The faeces of the remaining four, who kept quite healthy, were found to contain appreciable amounts of vitamin B_1, in spite of a zero intake. Succinylsulphathiazole, which is bacteriostatic in the bowel, was given to one of them, with the result that the vitamin-B_1 content of the faeces fell to zero. This was taken to prove that vitamin B_1 was synthesized by the bacteria in the gut. Absorption of vitamin B_1 from the large intestine was assumed to occur, as a retention enema containing the itamin increased the urinary excretion of it. The validity of these studies has recently been challenged by Alexander and Landwehr,[6] who do not question the biosynthesis of itamin B_1 in the gut, but doubt whether it is absorbed from it. They have demonstrated that the vitamin B_1 in human faeces is largely within the bodies of the bacteria and not free in the lumen of the gut; so it may not be absorbed. They also state that most of the vitamin B_1 is present as cocarboxylase, which cannot be absorbed unless first dephosphorylated by enzymes which are not present in the large intestine. Alexander and Landwehr also challenge the observation of Najjar and Holt that vitamin B_1 given in a retention enema is absorbed from the large bowel. They state that the amounts used by the latter—50 mg.—were not physiological, and that physiological doses, calculated on the amount of vitamin B_1 present in the average twenty-four-hour stool, are not absorbed from an enema. Najjar and Holt's claim that the vitamin B_1 synthesized by bacteria is available to the host is supported by the observation of Gant and his colleagues[7] that some 40% of the vitamins synthesized by bacteria can be extracted from the cells by aqueous media. The subject obviously requires further investigation.

Using a technique similar to that employed in the vitamin-B_1 experiments, Najjar and his colleagues[8] have produced evidence to show that biosynthesis of riboflavin occurs in the human gut. The subjects they studied excreted more riboflavin in their faeces and urine than they took in their food. Ellinger and his co-workers[9] have also recently announced the biosynthesis of nicotinamide within the human intestine. According to them, the amount of nicotinic acid synthesized by the bacterial flora in the gut may be as much as 80% of the estimated human requirements. It has been suggested that the confusional and mental symptoms and pellagroid rashes occasionally reported after treatment with sulphonamides may be due to conditioned nicotinic acid deficiency produced by the action of these drugs on the intestinal flora. Another explanation, and a more likely one, is that the sulphonamides interfere with the respiratory enzyme systems of which nicotinic acid and other B vitamins are components. These systems are concerned with the metabolism of carbohydrate, which is used exclusively by nervous tissue as a source of energy. The mental and nervous symptoms may therefore be due to anoxia of both central and peripheral nerve tissue.

What are the clinical implications of these observations on vitamin biosynthesis? If it is true that man can utilize the vitamins synthesized in the gut, our ideas on vitamin requirements may need revision. As Najjar and Holt have shown, the degree of biosynthesis that occurs varies considerably from person to person. This might explain the divergent views held by different authorities on the human requirements of the B vitamins. Henschel and Keys,[10] for example, kept volunteers healthy on diets containing only 0.23 mg. of vitamin B_1 per 1,000 calories daily, yet others have reported deficiency symptoms on intakes greater than this. The National Research Council, U.S.A., recommend a daily intake of 0.6 mg. per 1,000 calories. There is also disagreement among nutritionists over the human requirements of riboflavin and nicotinic acid. It would seem wise to give patients receiving sulphonamide drugs supplements of the B vitamins, preferably in the form of high-potency yeast, which is rich in vitamin B₁ and riboflavin, and meat extracts, which are among the best sources of nicotinic acid. Disorders of the gut are often associated with symptoms characteristic of deficiency of the B vitamins. So-called "secondary" or conditioned pellagra has been recorded after such diseases of the alimentary tract as carcinoma, chronic diarrhoea, amoebiasis, intestinal parasitism, ulcerative colitis, and after short-circuiting operations on the intestines. Do these conditions produce deficiency symptoms by interfering with the absorption of the B vitamins, or is there some interference with their synthesis in the intestine as well? A conditioned deficiency of vitamin K, manifested by a low blood prothrombin and increased tendency to bleeding, may be produced in rats by the less soluble sulphonamides.[2] This is due to their bacteriostatic action on the intestinal bacteria that synthesize vitamin K. Haemorrhage, responding to vitamin K, has been recorded in patients given succinylsulphathiazole,[11] and it is also stated that the blood prothrombin is significantly decreased in patients taking sulphonamides.[12] Here is presumptive evidence of the biosynthesis of vitamin K in the human gut.

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[9] *Nature*, 1944, **154**, 270; *Lancet*, 1945, **1**, 432.
[10] *J. Nutrit.*, 1943, **26**, 399.

It was not so long ago that we all believed in the evils of intestinal stasis, with its "auto-intoxication" due to the supposed absorption of hypothetical bacterial toxins. The wheel of medical thought has turned full circle. The bacterial inhabitants of the intestine are no longer looked upon as toxin-producing parasites but as useful symbiotic organisms breaking down unwanted waste products such as cellulose and unabsorbed nitrogenous matter, and synthesizing, among other things, numerous vitamins and also protein.

LOBECTOMY AND PNEUMONECTOMY FOR TUBERCULOSIS

As long ago as 1822 Carson said of tuberculosis: "If this disease is to be cured it must be accomplished by mechanical means," and since then many mechanical measures have been employed, mostly indirect forms of attack such as compression, relaxation, and immobilization. Successful extirpation of pulmonary tuberculosis by lobectomy or pneumonectomy has, until recently, not appeared to be feasible. Since the establishment of these operations as standard treatment for bronchiectasis and carcinoma a number of cases of tuberculosis have been reported upon unwittingly, and the results were found to be so bad as to lead to condemnation of any deliberate attempts to excise a known tuberculous lesion. In 1935 Freedlander[13] reported a successful right upper lobectomy for tuberculosis, and the patient is still alive,[14] 10 years after, and "in fairly good condition." Since then a number of other reports of successful cases have appeared, notably those of Dolley,[15] and Jones,[16] and of Churchill and Klopstock[17]: these last two authors in a brilliant paper described 6 cases operated upon by lobectomy, all of which healed by primary intention.

What rapid strides have since been made is to be seen in the February number of the *Journal of Thoracic Surgery* which contains a symposium of five papers devoted to this subject and a lengthy and most interesting discussion. The problem is clearly one of great complexity, and it is as yet not possible to make any final pronouncement on the success or even desirability of the new method of treatment. The work done so far is still necessarily of a pioneer experimental nature, but it has already been shown that the initial high mortality and morbidity in the sporadic cases operated on mostly in error need not occur. Churchill and Klopstock have, indeed, emphasized the fallacy of attempting to draw conclusions from this heterogeneous group of cases Where the selection has been carefully made and a proper modern operation has been performed the results have improved so much as to place it within the realms of feasibility. In the early days of lobectomy and pneumonectomy when the tourniquet technique was being used it was inevitable that diseased tissue was left in the stump; this broke down, fistulae formed, and as a result severe empyemata and fatal contralateral spread of disease followed. With careful dissection technique so that the whole lobe or lung is removed and the bronchus accurately sutured this risk i not so much to be feared. Technically the operation in tuberculosis is said not to be so difficult as in many case of bronchiectasis and malignant disease. In the above symposium Janes, of Toronto, mentions 32 operations with 6 deaths; Maier and Klopstock, 16 cases with only 1 death and Bailey, 21 cases with 6 deaths. The largest series i reported by Overholt and Wilson, who have performed 6 resections on 61 patients between 1934 and 1943; thei operative mortality was 15.8% (10 deaths) and their case mortality up to date 24.6% (15 deaths). These authors stat that since January, 1942, when they began to use a mor modern technique, they have performed 45 resections on 44 patients with only 5 deaths (11.1%); the case mortalit to date for this series is only 13.6%. Moreover, they sa that if this new series is divided into reasonable risks and desperate risks the operative mortality was 6.3% and 43.7% respectively. Chamberlain contributes a valuabl paper on a comparison between the functional results of upper thoracoplasty and upper lobectomy. In the discussion of the papers there was some reluctance to accep resection as an alternative to thoracoplasty, seeing that th results of thoracoplasty are relatively better and the mortality lower. Most speakers felt that much was still to be learnt about dangers and indications, but, in the words o Alexander, "resection . . . has a definite place in the treatment of tuberculosis but that this place should be limite to relatively few patients for whom less risky operations which produce better results, are definitely not suitable. The indications for lung resection would at present seem to be: (1) If the disease is largely bronchiectatic and the tuberculosis not particularly active. (2) If there are cavities at the mediastinum, hilum, or lower lobe, where the prognosis for closure by other means is far from good. (3) If there are tension cavities that fail to collapse with artificial pneumothorax. (4) In some cases of persistent cavity afte thoracoplasty. (5) In stenosis of the main or of a lobar bronchus.

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[11] Gatch, W. D., unpublished data.
[12] Kapnick, I., *et al.*, *New Engl. J. Med.*, 1942, **227**, 944.
[13] *J. thorac. Surg.*, 1935, **5**, 132.
[14] Ibid., 1945, **14**, 52.
[15] Ibid., 1939, **8**, 351.
[16] Ibid., 1940, **10**, 102.
[17] *Ann. Surg.*, 1943, **117**, 641.

Pulmonary tuberculosis is such a terrible disease if uncontrolled that this new attempt to add extirpation to our methods of attacking it must arouse great interest and not a little hope of providing a good result in some of those cases which in the past have failed to respond to the orthodox methods of treatment by rest, relaxation, or compression therapy. It is clearly a method that must be used only by the very experienced, and then guardedly, and after all alternative simpler methods have been considered and rejected. At first thought it may appear to be so dangerous as to be generally unacceptable, but the results quoted above are good enough to demand serious consideration, especially as they are results obtained in the pioneer stages of the treatment.

RITUAL DEHYDRATION

> "A Wine Cooper fell into a Dropsy which resisted all the usual Methods. This Man was prodigiously swell'd, Belly, Back, Sides, Thighs, and Legs. Being past all Hopes and having on him an inextinguishable Thirst, he was permitted to drink 14 Quarts of Water in about 10 hours and in al that Time made not one drop of Urine. Soon after he began to piss; and he drank on, 4 or 5 Quarts daily, and so recovered. . . . That Water should expell Water is a Miracle beyond any of St. Winifred's. Now no man in his Senses would have prescribed such a Water course to cure a Dropsy, which shows how little we know of Nature and the great Uncertainty of our Art."*

The orthodox treatment of oedema is by restriction of the intake of water and salt. The thirsty patient usually gets used to it and is supported and sustained by his physician's belief that a waterlogged patient can hardly need still more water. This ritual practice gains further support when it is seen that oedema sometimes increases when more water is drunk. Usually salt is restricted, because if salt is absorbed more water can be retained in the body. The logical conclusion of this practice seems to be that the waterlogged patient should be given no water at all. A kindly compromise is usual, however, and the patient is allowed one or two pints daily or else enough to minimize suffering from thirst. Oedema fluid, like normal interstitial fluid, may tend to become concentrated by evaporation of water from the body surfaces when intake is restricted. Normally, the changes being reflected in the blood stream, the kidneys work powerfully to preserve the electrolyte pattern, so that if water evaporates they excrete a stronger salt solution and the internal environment is repaired. The kidneys can perform this work only if they obtain an adequate supply of water. When oedema fluid contains too much sodium salts the tissue cells become dehydrated and "thirsty" and the patient wants water. If he gets it the water naturally goes to make the cell environment again isotonic and to rehydrate the tissue cells which were "brine-logged." This beneficial rehydration may thus be attended by an increase of the oedema, enough to make the faint-hearted falter. When the "thirsty" cells and oedema fluid are satisfied the kidneys can then proceed to the repair of the electrolyte pattern and the excretion of oedema fluid.

F. R. Schemm,[1, 2] reasoning on these grounds, has treated a large number of oedematous patients by giving them enough fluid to supply the necessary surplus for adequate renal function. To promote further the elimination of surplus sodium he restricted sodium intake and gave a diet designed to produce neutral or acid end-products. It was common, in his regime, to give several litres daily to patients with oedema associated with cardiac failure or in nephrotic syndrome supposedly due to lowering of plasma proteins. Cases of oedema with congestive cardiac failure seemed to tolerate five or six litres of fluid daily by mouth or supplemented by intravenous 5% dextrose; the oedema sometimes disappeared and the patient improved on the regime after rest, digitalis, mercurial diuretics, and water restriction had proved ineffective. Benefit has been claimed in nephrotic syndrome, in pulmonary oedema with left ventricular failure, and in stubborn anasarca with chronic rheumatic carditis. Even with these large fluid exchanges it was found that needed sodium chloride was conserved by the kidneys, and only the surplus was excreted.

Schemm's results are impressive and demand critical consideration. He recommends a modest and careful trial for the timid, and persuades the conservative with apt quotations to show that tradition favours the quenching of thirst, even in dropsy. "That Water should expell Water is a Miracle beyond any of St. Winifred's . . . which shows how little we know of Nature and the great Uncertainty of our Art."

HYPOGLYCAEMIC FATIGUE

Recent developments in the study of the neuroses, which have been greatly stimulated by the war, have drawn attention to the physiological basis of many neurotic symptoms. Such conditions as vitamin-B deprivation have been found to cause symptoms ranging from minor difficulties in concentration, neurasthenic and anxiety disorders, to severe psychotic states. On the other side organic lesions, such as gastric and duodenal ulcer, previously attributed solely to physical states, have been found to be influenced by such psychological factors as worry and strain. The growing belief in the interaction of mind and body, which by some still tend to be regarded as separate entities, has led our American colleagues to elevate "psychosomatic medicine" into a new specialty, in which medical and psychiatric factors are studied simultaneously in the same patient. Of some interest in this field is a recent study by Alexander and Portis[3] of hypoglycaemia as the basis of the neurotic symptom of fatigue. They investigated a group of patients who showed a fairly consistent syndrome. Normally active and energetic, they became ill after a change in their lives which involved application to work of a new and distasteful kind. Thereafter they developed attacks of fatigue which made them almost physically incapable of carrying on with the uninteresting occupation. The feeling of fatigue would be at its worst first thing in the morning, would be somewhat relieved by meals, and would pass off almost completely after the largest meal of the day in the evening. Glucose-tolerance tests showed in all patients a distinct flattening of the curve. Though the basal blood sugar was not below normal limits, the usual elevation after administration of glucose was not found. The curve would be restored to normal after a hypodermic injection of 1/75 gr. atropine. Good therapeutic results were obtained by psychotherapy, giving a diet containing no free sugar but complex carbohydrates, and an injection of atropine thrice daily.

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* This quotation is from Sir Thomas Witherley, President of the Royal College of Physicians, 1684-7. The "usual methods," besides purges and vomits, included the use of calomel, mineral acids, and the muriate of ammonia, but not a free use of water, even from St. Winifred's Well.

[1] *Ann. intern. Med.*, 1942, **17**, 952.

[2] Ibid., 1944, **21**, 937.

[3] *Psychosomatic Med.*, 1944, **6**, 191.

The authors believe that the syndrome consists essentially in a disturbance of the homoeostatic regulation of the blood sugar. The feeling of zest with which the healthy man faces his daily activities represents a certain tonus in the vegetative system. A more enhanced tonus of the same kind is produced by feelings of fear and rage. If zest fails, the tonus drops and any sustained activity cannot be so well maintained. The patient tries to drive himself on to activities which cause a paralysing vegetative relaxation. Vagal preponderance results in a state of hyperinsulinism, demonstrated by the glucose-tolerance test. Administration of atropine diminishes the vagal tone and shifts the balance in favour of sympathetic tonus, and so helps to break the vicious circle.

METHYL BROMIDE POISONING

Methyl bromide (CH_3Br) has a molecular weight of 94; it is a colourless mobile liquid with a specific gravity of 1.732 at 4° C. and boils at 4.5° C. The specific gravity of the gas at normal temperature and pressure is 3.27. It has a faint but agreeable odour and is colourless. It is manufactured by heating methyl alcohol with sodium bromide at 130° C. in excess of sulphuric acid, and is then washed and condensed in refrigerator coils surrounded by brine. In the chemical industry it is used in the preparation of methylic compounds and for making colours from methylated tar. It has been extensively used in recent years as a fire extinguisher, a fumigant, a refrigerant, and a delousing agent. As an insecticide of great effectiveness it can protect a wide variety of foods, grain, plants, and textiles. Entomologists favour it for the control of pests because it leaves no smell or taste behind, it is not explosive on mixture with air, it is highly toxic to insects in all stages of their development, it has a low absorption and high penetrating power, and is inexpensive. It is particularly effective in the extermination of lice, bed-bugs, and weevils.

As so often happens, however, with substances which are really effective against insects it is also toxic to man, and in the last two years many cases of poisoning have been recorded both in this country and in the United States.[1-10] The toxic effects fall into three distinct groups: those brought about by pure gassing, the systemic effects of the vapour, and the effects on skin and mucous membranes. In the first instance death may occur from anoxaemia or toxic paralysis of the respiratory centre. Mild systemic effects include headache, giddiness, numbness, fits, diplopia, inability to accommodate, and vomiting; severe effects include signs similar to alcoholic intoxication with disorders of gait and co-ordination. Methyl bromide rapidly penetrates clothing, including leather and rubber, and irritates the skin and mucous membranes, producing burns characterized by enormous blisters full of sterile fluid. Depression and sleeplessness are frequent features of the convalescent period. Usually, symptoms run parallel to the non-volatile bromine level in the blood, which may be raised from a normal not exceeding 1.5 mg. to 10 mg. per 100 c.cm.; the bromine content in the cerebrospinal fluid may also be raised from a normal of 1 mg./100 c.cm. to 15 or more mg./100 c.cm. Death, when it occurs, usually results from pulmonary oedema; and post-mortem findings include acute purulent bronchitis, inflammation and oedema of the lungs, fatty degeneration of the ganglion cells of the brain, and degenerative changes in the kidneys.

Sayers, Yant, Thomas, and Berger[11] have investigated the toxicity of the substance in animals, and Irish, Adams, Spencer, and Row[12] have shown that methyl bromide is by far the most poisonous of the four organic halides—methyl bromide, methyl chloride, ethyl bromide, and ethyl chloride. Animals exposed to lethal doses die with pulmonary oedema or, if they survive long enough, with confluent bronchopneumonia; lower concentrations produce symptoms and changes like those already described for man. While a safe concentration for methyl bromide has not so far been established, it might be assumed that 70 parts per million would be the upper safety limit for short exposures and 50 parts per million for exposures of eight hours.

Once symptoms are established treatment is of little avail, and attention must therefore be directed to preventive measures. Here difficulties arise because the gas is odourless and can pass through the ordinary Service respirator in a quarter of an hour. Clarke, Roworth, and Holling[7] suggest that some substance with a smell be added to methyl bromide in fire extinguishers to draw attention to any leak. Certainly fire fighters who use these extinguishers should be warned against spilling the liquid and instructed that any clothing wetted by it must be removed immediately. When it is used as a fumigant the trucks, ships, store-houses, barns, or other buildings must be thoroughly ventilated on completion of the process. In industry the prevention of leaks, adequate dilution of escaping gas, and exhaust ventilation through the floor of the workshop are the most important preventive measures, but periodic medical examination will not only help in the detection of early symptoms but may draw attention to dangerous mechanical parts and lead to their repair. Bathing the hands in a weak solution of sodium carbonate may help to prevent skin lesions by decomposing the methyl bromide.

As has already been announced in the *Journal*, Dr. Charles Hill, Secretary of the B.M.A., is standing as an Independent candidate for Cambridge University in the coming General Election. Cambridge graduates will be receiving Dr. Hill's statement of policy in the election address he has written. When the new Parliament meets one of the early matters for debate will be a Bill for a comprehensive National Health Service. This Bill and the Act which will follow will be of the profoundest significance to all medical men and will shape the course of medical organization for many years to come. It would be a great advantage if there were on the floor of the House of Commons a medical spokesman who has at his finger-tips all the intricate details of the organization and administration of medical services. It is also much to be wished that there should be medical M.P.s who can represent—and not misrepresent—the wishes and aspirations of the majority of practising doctors in this country. For these reasons Cambridge medical men will do well to reflect upon the present phase in the history of medicine when they come to cast their votes.

The Mitchell Lecture before the Royal College of Physicians which was arranged for July of this year, has been postponed until 1946. The Croonian Lectures will be delivered by Dr. Macdonald Critchley on Tuesday, July 10, and Thursday July 12, 1945, at 4.30 p.m.

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[1] Watrous, R. M., *Industr. med.*, 1942, **11**, 575.
[2] Miller, J. W., *Arch. Pathol.*, 1943, **36**, 506.
[3] Gray, P. H. K., *J. roy. nav. med. Serv.*, 1944, **30**, 214.
[4] Holling, H. E., and Clarke, C. A., ibid., 1944, **30**, 218.
[5] De Jong, R. N., *J. Amer. med. Ass.*, 1944, **125**, 702.
[6] Heimann, H., *Industr. Hyg. Bull.*, 1944, **23**, 103.
[7] Clarke, C. A., Roworth, C. G., and Holling, H. E., *Brit. J. industr. Med.*, 1945, **2**, 17.
[8] Wyers, H., ibid., 1945, **2**, 24.
[9] Butler, E. C. B., Perry, K. M. A., and Williams, J. R. F., ibid., 1945, **2**, 30.
[10] Carter, A. B., *British Medical Journal*, 1945, **1**, 43.
[11] *Publ. Hlth. Bull. U.S. Treasury Dept.*, 1929, No. 185, Washington.
[12] *J. industr. Hyg.*, 1940, **22**, 218; 1941, **23**, 408.

BIRTHDAY HONOURS

The names of the following members of the medical profession were included in a Birthday Honours List published in *Supplements* to the *London Gazette.*

Knighthood

James Douglas Cooke, F.R.C.S., M.P. for South Hammersmith since 1931. For political and public services.

Sidney Valentine Sewell, M.D., F.R.C.P. Consulting Physician in the State of Victoria.

Reginald Watson Watson-Jones, M.Ch., F.R.C.S. Civilian Consultant to the Royal Air Force.

C.B. (Military Division)

Leopold Thomas Poole, D.S.O., *M.C.*, M.B., Ch.B. Major-Gen., late R.A.M.C.; Honorary Physician to the King. Director and Professor of Pathology, Royal Army Medical College.

C.M.G.

Albert Victor Bernard, C.B.E., M.D., D.P.H. Late Chief Government Medical Officer, Malta.

George Ernest Hugh Le Fanu, M.D., Ch.M. Late Consulting Physician at Liverpool to the Colonial Office.

Lucius Nicholls, M.D. Director, Bacteriological Institute, Ceylon.

Benjamin Stanley Platt, M.Sc., Ph.D., M.B., Ch.B. Director, Human Nutrition Research Unit, Medical Research Council.

Alexander Montgomery Wilson-Rae, M.D. Assistant Medical Adviser to the Secretary of State for the Colonies. Lately Deputy Director of Medical Service, Nigeria.

C.I.E.

Kombar Ramaswami Krishnaswami Iyengar, O.B.E., M.D., D.P.H. Lieut.-Col., I.M.S.(ret.). Late Director, Pasteur Institute of Southern India, Coonoor.

C.B.E. (Military Division)

William Innes Gerrard, O.B.E., M.D., F.R.C.P. Acting Surg. Capt., R.N.(ret.).

Thomas James Kelly, *M.C.*, M.D. Acting Air Vice-Marshal, R.A.F.

D'Arcy Power, *M.C.*, M.R.C.S., L.R.C.P. Acting Air Vice-Marshal, R.A.F.

Arthur Eaton Richmond, O.B.E., M.R.C.S., L.R.C.P., D.T.M. Col. (Temp.), R.A.M.C.

C.B.E. (Civil Division)

Miss **Kate Fraser**, M.D., D.P.H. Commissioner, General Board of Control, Scotland.

Bernard Hart, M.D., F.R.C.P. Consultant Adviser in Psychiatry to the Ministry of Health.

James Russell, M.B., F.R.C.S.Ed., F.R.F.P.S. Surgical Director, Emergency Medical Service, Scotland.

Robert Standish-White, O.B.E., F.R.C.S.I. For valuable services as honorary consulting surgeon, Rhodesian Air Training Group.

O.B.E. (Military Division)

Algeo Lloyd Anderson, M.B. Surg. Capt., R.C.N.V.R.

James Martin Flattery, M.B., Ch.M. Surg. Cmdr., R.A.N.

David Walker Johnstone. Surg. Capt., R.C.N.V.R.

Frederic William Kemp, *M.C.*, E.D., M.D. Lieut.-Col., N.Z.M.C.

William Parsons Lappin, M.B., Ch.B. Lieut.-Col. (Temp.), R.A.M.C.

Clarence Lucan Gray Pratt, M.D., M.Sc. Acting Temp. Surg. Cmdr., R.N.V.R.

John Rowe, *M.C.*, M.B., B.Ch. Col., late R.A.M.C.

Norman Lyon Shepperd, M.B., F.R.C.S. Lieut.-Col. (Temp.), R.A.M.C.

Malcolm Stoddart-Scott, *M.C.*, T.D., M.D. Lieut.-Col., R.A.M.C., T.A.

Frederick Harold Van Nostrand, E.D., M.B. Col., R.C.A.M.C.

Gordon Abbott Winfield, M.D., C.M. Col., R.C.A.M.C.

O.B.E. (Civil Division)

Amar Nath Chopra, M.B., B.S., D.P.H. Lieut.-Col., I.M.S. nspector-General of Prisons and Director of Health, Orissa.

Lawrence Wylie Fitzmaurice, M.D., C.M., F.A.C.S., Colonial Medical Service. Medical Officer and Bacteriologist, Bahamas.

Nutting Stuart Fraser, M.D., C.M. Consultant, St. John's General Hospital, Newfoundland. For public services.

Alistair Robertson Grant, M.D. Medical Superintendent, Emergency Hospital, Whittingham, Preston.

Harry Hastings, M.B., Ch.B. For medical and missionary services in Nigeria.

William Malcolm McAlister, M.B., Ch.B., F.R.C.P.Ed. Medical Superintendent, Bangour Emergency Hospital, West Lothian.

Peter John Macleod, M.B., J.P. Medical Superintendent, Gleneagles Hospital and Fitness Centre. For services to civil defence. Capt., R.A.M.C.

Miss **Alice Deirdre Kingsnorth Peters**, B.M., B.Ch. Senior Medical Officer, Royal Ordnance Factory, Chorley.

Moses Sendak, M.D., D.P.H. Lieut.-Col., I.M.S. Superintendent, Special Prison, Ahmednagar Fort, Bombay.

Charles Milliken Smith, M.D., D.P.H. Medical Officer of Health, Northamptonshire County Council. For services to civil defence.

Mrs. **Clara Stewart**, M.B., B.S. Honorary Secretary and Organizer, Emergency Committee for Nurses, Leeds.

Herbert Watt Torrance, *M.C.*, M.D. For medical services in Palestine.

M.B.E. (Military Division)

Charles Bernard Ball, L.M.S.S.A. Major (Temp.), R.A.M.C.

James Menzies Clow, A.M. (Gold), F.R.C.S.Ed. Major (Temp.), R.A.M.C.

William Robert Dunlop. Major, R.C.A.M.C.

Charles Vincent Scott, M.B. Major, R.C.A.M.C.

M.B.E. (Civil Division)

Miss **Dev Priya Bali**, M.R.C.S., L.R.C.P., Women's Medical Service. Deputy Inspector-General of Civil Hospitals (Women), United Provinces.

Probhat Kumar Biswas. Civil Assistant Surgeon, Bengal.

Miss **Alva Adeline Daniell**, M.B., B.S. Civil Assistant Surgeon, Civil Medical Department, Government of Burma.

Daniel George Shields, M.B., B.Ch. Area Air-raid Precautions Medical Officer, Norfolk.

John Edward Wright, F.R.C.S.Ed., F.A.C.S. Colonial Medical Service. Surgeon-Specialist, Holbarton Hospital, Antigua, Leeward Islands.

Kaisar-i-Hind Gold Medal

Bruce Lyman Carruthers, M.D., C.M., F.A.C.P. Director, Medical Centre, Miraj.

Miss **Jessie Findlay**, M.D. Principal and Professor of Surgery, Women's Medical College, Vellore, North Arcot District, Madras.

THE MEDICAL STUDENTS AT BELSEN

At a Press conference in London Dr. A. P. Meiklejohn, member of the Rockefeller Foundation Health Commission, who has been seconded to the Nutrition Section of the European Regional Office of U.N.R.R.A., described the work of the ninety-six London medical students whom he had the privilege of supervising at the horror camp at Belsen. He said that the first batch of students arrived on the last day of April, and the primary task allotted to them was the distribution of food for the starving. Until then the small number of British troops garrisoning the camp, which had been liberated on April 16, could do no more than deliver food from the cookhouses to the doors of the huts, where it was taken over by internees. The result of such a method was that, in the moral collapse which prevailed in the camp, those who were able to walk took all the food they could get and became desperately ill from overfeeding, while those who were too weak to leave their huts died because there was nobody to feed them.

How they tackled the Job

Each student took responsibility for one or more huts, comprising from 100 to 150 patients, together with about twice that number of internees at least well enough to feed themselves. The students saw to it that the food was fairly distributed. The students also set up a dispensary and started medical treatment. The daily death rate among the sick, which had remained at about 4% until May 1, fell in one week to half that figure, and in the second week to half again, and at the same time a new spirit was plainly discernible among the internees. One special body of 25 students created within the camp a hospital area in which the most seriously sick could be cared for under hospital conditions, pending removal. They showed the same vigour in the business of cleaning out filthy, verminous huts, "creosoting" the floors, and dusting it with anti-louse powder, as others showed in their more strictly medical occupations. So excellent was their initiative that within two weeks 1,200 patients had been washed, disinfected, reclothed, and returned to the renovated huts, where they were cared for entirely by the students and by volunteer nurses from among the more active internees. "It was a joy to see the change which took place in the patients," said Dr. Meiklejohn, "when they found themselves under proper ward conditions with adequate medical attention. There can be no doubt that the large majority of the patients in this students' hospital owed their lives to this achievement."

The last of the infamous huts was burned five weeks after the arrival of the first British troops in the area. For the remainder of the month the students were employed in medical work in hospital areas which now held the 12,000 surviving sick. "It is my personal belief that no other body of men could have successfully accomplished the job which the students carried out." He spoke in appreciation of the help which the students received throughout their stay from the R.A.M.C. and the camp garrison, particularly from Lieut.-Col. J. A. D. Johnston, the senior medical officer, and Brig. Glyn Hughes, D.D.M.S., Second Army.

[Dr. W. F. Collis's preliminary report on conditions at Belsen Camp and the medical problems that arose was published in the *Journal* of June 9, page 814, and a letter by Brigadier Hughes, paying tribute to the medical students, on June 16, page 857.]

Correspondence

Determination of Age Incidence of Disease

Sir,—The *Journal* of June 9 (p. 797) contains an article on civilian dyspepsia by Drs. F. Avery Jones and H. Pollak recording *inter alia* what they refer to as " age and sex incidence " of peptic ulcers, accompanied by a chart. This, they say, " shows the maximum incidence for gastric ulcer between 40 and 60, but duodenal ulcer has an earlier peak at 35 to 39."

Surely it is time to insist that clinicians should use the term " incidence " as used in vital statistics to signify the ratio of observed cases to the appropriate population at risk. So defined, the age incidence of a disease is a true measure of liability to contract it at a given age. The figures cited by the authors of this article, like those cited in so many articles still published in medical journals, show nothing of the sort. The chart referred to simply exhibits the numbers of cases observed in each age group unrelated to the age composition of the population from which they were drawn. As such they merely indicate the risk that a patient will come under the observation of the observers at a given age if (*a*) the observers remain at the same hospital; (*b*) the population from which the hospital draws its patients maintains the same age composition.

The assessment of the age–strength distribution of the effective population of a hospital might be undertaken if a hospital had at its disposal an expert demographer with a thorough grasp of the social differentials involved in population structure. To the best of my knowledge no British hospital employs one. Within the framework of private practice any valid information about liability to disease in the civilian population at a given age is therefore confined to a handful of conditions which are either notifiable or quickly fatal.

On the other hand we have the necessary data for the Army population, because the Army population has an all-in system of social medicine. With the assistance of my colleague, Jun. Cmdr. M. M. Johnstone, M.A., I have recently made an exhaustive analysis of the true age incidence of some fifty major diseases, including peptic ulcers. The results would have been available for publication if the disclosure of basic data were not, for the present, subject to security regulations. The conclusion that the age distributions of gastric and duodenal ulcer are different, and that the latter has its peak at an earlier age, is correct; and this is not surprising since the effective population reservoir was presumably the same for both sets of cases. The peak ages of risk cited by the authors are not in agreement with the results of our analysis and can carry no weight as such for the reasons given above.—I am, etc.,

Lancelot Hogben,
Deputy Director,
Medical (Statistical) Research, War Office.

Primary Atypical Pneumonia

Sir,—I feel some comment is necessary on the leading article on primary atypical pneumonia (April 7, p. 487), for such an article has wide publicity and influence, and it appears to me to leave a false impression of the disease. I would like to make the following observations based on a series of about 300 cases which have passed through my Division, situated in Italy during the past 18 months—cases which have been analysed with considerable precision.

1. Primary atypical pneumonia is not characterized by an influenzal onset; on the contrary, upper respiratory tract symptoms are absent. Cases giving a history of a cold followed by much coughing, expectoration, and central tracheal pain are descending infections of pyogenic or virus aetiology, and may cause bronchopneumonia or patchy collapse which is usually basal in situation, or influenzal pneumonia may so develop. Such cases are immediately distinguishable from atypical pneumonia by this very history.

2. To say that the disease may last from 3 to 5 weeks and that recovery is the rule is very misleading. The average duration of fever is 8.8 days, the mean range 7 to 10 days, with extremes between 5 and 15 days. Following subsidence of the fever convalescence is rapid and patients feel fit within a week thereof. Recovery is much more than the rule: there have been no deaths in this series, and such an outcome is extremely rare. Complications are equally unusual.

3. Cough is not invariable, but is entirely absent throughout the whole course of the disease in 12 to 15%. It is often mild, dry, and disturbs the patient but little, being quite different from the hacking distressing paroxysms of pyogenic bronchopneumonia. The sputum is not mucopurulent but characteristically mucoid. Purulence develops late in a minority which becomes secondarily infected, or it may appear early in patients who are already the subjects of chronic bronchitis. Conspicuous staining with blood occurs in 30 to 35%; it commonly appears between the 5th and the 7th days and may last from a few days to a week or so.

4. Symptoms referable to the chest are often absent apart from the cough mentioned: pleural pain occurs in about 20%; dyspnoea and cyanosis are rare; the respiratory rate is commonly within normal limits. These points are in contrast to the respiratory features of pyogenic pneumonias.

5. While it is true that there may be no physical signs in the chest, a careful physician will detect the tell-tale patch of crepitations in 80% of cases. These crepitations commonly appear first on about the 4th day and become obvious on the 5th day; they usually last a week or so. Dullness to percussion and bronchial breathing are rare, the former being noted in 10% of cases and the latter in but 6%. While it is true that the *x*-ray appearances are not diagnostic, they are nevertheless highly suspicious. As stated in the article under criticism, they are either diffuse homogeneous shadows o localized flocculent opacities, the two types being sometimes mixed The situation of the lesion, however, is suggestive; it is segmental occurs as often in the upper as in the lower lobes, and is not infrequent in the middle lobe or in its counterpart on the left side Multiple lesions occurred in 12%; clinical lesions with negative skiagrams in 7%. The exact figures for distribution in my serie were as follows:

Upper lobe:	%	%
Apical segment	2	42
Pectoral „	20	
Axillary „	20	
Middle lobe	16	16
Lower lobe:		
Dorsal segments	10	42
Basal „	32	

6. General symptoms are like those of any other high fever, with the emphasis mostly on headache and least on limb and back pains Unlike the febrile stage of jaundice, abdominal pain is absent, but anorexia is not uncommon, and there is sometimes nausea or vomiting. Meningismus is very rare even in cases with gross headache and the cerebrospinal fluid is normal. The spleen is sometime enlarged, but this is of doubtful significance in a malarial country The actual figure in this series was 15%.

7. The temperature chart was characteristic in 63% of the cases showing a high irregular fever to about 104° F., with odd sharp swings of several degrees, sometimes occurring twice within 24 hours The temperature had a tendency to keep returning to the sam maximum figure. The end was rather sudden in 39% or it was by lysis. The fever was sustained in 13% and quotidian in anothe 13%. It was short-term in 7%, low-grade in 3.5%. Relapses usually very short, occurred in 2%.

8. The white count is of course normal. The highest total in my series was 13,500, and only 7% were above 10,000; the maximum differential polymorph count was 80%, but the great majority lay between 50 and 75, only 8% being between 75 and 80. Th erythrocyte sedimentation rate rises early and may measure 25 t 50 millimetres in one hour by the 3rd or 4th day. It may reac a maximum level of 40 to 70 during the second week, and then falls away to reach normality in about the 4th week. Cold agglutinatio tests were done on about 20 cases with entirely negative results Both penicillin and sulphonamides have no influence on the cours of the disease.

While it is agreed that atypical pneumonia may differ in its characteristics in various parts of the world in differen epidemics, I doubt very much if the type seen in Italy, whic has been so widespread among British troops and so uniform in its manifestations, is materially different from that seen a home in the last two years.—I am, etc.,

Paul Wood,
Lieut.-Col., R.A.M.C.

C.M.F.

Civilian Mass Radiography

SIR,—While welcoming discussion on the administrative aspects of mass radiography, we regret that current correspondence in the *Journal* should have been largely actuated by a misrepresentation in your leading article of April 14, which reviewed the recent M.R.C. report on civilian mass radiography, of which we are medical authors.[1] Taking some matter from its context, you accuse us of advising that "in doubtful cases medical directors of the unit must often decide from one interview and radiograph not only whether the subject has pulmonary tuberculosis but also whether the disease is active," and you comment that "anyone who has had experience in a chest clinic will realize the absurdity of this suggestion." Had you read the report with a little more care you would have observed incidentally that one of us does, in fact, administer a large chest clinic. On the particular point in question we suggested that in the initial medical interview (which, of course, includes a history and clinical examination, accompanied by a full-size radiograph) the medical director should take the responsibility of a decision only in cases where he is in no doubt, such as calcified primary or obviously healed apical tuberculous infection. After all, this is only what is done every day in ordinary chest clinic and out-patient practice. All cases where, however, there *is* a doubt should be referred for the fullest investigation, and, if indicated, prolonged observation, either at their local chest clinic or in the unit itself, according to local arrangements. Similarly, the classification of the cases recommended in the report takes cognizance of the results of this fuller investigation.

You also take us to task for failing to throw more light on the fate of the symptomless lesion. To provide such information would have necessitated a delay of publication for a year or more, whereas, as stated in the M.R.C.'s preface to the report, the first object was to discover the technical, administrative, and social problems arising from civilian mass radiography, and to establish provisional methods and procedures, in order to assist those responsible for the routine of the national scheme. This material had to be collected quickly, and it has formed the basis for the Ministry of Health organization which has trained the various local authority teams.

In your final paragraph you pose the question whether this new method is merely to be regarded as "an interesting toy, with a useful propaganda value, or is to be used as an instrument of scientific research." We submit that scientific research is incidental to mass radiography, but that enough is known already to establish it as a practical technique for detecting hitherto unsuspected sources of tuberculous infection on the one hand, and cases of early and treatable disease on the other. It should therefore become an indispensable adjunct of the antituberculosis service.—We are, etc.,

P. D'ARCY HART.
PETER KERLEY.
BRIAN C. THOMPSON.

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[1] *Mass Miniature Radiography of Civilians for the Detection of Pulmonary Tuberculosis: Guide to Administration and Technique with a Mobile Apparatus using 35-mm. Film and Results of a Survey.* M.R.C. Spec. Rep. Ser. No. 251, 1945. H.M.S.O. (3s.)

Newer Concepts of Breast-feeding

SIR,—I have read the correspondence on breast-feeding with great interest, and have been impressed by the considerable divergence of views. I feel that much can be learned about breast-feeding by observing the instinctive actions and behaviour of the child before these have been influenced by the preconceived ideas of the nurse, mother, or doctor. Moreover, these observations can be well supported by comparison with the instinctive behaviour of young suckling animals.

It is commonly observed that a lamb will butt its mother's mammae before taking the nipple; a litter of piglets will appear to fight frantically over the sow's belly for almost a minute; then suddenly all will be quiet, and each piglet will be at its appointed place, fully occupied in swallowing the milk that is so rapidly and actively secreted. We do not find these very young animals attempting to suck milk from hard, engorged mammae, on which they can find no hold, or chewing the nipple. They massage and express the mammae until the inspissated secretions are forced out and the gland is pouring forth its milk freely.

The human infant, in a great number of cases, attempts to do the same thing, but is all too often suppressed by the nurse or attendant, and the mother is instructed that the child must not be allowed to "play" with the breast. The infant, even on the first occasion it is put to the breast, makes no attempt to feed, but, instead, starts to mouth or knock the breast by shaking its head from side to side, and only after doing this or making similar gestures does it attempt to suckle a breast, now suitably stimulated and softened, with milk or colostrum making its appearance. Usually, instead of this happy scene we see a busy nurse and a worried mother attempting to force a child to suck, and a thwarted baby being made to suck for ten minutes at an almost dry breast, thus causing the nipple to be overstretched and horribly chewed, thereby starting the vicious circle of cracked painful nipples and inadequate milk.

I would recommend the following procedure for the first forty-eight hours or until secretions of milk are established. The baby should be put to the breast and allowed to "play" for as long as it cares to, only being restrained from chewing the nipple. When it does start to suck it should only be allowed to continue for one minute at each breast. This, together with the massage when "playing," is enough to give the necessary stimulation to lactation, and remove colostrum without causing damage to the nipples. When the milk begins to be secreted in quantity it will usually be found that the child's instinctive actions before suckling will be sufficient to release the tension in the breast, and start the flow of milk *before* it starts to suck. If, however, these instinctive actions are not adequate or well developed they should be supplemented by the mother herself starting the flow of milk by manual expression, thus imitating the natural behaviour of the child or young animal. The loss of milk is insignificant, but this unnatural expedient should not be allowed to replace the child's natural and instinctive stimulation of the milk flow before suckling.

Both breasts should be fed at each nursing if maximum supply of milk is wanted, and I agree that the routine suggested by Dr. Michael Pallot (May 19, p. 714) is the best one to be followed. In support of the reason he puts forward it should be furthermore noted that many women with well-established lactations will actually secrete and lose a quantity of milk from the second breast while the first is being suckled, indicating that the stimulus to lactation is bilateral.

I have limited my reasons for suggesting the above systems to a physiological basis, but I feel that an equally strong case could be adduced for its support from the psychological angle. —I am, etc.,

C. R. NAISH,
B.L.A. Flight-Lieut.

Women in Labour

SIR,—From the recent correspondence on this subject it is apparent that the general consensus is in favour of analgesics in labour. It is also agreed that, for some reason, analgesics are not being given in this country to the majority of women in labour who require alleviation.

Various aetiological factors have been cited for the present lamentable state of analgesia in labour—e.g., "Youth at the Helm," young women medical officers of health, callous midwives, lack of apparatus, etc. I agree with Dr. Galley (May 12, p. 678) that the experienced midwife and medical attendant tend to become "conditioned to . . . imperfect analgesia—or none at all—in the labour ward," and are liable to sink into a state of apathy and conservatism if not occasionally stimulated by the natural reactions of the young inexperienced pupil midwife or medical student. From my knowledge of midwives I think it is grossly unfair to label them as callous and to lay at their door the failure of the medical profession, until recently, to provide them with an effective analgesic. This, of course, is the crux of the whole matter, and the only aetiological factor of importance. Provide an effective but harmless analgesic which can be administered by midwives by means of a simple apparatus—preferably foolproof—and the bogies of apathy, prejudice, callousness, etc., will disappear.

It has been stated in Whitridge Williams that, "in spite of advances in this field, the multiplicity of drugs and methods of their administration and the lack of uniformity in therapeutic response indicate that as yet we have no ideal method which produces complete alleviation of pain and at the same time is entirely safe for both mother and child." Gas-and-air analgesia is safe in the normal case, but should not be used in cases of heart disease or toxaemia of pregnancy. But I believe that, even with care, adequate preliminary instruction, and intelligent co-operation, its analgesic properties are disappointing. In America interest in caudal analgesia has been revived—a certain indication of desperation. Anyone considering this method should first read Prof. F. J. Browne's letter (May 26, p. 746).

Dr. Galley refers to conservatism as a bar to progress. Here surely is an excellent example. Trichlorethylene has long been recognized as a potent analgesic agent. Hewer states that it exerts "the most potent and rapid analgesia of all the volatile drugs with which I am familiar, including nitrous oxide." Dr. Elam reported favourably on trilene analgesia in midwifery in the *Lancet* in 1942, and this was followed up by an excellent article in the same journal (Dec. 4, 1943) by Dr. A. Freedman describing his results in 190 cases using an inhaler of his own design. The inhaler is inexpensive, portable, foolproof, and has been proportioned to ensure that a mixture of trilene and air of only analgesic potency is inhaled. In his conclusion he states that "adequate analgesia safe for mother and infant was provided by the inhaler. There seem to be no contraindications to its use. It could be used by suitably trained midwives." He met with no complications due to this method of analgesia and suggested a wider investigation. Dr. D. C. Devitt also reports favourably on trichlorethylene in midwifery in the *Journal* of March 24 (p. 422).

On reading the replies to Dr. Elam's letter one is struck by the absence of constructive criticism and by the inference of Dr. Florence McClelland's question (April 28, p. 607), "How many of our number who undertake the care of an expectant mother have taken the trouble to make themselves thoroughly conversant with all the analgesic techniques at our command to-day?" No; trichlorethylene has only been mentioned to be condemned (Dr. W. J. Clancy, April 21, p. 565). I myself, I regret to say, have only recently started using trilene as an analgesic in labour. It has been used in my department for 80 cases. Freedman's technique has been closely followed and his inhaler has been used. In this short series of cases the findings have been as follows:

1. Satisfactory analgesia in over 90%. Quite a few patients were quite oblivious of the actual birth.
2. It can be given for long periods without ill effect—e.g., 7–8 hours.
3. No complications seen due to the analgesic and no ill effects in cases of mitral stenosis, toxaemia of pregnancy, and bronchiectasis.
4. The uterine contractions, pulse, blood pressure, and respiration rate were not affected.
5. Nervous patients relaxed well during the first stage and also during the delivery of the head.
6. Even when the analgesic effect was very marked and the patient became drowsy, very good co-operation was obtained. The patients were quiet and obeyed instructions. Occasionally during the second stage the patient used her accessory muscles of expulsion to better advantage if the inhaler was temporarily removed.
7. Very rapid recovery from analgesic; no after-effects.
8. Practically all the babies were born in good condition, and many cried lustily during or immediately after birth even in the cases of mothers who had inhaled trilene deeply and for long periods. One baby was smelling strongly of trilene but its respirations and colour were good. In any baby which was cyanosed or apnoeic there was always another explanation possible apart from the analgesic—e.g., cord tightly around the neck.

In conclusion I endorse all that Dr. Freedman has said and appeal for further trials with this excellent analgesic so that eventually it can be put into the hands of the much-maligned midwife, together with the blessing of the Central Midwives Board.—I am, etc.,

Leicester. D. R. CAIRNS, M.R.C.O.G.

Puerperal and Lactational Mastitis

SIR,—Following the article by Dr. A. A. Fulton (May 19, p. 693) it may be of interest to give similar figures for Birmingham for the past seven years. As in Dundee, the investigation has been made by means of notification by health visitors in addition to information received from midwives, hospitals, and nursing homes. Only cases showing suppuration are notified.

The incidence of mastitis appears to be very much lower in Birmingham than in Dundee. Although the percentage of cases occurring in patients delivered in hospital is greater than in patients delivered at home, it is still very small compared with the 16% found in Dundee. The incidence of mastitis for the City of Birmingham during this seven-years period (129,657 confinements) would appear to be 0.6%: that for cases delivered in hospital being 0.8% and for cases delivered at home 0.4%. The following table sets out the yearly fluctuations:

Year	Confinements at Home		Confinement in Hospital or Nursing Home	
	Confinements	Cases of Mastitis	Confinements	Cases of Mastitis
1938 ..	10,906	62	6,684	92
1939 ..	11,749	55	6,325	67
1940 ..	9,748	46	6,957	59
1941 ..	8,864	34	5,667	38
1942 ..	10,422	36	8,188	43
1943 ..	11,248	23	9,581	45
1944 ..	12,125	87	11,193	95
1938–44 ..	75,062	343	54,595	439

—I am, etc.,

City of Birmingham Public Health Department. V. MARY CROSSE, M.D.

Anaesthesia for Caesarean Section

SIR,—I have read with interest the letter by Dr. Kinkead Allen (June 2, p. 784) on the subject of anaesthesia for Caesarean section, but feel that any advantages of his technique are far outweighed by its possible complications. Even with great experience the abdominal field-block described is a time-consuming manœuvre, and during this time one would gather that "to prevent the parturient being distressed by the theatre display, needle pricks, etc. . . . she is kept from moving her limbs by the very lightest chloroform or vinesthene narcosis." Surely the dangers of light chloroform narcosis have been aired in public for many years, and a light vinesthene narcosis kept up for 20 to 30 minutes before the uterus is opened cannot fail to have some anaesthetic effect on the baby. Furthermore, Dr. Kinkead Allen gives his patients 15 mg. (1/4 grain) of omnopon or morphine before the operation, a practice which so far as I know is universally condemned in view of the very real danger of foetal apnoea.

I have yet to find a better anaesthetic for Caesarean section than nitrous oxide and oxygen, supplemented if necessary by di-ethyl ether, the only premedication being atropine 1/100 gr. True, a skilled administrator is necessary, but anyone who can give safely "the very lightest chloroform or vinesthene narcosis" should be able equally to administer gas-and-oxygen. In the classical operation I have frequently seen the baby born within 3 minutes of commencing the anaesthetic, and in the lower-segment operation there is usually only a 6–7 minute interval. The baby almost invariably cries lustily at birth, and the uterus contracts well. If it is so desired it is quite easy to have the patient conscious before she leaves the theatre.

The possible disadvantages of gas-and-oxygen are post-operative pain and restlessness and the absence of relaxation unless a dangerous degree of anoxia is permitted. The former is usually well controlled with a rectal drip containing 30 g. each of potassium bromide and aspirin; as for relaxation, the abdominal muscles have in any case been well stretched during pregnancy, and the majority of obstetricians do not consider that complete relaxation is necessary in Caesarean section.—I am, etc.,

London, E.C.1. J. KENNETH IRVING.

Atropine for Toxic Effects of Prostigmin

SIR,—The recent correspondence on carbachol and its antidote following the annotation in the *Journal* (May 5, p. 636) prompts me to send the particulars of the following case, where toxic effects of prostigmin were abolished by injections of atropine. Prostigmin differs in its action from carbachol in that it acts by antagonizing cholinesterase and thus increasing the action of acetylcholine. The toxic effects of prostigmin are similar to those of carbachol, though the action is somewhat different, the former acting by potentiating the acetylcholine already present, the latter by producing an additional acetylcholine-like stimulus. In both cases a muscarinic and nicotinic action will be obtained.

A boy aged 4½ was admitted for investigation and treatment as a case of megasigmoid, ? Hirschsprung's disease. He had previously had a colopexy done, but no improvement had ensued, so medical treatment was instituted, using the method of Klingman. Treatment with prostigmin orally was started, 5 mg. three times a day being given for two days and then 7½ mg. three times a day for two days. On the fifth day he had 10 mg. three times a day, the last dose being at 10 p.m. Until then there had been no effect. During the following night he slept well, with a normal pulse rate from 90 to 100. He was wakened at 6 a.m. and given a small soap-and-water enema. Following this he vomited four times and complained of abdominal pain. By 7 a.m. his pulse had become irregular, though remaining still at 90. He became increasingly pale and irritable and sweated considerably. The pulse decreased in volume and his face began to twitch. He seemed very shocked, and as the enema had had a moderately good result this was at first thought to be the cause, particularly as the symptoms had occurred so long after the last dose of prostigmin. He was watched until 11 a.m. His condition remained unchanged. He was then given 3 minims of adrenaline (1 in 1,000) and 1/150 gr. of atropine subcutaneously. The effect was very marked; the pulse improved and his colour returned within thirty minutes, and during the following hours he steadily improved and became more co-operative. At 2 p.m. he was given a further 3 minims of adrenaline (1 in 1,000) and 1/100 gr. atropine subcutaneously. By 5 p.m. he had fully recovered.

The toxic effects of prostigmin are discussed by Goodman and Bruckner, the latter personally having toxic effects after experimentally taking 45 mg. by mouth. Symptoms developed within two hours; slowing of the pulse was marked, dizziness, restlessness, and fear of impending death were symptoms and were associated with tremors and tonic contractions of muscles. Treatment with atropine 1/50 gr. intramuscularly restored the patient partially within 45 minutes and fully within two hours.—I am, etc.,

J. DONALD CRUIKSHANK.

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Formalin Treatment of Diphtheria Carriers

SIR,—In my annual report for 1939 to my Councils, I reported, among other matters, as follows:

> I have instituted a treatment for diphtheria nose-and-throat carriers which is proving successful. The patients are given the treatment twice a day for approximately seven days, while in hospital, and are then swabbed prior to discharge—over 90% have been cured in seven days, the remainder after 14 days' treatment. The treatment is also given twice daily for approximately seven days, as below, without swabbing. My Council have agreed to pay 5s. to medical practitioners for this treatment for all *first contacts* of a diphtheria case.
>
> The treatment is given at the patients' own homes and they are allowed to carry on their own duties while receiving the treatment, except in special cases of persons working in food stores and schools, etc. In these cases swabs are taken of direct contacts, and, if positive, they are removed to hospital.
>
> Prescription for formalin special treatment as follows: Formaldehyde 11%, gelatin 2%, industrial spirit 15%, ol. menth. pip. 1%, aq. dest. ad 100%. This has been costed at the rate of 4s. per quart.
>
> Special formalin solution for the treatment of diphtheria (nasal and throat) carriers: *For Nasal Carriers*.—Dilute 1 in 20—i.e., half a tablespoonful to half a tumblerful of warm water. *For Throat Carriers* and as a general preventive gargle.—10 drops of solution to a half tumblerful of warm water.
>
> 1. The patient should blow the nose hard.
> 2. A cotton-wool compress is lightly twisted with a point about 4 cm. long, so as to remain porous.
> 3. The plug is impregnated with a solution of formalin special treatment, 1 in 20, and the plug gently inserted well into the nose. The plug should remain in position for half an hour, and care should be taken to see that the patient does not move the plug from position.
> 4. During this time the patient should gargle with a solution of formalin special treatment (10 drops to half a glass of water).
> 5. At the end of half an hour the plug is removed. To avoid re-infection the patient must be forbidden to touch the nose. With children it may be advisable to bind the fingers with sterile dressing.
> 6. The treatment is repeated twice daily until at least one negative nose-and-throat swab is obtained. (Hospital cases only.)
>
> In cases where the formalin treatment is unsuccessful:
>
> 1. A virulence test is carried out, and, if cases are non-virulent, these are discharged; if virulent, formalin treatment is continued or action taken as para. 2 below.
> 2. Certain children, having unhealthy tonsils or adenoids, are suitably operated on, resulting in negative swabs.

Since late in 1938 the above treatment has been carried out in my isolation hospital with great success; out of 39 nose and/or throat carriers treated 36 were negative (one nose-and-throat swab) after seven days' treatment; 3 were negative (one nose-and-throat swab) after fourteen days' treatment. In addition, many general practitioners in my districts have assisted me by carrying out with great success the treatment as outlined above. I have tried the "formalin treatment" in a few cases of haemolytic streptococcal carriers and meningococcal carriers with success. Perhaps others would care to try this treatment out, though I realize much research work has still to be done in the matter of "carriers" generally.

I have to thank Miss Minty, matron, Dutton Isolation Hospital, for the supervision of the treatment and the careful records kept.—I am, etc.,

E. N. HILLMAN GRAY, L.R.C.P.&S., L.M., D.P.H.
Medical Officer of Health, Runcorn Urban and Rural Districts; Medical Superintendent, Isolation Hospital, Dutton.
Runcorn.

Sexes in Dispersion of Intelligence

SIR,—I was much interested in Dr. Fraser Roberts's article on the difference between the sexes in dispersion of intelligence (May 26, p. 727). For many years the doctrine of greater male variability was regarded as a fundamental biological law and was believed to hold for all traits—physical as well as mental. Havelock Ellis wrote: "From an organic standpoint, therefore, women represent the more stable and conservative element in evolution . . . in men, as in males generally, there is an organic variational tendency to diverge from the average; in women, as in females generally, an organic tendency, notwithstanding all their facility for minor oscillations, to stability and conservatism, involving a diminished individualism and variability."

Karl Pearson was among the first to challenge the adequacy of studying sex differences in variability by a comparison of the extremes of the distribution. He called attention to the needs for direct measurement of variability around the average in large groups of unselected subjects. He and many others like Hollingworth and Montague found no clear evidence of greater male variability.

Dr. Fraser Roberts maintains that the result of the Scottish Council's survey and his own investigations put "all legitimate doubts at an end" and that "the existence of the difference is abundantly demonstrated." As selective factors are often difficult to detect and to control, I doubt whether even this careful analysis is fully convincing. For instance, can the difference in the developmental rate of boys and girls be lightly dismissed? Should not the developmental stage rather than the chronological age be the basis for comparison? In the sampling, has the difference of the social background and environmental stimulation been duly taken into account? Further, as sex differences in so-called general intelligence are probably attributable to differences in special aptitudes, could the apparent sex differences at both ends of the scale be due to the specific test material mentioned?

Group differences at high schools may be explained by the more rapid elimination of boys than girls; boys whose academic work is not satisfactory are more likely to leave school and go to work. The preponderance of males in institutions for mental defectives is probably due to the fact that house-work, prostitution, and marriage provide a means of livelihood for the feeble-minded woman, whereas boys in competitive work will much sooner reveal their mental deficiency.

Finally, as mental testing cannot provide any means of distinguishing between the effects of innate capacity and environmental influences on a person's general intelligence, it seems that much research will be necessary to ascertain the influence of different cultural *milieux* on the question of sex differences in variability of intelligence (cf. Mead, M., *Sex and Temperament in Three Primitive Societies*, 1935).—I am, etc.,

London, W.1. T. A. WERNER.

A Lesser Operative Procedure

Sir,—I was much interested in Brigadier Donald's article (June 9, p. 802) on a lesser operative procedure in the diagnosis of doubtfully penetrating abdominal wounds. It recalled an even lesser operative procedure I devised in cases of (?) ruptured malarial spleens, which were fairly common among the Asiatics in Malaya (in 1916). The method consisted of: (1) infiltration with local analgesic (subumbilical). (2) Insertion of a trocar with cannula. The withdrawal of blood was followed by immediate splenectomy.—I am, etc.,

Sarah Winstedt,
Factory Medical Officer, R.O.F.

Housing the Returned Consultant

Sir,—While sympathizing with Major H. B. Stallard (June 2, p. 787) I should like to put forward an alternative suggestion, that consultants should seek accommodation elsewhere, leaving Harley Street and the surrounding neighbourhood to the "others." Many of us before the war were paying high rents for accommodation in an area inconvenient alike to ourselves and to our patients, merely because of the "Harley Street tradition." It would be a good thing for this "tradition" to be broken, and for everybody to realize that a man (or woman) was a "specialist" on account of his (or her) professional qualifications, not on account of having a room in Harley Street.—I am, etc.,

Ferring-by-Sea.

T. W. Preston,
Lieut.-Col., R.A.M.C.

Sir,—Major Stallard's letter has excited my sympathy and understanding. The future of practice is indeed full of doubt for consultants returning from the Forces, particularly as living and consultant accommodation is almost unprocurable except perhaps at a prohibitive rent. This also applies to the Bayswater and Kensington areas as well as the area between Oxford Street and Marylebone Road, as I have discovered in many unproductive searches.

But I wish to point out that there is another service—the Emergency Medical Service—where senior full-time officers, some of them also on the honorary staff of teaching hospitals, did, on the outbreak of war, offer their services to the national call and in doing so terminated their civilian practices and left the West End, where they had lived and worked, and migrated to emergency hospitals in suburban and county areas. There they have been for nearly six years, doing what was asked of them and not permitted any contact with private work. Now they contemplate returning to their previous occupations, both hospital and private, and find it quite impossible to discover any form of living accommodation from which to restart. Speaking as one of these I hope our plight will be recognized equally with the doctors returning from the fighting Services. Most of us are in the sixth decade of life, our commitments are great, and time left to us to try and rehabilitate our fortunes is short.

I am in strong agreement with Major Stallard that some official effort should be made to requisition houses and flats quickly to make room for us who need to return in the imminent future. There is far too much accommodation occupied by offices and gentlemen of foreign extraction. It seems our claims—those of fighting Services and Emergency Medical Service alike—should come first and receive sympathetic and rapid attention.—I am, etc.,

Orpington Emergency Hospital.

Eric A. Scott.

At the annual meeting of the Yorkshire Council of the British Empire Cancer Campaign, held in the Algernon Firth Institute of Pathology at Leeds, Sir Harold Mackintosh expressed from the chair the hope that they would soon be able to step up very considerably the range of their research work. Reports on the progress of research at Leeds University by Prof. R. D. Passey and at Sheffield University by Prof. H. N. Green were received. Mr. James Phillips suggested that there should also be co-operation with the Bradford Radium Institute, and the chairman said this would be given immediate consideration.

Obituary

N. BISHOP HARMAN, LL.D., F.R.C.S.

We have to announce with deep regret that Mr. Bishop Harman died at his home near Edenbridge on June 13 after a long and trying illness. The British Medical Association has always had the good fortune to enlist for its high offices men of outstanding personality and intellect, and among such men Bishop Harman stood out as one of the most many-sided and distinguished. He was treasurer for a far longer period than any previous holder of that office—from 1924 to 1939—but he did notable work for the Association in many other capacities—for example, as chairman of the Hospitals and later of the Ophthalmic Committees. In his own field of ophthalmology he had an international reputation; his books were widely read, and his counsel constantly sought by public bodies. He was, moreover, a man of culture and of philosophic bent, and something of an authority on many matters of art.

[R. Elwin Neame

Nathaniel Bishop Harman was born in London on St. George's Day, 1869. He was educated at the City of London School and after a few years in business went up to Cambridge, where he was Hutchinson research student and foundation scholar of St. John's College, and later demonstrator in the university school of anatomy. After training at the Middlesex Hospital he qualified in medicine in 1898, and took the F.R.C.S. in the same year. He served as a civil surgeon with the Field Force in the South African War, and received a medal and five clasps. Returning to London, he soon distinguished himself in ophthalmology. His work is well summarized in the illuminated address presented to him, with the Gold Medal of the B.M.A., in 1931:

> "The list of your contributions to ophthalmological science and practice is a very long one, but your name is specially associated with the subjects of the prevention of blindness and the education of children with very defective sight. In both of these you are an acknowledged pioneer, and you have had the gratification of seeing the methods advocated by you adopted in many parts of the world. The practical results are seen not only in the compulsory notification of ophthalmia neonatorum, a measure which has led to a great reduction of blindness from this cause, and in the special classes in London for the education of children suffering from high myopia and other forms of defective sight, but in similar schools at home and abroad. This work has been recognized by many bodies interested in the prevention of blindness, both here and in other countries. The British Medical Association gladly places on record its appreciation of this good work inaugurated and carried out by you with characteristic enthusiasm. . . ."

It was his little book *Preventable Blindness* (1907), together with some Parliamentary lobbying, which was largely responsible for making ophthalmia neonatorum a notifiable disease, a measure which, owing to the care thereby made possible, did much to reduce the disease as a cause of blindness to very small proportions. In 1920–2 he served on the Departmental Committee charged with the study of the causes and prevention of blindness. The report of that committee was greatly influenced by the results of his work for the blind under the auspices of the London County Council, to whose education department he gave many years of service, latterly as ophthalmic consultant. As far back as 1908 in London he established a class for children with defective vision. Until that time children whose vision was faulty were taught in the ordinary classes, to the detriment both of their sight and of their educational progress. The "sight-saving classes" under the L.C.C. have now been copied all over the world, especially in the United States, and have been advocated in League of Nations reports. A revolution has been brought about in the methods of teaching and training short-sighted children. During the B.M.A. Meeting at Winnipeg in 1930, when he was president of the Section of Ophthalmology, Bishop Harman found himself ranked as a celebrity because of his part in the introduction of these classes.

Among the posts he had filled were those of lecturer in ophthalmology at the West London Postgraduate College (where he was at one time dean), ophthalmic surgeon for many years to the West London Hospital and to the Belgrave Hospital for Children, and consultant to the National Institute for the Blind. His *Aids to Ophthalmology*, which has been translated into other languages, reached its eighth edition in 1935. *The Conjunctiva in Health and Disease* embodied the record of some research work and was published in 1905. *The Eyes of Our Children* was one of Methuen's Health Series, published in 1915, and in addition Bishop Harman contributed many articles on ophthalmology to this *Journal* and to special periodicals. One article in his characteristic style appeared in our Educational Number for 1924 and gave advice to those intending to specialize in ophthalmology, either exclusively or in addition to general practice, which may be still referred to with profit. Mention should also be made of his ingenuity in devising new instruments for the use of ophthalmic surgeons. Several widely used constructions bear his name.

Work for the B.M.A.

Bishop Harman joined the British Medical Association immediately on qualification. His early experience of active work in its behalf was in the Marylebone Division and the Metropolitan Counties Branch, and he served both Division and Branch as honorary secretary and treasurer, becoming eventually chairman of the Division, and in 1922–3 Branch president. He was a member of the Representative Body at its first meeting in 1903, but until the National Insurance Bill of 1911 his appearances there were occasional. In 1915 he became a member of the Council, and an arduous period of service began in that year, when, with Dr. Alfred Cox, he served as joint secretary of the Central Medical War Committee. This committee, which sat until 1919, had the delicate and onerous task of organizing the medical profession so that the Government could employ every doctor able to serve his country in such a manner as to turn his qualifications to the best use. Its register took the place, so far as the medical profession was concerned, of the general scheme of attestation for male citizens. The experience thus gained was of the utmost value in organizing medical man-power before and during the present war.

His next great piece of Association service was the framing of the first Hospital Policy. As chairman of the Hospitals Committee from 1920 to 1924 it was his hand that was chiefly felt in its initiation and advocacy. He described it as a thrilling experience to pilot the hospital policy through the Annual Representative Meetings. Others who remember the wearisome debates of those years may have a different impression, and the late Dr. Henry Wallace, who was Chairman of the Representative Body at the time, publicly described them as a nightmare. The debates were detailed and lengthy, and the policy was at first received with less than enthusiasm; but it is now recognized as a statesmanlike anticipation of the inevitable results of economic changes affecting the hospitals of the country.

In 1924 Bishop Harman was elected by the Annual Representative Meeting Treasurer of the Association, a post which made a strong appeal to him, and he expressed the hope that at the end of his "first" five years of office they would not be disappointed with "the man who held the bag." The five years extended to fifteen, and there was no disappointment. He became Treasurer just before the Association entered into possession of its property in Tavistock Square, though the cheque in payment of the house was signed by his predecessor, the late Dr. G. E. Haslip.

The removal from the Strand and the successive acquisitions and enlargements in Bloomsbury were a new phase of activity for the Association, and it was an immense advantage at such a time to have in charge of the purse a man who, with many other qualities, had been trained in business and could handle real estate and the realization of investments in stocks and shares with courage and foresight. During the same period the expanding membership and prestige of the Association were reflected in a balance-sheet of multiplying figures, on the debit as well as the credit side, and it was due to his careful husbanding of resources, and the masterly—often masterful—spirit in which he guarded the funds that a difficult, even a critical, time was passed through without any impairment of the essential work of the Association. In former years the finance of the Association was a favourite target for some critics in the Representative Body, but gradually they lapsed into silence, fascinated perhaps by the engaging presentation of the figures by the Treasurer, even if not quite convinced. As Treasurer also of the National Insurance Defence Trust Bishop Harman watched the stock markets with a shrewd eye, always investing to the best advantage the accumulating income.

For many years Bishop Harman was chairman of the Ophthalmic Committee of the B.M.A., and when later a Group of Practitioners of Ophthalmology was formed he was chairman of the Group Committee which took the place of the other body. He was always a doughty opponent of sight-testing by the medically unqualified optician. It was on his proposal that, in furtherance of the policy that the practice of sight-testing by other than qualified medical practitioners is not in the best interests of the public, approval was given in 1929 to the establishment of what is now known as the National Eye Service, which provides for persons insured under the National Health Insurance Act and others of like economic status an ophthalmic medical examination and any necessary glasses at fixed inclusive charges. He persuaded the Association to make a loan to the National Ophthalmic Treatment Board for organization and propaganda, and he had the satisfaction of reporting in due course the full repayment of the loan, which had enabled an excellent piece of work to be carried through. He took great pains over the periodical investigation and analysis of cases obtained for treatment through the medium of the Board as proving what a large proportion of cases in which persons complained of eye strain were due to something more serious than errors of refraction.

Bishop Harman was the nominee of the British Medical Association for the vacancy of direct representative on the General Medical Council caused by the death of Sir Jenner Verrall in 1929, and he was elected, obtaining nearly 12,000 votes. Later he became also a member, and treasurer, of the Dental Board.

In addition to his work on the Association's behalf he was a generous donor. In 1924 he presented the Treasurer's golf cup, which is competed for at Annual Meetings. In 1929 he presented the symbolic staff for use on all ceremonial occasions. The device is a serpent of silver above a shaft of English oak, with the initials "B.M.A." To this device he gave a great deal of thought. An artist himself of no small merit with the pencil, his knowledge of architectural decoration was of wide range, and no one in the Council spoke with more decision on such matters. The memorial gates of wrought iron in the courtyard of Tavistock Square owed much to his suggestions. In his generous attitude to the Association he was warmly supported by his wife, who in 1926 endowed the Katherine Bishop Harman Prize to be awarded by the Council for the encouragement of research into the disorders incident to maternity. Mrs. Bishop Harman, herself a medical woman, is a daughter of the late Arthur Chamberlain, of Birmingham, brother of Joseph Chamberlain.

A prominent member of the Unitarian body, Bishop Harman was elected in 1937–8 President of the General Assembly of Unitarian and Free Christian Churches. He often occupied the pulpits of his Church, and his addresses and articles on religious subjects were marked by the reflective habit of his mind and his skill in the simple illustrative exposition of what he saw as the truth. Whether his views commanded assent or not, he was always original and refreshing. A ready—almost too fluent—speaker, he was never a "big gun" on the platform, but he had a happy way with him which put his opponents in good humour even when it did not persuade them, and he was skilful in the use of kindly satire at which the victim laughed as much as any. Sometimes his eagerness in debate and his enjoyment of subtle juxtapositions led him into impulsive judgments and argumentative fallacies, and every now and then he seemed to be speaking with his tongue in his cheek. Perhaps his light-heartedness prevented some from appreciating to the full the solid work which he did and the deep seriousness which lay behind that gay exterior. He will be long remembered as a public-spirited man of great versatility and charm, a cheerful philosopher, and the best of friends.

HENRY R. KENWOOD, C.M.G., M.B., D.P.H.

We regret to announce the death in retirement on June 7 of Dr. H. R. Kenwood, emeritus professor of hygiene and public health in the University of London, and honorary lieut.-colonel, R.A.M.C. He was for some time a member of the Army Hygiene Consultative Committee and civilian member of the Army Medical Advisory Board.

Henry Richard Kenwood was born at Bexhill on Dec. 22, 1862, younger son of John Kenwood, of Wadhurst, and was educated at Tunbridge Wells, in Paris, and at the University of Edinburgh, where he graduated M.B., C.M. in 1887. After taking the D.P.H. he was for ten years M.O.H. for the Finchley District, and during part of that time deputy M.O.H. for St. George's, Hanover Square. From 1894 he was also M.O.H. and public analyst for the metropolitan borough of Stoke Newington, and from 1908 M.O.H. for the County of Bedford. Apart from his administrative duties Kenwood had been demonstrator and assistant to the Professor of Hygiene at University College from 1890 to 1904, when he became Chadwick Professor of Hygiene in the University of London. He was created C.M.G. in 1918 for his services to the Army during the last war, and the Royal Society of Edinburgh elected him a Fellow. He gave the Milroy Lectures on State Medicine and Public Health before the Royal College of Physicians of London in 1918, and held office later as president of the Society of Medical Officers of Health and chairman of council of the Royal Sanitary Institute; he was also an Honorary Foreign Member of the Société Française d'Hygiène. When he retired from his post in Stoke Newington after 33 years' service he was entertained by the members and officers of the council at a complimentary dinner and received an illuminated address.

Kenwood's name is well known in the profession through the textbook *Hygiene and Public Health,* written originally by Dr. Louis C. Parkes, and through his own manual, *Public Health Laboratory Work (Chemistry),* which reached its eighth edition in 1925. "Parkes and Kenwood" appeared in an eighth edition in 1929 as "Kenwood and Kerr" to mark Prof. Harold Kerr's joint responsibility for much of the revision. Prof. Kenwood had also published papers on natural purification of sewage, sewage pollution of sea water, rural water supplies, and camp sanitation, and on tinned and potted foods. He joined the B.M.A. in 1888, was honorary secretary of the Section of Public Medicine at Portsmouth in 1899, and vice-president of the Section of State Medicine at Exeter in 1907; he had also served on one or two special committees at headquarters, and for a long period helped this *Journal* by revising the section on Public Health in the Annual Educational Number.

The Services

The Order of Polonia Restituta, Second Class, has been conferred by the President of Poland on Air Marshal Sir Harold Whittingham, K.C.B., K.B.E., K.H.P., Director-General of Medical Services, R.A.F., and that of the Third Class on Gp. Capt. Sir Louis Greig, K.B.E., C.V.O., M.B., R.A.F.; in recognition of valuable services rendered in connexion with the war.

The Efficiency Decoration has been conferred upon the following officers of the Territorial Army: Majors (Temp. Lieut.-Cols.) W. W. Crawford and A. R. C. Higham; Majors H. S. Kent and P. Weiner; Capt. (Temp. Major) P. Brookes, R.A.M.C.

Repatriated.—Capt. Samuel Lask, R.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Squad. Ldr. Harold Bernard Hunt, who died on June 10, was born on Sept. 14, 1911, and studied medicine at Birmingham University, qualifying M.B., Ch.B. in 1935. He proceeded M.D. in 1937 and M.R.C.P. in 1938. Medical posts at hospitals under various authorities, including the L.C.C., were held by him until his appointment to a commission in the Medical Branch of the R.A.F.V.R. on Feb. 27, 1940. At the time of his death he was serving at a group headquarters in South-East Asia.

Died.—Major Arthur Waymouth, R.A.M.C.

Killed.—Temp. Surg. Lieut. A. McC. Vaughan, R.C.N.V.R.

Killed in motor accident in Italy.—Major David Watson Whyte, S.A.M.C.

Medical Notes in Parliament

HEALTH NOW AND IN THE FUTURE

When presenting the survey of the health of the nation on June 12 Mr. Willink said that to discuss the proposals for a National Health Service would be out of order that day. He could, however, say that the discussions promised in the White Paper of 1944 had proceeded actively, and in so far as they related to matters requiring legislation were now largely completed. In these discussions there had been no question of any departure from the fundamental objects of the comprehensive service proposed in the White Paper, and no question of diminishing the fullness of its range or of departing from the principle of its universal availability. The discussions had been concerned with methods and with questions of the administrative structure. To describe this discussion would be out of order, but it had confirmed him in the belief that it would be possible to give effect to the scheme foreshadowed in the White Paper in a manner which would command the general agreement of those upon whose work it would depend.

Mr. Willink then gave the House a broad survey of the nation's health during the war years. It was, he said, an astonishing story when one considered how much the civil population had had to endure in the last five and a half years. The health services had had to operate under heavy handicaps. About a fifth of the medical officers of the public health services had gone into the Forces, and almost one-third of the general practitioners—the first line of defence in the health services. Public health institutions—including sanatoria, fever hospitals, and hospitals for the chronic sick—had been hard pressed, with serious shortages of nursing and domestic staff. He paid tribute to the general practitioner, who had to struggle along doing two men's work and carrying many extra burdens, such as the giving of certificates for priorities, which were inevitable under war conditions. The general practitioners had been among the most overworked men on the home front, and the country owed them a debt of gratitude.

England and Wales had had no serious epidemic. In six winters they had only one influenza outbreak, and that was shorter and less severe than the kind we had before the war. The incidence of cerebrospinal meningitis rose sharply in the early part of the war, but gradually came down again. Typhoid fever had been less prevalent than in any peacetime year, in spite of the damage by bombs to water and sewage mains, thanks to the skill of the water engineers. Generally, infectious diseases had not been so prevalent as in normal times, but there had been a marked increase in infective jaundice. The birth rate had been rising since 1941, and last year was the highest since 1925. The effective reproduction rate for 1944 was provisionally assessed at 0.990—within 1% of a full replacement standard. This was the first time such a figure had been reached since 1922. Fewer babies had died. Fewer mothers were being lost in childbirth. The chance of a baby being born dead was three-quarters of what it was six years ago. The health of the children of this country—including the school-children—had improved. The infant mortality rate last year was 46 per 1,000 births, compared with the previous peacetime low record of 50.6 in 1939.

A Less Easy Situation

For adults, the situation was less easy to assess, yet there was no evidence that they suffered to any appreciable extent. There had been an increase in tiredness and minor ill-health—the lesser ailments (from the doctor's point of view if not always the patient's). Most people were tired. They went sick more easily and recovered less quickly. Nevertheless, serious troubles had been no more prevalent and deaths from many kinds of disease declined during the war. Civilians of all ages were living as long as they did in peacetime. That calculation included deaths as a result of air raids. The Government's food policy had been one of the main factors in the maintenance of health standards. They had developed public education in matters of health, and extended the application of rehabilitation techniques in order to speed recovery and reduce disablement. They had organized a blood transfusion service which saved thousands of lives in war and could save many more every year in peace. As a result of experience with the Emergency Hospital Scheme, they knew that hospitals of all types could work together for the common good, with good will and splendid results. Mortality figures for the first quarter of this year did not maintain the improvement recorded in previous years. There was a slight setback in the infant and general mortality rates. Vigilance must be increased, and everything possible done, as quickly as resources became available, to improve the conditions which bore upon the people's health and strengthened the organization for dealing with ill-health. They could not be satisfied with favourable vital statistics. They were already trying to find out more about the extent and nature of the incidence of other forms of ill-health, particularly minor ill-health. These lesser ailments, chronic though they might be, were not shown in the records, which covered only a limited number of illnesses; and in many cases they did not come under a doctor's care. There was a slight decline in venereal diseases last year compared with the previous year, for the first time since the war. New cases were still more than double the pre-war figure. They maintained the education campaign which was started more than two years ago, and which continued to receive the approval of the majority of the public. The number of deaths from tuberculosis last year was practically the same as the pre-war low record set up in 1938. There was, however, a substantial increase in notifications of new cases compared with before the war. The problem was to provide accommodation speedily for all those who needed sanatorium treatment. They had the beds, but could not get enough nursing and domestic staff.

The Minister of Labour's problem had all along been to get nurses and domestic workers for the sanatoria at a time when other urgent needs might seem to women and girls to have stronger claims on their services. There was a shortage of nurses before the war; and during the war, in spite of the substantial addition to the total number, the demand for them had steadily increased, and it had become more difficult to maintain essential services. The end of the European war would mean the disbandment of certain services employing nurses—such as the first-aid posts—and the reduction of others. On the other hand, married nurses and others with domestic responsibilities might now be unable to continue to nurse. There was an urgent need for more nurses so that hours could be reduced. In certain services—particularly tuberculosis, mental hospitals, chronic sick hospitals, and certain emergency hospitals—the staffing position had been especially difficult. There was a shortage also of midwives. The majority of these were recruited from the ranks of the State-registered nurse, and the rising birth rate increased the demand for midwives. Every effort had been made to post nurses to services where they were most needed, including a requirement that newly qualified State-registered nurses must serve for a year in one of the fields where there was a special shortage. The need for nurses would increase.

DEATHS FROM DIPHTHERIA AND FROM BOMBS

The diphtheria immunization campaign had been most successful, though much still remained to be done. New low records of both cases and deaths had been established in each successive year since the campaign began in 1941. The number of deaths last year was less than one-third of the pre-war average, and the number of cases just over half. For every three children who died before the immunization campaign started, only one died to-day. Cases notified last year numbered 28,000 below the pre-war average and 12,000 fewer than the previous low record. This progress was more remarkable in view of the severe diphtheria epidemics throughout Europe during the war years. He had asked all local authorities to make a special effort this year to increase immunization. Local authorities, doctors, teachers, nurses, and health visitors, and the W.V.S. and Red Cross and St. John Organizations were helping in persuading parents to give their children this protection. During the war more children had been killed by diphtheria than by bombs; the figures were just under 9,000 deaths from diphtheria and about 8,000 as a result of air raids. If the majority of children under 15 years of age were immunized instead of just over half as at present, and if every baby was protected as a matter of course at 1 year old, they could get rid of diphtheria as an epidemic disease.

Doctors throughout the country had been on the look-out for possible typhus cases since 1942, when the disease began to be prevalent in various parts of the Continent and in North Africa. A special warning was then sent to medical officers of health and was recently renewed. In 1942 his Department formed a special panel of consultants with experience of typhus. The services of these consultants were available to assist in diagnosis in all parts of the country. Throughout the war medical officers at ports and air ports kept watch to prevent the entry of suspected cases. Medical officers of health maintained supervision of those newly arrived in the country who were notified to them by the port officers as possible contacts. Twenty-one cases of typhus had been diagnosed in this country: fourteen were in prisoners of war repatriated from Germany; seven in medical students who were among the 100 volunteers for special duty in the Belsen concentration camp. All these cases were promptly isolated and no secondary cases occurred. All the medical students were now out of danger. Apart from these imported cases, there had been no case of louse-borne typhus in this country.

More than 11,000 patients in E.M.S. hospitals were taking daily courses of remedial exercises. In addition, 20,000 attended hospital daily for special exercises and remedial games. Of these 31,000 receiving rehabilitation, 15,000 took part in some form of occupational therapy. Hospitals providing rehabilitation for their patients had increased to 300. The majority of Service sick and wounded received their medical rehabilitation in E.M.S. hospitals. More than 250 doctors had been specially trained. A great deal of work would have to be done by the hospitals in connexion with the rehabilitation of men and women registered under the Disabled Persons (Employment) Act. The success of rehabilitation methods was likely to lead to an increased demand which hospitals throughout the country were getting ready to meet. The Ministry of Health would retain its rehabilitation department. There had been a significant development during the war in health education. Health rather than disease was becoming news. There had been an increased demand for health educational films for showing in factory canteens and to audiences in the rural areas. They could not progress towards a healthier Britain without the backing of sound, instructed public opinion, and a wider and deeper knowledge of the proper care of personal health, and particularly the care of children.

D-DAY PLANS AND SERVICES

Speaking of the part which the Emergency Hospital Scheme took in the treatment of wounded men from North-West Europe, Mr. Willink said his Department undertook responsibility for all British Army casualties on arrival in this country. For the first time in our history provision had to be made to receive casualties in England direct from the beach and the battlefield until the Army could set up hospitals in Normandy. A few hours before the invasion nearly 1,000 doctors, nurses, and students were moved with secrecy from London to the coastal hospitals. The scheme worked smoothly. Between D-Day and VE-Day the number of casualties from North-West Europe passing through E.M.S. hospitals was 160,000. Side by side with their military responsibilities the hospitals in Greater London and the South-East treated more than 20,000 flying-bomb casualties. Many of the hospitals were damaged by bombs. Doctors, nurses, and all members of hospital and ambulance train staffs could be proud of their share in this campaign. The original arrangements included the provision of three different types of hospitals. There were, first, coastal or port hospitals at or close to the ports of disembarkation for the reception of patients unfit to travel: these contained over 1,200 beds. The second type consisted of transit hospitals, corresponding in function to casualty clearing stations, reached from the ports by road or by a short railway journey; these contained over 7,300 beds. There were, finally, home base hospitals in which patients were retained and treated to a conclusion. Home base hospitals consisted of the larger and more important hospitals in England, Wales, and Scotland, to which casualties were taken by ambulance train from the transit hospitals. A large number of beds were available in home base hospitals for the purpose, because some weeks before D-Day admission of ordinary civilian patients had been restricted to those in need of immediate treatment. Provision was also made from the start for the reception and distribution of air-borne casualties to three aerodromes in the neighbourhood of Swindon. The general scheme for the reception and treatment of these was similar to that for sea-borne casualties, with hospitals corresponding to port hospitals for those unfit to travel. The remainder of the casualties were transported to home base hospitals direct by train, no intermediate use being made of transit hospitals as casualty clearing stations. With the collapse of Germany Service patients of another kind came under the care of the E.M.S.—liberated British prisoners of war, together with numbers of civilians released from enemy hands. Most of them were evacuated from the Continent in the same way as battle casualties, but many were sent to hospital from the reception camps, where they were found to be in need of hospital treatment. Special forms of care were needed owing to malnutrition and other results of prison life.

Never before had the voluntary and municipal hospitals been welded together into an organic whole, working together under the regional and central direction of medical officers of the Government while preserving the internal autonomy of each hospital and the clinical freedom of the medical staff. Never before had the leading medical and surgical specialists placed themselves at the disposal of an organized medical service, and, by their dispersal up and down the hospitals of the country, spread their special knowledge among the medical profession as a whole to the benefit of the civilian population in general. Never before had it been possible on a national scale to separate out the patients requiring special treatment for special conditions—head injuries, facial injuries and burns, neuroses, and so on—and to send them to centres set apart for them, where the most skilled staff and the best equipment were available.

The Debate

Mr. James Griffiths spoke of sanatorium and hospital treatment in Wales. The Welsh National Memorial Association was concerned about the plight of Service and ex-Service men: there were some 450 of these occupying beds in the association's sanatoria and 157 others were on the waiting-list. In South Wales there were 2,000 persons waiting to go before the medical board for certification of silicosis. Of the negotiations on the White Paper he said it was clear that there had been fundamental departures from the principles of that Paper. This was not negotiation: it was capitulation; the Minister had given in to the B.M.A.

Mr. Willink intervened to say that he had engaged in discussions but had not sought binding agreements. It was for Parliament to decide what the form of the service should be.

Mr. Griffiths said there had been a betrayal of the House. The B.M.A., in a circular to its members, "welcomed certain fundamental changes in the Government's proposals." The Minister had submitted to those who met him proposals fundamentally different from the scheme already submitted to the House. Was the Government promising one thing in its manifesto to the country and another to the B.M.A.? Did the present Government stand by the White Paper submitted by the last Government? Was it true that fundamentally different proposals had been submitted to the B.M.A. with an assurance that if the members accepted them the Ministry of Health would press them on the Government? Those proposals meant that there would be no comprehensive National Health Service, but only a botched-up panel system.

Sir John Boyd Orr said that during the war, in spite of the scarcity of food, while the wealthy classes had got less than before they had not suffered in health; and the diet of the poorer classes had been levelled up. Increased consumption of protective foods and the change from white bread to bread with 85% extraction flour had led to a great improvement in the health value of the diet. Proteins, calcium, phosphorus, iron, and all the vitamins, with the possible exception of vitamin C, had increased in the diet of the working class from 10% to 40%. It would take some years before all the results were worked out, but there had been a definite improvement in the health and physique of the working classes. The infant mortality rate was also influenced by the feeding. If the level of housing and of feeding were brought up to well-known health standards and there was a sense of social security, more than 50% of the disease which afflicted the working classes could be prevented. Ten years would be added to the expectation of life of children born in those classes.

Health Service Negotiations

Dr. Edith Summerskill referred to "the document which had been circulated in the country embodying the proposals made by Mr. Willink to the B.M.A." She asked the Minister whether he had agreed to drop the introduction of health centres throughout the country. She understood they were to be dropped, although a majority of doctors in reply to the questionary from the B.M.A. had supported them. It was clear that the Minister and his friends were not happy at having this betrayal ventilated before the election. She had hoped that in the health centres the general practitioners would come together and would gradually achieve a much higher standard of medical practice. Now the Minister suggested that the general practitioner should remain isolated. The White Paper had suggested that voluntary hospitals and the municipal hospitals should be administered by one board. That had gone; the voluntary hospitals and their associations were to remain. The new proposals were designed to give the cottage hospital a new life while continuing to deny it adequate staff. The general practitioner would still be allowed to undertake major operations. The White Paper proposed that newly qualified doctors should be sent to practise in parts of the country where there was a dearth of doctors.

Mr. Willink intervened to say that the White Paper did not propose a power to direct a young doctor anywhere.

Dr. Summerskill said the Minister's alternative which was put to the B.M.A. read: "The proposed requirement that all doctors proposing to enter practice in new areas must obtain the Board's consent would be dropped." This meant in effect that the privileged would be assured of medical treatment while the worker might have to sit for an hour or two in a surgery before he received attention. To-day one-third of the doctors of the country were in the Services. What was to happen to the young doctor when he returned? The only freedom the Minister was giving him was freedom to go to the moneylender when he came back from the Services.

Mr. Storey said Mr. Griffiths and Dr. Summerskill had made an unfair attack. The Minister had not dropped proposals which had been approved by the House. The discussions with the B.M.A., the B.H.A., and the local authorities were on alternative proposals which the Minister said he would put before his colleagues only if they were agreed by the bodies concerned.

Dr. Morgan said he was a member of the Council of the B.M.A. and was astonished at the antimedical feeling in some quarters because the recognized organization of the doctors had desired to negotiate with the Government and with other bodies to discuss the conditions of their work in future. It was no secret that the B.M.A. had entered into discussions with the Trade Union Congress. As a result of the Llanelly medical dispute a joint committee was formed between the B.M.A. and the T.U.C. which discussed problems interesting to both. He himself had objected to certain terms of the White Paper which he thought involved the directing of young doctors. The Minister had given him personal assurance that it was not the intention of the Government to direct doctors into particular areas. What principles had been broken in the discussions? Uniformity was still there, availability was still there, necessity for the fully trained competence of the doctor was still there, adequate planning was still there, prevention was still there. Unfortunately in regard to the administrative structure the Minister had allowed the medical profession to put forward proposals which would give the profession a majority in most of the bodies. The consultants in voluntary hospitals had seen to it that they got a big share in any proposed administrative system. He thought, however, that if negotiations were allowed to continue things would right themselves.

Mr. Willink said the projected Bill was not, as had been hoped, being introduced in the course of this Parliament. It would be introduced in the new Parliament. No Government constituted as the present one would in any way limit the availability of the proposed service or its comprehensive character, nor would they fail in achieving any of the objectives of the White Paper. It was not for the Government to square its declaration of policy with a document issued by the B.M.A. The declaration of policy would be found in the Prime Minister's declaration issued the previous day. No agreements of any kind had been made with the bodies which undertook the discussions.

Dr. Haden Guest suggested that if the medical men in the Services had not been adequately consulted special steps ought to be taken to do so. A large number of the doctors serving in the Army strongly favoured the White Paper in its original form with some modification in the direction of more fully representing the State medical service proposals. The doctors in the Services deserved special attention because much more progress had been made in medicine and in surgery in the Army than in civil life. If doctors were to have to buy their practices in the future what was to become of the recommendation of the Goodenough report that a larger proportion of doctors should be recruited from the working classes? At present only 6% of the doctors came from those classes.

Dr. Russell Thomas said it had become clearer to hospitals, the medical profession, the public, and probably to the Minister and the Government that the principles of the White Paper could not be enforced because the public would not swallow the bringing into office of the types of officials envisaged.

Nursing and Tuberculosis

Mr. Sorensen asked on May 31 about the conditions of nurses in tuberculosis sanatoria.

Mr. Willink said that with the Minister of Labour and National Service he had under consideration the conditions in a number of sanatoria. Many were satisfactory; others had defects that could be remedied only by building that could not at present be undertaken. Others were in isolated situations so that the provision of certain amenities was difficult. Such steps as were practicable in present circumstances were being taken to remedy these defects. There was no prescribed minimum age either for tuberculosis nursing or for other types of nursing. It was preferable that girls undertaking nursing should not be under 18. The Athlone Committee, which reported in 1938, considered that 17 should be the minimum age. Statistics on the incidence of tuberculosis among sanatorium nurses were not available. The general opinion of experts was that the sanatorium nurse was at no greater risk than other nurses. An inquiry was in progress under the Joint Tuberculosis Council. Mr. Willink added that in March, 1944, he had issued a circular on precautions advised to safeguard nurses in hospitals.

Mr. Sorensen said a number of medical experts, including medical officers of health, declared that younger nurses were more prone to catch this disease than were the older ones. Mr. Willink said the inquiry would take account of that.

Tuberculosis Waiting Lists

Mr. HAMMERSLEY asked on May 31 whether steps could be taken to deal with the tuberculosis patients in Middlesex whose treatment was delayed owing to insufficient hospital accommodation. Mr. WILLINK answered that this problem, which was not confined to Middlesex, received his constant attention. He was taking all possible steps, in collaboration with the Minister of Labour and National Service, to ease the situation, but great difficulties were caused by the present demands on building labour and material and the dearth of nursing and domestic staff. He could not promise that the amelioration would be rapid. He would look into the possibility of using hospitals which the Americans had evacuated and had turned over to British military authorities.

Malaria and Quinine Supplies

Mr. AMERY said on May 31 that it was not possible to give reliable figures of deaths in India specifically attributable to malaria nor to estimate to what extent they might have been reduced by greater use of quinine. The supply of quinine until the Japanese occupation of Java was broadly equal to the demand. Supplies of synthetic substitutes had for some time been reaching India in substantial quantities. Of the 244,000 lb. of quinine in stock in April, 1944, 200,000 lb. was available for civilian consumption.

Medical Man-power and the Education Act

Mr. STOREY on June 7 asked the Minister of Education whether he was aware of the difficulty of local education authorities, owing to the shortage of doctors and nurses, in carrying out the duties imposed on them by Section 48 (3) of the Education Act, and what steps he proposed to prevent authorities from throwing further burdens upon the depleted medical personnel of the country.

Mr. RICHARD LAW in reply said he was aware of the shortage of doctors, dentists, and nurses and of the strain under which they were working. In Circular 29 authorities had been asked to extend their arrangements with hospitals so as to secure free hospital treatment for all children attending maintained schools, so far as accommodation and staffing conditions allowed, and to develop those clinic services which had always been recognized as appropriate to the school medical service. The needs of urban areas generally would be met in this way. The position in rural areas was more difficult, and the circular suggested that authorities should arrange for the treatment of children where necessary by local general practitioners. Such arrangements could be made only on a limited scale, but it was hoped that here and there doctors would be found who were willing to undertake this work in a part-time capacity under arrangements made by the authorities and approved by his Department. An assurance was given in the House during the third reading of the Education Bill that the development of the school medical service would not be inconsistent with, or duplicate provision to be made by, the National Health Service of the future. He would not approve any proposals leading to the setting up by local education authorities of a general medical practitioner service. The Act had been passed and its provision must, so far as practicable, be implemented. The service which could be provided in the next year or so must be limited to the extent necessary to comply with the undertaking given about its relationship with the future National Health Service. The scope of the service must also be restricted owing to the shortage of medical man-power.

Sheffield Silicosis Board's Work.—The Sheffield Panel of the Silicosis Medical Board, under all the compensation schemes for pneumoconiosis, including silicosis and asbestosis, dealt in the year 1944 with 298 applications and granted 112 certificates. In 1943 the comparable figures were 159 and 51; in 1942, 74 and 19.

Refusal of Drugs in the Army.—Mr. VIANT on May 29 asked whether officers or other ranks, who had a strong objection to taking drugs such as mepacrine, had a right to refuse. Sir JAMES GRIGG said they had not. Officers and other ranks had no right to refuse to obey a lawful order. Commanders-in-Chief were entitled to issue orders to ensure that their troops were fighting fit and kept free from disease. Neither religious scruples, however bona fide, nor dislike of unpleasant after-effects, afforded justification for refusing to take mepacrine.

Harley Street Houses.—Mr. CHURCHILL told Sir Ernest Graham-Little on May 31 that the majority of the houses requisitioned in the Harley Street area by Government Departments were used to house American officers, as offices for French missions and branches of the French Embassy, or as hostels. The possibility of reducing the number retained was being examined with occupying authorities. Any houses which could be vacated would be released. Five requisitioned houses now vacant were being released immediately. Sir ERNEST in his question reported that 56 houses in the area continued to be requisitioned. He said evidence had been submitted to Mr. Churchill of a shortage in this area of houses for medical consultants.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The Registrary has given preliminary notice that Monday, June 25, will be nomination day for the University Parliamentary Election. Polling days for ordinary electors and for all proxy voters will be from Thursday, July 5, to Tuesday, July 10 inclusive (but not on Sunday, July 8). Service postal votes may be received not later than July 29. The count will begin on July 30 and the result be declared by July 31.

At a Congregation held on June 8 the following medical degrees were conferred by proxy:

M.B., B.CHIR.—R. D. Hearn, J. M. Davis.

UNIVERSITY OF SHEFFIELD

The University Council on June 8 received with regret the resignation of Mr. Vincent Townrow, F.R.C.S., of the post of lecturer in diseases of the ear and accorded him its thanks for his services to the University. G. L. Hermitte, M.B., Ch.B., was appointed temporary demonstrator in anatomy.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At a meeting of the Royal Faculty of Physicians and Surgeons of Glasgow held on June 4, with Mr. Wm. A. Sewell, President, in the chair, Sir Alfred Edward Webb-Johnson, Bt., K.C.V.O., C.B.E., D.S.O., President of the Royal College of Surgeons of England, was admitted an Honorary Fellow.

Medical News

During his recent tour in Sweden to lecture on penicillin, under the auspices of the British Council and at the invitation of the Swedish Medical Society, Sir Howard Florey, F.R.S., was honoured with the presentation of the Berzelius Medal in Silver. This medal was presented to members of the Swedish Royal Family and certain other distinguished persons when it was instituted in 1850. It had not been awarded since that time.

The annual general meeting of the Paddington Medical Society will be held at the Paddington Tuberculosis Dispensary, 14, Newton Road, W., on Tuesday, June 26, at 9 p.m., when the president, Dr. Z. Green, will speak on "War Experiences in General Practice."

The next science meeting of the Physical Society will be held at 5 p.m. on Friday, June 29, at the Royal Institution, Albemarle Street, when the 14th Thomas Young Oration will be delivered by Prof. Ragnar Granit, of the Nobel Institute for Neurophysiology, Stockholm, his subject being "The Electrophysiological Analysis of the Fundamental Problem of Colour Reception."

The following sessional meetings of the Royal Sanitary Institute are announced: Saturday, June 30, 10.15 a.m., at Sunderland Town Hall, papers on "The Water Supply in the County of Durham" by Messrs. A. B. E. Blackburn, J. A. Rodwell, and W. G. Carey; Saturday, July 7, at 10.15 a.m., at Banbury Town Hall, papers by Prof. G. Selby Wilson, "Bacterial Food Poisoning," and by Mr. J. Campbell Riddell, "Survey of Sewage Treatment and Sewage Treatment Works Design."

A meeting of the Medical Society of the L.C.C. Service will be held at St. Andrew's Hospital, Devons Road, Bow, E., on Thursday, July 5, at 3 p.m., when members of the staffs of Mile End, St. George-in-the-East, and St. Andrew's Hospitals will demonstrate cases.

The Trustees of the Lady Tata Memorial Fund announce that, on the recommendation of the Scientific Advisory Committee, they have agreed to make the following awards for research in blood diseases, with special reference to leukaemia, in the academic year beginning Oct. 1, 1945. *Grants for Research Expenses:* Dr. P. A. Gorer (London), Dr. A. H. T. Robb-Smith (Oxford). *Personal Grant:* Dr. Penelope K. Hammick (Oxford). *Part-time Personal Grant and Grant for Research Expenses:* Dr. W. Jacobson (Cambridge). Since these awards do not fully use the margin of funds available, it is hoped to issue a public advertisement for new candidates from the continent of Europe and elsewhere as soon as conditions permit.

Major R. Scott Stevenson, M.D., F.R.C.S.Ed., has been adopted as Liberal National candidate for Western Fife at the General Election.

A party of scientists left England on June 14 for Russia to attend the celebration of the 220th anniversary of the founding of the Academy of Sciences of the U.S.S.R. The medical members were Prof. E. D. Adrian, O.M., F.R.S. (who represented the University of Cambridge) and Prof. Arnold Sorsby, F.R.C.S. (representing the Anglo-Soviet Medical Council). The party arrived in Moscow on June 15.

No. 22

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended June 2.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	44	9	22	2	—	71	3	32	—	3
Deaths		3	—				2	1		
Diphtheria	436	20	106	108	18	471	21	124	53	21
Deaths	11	—	3	1	—	10	1	2	6	1
Dysentery	458	37	155	1	—	187	24	95	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	2	—	—	—		2	—	1	—	—
Deaths		—					—			
Erysipelas			42	8				49	10	3
Deaths		—					1			
Infective enteritis or diarrhoea under 2 years				35					10	
Deaths	50	8	11	15	2	45	5	13	10	5
Measles*	10,455	508	410	64	3	2,758	271	514	105	42
Deaths	2		—	—	—	1	1	1	—	—
Ophthalmia neonatorum	72	7	20	1	—	82	4	22	—	—
Deaths										
Paratyphoid fever ..	8	1	9 (B)	—	—	2	—	—	2 (B)	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	486	21	4	10	2	794	61	7	4	5
Deaths (from influenza)	5	—	—	—	—	14	2	—	—	—
Pneumonia, primary ..			184	19				284	24	
Deaths		23		14	7		34		6	5
Polio-encephalitis, acute	—	—				—	—			
Deaths		—					—			
Poliomyelitis, acute ..	3	—	—	—	—	4	1	5	—	—
Deaths		—					—			
Puerperal fever ..		2	6		—		2	20		—
Deaths										
Puerperal pyrexia‡ ..	104	5	8	—	—	195	8	12	2	2
Deaths		—					—			
Relapsing fever ..	—	—			—	—	—			—
Deaths										
Scarlet fever	1,233	45	239	21	32	1,479	92	206	23	60
Deaths	2	—	—	—	—	1	1	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	8	2	—	3	—	6	—	2	5	—
Deaths	—	—	—	—	1	—	—	—	—	—
Typhus fever	3	—	—	—	—	—	—	—	1	—
Deaths				—	—				—	—
Whooping-cough* ..	982	45	129	24	16	2,273	283	210	27	15
Deaths	4	—	1	—	—	23	6	2	—	—
Deaths (0–1 year) ..	329	48	47	42	21	345	45	61	27	24
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4,019	566	526	211	128	4,190	617	590	195	127
Annual death rate (per 1,000 persons living)			11·9	13·6	§			13·6	12·6	§
Live births	7,043	727	925	451	260	6,754	832	956	486	309
Annual rate per 1,000 persons living ..			18·5	29·1	§			19·4	—	§
Stillbirths	253	31	29			231	26	36		
Rate per 1,000 total births (including stillborn)			30					36		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* during the week the incidence of whooping-cough rose by 127 cases, that of dysentery by 84, and that of diphtheria by 40, while falls were recorded for measles and scarlet fever of 953 and 62 cases respectively.

Small increases in whooping-cough were recorded in many counties; the largest were Lancashire 29, and Yorks West Riding 27. The biggest increases in diphtheria were Kent 14, and Derbyshire 13. The trend of scarlet fever showed only small variations, the largest of which were a rise in Lancashire of 28, and a fall in Warwickshire of 29. The largest declines in measles were Yorks West Riding 245; Glamorganshire 166, Middlesex 139, Devonshire 110, London 106; and the chief exceptions to the general decline in incidence were rises in Monmouthshire 111, Essex 101, Hertfordshire 55.

The increase in dysentery was due to a large outbreak in Berkshire, where the cases rose from 8 to 106. The centre of infection was Windsor R.D. 75, and Easthampstead R.D. 27. Other large returns were Lancashire 50, London 37, Surrey 30, Middlesex 24, Kent 22, Essex 22, Yorks West Riding 16, Warwickshire 12, Shropshire 11, Bedfordshire 10, Gloucestershire 10.

In *Scotland* rises occurred in whooping-cough 53, dysentery 48, measles 25; while diphtheria decreased by 26. The increase in dysentery was mainly contributed by a rise in the city of Aberdeen from 13 to 30, and by an outbreak of 17 in Moray, Nairn County; other large returns were those of the cities of Glasgow 38, and Edinburgh 20.

In *Eire* a rise of 35 in diphtheria formed the chief feature of the returns; the disease is widespread and the 108 notifications involved 38 registration areas. Diarrhoea and enteritis remained at a high level in Dublin C.B., where 30 more cases were recorded during the week.

Week Ending June 9

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,409, whooping-cough 1,033, diphtheria 423, measles 8,463, acute pneumonia 427, cerebrospinal fever 52, dysentery 426, paratyphoid 4, typhoid 6. Two cases of typhus were imported.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Pityriasis Versicolor

Q.—*A girl aged 24, in good general health, suffers from a rash on the trunk, inside of the thighs, the deltoid region, the front and lateral aspect of the arms, and the radial border of the forearm to the wrists. The buttocks, lateral sides of the thighs, axillae, triceps, and ulnar side of the forearms are normal. The rash is symmetrical and has a "jig-saw" edge. It was first noticed about twelve years ago, when the areas affected were mostly the back and shoulders. From here it spread gradually forward around the trunk until it has met along the midline on the abdomen and lower chest. The skin over the upper part of the chest and between the breasts is free except for small isolated patches. The rash is light brown and yellowish in colour over the upper part of the body and arms; over the abdomen it is darker. There is pityriasis capitis, and septic spots on chin and neck. There is a history of a similar but milder condition in the patient's father. What are the probable diagnosis and the most effective treatment?*

A.—The description suggests pityriasis versicolor. The diagnosis can be verified by examining scales for the causal fungus (*Microsporon furfur*). If this diagnosis is confirmed treatment with 3% benzoic and salicylic acid in vaseline should be effective, a portion of the eruption being treated at a time. Suitable disinfection of clothing prevents reinfection.

Fractures and Urinary Calculi

Q.—*I have been impressed by the number of war casualties laid up with compound fractures that get calculi in the renal tract. What is the cause of this, and how may it be prevented?*

A.—The special factors in the formation of recumbency urinary calculi are decalcification of bone and urinary stasis. Generalized decalcification has been explained on the basis of relative hyperaemia of bone, the result of muscular inactivity. In addition to this, with compound fractures large amounts of calcium may be mobilized locally through inflammatory hyperaemia. Thus the blood calcium is raised, leading in turn to a raised urinary calcium, a major factor in stone formation. Urinary stasis is the result of long-continued decubitus. It is obvious that in this position any solid particles must tend to be deposited in the renal calices and pelves, and to remain there, forming the nuclei of future stories; this effect will be increased when the foot of the bed is raised, as in the traction treatment of certain lower-limb fractures.

The most important general factors probably are an alkaline reaction and a high concentration of the urine. The commonest recumbency stone is composed chiefly of calcium phosphate, which is precipitated only in an alkaline urine. The reaction is influenced by diet and drugs and also by infection. High concentration is chiefly caused by low fluid intake, but prolonged exposure of the body to the hot sun may have the same effect through excessive perspiration. Among other aetiological factors may be mentioned vitamins A and D; there is a fair amount of evidence that excess of vitamin D or deficiency of vitamin A may cause stone formation.

Much can be done to prevent this complication, and the chief methods of prevention will be apparent from what has been said. Disuse decalcification can be minimized by encouraging active movements of the uninjured parts. To facilitate urinary drainage the patient's position should when possible be changed at regular intervals by turning him on to his side or into the prone position, and by raising the head-end of the bed on blocks. Plenty of fluids should be given and excessive exposure to the sun avoided. The urine, if alkaline, should be made acid by diet and possibly by drugs; the latter should rarely be necessary with an uninfected urine unless calculus is actually present. Finally, there is sufficient evidence to justify the use of vitamin A as a prophylactic, and the possible danger of vitamin D should be remembered.

Calcification and Cancer

Q.—*Calcification is one method of cure in tuberculosis. Is there any reason to expect that if calcification could be induced in a cancer, delay or arrest of growth might occur? It is common in cerebral tumours which are slow-growing. I have seen it in a hypernephroma which "galloped" to its end.*

A.—There seems to be no reason to expect a cure for cancer from calcification, a pathological process which often occurs when dead tissue is retained in the body. Presumably the tumour cells would have to be killed antecedent to the calcification, and if all the tumour cells were killed the cure would be complete before deposition of lime salts began. When tumours regress, as they often do in transplanted growths, calcification does not occur, and there is no substantial evidence warranting a belief that it would occur in human tumours which have been partly destroyed. Moreover, in meningiomas, in which calcium salts are so frequently deposited, cures are not observed as a consequence of the process. Of course cells may be involved and killed in calcification, but it is very unlikely that this common process can be started and controlled effectively and used to cure cancer. The trouble with cancer cells is their ability to grow and divide, not to die.

Inheritance of Epilepsy

Q.—*Miss A. wishes to marry Mr. B. She learns that his mother died in an epileptic fit. Of Mr. B.'s brothers, one is mentally deficient, and the other is described as being abnormally moody. Mr. B. himself is described as mentally normal. Miss A. wishes to know her chances of producing normal children.*

A.—The facts provided are insufficient to allow a precise answer to the question. Further points on which information would be desired are: (1) Was the mother an epileptic, or was the epileptic fit merely a terminal manifestation? (2) What degree of mental deficiency does the brother show, and of what clinical type is it—e.g., could it be due to birth injury or other external conditions? (3) If electro-encephalographic tests could be carried out, does the moody brother and does Mr. B. himself show cerebral dysrhythmia? (4) Is there any evidence of instability of any kind in Miss A.'s family, and is Miss A. herself perfectly normal?

If both Miss A. and Mr. B. are themselves perfectly normal and are over the age of 30 (by which time tendencies to instability might be expected to have shown themselves), the outlook for their children is quite good regardless of the bad family history on one side. If it can be fairly easily arranged it would be desirable for both to have an electro-encephalographic examination. The chance of epileptic or otherwise abnormal children is material if both, despite apparent normality, were to prove to have cerebral dysrhythmia.

Drugs causing Bronchodilatation

Q.—*Is there any drug that may be successfully used to cause bronchodilatation without affecting the heart, and if so what is the dose, how often should it be used, and are there any contraindications in asthma?*

A.—There is no drug which causes dilatation of the bronchioles without having some effect, however slight, on the heart at the same time. For practical purposes, the only useful drugs for causing bronchodilatation are adrenaline, ephedrine, and theophylline (or substances related to it). Adrenaline is well known to cause increased force and rate of heart-beat and is disagreeable to some patients for this reason. Ephedrine has a similar, though much less violent, action on the heart, and when used in the correct dose (which differs from one patient to another) should have very little cardiac effect. By reducing the rate at which the patient's own adrenaline is destroyed it maintains vasodilatation in the bronchioles. Theophylline with ethylene diamine, given intravenously, is found by some to be of value in the most severe asthmatic attacks which are not relieved by the injection of adrenaline. Theophylline causes a dilatation of the coronary vessels and slight augmentation of the force of the heart-beat, but this effect on the heart is rarely evident even to the patient.

Treatment of Smallpox

Q.—*Have there been any recent advances in the treatment of smallpox? Is there any "serum" therapy such as convalescent serum or the serum of successfully vaccinated persons? Does penicillin materially affect the course of the disease apart from preventing secondary infection? What is the best treatment for the actual skin condition?*

A.—The treatment of smallpox remains essentially symptomatic. Sulphonamides and penicillin probably exert an indirect influence by attacking the secondary invaders, but that is all. Convalescent smallpox serum was used over 20 years ago and subsequently discarded. However, recent methods of concentrating antibodies in human globulin appear to justify reassessment of the value of convalescent serum in the treatment of a number of diseases. Of the various local applications tried on the skin lesions, the one which has found most favour is a saturated solution of permanganate. This antiseptic inhibits the growth of the smallpox virus and appears of established value when applied early—i.e., in the papular stage.

Viability of Disease Organisms

Q.—*What are the viabilities of the causal organisms discharged from the body during the course of the following communicable diseases under the conditions of temperature, moisture, etc. (but not antisepsis) to which they are exposed in the average sick-room? (a) Cerebrospinal fever; (b) diphtheria; (c) gonorrhoea; (d) syphilis; (e) pneumococcal pneumonia; (f) scarlet fever; (g) whooping-cough; (h) pulmonary tuberculosis; (i) non-pulmonary tuberculosis; (j) acute encephalitis lethargica; (k) measles; (l) influenza; (m) chicken-pox; (n) smallpox; (o) mumps; (p) poliomyelitis.*

A.—The viability of pathogenic bacteria and viruses in natural discharges under the ordinary conditions of temperature, humidity, etc., in a sick-room or hospital ward is not easily determined, and will vary with dosage, degree of protection by mucus or dust, exposure to daylight, rate of drying, etc. However, it has been found that under such natural conditions pneumococci will remain viable for some days, and haemolytic streptococci and diphtheria bacilli for some weeks, in the dust of ward or sick-room. The tubercle bacillus is very susceptible to the bactericidal action of light—and daylight even through glass is bactericidal—so that exposure in a room for a few hours is lethal unless dosage is heavy. Tubercle bacilli in discharges from suppurative lesions of non-pulmonary tuberculosis will be similarly affected. The Gram-negative diplococci, meningococcus and gonococcus, and *Treponema pallidum* die within a few hours in drying secretions, but may remain alive for 24 hours or longer if the discharges remain moist. (*Treponema pallidum* from the serous exudate of a chancre has crossed the Atlantic 4 or 5 times in a sealed capillary tube and still remained motile.) Little is known about the viability of the pertussis bacillus, but the fact that the transmission of whooping-cough usually requires intimate contact suggests that the infecting organism is not very resistant to environmental influences.

Among the virus diseases listed, nothing seems to be known about the viability outside the body of the causative agents of measles, mumps, encephalitis, and chicken-pox. Influenza virus, after being atomized into the air in concentrated suspension, remains infective to mice for 6 hours in a relative humidity of 45 to 50%, and for longer periods in a drier atmosphere. The virus of smallpox seems to be particularly resistant to desiccation if we accept reports of infection being conveyed in bales of cotton from Egypt to this country. As regards poliomyelitis, there is considerable controversy as to how the infection is spread: it has not apparently been recovered from the environment of an infected case, but it is recoverable from the sewage effluent of a hospital where patients with poliomyelitis are being nursed.

Mirror-writing

Q.—*A healthy, intelligent, left-handed girl of 6½ indulges in mirror-writing. Is any treatment necessary, apart from education by her school teachers? She is the elder of two girls, and appears to be jealous of attentions paid to her sister (aged 2).*

A.—One would like to know whether the mirror-writing is carried out habitually or only on occasions. (It is assumed that the writing is being done with the left hand.) If the mirror-writing is merely an occasional event, then no action is called for. The phenomenon should be ignored and not encouraged.

Should, however, the mirror-writing be the regular practice, then two ways lie open: either to change over and use the right hand, or else to force the left hand to write in the proper fashion. This latter is none too easy, for mirror-writing represents the most natural way of writing with the left hand. To change from left-handed to right-handed penmanship is not very desirable, and the traditional belief that stammering is thereby produced is not altogether fallacious. On the whole, the most desirable procedure would be for the teacher to insist upon the child correcting its mirror tendencies, but continuing to use the left hand.

Xerostomia and Aptyalism

Q.—*A woman of 70 has suffered since the early raids on London from more or less complete absence of saliva. Her tongue is red and glazed and somewhat fissured, the tip at present having a painful crack. Mastication is difficult. Many people know how dry the mouth becomes during moments of fear, but that this woman's should have continued in this state is unusual. Is it likely to be a hysterical prolongation of a condition which had at first a physiological basis; or is the pathology perhaps due to something else entirely?*

A.—Little is known of the pathology of xerostomia and aptyalism. Dry mouth is sometimes associated with similar symptoms in other systems—keratoconjunctivitis sicca, achlorhydria, anaemia, arthritis, etc.: the so-called Sjögren's syndrome. The condition occurs characteristically in middle-aged and elderly females. The aetiology has been variously ascribed to neurosis, avitaminosis, and infection, but it seems unlikely to be a hysterical perpetuation of a fright reaction. No specific treatment is known, though removal of dental infection and the use of cod-liver oil have been recommended.

Flush Ligature for Varicose Veins

Q.—*In a woman of 30 both lower legs show small varicose veins which have been injected during the past five years with sodium morrhuate, quinine and urethane, etc. By annual attention the lower legs can be kept free but not cured. In both upper legs the saphenous vein shows up as a prominent straight vein running from the internal aspect of the knee and fading into the upper thigh. The characteristic tortuous appearance is not present except at the beginning at knee level. No cough impulse. Repeated injections have failed to cause thrombosis, and the patient is anxious to have the vein rendered invisible. Is there any method other than ligation at the groin which will do this?*

A.—This case would be best treated with a flush ligature in the groin so as to separate the saphenous vein and its inguinal tributaries from the femoral vein. A second ligature just above the knee would also help. At the time of the ligatures the distal vein when exposed in the wound should be injected with a sclerosing agent, and after two weeks' interval the remaining patent veins should be injected systematically. A long-standing cure should be obtained in this way, and the ligatures done under local analgesia with no recumbency afterwards are not a great inconvenience.

Hypomenorrhoea

Q.—*A married woman aged 35 has for the past two years suffered from hypomenorrhoea. Whereas the menstrual flow lasted four to five days, it now lasts one day only and is scanty. There has been no alteration in rhythm. The only other symptom is undue fatigability. This is not an isolated case in my experience, and I find that the women themselves attribute it to general anxiety engendered by the war. Is there a possible endocrinological basis, and is any treatment indicated?*

A.—Unlike the cause of menstruation, the factors which determine the amount and duration of the menstrual flow are largely unknown. Those possibly of importance are the strength of the hormone stimulus, the ability of the uterine tissues to respond to the stimulus, anatomical variations in the vascular system of the endometrium, the action of the muscles of the myometrium and the blood vessels, and the area of the bleeding surface (i.e., size of the uterus). Clinical experience goes to show, however, that scanty menstruation is often of little, if any, significance. On the other hand, hypomenorrhoea, like amenorrhoea, can result from any general disturbance or ill-health—including malnutrition, prolonged nervous strain, etc. The conditions created by the war might well be responsible for altering the character of the menstrual flow in some cases. The tendency to fatigue, however, is not likely to be due to the scanty menses, but rather to the same environmental causes. Although it is supposed that there is some depression of pituitary or ovarian function (arising either directly or indirectly via the hypothalamus) in these cases, there is no indication for replacement therapy with hormones. Treatment should be directed to the cause, and efforts made to ensure that the patient has a proper diet, adequate rest and leisure, freedom from anxieties, and change from the daily routine.

Kahn Verification Test

Q.—*I have read your two notes on the positive Kahn in yaws (*JOURNAL, *March 31, p. 469, and April 14, p. 543). What is the Kahn verification test? Does it enable one to distinguish between the true and false positive serological reactions for syphilis? Does it enable one to distinguish between syphilis, yaws, and other conditions that give the so-called "false positive"? Please give either details of the technique of the Kahn verification test or else references.*

A.—The Kahn verification test is not a diagnostic test but a supplementary test. If the diagnostic test is positive the verification test is supposed to indicate whether the positive reaction is associated with syphilis or not. While this may be the case where false positive Kahn reactions are encountered in such conditions as malaria, leprosy, or typhus, it seems unlikely to hold in the case of such a closely similar condition to syphilis as yaws, although information on this matter is scanty. There is considerable literature on the Kahn verification dating from 1940, as follows:

Verification Test	Journal	Vol.	Page	Year
Verification test in syphilis	*O Hospital*, Rio de Janeiro	**24**	813	1943
*Verification test in serology of syphilis	*J. Lab. clin. Med.*	**28**	1175	1943
Verification test—prelim. note	*Edinb. med. J.*	**50**	344	1943
Verification test in malaria (differential diagnosis of syphilis)	*J. Lab. clin. Med.*	**28**	882	1943
Use of quantitative test in verification procedures	*Amer. J. Syph.*	**26**	629	1942
Verification test. Appraisal based on clinical and serological evidence	*Arch. Derm. Syph.*, Chicago	**44**	1031	1941
*Outline of standard Kahn test with appendix of special Kahn procedures	R. L. Kahn, *V.D. Inform.* (Supp. 11)		29	1940
Comparative specificity of W.R. and K.T. in syphilis and yaws	*Acta med. philippina*	**1**	137	1939
*K.T. effects of temp. ..	*Amer. J. Syph.*	**25**	4 articles: 151, 157, 162, 173	1941
Verification test in latent syphilis	*Arch. Derm. Syph.*, Chicago	**41**	817	1940

* These items will give full details of technique.

LETTERS, NOTES, ETC.

Civilian Jobs for Medical "Other Ranks"

Lieut.-Col. J. G. FOSTER writes from 85, Eccleston Square, London, S.W.1: In reply to the letter of Dr. J. McD. Glennie (June 9, p. 824), may I bring to notice the Royal Army Medical Corps Association? This organization up to the outbreak of war did invaluable service in finding work for other ranks of the R.A.M.C. on discharge, and we hope now that the war is over and men become available to resume our activities. Every man on discharge is handed a slip with our address. On this he shows his qualifications and the kind of work he desires.

Dr. P. H. KENDALL (Stoke-on-Trent) writes: I would like to ask the following question. The letter on civilian jobs for medical "other ranks" includes the question: "Can we offer them reasonable employment at reasonable wages?" What help might one expect from a first-class nursing orderly for dressings, massage, injections, dispensing, assistance at minor operations, and medical clerical work, and what reasonable wage should one offer?

Correction

In the account of the discussion at the Royal Society of Medicine on the physiology and treatment of starvation, in the *Journal* of June 9 (p. 818), Dr. P. Cuthbertson was wrongly reported at the end of the third paragraph under the heading, "Preparation of Hydrolysates": ". . . providing 50 grammes of hydrolysate and 50 grammes of glucose" should have read ". . . 50 grammes of hydrolysate and 150 grammes of glucose per day."

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PENICILLIN THERAPY IN ACUTE BACTERIAL ENDOCARDITIS

BY

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isease of the heart valves caused by bacteria which can be covered from the peripheral blood is generally divided into ute or ulcerative and subacute endocarditis. Acute bacterial docarditis is usually caused by pyogenic cocci—haemolytic eptococcus, *Staphylococcus aureus,* and the pneumococcus. *reptococcus viridans* is the causal organism in most cases subacute bacterial endocarditis, but other non-haemolytic eptococci, *H. influenzae,* diphtheroid organisms, etc., may be ncerned. The illness in the first group usually has the atures of a septicaemia, with the endocarditis developing ring the course of a generalized infection, and it terminates tally within a few days or weeks. In subacute bacterial endo-rditis, which usually has an insidious onset, the illness is aracterized by low-grade fever, embolic manifestations, and ogressive anaemia, and it runs a course of many weeks months before death occurs. The results of sulphonamide erapy in both kinds of the disease have been disappointing. nicillin is now on trial, and this paper reports the good effect the drug on six patients who had the acute form of the ness. In most cases clear-cut evidence of endocarditis veloped after treatment with penicillin had been started for septicaemia that had not responded to sulphonamides. Before scribing our own cases we propose to give a brief review of rlier reports on the treatment of acute and subacute bacterial docarditis with sulphonamides and penicillin.

Sulphonamide Therapy

Reports have appeared of cure of *Str. viridans* endocarditis sulphonamides, but Willius (1942) has stated that careful alysis of the data presented about many of the cases casts stifiable suspicion on the diagnosis. Thus the presence of ver, a cardiac murmur, and a positive blood culture have often en the grounds for the diagnosis of bacterial endocarditis, though other essential signs, such as emboli, splenomegaly, aemia, and progressive wasting, have been lacking. In many ses the follow-up period has been too short to justify the ims of cure, and, unfortunately, authors have subsequently iled to correct premature conclusions. Katz and Elek (1944) om their own experience and the reports of others concluded at sulphonamides, combined with heparin, were ineffective in treatment of *Str. viridans* endocarditis.

In acute endocarditis a study of the reported cases does not ggest that sulphonamide therapy has been effective. The glish literature of the past ten years records 14 cases of acute docarditis due to haemolytic streptococci other than Lance-ld Group A (9 Group B, 1 Group C, and 4 Group G); in ite of sulphonamide therapy, given in massive doses in 8 ses, all the patients died. Colebrook and Purdie (1937) in a ries of streptococcal puerperal infections encountered one case Group B endocarditis and 2 cases of Group B septicaemia; three patients died. According to Fry (1938) Group B eptococcal septicaemia complicating post-abortum and post-rtum puerperal sepsis is particularly apt to lead to endo-rditis. He reported 2 fatal cases of Group B streptococcus docarditis which occurred in the puerperium. MacDonald 39) reported 2 fatal cases of Group G streptococcus endo-ditis. Hill and Butler (1940) in a series of 12 Group B eptococcus puerperal infections had 2 patients with bacterial endocarditis, both of whom died in spite of sulphonamide therapy. Rosenthal and Stone (1940) gave an account of 2 fatal cases of haemolytic streptococcal endocarditis—one due to Group C and the other to Group B. The Group C infection was treated with 79 g. and the Group B with 162 g. of sulphanilamide without obvious effect. Koletsky (1941) reported a case of Group B streptococcal puerperal endocarditis in which treatment with sulphonamides and numerous blood transfusions failed; death occurred three weeks after delivery. Ramsay and Gillespie (1941), in a series of 16 Group B streptococcal puerperal infections, described 2 patients who had septicaemia and bacterial endocarditis; both died in spite of massive sulphonamide therapy. Among 12 Group G cases there was one patient whose blood culture was positive and who died from bacterial endocarditis although treated with massive doses of sulphonamides. Kehr and Adelman (1942) unsuccessfully treated with 38 g. of sulphanilamide a Group A streptococcal endocarditis in a child aged 2. The drug had no effect on the course of the disease. Keith and Heilman (1943) reported a case of Group G streptococcal endocarditis in a girl aged 8 years with congenital heart disease. During three months in hospital, while on doses of sulphonamide sufficient to give a blood concentration of 14 mg. per 100 c.cm., cultures of her blood remained persistently positive. Cunliffe, Gillam, and Williams (1943) reported a fatal case of endocarditis due to *Staph. albus* (coagulase-positive). Sulphapyridine produced a fall in temperature but no clinical improvement.

The outstanding features in this review of recorded cases are the frequency of Group B streptococcus as a cause of acute endocarditis and the failure of sulphonamide therapy in both the acute and the subacute forms of the disease.

Penicillin Therapy

Florey and Florey (1943) treated a case of *Str. viridans* endocarditis with 4,760,000 units of penicillin over a period of 30 days. The patient appeared much improved at the end of treatment; but cultures of the blood three weeks later were positive, and after a further three weeks death ensued. Keefer and his associates (1943) treated with penicillin 17 patients who had subacute bacterial endocarditis. Four of them died, 10 were unaffected by the treatment, and 3 improved temporarily. The total dosages of penicillin varied from 240,000 to 1,760,000 units, given for periods ranging from 9 to 26 days. Better results were claimed by Loewe and his colleagues (1944), who used penicillin and heparin (given subcutaneously) in the treatment of 5 patients with subacute bacterial endocarditis; the patients were all well and their blood was still sterile several months after treatment ceased. A clinical trial on a larger scale has lately been reported by Dawson and Hunter (1945); 15 of the 20 treated patients with subacute bacterial endocarditis have been apparently cured of their infection by penicillin, with or without heparin: 12 of them have been in good health for periods of 5 to 22 months. These workers recommend a daily dosage of 200,000 units of penicillin for three weeks as the minimum standard treatment in subacute bacterial endocarditis.

There have been few reports of the effect of penicillin in acute bacterial endocarditis. Keefer and his colleagues (1943) treated 91 patients who had *Staph. aureus* bacteriaemia (quantitative blood cultures were apparently not done); of 34 fatal cases 9 had bacterial endocarditis, and none of them showed improvement during treatment. None of the recovered patients had bacterial endocarditis and no patient developed bacterial endocarditis after penicillin treatment had begun. Of 6 patients with primary pneumococcal endocarditis who were treated with penicillin 5 died and 1 recovered. Loewe *et al.* (1944) reported cures in one case of haemolytic streptococcus (group not stated) endocarditis and one case of pneumococcal endocarditis. Blood culture of the patient with haemolytic streptococcal endocarditis showed 130 organisms per plate (presumably per c.cm.) immediately before penicillin treatment was begun: 100,000 units of penicillin were given daily for 13 days. There was a dramatic response to the drug, but towards the end of the second week pulmonary oedema developed and digitalization was necessary. The patient with pneumococcal (Type 27) endocarditis was a girl aged 7½ years with congenital heart disease. She failed to respond to massive doses of sulphadiazine (blood concentration 74 mg. per 100 c.cm.), and repeated blood cultures were positive. During penicillin therapy numerous pulmonary infarcts developed, but she recovered sufficiently to return to school.

Thus the results of penicillin therapy in both acute and subacute bacterial endocarditis are encouraging enough to warrant further trial in these usually fatal infections. Penicillin has not hitherto been available for the treatment of subacute bacterial endocarditis in this country, but a co-operative trial is now being sponsored by the M.R.C. Penicillin Clinical Trials Committee (Christie, 1945).

Original Records

Six cases of acute bacterial endocarditis were treated in the puerperal sepsis unit at the North-Western Hospital and are a consecutive unselected series. Three of the infections were due to haemolytic streptococcus Group B, one was due to haemolytic streptococcus Group A, and two were due to *Staph. aureus.*

Case I

A multipara, aged 31, with no illness of note in the past history. Her present illness began after an abortion of three months' gestation, and when admitted to the unit she had been ill for one week, during which she had shivering attacks. Her general condition was good and she did not appear ill. The temperature was 99° F., pulse rate 80, and B.P. 110/70. The heart was normal except for a slightly "snappy" first sound at the apex, the lungs and C.N.S. were normal, and there were no local signs of genital tract sepsis. Cultures from the cervix and blood were sterile, the urine was normal, and a blood count showed R.B.C. 4,900,000, Hb 90%, and W.B.C. 12,000.

Five days later the temperature rose to 104° and blood culture showed haemolytic streptococcus Group B (3 organisms per c.cm.). Sulphanilamide was given (blood concentration, 9 mg. per 100 c.cm.), but after three days the drug was discontinued because of vomiting; sulphamezathine was substituted, 6 g. daily for six days. The temperature was normal during sulphonamide therapy except for a moderate rise on three occasions, but the pulse rate remained about 120. An apical systolic murmur appeared; at first faint, after a few days it became loud, rough, maximal at the apex, well conducted into the left axilla, and accompanied by a thrill. At the same time Osler's nodes appeared on the fingers, and the patient complained of pain like a "bruised" feeling in the left leg and foot. On examination the toes and distal half of the foot were deathly pale, and no pulsation could be felt in the left femoral, popliteal, and dorsalis pedis arteries. There was no splenomegaly, petechiae, or haematuria, the W.B.C. was 22,000, and quantitative blood culture showed 170 organisms per c.cm. The temperature was 99° F., but 24 hours later it rose to 101°. The patient was seen by Dr. Terence East, who confirmed the diagnosis of bacterial endocarditis. Penicillin treatment was begun. Except for the first three days, when an intravenous drip was used, the penicillin was given by intramuscular drip, using Eudrip No. 2 apparatus. Treatment was continued for 15 days. During the first seven days of therapy 100,000 units of penicillin were given daily (maximum blood penicillin level, 1:4), but as two blood cultures were positive during this period dosage was increased to 200,000 units daily for the remainder of the treatment, during which time blood cultures proved sterile. The total penicillin given was 2,300,000 units.

Twenty-four hours after treatment was begun the temperature fell to 98° F., and it remained normal afterwards except for an occasional rise to 99° during penicillin therapy. The general condition continued to improve; 12 negative blood cultures were obtained during the two months after treatment, and when the patient was discharged from hospital the sedimentation rate and W.B.C. had been normal for six weeks. There was a loud rough apical systoli murmur, accompanied by a thrill; radiographs of the heart wer normal, the patient felt in excellent health, and the left leg showe no disability, although there was diminished pulsation in the lef femoral artery.

Case II

A multipara, aged 42, with an old history of mitral stenosis. Sh developed puerperal sepsis after an abortion, and received 30 g. o sulphanilamide before her admission to the unit on the fourth da of pyrexia. She appeared ill, with temperature 100° F., B.P. 100/50 and had compensated mitral stenosis. There were no petechiae o Osler's nodes, no local signs of genital tract sepsis, and the abdomen lungs, and C.N.S. were normal. A blood count showed R.B.C 2,500,000, Hb 46%, and W.B.C. 7,000. Lancefield Group streptococcus was cultured from the cervix and quantitative bloo culture showed 35 haemolytic streptococci per c.cm.

Sulphamezathine, 6 g. daily, was given for five days, but th patient's general condition deteriorated; she sweated profusely, ha remittent fever up to 105° F., and the pulse rate averaged 140 Quantitative blood culture showed 127 organisms per c.cm. immediately before penicillin treatment was started on the ninth da of disease. Treatment continued for 11 days. During the first si days the drug was given by intramuscular drip, 100,000 units dail (blood penicillin level, 1:4), and afterwards by 6-hourly intramuscular injections of 15,000 units. The total penicillin given wa 960,000 units.

Twelve hours after penicillin treatment started the temperatur fell from 105° F. to 97°, remained normal for two days, and the rose to 102°, after which it fell by lysis. The general conditio improved, but on the third day of treatment a few petechia appeared on the neck Next day there was numbness and pain o sudden onset in the right foot; the toes and distal part of the foo became deathly pale, and no pulsation could be felt in the righ popliteal and dorsalis pedis arteries. Gangrene did not develop although pulsation could not be felt in the vessels for about si weeks. Since the patient's heart had not been fibrillating or i flutter it was considered improbable that the arterial obstructio was due to a thrombus arising in the left auricle. Five negativ blood cultures were obtained during penicillin therapy and fou negative blood cultures during the next two months. Five day after the penicillin was discontinued an intensely itchy generalize urticarial rash developed—probably an allergic reaction to the drug since other possible causes were eliminated. The temperature an sedimentation rate have been normal for four months, but convalescence has been slow because of a considerable reduction i her cardiac reserve. This was due to recent myocardial and endocardial damage superimposed on old heart disease.

Case III

A primipara, aged 27. The duration of her illness was not exactl known, but apparently she was ill for two days before admissio to the unit. Her general condition was then poor, she was drows and non-cooperative, the temperature was 101° F., and B.P. 110/7 There were no petechiae or Osler's nodes, and the lungs, abdomen and C.N.S., apart from the drowsiness, were normal. A bloo count showed R.B.C. 3,500,000, Hb 64%, and W.B.C. 19,000. Th uterus was slightly enlarged, but there were no definite signs o sepsis. Lancefield Group B streptococcus was cultured from th throat, cervix, and blood (quantitative blood culture showed 10 organisms per c.cm.). Sulphanilamide treatment was begun (bloo concentration, 9.5 mg. of free drug per 100 c.cm.), but blood cultur after two days' treatment showed 15 organisms per c.cm., and afte a further two days, during which time the general condition of th patient deteriorated, it was decided to discontinue sulphanilamide an begin penicillin therapy. Except for a short initial period when a intravenous drip was used, the penicillin was given by 3-hourly intramuscular injections of 15,000 units. Treatment was continued fo 10 days, and the total penicillin given was 1,157,000 units.

Osler's nodes appeared on the fingers on the same day a penicillin treatment began, and on the second day of treatment th patient had sudden pain and numbness in the left foot and leg; o examination the foot was deathly pale, and pulsation could no be felt in the left popliteal and left dorsalis pedis arteries. Th temperature, except for an occasional fall to normal, remaine about 100° F. until three days after penicillin treatment was stoppe when it remained about 99° F., probably owing to gangrene, whic had developed in the left foot. Blood cultures performed on th second, fifth, and seventh days of treatment, and on the ninth da after treatment had ceased, were sterile.

At this stage the patient was transferred to St. Thomas's Hospit for surgical treatment of the gangrenous foot. The temperatu was normal for the next three weeks, when suppuration develope in the left foot. The temperature rose to 104.4° F., the leucocy count was 15,000, and a swab from the left foot gave a growth o *Staph. aureus* and *albus* and haemolytic streptococci (not grouped Blood cultures were sterile. After a course of sulphathiazole th temperature was normal again in seven days. The patient had anoth pyrexial bout four days later, probably associated with the septic foot. On the 41st day after transfer she had a mid-thigh amputation, developed signs of bronchopneumonia, and died five days after operation.

At necropsy the heart showed mitral stenosis and hypertrophy of the left ventricle. The mitral cusps were adherent to each other and a little thickened; there were a few warty vegetations along the line of closure. The spleen was much enlarged and showed a number of septic infarcts, containing many streptococci. The material was not cultured. There were numerous small old infarcts in the kidneys. The left femoral artery contained old thrombus at its proximal end. It may be concluded that this patient had an acute bacterial endocarditis which was apparently cured by penicillin therapy, and that she died of bronchopneumonia following a major operation.

Case IV

A primipara, aged 31, with an old history of mitral stenosis. She developed puerperal sepsis after full-term delivery and was admitted to the unit on the sixth day of illness. Her general condition was fairly good; temperature 103° F., pulse rate 136, and B.P. 110/60. The heart was not enlarged; there was an apical systolic murmur, but no presystolic murmur and no thrill. There were no local signs of genital tract sepsis, and the lungs and C.N.S. were normal. A blood count showed R.B.C. 3,650,000, Hb 38%, and W.B.C. 16,000. Cultures from the cervix and blood were sterile. The urine contained no pus or red cells, but culture revealed Group A haemolytic streptococcus. Sulphanilamide treatment was given for six days (total drug, 28 g.). On the fourth day of treatment the temperature fell to 97° F. in the morning, but rose to 100° in the evening, after which a remittent fever developed, sometimes reaching 103°. A second blood culture 10 days after admission showed Group A streptococcus, and a second course of chemotherapy with sulphapyridine was started. While the drug was being given the blood cultures remained positive, and quantitative blood culture at the end of the course of sulphapyridine showed 129 organisms per c.cm. The patient's general condition was then worse; there was an apical systolic murmur as before, but no diastolic murmurs, the pulse rate was 144, and petechiae were present on the neck and tender red areas on the fingers. The spleen was not enlarged, but haematuria appeared for the first time; Hb was 55% and the W.B.C. 30,000. Penicillin treatment was begun 13 days after obtaining the first positive blood culture. The drug was given at first by 3-hourly intramuscular injections of 15,000 units, but later the interval between doses was increased. Treatment was continued for 14 days, and the total dose of penicillin was 960,000 units.

Within 24 hours of beginning penicillin treatment there was considerable clinical improvement; repeated blood cultures proved sterile, the temperature fell from 104.6° F. to 100° and remained around this level until treatment ceased, when it fell to normal. The pulse rate fell more slowly, and four days after treatment was begun a diastolic murmur was heard at the aortic area and along the left sternal border. Progress was maintained, and when the patient left hospital three months later the sedimentation rate was normal, Hb was 88%, there was a slightly diminished cardiac reserve, systolic and diastolic murmurs were heard at the aortic and mitral areas, the B.P. was 130/60, and she had a collapsing pulse.

After she left hospital the patient was seen by Dr. Jenner Hoskin, who reported: " She now has aortic regurgitation and double mitral disease, which in my opinion is rheumatic in origin. In my opinion the heart has suffered materially from the recent illness, which has definitely aggravated the valvular damage."

Case V

A multipara, aged 29, with no illnesses of note in the past history. She was admitted to the unit two days after she had aborted. She was only slightly ill; temperature 99° F., heart normal except for tachycardia of 116, B.P. 130/80. Cervical swab culture showed *Staph. aureus*; blood culture was sterile. Within 24 hours of admission to hospital she had severe haemorrhage, and manual evacuation of the uterus was performed. During the next seven days she received 47 g. of sulphanilamide. Eleven days after operation the temperature rose to 104° and blood culture showed *Staph. aureus*. A second course of sulphonamides was begun, being continued for eight days (30 g. of sulphathiazole by intravenous drip and 42 g. orally; 28 g. of sulphapyridine orally); the maximum drug concentration attained in the blood was 3.7 mg. of sulphapyridine per 100 c.cm. The general condition deteriorated; four blood cultures taken during chemotherapy were positive, and quantitative cultures on the sixth, seventh, and eighth days of treatment showed respectively 75, 120, and 703 organisms per c.cm. Penicillin treatment was then begun. The clinical picture was that of severe septicaemia without evidence of endocarditis.

Penicillin was given by 3-hourly intramuscular injections of 15,000 units for five days, then 3-hourly intramuscular injections of 10,000 units for two days; total penicillin, 790,000 units. The general condition improved considerably with the treatment, and blood cultures were sterile; but three days after treatment was stopped a rigor occurred, quantitative blood culture showed 167 organisms per c.cm., heart failure with pulmonary oedema developed, and a loud harsh pulmonary systolic murmur was heard. A second course of penicillin was given; the total dose was 879,000 units, administered during nine days by intermittent intramuscular injection. The patient's general condition again improved considerably; blood cultures were sterile on four occasions, the cardiac failure became progressively less, but six different specimens of urine contained numerous red cells. Three days after the second course of penicillin had ended acute heart failure again developed, but it responded to oxygen and diuretics; there was no pyrexia during this attack, but the pulse rate remained about 120. Six days later the temperature rose to 103° and quantitative blood culture showed 186 organisms per c.cm. No extracardiac origin was found for the septicaemia; and endocarditis, although suspected as the most probable cause for the relapses and the haematuria, was not diagnosed definitely because of the absence of petechiae, splenomegaly, and cardiac murmurs other than the pulmonary systolic. A blood count showed R.B.C. 4,100,000, Hb 68%, and W.B.C. 15,000.

A third course of penicillin was given (375,000 units during eight days by intermittent intramuscular injections). Two days after this course was begun a soft, blowing diastolic murmur which followed immediately on the second sound was heard at the aortic area and along the left sternal border. The urine contained numerous red cells, and when cultured showed some *Staph. aureus*. Blood cultures during this third course of penicillin and all subsequent blood culture were sterile. The patient continued to improve, but her discharge from hospital was delayed by chronic cystitis. She left hospital fit and well five months after her third course of penicillin had finished. Her cardiac reserve was then normal, but the aortic diastolic murmur was still well marked.

The patient was seen at the hospital 12 months later; she has been fit and well meanwhile, and has become pregnant again. She still has a diastolic murmur at the cardiac base and along the left sternal border, but it is less loud than it was before. Her B.P. is 140/70, radiographs of the heart show no abnormality, and her Wassermann reaction is negative.

Case VI

This patient, a multipara aged 31, was admitted with post-abortum puerperal sepsis and *Staph. aureus* septicaemia. She had received 31 g. of sulphonamides (13 g. of sulphamezathine and 18 g. of sulphapyridine) before admission to the unit on the seventh day of disease. She was extremely ill; temperature 100.6°, pulse 128; she was cyanosed and dyspnoeic, and had some basal pulmonary rales. Auscultation revealed an apical rumbling diastolic and an apical systolic murmur. There were numerous petechiae, especially on the neck and arms, and the spleen was slightly enlarged. *Staph. aureus* was cultured from the cervix and blood; quantitative blood culture showed 3,800 organisms per c.cm. (a repeat culture 24 hours later showed 4,820 organisms per c.cm.). The urine contained numerous red cells and some pus cells, and culture revealed *Staph. aureus*. The Hb was 58% and W.B.C. 33,000.

Penicillin treatment was started on the ninth day of disease (second day after admission) and continued for 12 days; during the first three days 120,000 units were given daily by 3-hourly I.M. injections of 15,000 units; but as the drug was slowly excreted because of chronic nephritis (urea clearance test, 16% of normal) the intervals between doses were gradually lengthened, until finally 15,000 units were given once daily, because excretion of a dose of 15,000 units was not completed until 36 hours afterwards. Total penicillin, 646,000 units. Within 24 hours of starting treatment the patient's condition improved. The temperature fell from 103° F. to normal, and it remained normal for six days, but afterwards became intermittent, sometimes reaching 100°. Blood cultures taken during penicillin treatment were sterile, but the clinical improvement was not maintained. She developed uraemia on the fifth day of treatment and became progressively worse. Death from uraemia occurred on the 21st day of disease.

The report on the necropsy was as follows: "Tricuspid valve thickened. Mitral stenosis and recent small vegetations on the valve. Cloudy swelling of the liver. The spleen contained several large infarcts and some smaller ones, most of them septic (cultures from the infarcts gave growths of *B. proteus*; Gram-positive cocci were seen in the smears, but it was not possible to determine if they were *Staph. aureus* or not). Kidneys: chronic nephritis and small infarcts in the enlarged left kidney. The uterus was slightly enlarged and without apparent sepsis. The brain had a large subdural haemorrhage; no embolism, and the arteries were normal"

Laboratory Tests

The infecting organisms in all these cases were sensitive to penicillin by *in vitro* tests. Blood and urinary levels of penicillin were determined by the methods of Fleming (1944). Penicillinase was added to blood cultures in fluid media. Quantitative blood cultures were made repeatedly in all cases by adding 1 c.cm. of blood to a tube containing 10–12 c.cm. of melted agar and pouring into a Petri dish at the bedside. We consider quantitative blood culture to be very valuable as a prognostic aid in both staphylococcal and streptococcal septicaemia, and records of cure of "septicaemia" without this check should be accepted with caution (see McLellan and Goldbloom, 1942). The presence or absence of inhibitory penicillin in the quantitative blood-culture plate was determined by streaking a culture of *Staph. aureus* on one corner of the plate before incubation.

Diagnosis of Acute Bacterial Endocarditis

Thayer (1931) wrote that in acute streptococcal and staphylococcal endocarditis the short duration of the illness and the intense septicaemia so dominate the picture that the clinical signs of petechiae, emboli, etc., associated with *Str. viridans* endocarditis uncommonly occur and the endocarditis is often indeterminable clinically. In his series petechiae and emboli occurred in only 25% of acute haemolytic streptococcal infections, and were unusual in *Staph. aureus* cases (13.8%) unless the disease was subacute, when emboli and nephritis were commonly seen after some weeks. In staphylococcal infections the spleen was generally not palpable (felt in only 12.5% of cases); suppurative arthritis occurred in 6% of cases, clubbed fingers were not observed, and red corpuscles were found in the urine only four times among 32 cases. Pericarditis was uncommon (11% of cases) in acute streptococcal endocarditis; it occurred in 13.3% of staphylococcal infections, in which it was always purulent. It was particularly noted that streptococci, both haemolytic and *viridans*, attacked the sites of congenital malformations or previously damaged valves; in his series there was evidence of pre-existing valve damage in 58% of acute streptococcal and in 71% of *Str. viridans* infections. *Staph. aureus* showed no predilection for diseased valves, and although it most commonly attacked the left side of the heart the tricuspid valve was often affected.

Until grouping of haemolytic streptococci was possible endocarditis caused by Lancefield B, C, and G organisms was not distinguishable from that caused by Group A strains, but recent reports on endocarditis caused by these organisms confirm our experience in the puerperal sepsis unit that petechiae and Osler's nodes occur infrequently in Group B and G endocarditis and that obstruction of large arteries, especially of the lower limbs, is commonly found in Group B infections. Thus, this phenomenon occurred in all three Group B cases in the present series, while of the nine Group B cases found in the literature one patient developed complete gangrene of one foot and partial gangrene of the other, one developed hemiplegia, and one developed obstruction of an iliac artery. The only Group C endocarditis (confirmed at necropsy) found in the literature developed obstruction of both iliac arteries due to an aortic embolism. The frequency of embolism in the large vessels in Group B endocarditis may be associated with the character of the vegetations. Fry, and also Ramsay and Gillespie, noted that in this condition the endocardial vegetations were large and friable, owing perhaps to the fact that Group B streptococci do not produce fibrinolysin as Group A strains do, so that the thrombus deposited on the damaged valve is not dissolved away. Massive vegetations have also been noted in Group C and G endocarditis, and occur, of course, in staphylococcal and pneumococcal endocarditis. However, in the latter infections the course of the disease is usually so acute that embolic signs may not have time to develop.

In the light of the recorded findings it may be profitable to recapitulate the criteria on which a diagnosis of acute bacterial endocarditis was made in our series of six cases. In the first three patients the repeated isolation of Group B streptococcus from the blood stream, associated with clinical evidence of a generalized infection and, with one exception, the absence of an extracardiac focus, would be strong presumptive evidence of endocarditis even before signs of valvular damage were apparent. Although a diagnosis of endocarditis was made in only one of the three cases before penicillin treatment was begun, all three developed unequivocal signs of endocardial involvement with embolic phenomena; in one the diagnosis was confirmed at necropsy. In only one of the three patients was there definite evidence of antecedent valvular damage (following acute rheumatic fever), so that Group B streptococci may attack healthy heart valves—a finding which accords with the experience of other workers. The occurrence of signs of obstruction in the large leg vessels in all three cases (followed by gangrene of the foot in one case) was probably due to arterial embolism from the friable endocardial vegetations. There was no evidence of cardiac failure or auricular fibrillation, which also predispose to arterial block.

Of the two patients with staphylococcal septicaemia, signs of endocarditis were present in one of them on admission. Although the diagnosis was confirmed at necropsy, the small size of the vegetations and the repeatedly negative blood cultures during penicillin therapy are evidence that the staphylococcal infection had been controlled. Treatment, however, had been begun too late (blood culture showed nearly 5,000 organisms per c.cm.); irremediable damage had been done, and the patient died in uraemia. The other patient with staphylococcal endocarditis had two septicaemic relapses, and evidence of endocardial damage in the form of an aortic diastolic murmur was noted for the first time during the second relapse, although haematuria, anaemia, and persistent tachycardia were present earlier. The aortic diastolic murmur, the haematuria, and negative evidence of antecedent syphilitic or rheumatic infection were accepted as proof of the development of bacterial endocarditis. Although the valvular lesion is still present, the patient is fit and well 10 months after she was discharged from hospital.

The patient with Group A streptococcal septicaemia developed signs of fresh endocardial damage during the course of her illness. She was admitted with a history of mitral stenosis and had an apical systolic but no diastolic or aortic murmur. Blood cultures were persistently positive despite intensive sulphonamide therapy, and tachycardia, anaemia, and progressive wasting were present. About the time penicillin therapy was begun Osler's nodes and haematuria occurred, and four days later an aortic diastolic murmur appeared. When discharged from hospital, and again when seen by a cardiologist about one month later, she had aortic regurgitation in addition to mitral stenosis.

The beneficial response which these patients with acute bacterial endocarditis have shown to moderate dosage of penicillin is interesting in view of the failure of similar dosage in subacute bacterial endocarditis. Part of the explanation may lie in a greater sensitivity of the infecting organism to penicillin; or perhaps the more bulky and friable vegetations may allow the penicillin to permeate the clot more easily. Although three of the patients are now well and one improved 6 to 12 months after penicillin therapy was stopped, it is impossible to say what the long-term prognosis may be. With gross valvular damage, a heavy strain is put upon their cardiac reserve and they are obviously at the mercy of any infective condition—e.g., dental sepsis—that may lead to bacteriaemia and a fresh endocardial infection.

Summary

Six cases of acute bacterial endocarditis—three due to haemolytic streptococcus Group B, two to *Staph. aureus*, and one to haemolytic streptococcus Group A—were treated with moderate doses of penicillin. Four of the patients are alive 6 to 12 months after penicillin therapy was stopped; three are well and one has improved.*

Attention is directed to the frequency of infection of healthy heart valves by Group B streptococcus, which not uncommonly causes mild genital-tract sepsis, particularly after abortion.

The criteria for the diagnosis of acute bacterial endocarditis which may occur during the course of a generalized infection are discussed.

* ADDENDUM

Since this paper was completed, patient No. II of the series has died, six months after penicillin treatment had ceased. During this period the temperature was normal, blood cultures were sterile on four occasions, and the sedimentation rate was normal. She had severe mitral disease. Chronic congestive failure, which responded to mercurial diuretics for a time, developed. Death was due to pulmonary oedema following acute left heart failure.

At the necropsy dilatation and hypertrophy of both auricles and right ventricle and dilatation of the left ventricle were found. The tricuspid orifice was enlarged and the cusps slightly thickened. The mitral orifice was rather small, the valves thickened and contracted, and there were two large perforations of the cusps. A small vegetation on the mitral valve gave a growth of *B. coli* and enterococcus on culture. The kidneys were rather large and congested, and one kidney had scars from two infarcts. It may be concluded that this patient had an acute bacterial endocarditis which was apparently cured by penicillin therapy, and that she died from acute heart failure.

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STAPHYLOCOCCUS PYOGENES SEPTICAEMIA TREATED WITH PENICILLIN

REPORT OF TWO CASES

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The following is an account of two cases of *Staphylococcus pyogenes* septicaemia treated with penicillin.

Case I

The patient was a marine aged 22. On Sept. 28, 1944, he developed headache, sweating, slight cough, and pain in the back; he remained on duty all night and was sent to the sick-bay the next day. On the 30th he was admitted to hospital still complaining of the above symptoms. On examination he was rather apathetic, temperature 101.6°, pulse rate 100, and respiratory rate 22 a minute; his throat was slightly injected, but no other abnormality was found.

By Oct. 1 his condition had deteriorated; his temperature was swinging to 102° F., and the pulse and respiratory rates were rising. He was confused, restless, and irritable, his heart apex beat was in the mid-clavicular line in the fifth left intercostal space, there was some neck rigidity, and Kernig's sign was slightly positive. In view of these findings a clinical diagnosis of meningococcal meningitis was made. Lumbar puncture was done under pentothal anaesthesia; the cerebrospinal fluid pressure was 200 mm., and the fluid was slightly murky in appearance; on laboratory examination it was found to contain 40 red blood cells and 9 white blood cells per c.mm. and 40 mg. of protein (no excess of globulin), 70 mg. of glucose, and 700 mg. of chlorides per 100 c.cm. The urine was loaded with albumin (0.75 g. Esbach), and on microscopical examination scanty epithelial cells, leucocytes, and granular casts were found. Blood examination showed a haemoglobin of 89%, red blood cells 4,750,000 per c.mm., and white blood cells 14,000 per c.mm., with 85% polymorphonuclears.

On Oct. 2 the patient was still confused and irritable, with a temperature swinging to 102° F. and raised pulse and respiratory rates. On examination the neck rigidity and Kernig's sign were more pronounced, the fundi were normal, all tendon reflexes were absent, and plantar responses showed voluntary withdrawal of both feet. The heart was enlarged, with the apex beat 4½ in. from the midline in the fifth left intercostal space, a systolic murmur was heard at the apex and base of the heart, and the blood pressure was 140/60. The white cell count had now risen to 23,600 per c.mm., with 84% polymorphs, the blood urea was 55 mg. per 100 c.cm., the urine was still loaded with albumin, and leucocytes and granular casts were still present.

During the day the patient's pulse rate had been rising steadily, and at 22.00 hours had reached 142 a minute. At this time he suddenly developed a left hemiparesis involving the limbs and face, and on examination his heart was found to be more dilated and the systolic murmur still present. In view of these developments it was now felt that a clinical diagnosis of infective endocarditis could be made; although this had not yet been confirmed by blood-culture the dangerously ill condition of the patient made immediate specific treatment essential. Penicillin therapy was therefore started; he was given 100,000 units at 23.30 hours, followed by 40,000 units intramuscularly 3-hourly day and night.

By 09.00 hours on Oct. 3 he had been given 220,000 units of penicillin. His general condition had improved somewhat and his pulse rate had fallen to 108 a minute, but he was still in a state of low muttering delirium, his neck rigidity was more marked, and his hemiplegia was unchanged. The urine was loaded with albumin, the blood urea was 80 mg. per 100 c.cm., and the cerebrospinal fluid now contained 376 red blood cells per c.mm. Blood and cerebrospinal fluid cultures were made on this date and later; both were reported to contain *Staph. pyogenes*. The bacteriological report was as follows: "A smooth-growing well-pigmented strain of *Staph. pyogenes* was isolated after 36 hours. The organism was coagulase-positive, moderately haemolytic, and showed a sensitivity to sodium penicillin equalling that of the standard 'Oxford' strain." When re-examined at 19.00 hours his general condition was unchanged. He was still delirious, the neck rigidity and hemiparesis were still pronounced although he could now use his left arm a little, his heart apex beat was 1 in. outside the left mid-clavicular line in the fifth intercostal space, and a soft short apical diastolic murmur could be heard. The spleen was not palpable.

On Oct. 4 there was an improvement in the patient's general condition, his temperature had settled to the region of 99° F., and his pulse rate was steadily falling. He was, however, still delirious and the neck rigidity and hemiparesis were severe; the heart apex beat was well outside the left mid-clavicular line, and the soft apical diastolic murmur could still be heard. The blood urea was 60 mg. per 100 c.cm. On the 5th the patient's temperature was normal and his pulse and respiratory rates were falling rapidly. He was still very ill, but his condition had improved in the past 24 hours and he was having short lucid intervals. A crop of purpuric spots had appeared on the toes of both feet. The cerebrospinal fluid pressure was 250 mm.; the fluid contained 167 red blood cells per c.mm., and on culture was sterile. By 20.30 hours he had been given 1,020,000 units of penicillin; his condition was rapidly improving; he was fully conscious, with only occasional short periods of confusion, and was able to use his left hand to hold a feeding-cup.

By Oct. 6 the patient's condition had very much improved and he had been afebrile for the past 24 hours. He was still having occasional slight delirium and his neck rigidity was more pronounced; his hemiparesis was improving and he was now moving his left arm and leg a good deal. There was a left extensor plantar response. The heart apex beat was still well outside the mid-clavicular line in the fifth left intercostal space; there was a soft localized aortic systolic and a harsh apical diastolic murmur. The liver and spleen were not palpable. The blood urea was 55 mg. per 100 c.cm., the urine still contained albumin, and there were some leucocytes and an occasional granular cast in the deposit.

On Oct. 7 he was using his left arm and leg a good deal although weakness persisted; his condition was otherwise unchanged; and he was delirious at times. The next day an aortic diastolic murmur was heard for the first time. The white blood count was 14,150 per c.mm. with 81% polymorphs. A course of sulphapyridine was started with an initial dose of 2 g., followed by 2 g. four hours later, then 1 g. 4-hourly by mouth.

On Oct. 9 his general condition was very good, his appetite was satisfactory, and he was sleeping well with only very few short periods of delirium. He was still having an occasional rise of temperature to 99 or 100° F. On examination the heart apex beat was in the mid-clavicular line in the fifth left intercostal space; there was no palpable thrill. Auscultation revealed a rough aortic systolic murmur which was conducted along the subclavian and carotid arteries, and also a soft short aortic diastolic murmur conducted down the left border of the sternum. The pulse was collapsing, the blood pressure 140/40, and a pistol-shot murmur was audible over the femoral arteries. The spleen was not palpable. He was now using the left arm normally, but there were a slight weakness of the left lower face, a spastic left leg, and a left extensor plantar response. The abdominal reflexes were present but diminished on the left side. The blood urea had now fallen to 45 mg. per 100 c.cm. Radiographs showed definite enlargement of the heart to the left, with the general configuration of an early aortic lesion. There was also some hyperaemia at the base of the right lung.

The patient's condition was still improving on Oct. 10 and his neurological signs had almost completely cleared. On this date a number of large haemorrhagic blisters appeared on the hands and feet. Red blood cells were found in the urine for the first time (specimens had been examined daily for these since admission). By the 12th he had had a total of 3,020,000 units of penicillin, and although there was an occasional rise of temperature to 99 or 100° the drug was discontinued. By Oct. 18 the patient's condition was excellent and he had been afebrile for the past 7 days. There was still some slight weakness of the left face, the to-and-fro aortic bruit was unchanged, and the heart was enlarged; the heart sounds, however, were much stronger. The blood count showed a haemoglobin of 79%; the red blood cells numbered 3,700,000 and white cells 10,600 per c.mm., with 68% polymorphs. The blood sedimentation rate was 4 mm. in 1 hour, and the urine still contained a few leucocytes, red cells, and granular casts. The sulphapyridine was now discontinued after a total dose of 50 g.

The patient was still very well on Oct. 23. He had been afebrile since the 11th; but the pulse rate was rising, and varied between 84 and 108 a minute. On examination there was slight weakness of the left lower face and of the left arm and leg, the abdominal reflexes were somewhat diminished on the left side, the left knee- and ankle-jerks were both slightly increased, and both plantar responses were flexor. The heart apex beat was 3½ in. from the midline in the fifth left intercostal space, the to-and-fro aortic murmur was still present but now very faint, and there was still a pistol-shot sound over the femoral and brachial vessels. The systolic blood pressure was 148 mm., the diastolic uncertain but probably about 48 mm. Hg.

On Nov. 11 he was feeling very well, and his appetite and sleep were good. He continued to be afebrile, but his pulse rate remained at 90 to 100 a minute. On examination there was a slight weakness of the left lower face; the left arm and leg were both normal and the plantar responses flexor. The heart apex beat was still diffuse and heaving, 4 in. from the midline in the fifth left intercostal space. On auscultation a rough systolic bruit could be heard over the whole of the praecordium, but was loudest in the aortic area and was conducted slightly along the carotid and subclavian arteries; a soft diastolic bruit was also audible over the whole praecordium, but loudest in the pulmonary area. The lungs and abdomen were normal; the spleen was not palpable. The blood sedimentation rate was 0.5 mm. in 1 hour; the Kahn test was negative and the blood count showed a haemoglobin of 85%, red cells 4,010,000, and white cells 9,300 per c.mm., with 69% polymorphs. The pulse was collapsing in type, the blood pressure 150/30, and a pistol-shot murmur was audible over both brachial and femoral vessels. On Nov. 11 he was evacuated to the United Kingdom.

Comment on Case I

This was a typical case of infective endocarditis due to *Staph. pyogenes* treated with penicillin and sulphapyridine. No primary focus was found, there being no evidence of staphylococcal infection and no history of any such condition. When the case was first seen the diagnosis was obscured by a subarachnoid haemorrhage and a hemiparesis, presumably the result of the rupture of a mycotic aneurysm; by the fifth day of the disease, however, the cardiac changes were definite enough to venture a clinical diagnosis, this being confirmed later by isolation of the organism from the blood and cerebrospinal fluid. Penicillin treatment was begun on the fifth day of the disease, and within 52 hours the temperature had fallen to normal: 3,020,000 units were given over a period of nine days. However, as he still showed occasional rises of temperature, this was followed by a course of 30 g. of sulphapyridine.

During the early stages of the illness the patient had the usual features of a septicaemia: temperature swinging to 102° F., rapid pulse and respiratory rates, a white blood cell count up to 23,000 per c.mm., and a haemoglobin which fell from 89% on the fourth day to 79% on the nineteenth day of illness. After treatment of the disease the temperature had been normal for 26 days, the white cell count was 9,300 per c.mm., the haemoglobin had risen to 85%, and the blood sedimentation rate was 0.5 mm. in 1 hour. One unsatisfactory feature was a pulse rate remaining persistently at the 90–100 level despite complete bed-rest.

The embolic phenomena were of particular interest. On the day after admission to hospital the patient was noted to have signs of slight meningeal irritation, and on lumbar puncture his cerebrospinal fluid was found to contain 40 red blood cells per c.mm. The meningeal signs gradually increased in severity, and 24 hours later he suddenly developed intense neck rigidity and a left hemiparesis, and the cerebrospinal fluid contained 376 red cells per c.mm. The neck rigidity gradually subsided during the next week. The hemiparesis was more persistent, but it improved steadily, and on discharge all that remained was slight weakness of the left lower face and minimal changes in the reflexes on the left side. It seems likely that the patient had an infected cerebral embolus which produced a mycotic aneurysm very early in the course of the disease, leaking slightly at first, and later more severely to produce a focal cerebral lesion. Other embolic manifestations were a crop of purpuric spots and, later, numerous large haemorrhagic vesicles on the toes and feet. Osler's nodes were not seen; there were no retinal emboli and no splenic enlargement at any time.

The renal changes provided some interesting and confusing features. At the time of the intracranial haemorrhage (the fourth day of the disease) there was heavy albuminuria, with granular casts in the urine and a blood urea estimated two days later at 80 mg. per 100 c.cm.; such changes are not uncommon with acute intracranial conditions like haemorrhage and meningitis, and are apparently not associated with renal damage. Together with the mental disturbance they raised the possibility of uraemia at that stage of the illness. The urine was examined for red blood cells each day, but these were not found until the 13th day of the disease; by this time the blood urea had fallen to 45 mg. per 100 c.cm., and there remained only a trace of albumin together with granular casts in the urine. These later changes were probably due to an embolic focal nephritis, and persisted for some time.

When questioned about previous heart trouble, after the acute phase of the illness was past, the patient admitted to an attack of "rheumatism" in childhood. This seems to have left no gross heart lesion, as he was able to exercise without undue discomfort and no heart lesion was discovered at several medical examinations during his naval service. On admission to hospital his heart was clinically normal; during the acute stages of the disease it rapidly enlarged, various changing murmurs were produced, and on the fifth day of the illness the blood pressure was 140/60. It was not until the 11th day that an aortic diastolic murmur was heard, and the following day his case had the classical features of an aortic regurgitation. On consideration of these findings it seems possible that there may have been some slight rheumatic damage to the aortic valve which determined the localization of the septicaemia in this situation, and that this damage was much increased by the present illness. As the septicaemic condition subsided the heart diminished in size, and we are under the impression that the murmurs became less intense, but at the time of discharge from hospital there could be no doubt that he had a severe aortic leak.

While, in view of the short period of observation, it is realized that the result in this case cannot be regarded as an undoubted cure, we feel that it is most encouraging and that penicillin is worthy of trial in other cases of this condition.

Case II

The patient, a sapper aged 24, was admitted to hospital on Aug. 27, 1944. His illness had begun on Aug. 21 with a sore throat, fever, and general malaise. On admission he looked ill; his temperature was 103° F., pulse rate 100, and respiratory rate 25 a minute. The tonsils were considerably enlarged, oedematous, and covered by a yellowish follicular exudate. There were no abnormal signs in the heart, lungs, abdomen, or central nervous system. Examination of a throat swab was reported upon as follows: "Direct film showed Vincent's organisms and a few Gram-positive cocci, and on culture non-haemolytic streptococci and a scanty growth of staphylococci were obtained; examination for K.L.B. was negative." He was given sulphanilamide, 2 g. initial dose, followed by 1 g. every four hours. On Aug. 28 he had two rigors, the temperature reaching 103.8° F.

On Aug. 29 there was a slight deterioration in his general condition, with no change in the appearance of the throat but a decrease in the fever during the day. A pleural friction rub was heard in the right axillary region. The urine contained a trace of albumin. Examination of a blood film for malaria parasites was negative. The total white cell count was 7,200 per c.mm., with 50% polymorphonuclears, 8% small lymphocytes, 30% large lymphocytes, and 12% monocytes. He had now received 12 g. of sulphanilamide with no apparent improvement, so it was decided to substitute sulphathiazole, 1 g. every four hours, instead.

During Aug. 30 and 31 the fever varied from 97 to 103° F.; the pulse rate rose to 128 a minute, and he was now seriously ill with no change in the condition of the throat. On Sept. 1 the spleen was palpable clinically for the first time, the pleural friction rub persisted, and he began to expectorate blood-stained sputum. The tonsils were still greatly enlarged and covered by a yellowish exudate. Sputum examination for tubercle bacilli was negative.

Blood culture on Sept. 2 gave a good growth of *Staph. pyogenes* (confirmed two days later, when another good growth was obtained). The organism had the following characteristics: a smooth moderately pigmented strain of *Staph. pyogenes*, non-haemolytic, coagulase-positive; penicillin sensitivity equal to that of the standard "Oxford" strain. It was now clear that the patient had a general septicaemia, and in spite of having received 12 g. of sulphanilamide and 25 g. of sulphathiazole he was getting steadily worse. Sulphathiazole treatment was stopped, and at 22.00 hours penicillin was given instead, in doses of 16,666 units, by intramuscular injection every three hours. The temperature at 22.00 hours was 102° F., and the pulse rate 110 a minute. No pathogens were obtained from culture of a throat swab. The total white cell count was still relatively low considering the nature of the infection—namely, 6,800 per c.mm., with 50% polymorphs, 27% small lymphocytes, 19% large lymphocytes, and 4% monocytes. On Sept. 3 and 4 a slight lowering of the temperature and some improvement in his general condition were apparent. On the 5th the temperature dropped to normal and was accompanied by a striking improvement in the patient's general condition and in the local appearance of the throat. The spleen was no longer palpable and the pleural friction rub could not be heard.

Subsequent Progress.—There was a rise of temperature to 100° F. on Sept. 6 and 7 and to 99° F. on Sept. 9 and 10, but subsequently the temperature and pulse rate remained at normal levels. Penicillin was discontinued on Sept. 11, as the patient had now received 1,133,288 units. By this time all clinical evidence of septicaemia had gone and the appearance of the throat was normal. He continued to make an uneventful recovery, with no residual signs of disease in any system, and on Sept. 20 was evacuated to the United Kingdom for a period of convalescence.

Comment on Case II

This was a case of *Staph. pyogenes* septicaemia associated with acute tonsillitis. The patient's resistance against the infection was poor, as was evidenced by a serious deterioration in his clinical condition and by the unsatisfactory white blood cell response. Treatment with 12 g. of sulphanilamide followed by 25 g. of sulphathiazole failed to produce any improvement in the local tonsillar infection or in the general condition of the patient. Penicillin was administered at a critical stage of the illness, and within 56 hours was followed by a dramatic improvement and, a few days later, by a complete and uncomplicated recovery.

Summary

The above two cases present encouraging features in the treatment of *Staph. pyogenes* septicaemia with penicillin. In the first case the favourable result was probably assisted by sulphapyridine therapy, but in the second case sulphanilamide and sulphathiazole each failed to produce any improvement in the condition. It is felt that these results may encourage others to employ and observe the effect of penicillin therapy in similar cases.

We wish to thank Col. F. G. Flood, *M.C.*, officer commanding the military hospital, for permission to publish this report.

The 150th annual report by the Managers of Glasgow Royal Infirmary, for the year 1944, shows that a very large volume of work was done for the sick and injured from all parts of Britain, including a great many Service cases treated in the wards. For a long time wards have been set aside for the treatment of burns, and more of these injuries have been dealt with at the Glasgow Royal Infirmary than at any other hospital in the British Isles. In view of the need for further research on various aspects of the treatment of burns, the Medical Research Council, in agreement with the managers of the Infirmary, decided to appoint a junior surgeon to give whole-time assistance to Mr. A. M. Clark, who has been in charge of the burns wards for several years, and to establish a laboratory team to survey the problem along with other members of the staff. During last year 318 patients suffering from burns and scalds were admitted. The outstanding features were the greatly reduced death rate—5.6%—and the elimination to a very large extent of streptococcal infection, the main source of trouble in burns. All out-patients with burn injuries are now treated in the Unit; they number about a thousand a year. During 1944 the Infirmary received a very considerable supply of penicillin for the treatment of military and civilian cases. Large supplies were distributed to other hospitals in Glasgow, Lanarkshire, Stirlingshire, and Renfrewshire, and the Infirmary is not only a distributive centre but an advisory centre for the use of penicillin.

LOCAL PENICILLIN THERAPY IN OPHTHALMIA NEONATORUM*

BY

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In an earlier communication (Sorsby and Hoffa, 1945) an account was given of the use of penicillin for local therapy in 47 cases of ophthalmia neonatorum. It was shown that consistent results could be obtained when drops in a concentration of not less than 2,500 units per c.cm. were used; of 22 cases so treated 21 recovered, against only 3 out of 8, 4 out of 7. and 6 out of 10 treated with penicillin in concentrations of 500, 1,000, and 1,500 units respectively. The gratifying results obtained with penicillin in adequate concentration had been achieved by instilling one drop of the solution at half-hourly intervals for 3 hours, then hourly for 24 hours, and 2-hourly subsequently. None of these 21 successfully treated cases took longer than 100 hours to show a clinical cure, and in 6 cases clinical cure was obtained within 3 to 24 hours. It was indicated that all the common causal organisms of ophthalmia neonatorum, including the virus of inclusion blennorrhoea, appeared to respond to penicillin, though perhaps to varying degrees, diphtheroid bacilli probably being the most resistant.

A Further Series of 38 Cases

Like the last 22 cases in the previous series these 38 new cases have all been treated with penicillin in a concentration of 2,500 units per c.cm., but the frequency of instillation has been different: at longer intervals in 13 and at shorter intervals in 25 cases.

(*a*) *Thirteen cases treated with drops of penicillin at intervals of 1 hour for 6 hours, then 2-hourly for 24 hours, and subsequently at 3-hourly intervals.*—All these responded well, but one case relapsed after 24 hours and another after 5 days (both of these being finally cleared by a course of sulphamezathine for 5 days and 2 days respectively). The clinical details on these 13 cases are summarized in Tables I and II.

TABLE I.—*Time taken for Clinical Cure: in Relation to Severity and Distribution of the Affection*

	No. of Cases	Clinical Cure in
Mild:		
Unilateral	3	4, 48, and 56 hours respectively
Bilateral	0	
Moderate:		
Unilateral	2	30* and 38 hours respectively
Bilateral	3	58, 60,† and 60 hours respectively
Severe:		
Unilateral	1	20 hours
Bilateral	4	4, 18, 26, and 34 hours respectively

* Mild relapse after 24 hours. † Relapse after 5 days.

TABLE II.—*Time taken for Clinical Cure: in Relation to Causal Organism and Severity of the Affection*

	No. of Cases	Clinical Cure in
Gonococcus:		
Mild	1	4 hours
Moderate	0	
Severe	3	20, 26, and 34 hours respectively
Gram-positive cocci		
Severe	1	18 hours
Staph. aureus:		
Severe	1	4 ,,
Diphtheroids:		
Mild	1	56 ,,
Inclusion bodies present (with Gram-positive cocci and Gram-positive bacilli respectively):		
Moderate	2	30* and 38 hours respectively
No organisms or inclusion bodies present:		
Mild	1	48 hours
Moderate	3	58, 60,† and 60 hours respectively

* Mild relapse after 24 hours. Inclusion bodies were also present in scrapings from the mother's cervix.

† Relapse after 5 days. The culture had shown the presence of *Ps. pyocyanea*, probably a contaminant.

These results do not appear to be substantially different from those obtained in the 22 cases treated at more frequent intervals.

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* A report to the Penicillin Clinical Trials Committee of the Medical Research Council.

(*b*) *Twenty-five cases treated with drops of penicillin initially at intervals of 5 minutes, then half-hourly, and subsequently hourly, followed by 2-hourly intervals.*—This unusual procedure requires some explanation. In the previous communication it was reported that when penicillin is used at half-hourly intervals irrigation was generally required before the first 12 applications of drops—i.e., for the first 6 hours of treatment. As drops are washed out of the conjunctival sac within a matter of minutes it was thought desirable to instil penicillin at 5-minute intervals. It was then found that no further irrigation was needed beyond the first one carried out before instilling the penicillin, for all tendency to the formation of pus was rapidly suppressed. When all discharge had ceased penicillin was continued at half-hourly intervals till the eye was dry; thereafter it was instilled hourly for 12 hours and 2-hourly for a further 24 hours. In this series 2 cases showed a distinctly poor response. One was a case of moderate bilateral gonococcal ophthalmia in a premature baby. Sulphamezathine treatment cleared the eyes within 3 days, only to relapse after 13 days and to be cleared finally by a second course of this sulphonamide. The second case was also of moderate severity; diphtheroids were present in the smear, but the culture was negative. This case responded well to sulphamezathine within 4 days.

The clinical details of this group of cases are shown in the following summary tables (III and IV).

Table III.—*Time taken for Clinical Cure: in Relation to Severity and Distribution of the Affection*

	No. of Cases	Clinical Cure in
Mild:		
Unilateral	3	3, 6, and 21 hours respectively
Bilateral	3	25 minutes, 1⅓, and 16 hours respectively
Moderate:		
Unilateral	1	22 hours*
Bilateral	12	3,† 3⅙, 3¼, 5¾, 6⅓, 7, 11½,‡ 13½, 33,§ and 38 hours respectively, with 2 further cases showing no response
Severe:		
Unilateral	0	
Bilateral	6	4, 10, 10, 10½, 16, and 16½‖ hours respectively

Table IV.—*Time taken for Clinical Cure: in Relation to Causal Organism and Severity of the Affection*

	No. of Cases	Clinical Cure in
Gonococcus:		
Mild	1	1½ hours
Moderate	1	No response
Severe	3	4, 10, and 10½ hours respectively
Staph. aureus:		
Mild	1	6 hours
Moderate	5	5¾, 6⅓, 7, 11½,‡¶ and 22* hours respectively
Severe	2	10 and 16½‖ hours respectively
Diphtheroids:		
Moderate	3	3† and 3⅙ hours, and no response respectively
Haemolytic streptococcus:		
Mild	1	25 minutes
Gram-neg. diplococcus:		
Moderate	1	33 hours§
Friedländer's bacillus:		
Mild	1	16 ,,
Morax-Axenfeld bacillus:		
Severe	1	16 ,,
No organisms or inclusion bodies:		
Moderate	1	13½ ,,
Inclusion bodies present without organisms:		
Mild	1	21 ,,
Moderate	1	38 ,,
Inclusion bodies present with organisms (diphtheroids and Gram-positive cocci respectively):		
Mild	1	3 ,,
Moderate	1	3¼ ,,

Footnotes to Tables III and IV

* Relapsed after 24 hours. A second course of penicillin brought about a clinical cure in 8 hours, only to relapse again. Finally cleared by sulphamezathine in 3 days.

† Mild relapse; cleared by a further course in 4 hours.

‡ Relapse 5 days later. Sulphamezathine for 68 hours; baby removed against advice with eyes not quite clear.

§ Mild relapse after 6 days. Cleared by further course of penicillin in 41 hours.

‖ Mild relapse 4 days later. Cleared by a further course in 2½ hours.

¶ Inclusion bodies were present in scrapings from the mother's cervix.

This group of 25 cases therefore contains 2 that showed no response to intensive penicillin therapy and no fewer than 5 which showed initial clinical cure only to be followed by a relapse, which, however, was cleared in 3 out of the 5 cases by a second course of penicillin, suggesting that too early suspension of treatment rather than inefficacy of penicillin was responsible for these partial failures. In contrast to these 2 total and 5 partial failures the remaining 18 cases showed distinctly gratifying results, the time taken for clinical cure being 38 hours at the longest and 25 minutes at the best, with an average of just under 10 hours. The following summary table (V) brings out the essential features:

Table V

Time taken for Clinical Cure	Number of Cases
Up to 1 hour	1
1–4 hours	4
4–8 ,, ...	5
8–12 ,, ...	3
12–16 ,, ...	1
16–20 ,, ...	2
21 ,, ...	1
38 ,, ...	1

The 5 cases that relapsed had initially showed clinical cure in 3, 11½, 16½, 22, and 33 hours respectively; the 2 cases that had failed to respond had been treated for 40 and 72 hours respectively.

So far as the time taken for clinical cure is concerned, these 18 successful cases (out of 25) compare favourably with the 20 comparable cases (out of 22) and the 11 (out of 13) treated by the same concentration of penicillin but less intensively. The comparative figures in Table VI show this clearly:

Table VI.—*Penicillin Drops in Concentration of 2,500 Units*

Time taken for Clinical Cure	Initial Treatment		
	At 5-minute Intervals	At Half-hourly Intervals	At Hourly Intervals
	Cases	Cases	Cases
Within 12 hours	13	2	2
12–24 hours	4	4	2
25–48 ,, ...	1	7	4
49–72 ,, ...	—	3	3
Over 72 ,, ...	—	4	—
Total	18	20	11

Average time per case: 10, 44, and 33 hours in the three series respectively.

It would therefore appear that intensive penicillin therapy (at 5-minute intervals) reduced the time taken for a clinical cure to one-third or one-quarter of that required when this drug is applied at hourly or half-hourly intervals.

Rapidity of Clinical Cure in Relation to Severity of Affection

No fine distinctions as to any difference in response by heavy and less heavy infections can be drawn from the limited material so far available. There is nothing to suggest that clinically

Table VII

	Initial Treatment		
	At 5-minute Intervals (25 Cases)	At Half-hourly Intervals (22 Cases)	At Hourly Intervals (13 Cases)
Mild ..	6 cases: clinical cure in 25 minutes to 21 hours Average: 8 hours No failures No relapses	5 cases: clinical cure in 7 to 78 hours Average: 51 hours No failures No relapses	3 cases: clinical cure in 4 to 56 hours Average: 36 hours No failures No relapses
Moderate	13 cases: clinical cure in 3 to 38 hours Average (of 11 cases): 13 hours *Two failures* *Four relapses*	11 cases: clinical cure in 3 to 100 hours Average: 46 hours No failures No relapses	5 cases: clinical cure in 30 to 60 hours Average: 41 hours No failures *Two relapses*
Severe ..	6 cases: clinical cure in 4 to 16½ hours Average: 11 hours No failures *One relapse*	6 cases: clinical cure in 36 to 40 hours Average (of 5 cases): 37 hours *One failure* No relapses	5 cases: clinical cure in 4 to 34 hours Average: 16 hours No failures No relapses

severe cases respond less readily. In fact, in the present series the troublesome cases were almost confined to the group regarded as moderate; the 2 cases that gave no response to penicillin and 6 of the 7 cases that showed relapse were all initially cases of moderate severity. The summary of results given in Table VII, which includes the series of 22 comparable cases previously reported, brings out the salient features.

Efficacy in Relation to Causal Organisms

The following summary table of aetiological types (Table VIII) brings out the time taken to achieve clinical cure in the successfully treated cases and the number of failures and of relapses in each group. The table deals with the 38 cases recorded here and the 22 previously reported.

TABLE VIII

	Initial Treatment		
	At 5-minute Intervals (25 Cases)	At Half-hourly Intervals (22 Cases)	At Hourly Intervals (13 Cases)
Gonococcus	5 cases: 1½ to 10½ hours Average (of 4 cases): 7½ hours *One failure* No relapses	5 cases: 24 to 40 hours Average (of 4* cases): 35 hours No failures No relapses	4 cases: 4 to 34 hours Average: 21 hours No failures No relapses
Staph. aureus	8 cases: 5¾ to 22 hours Average: 10½ hrs. No failures *Three relapses*	5 cases: 3 to 60 hours Average: 20 hours No failures No relapses	1 case: 4 hours No failures No relapses
Staph. albus	—	4 cases: 27 to 43 hours Average: 37 hours No failures No relapses	—
Diphtheroids	3 cases: 3 and 3⅛ hours respectively (in 2 cases) *One failure* *One relapse*	4 cases: 50 to 100 hours Average (of 3 cases): 83 hours *One failure* No relapses	1 case: 56 hours No failure No relapse
Haemolytic streptococcus	1 case: 25 mins. No failure No relapse		
Gram-negative diplococci	1 case: 33 hours No failure *Relapse*		
Friedländer's bacillus	1 case: 16 hours No failure No relapse	—	—
Morax-Axenfeld bacillus	1 case: 16 hours No failure No relapse		
Gram-positive cocci	—	—	1 case: 18 hours No failure No relapse
No organisms or inclusion bodies	1 case: 13½ hours No failure No relapse	2 cases: 12 and 70 hours respectively No failures No relapses	4 cases: 48 to 60 hours Average: 57 hours No failures *One relapse*
Virus presumed from presence of inclusion bodies	4 cases: 3 to 38 hours Average: 16 hours No failures No relapses	2 cases: 78 and 100 hours respectively Average: 89 hours No failures No relapses	2 cases: 30 and 38 hours respectively No failures *One relapse*

* One case omitted, as the complication of corneal ulcer—present on admission—delayed a return to normal.

In this total of 60 cases there were therefore 1 failure in a series of 14 cases showing the gonococcus and 2 failures in a series of 8 cases showing diphtheroids; there were no failures in the 14 cases due to *Staph. aureus* and in the 4 showing *Staph. albus*, while the single cases due to *Str. haemolyticus*, Friedländer's bacillus, Morax-Axenfeld bacillus, Gram-negative diplococci, and Gram-positive cocci all responded. It would therefore seem that all the common causal organisms of ophthalmia neonatorum respond to penicillin therapy; no real significance can be attached to the 3 failures (1 gonococcus and 2 diphtheroids) in view of the satisfactory response in other (and more) cases of this type. It is also noteworthy that no failures were seen in the 7 cases in which no organism or inclusion bodies were present and in the 8 cases in which a virus appeared to be the responsible agent, judging by the presence of epithelial inclusion bodies.

At this stage it is unwarrantable to draw any conclusions as to greater clinical susceptibility of the different varieties of ophthalmia neonatorum to penicillin, but it is clear that neither the occasional failures nor relapses are explicable in terms of bacterial morphology.

Mode of Use

For the present something like a 5-stage system is in use:

1. On admission a swab is taken for smear and culture and the eye is irrigated with half-normal saline at room temperature. A drop of adrenaline 1 in 1,000 is instilled and a scraping is taken from the palpebral conjunctiva for examination for the presence of inclusion bodies. Gutt. atropin. sulph. 1% are instilled if the cornea is involved.

2. Any pus that may have accumulated is wiped away with moist pledgets of cotton-wool, and one drop of penicillin in a concentration of 2,500 units per c.cm. is instilled. The baby is now returned to its cot.

3. The instillation of penicillin is continued every 5 minutes until there is no discharge. Irrigation is not needed, as pus does not form to any extent; such thin mucoid discharge (with a yellowish tinge from the admixture of penicillin) as is present can be ignored, or, if it clings to the lid margin, wiped away with moist pledgets of cotton-wool. Generally half an hour to three hours' treatment (6 to 30 applications) is necessary before the eye is dry. This part of the treatment requires the full-time attention of the nurse.

4. When there is no longer any discharge the instillation of penicillin is continued at half-hourly intervals. At this stage the conjunctiva rapidly assumes a normal appearance. When all swelling and tendency to moistness have disappeared—and this generally involves treatment for about 6 to 12 hours—penicillin therapy is continued to consolidate the clinical cure.

5. Penicillin is now instilled hourly for 12 hours and 2-hourly for a further 24 hours.

Penicillin is well tolerated by the infant eye; occasionally a mild transitory flushing of the conjunctiva is observed. (In the present series—as in the previous one—no complications of any kind have been observed, but in a case treated subsequent to those recorded here there was an instantaneous and marked swelling of the conjunctiva and lids on the instillation of penicillin in the form of a lamella; the swelling subsided within 12 hours, the child having in the meantime been put on sulphamezathine treatment.)

Comparison with General Sulphonamide Therapy

It is likely that general sulphonamide therapy of ophthalmia neonatorum is already obsolete as a routine procedure. The results obtained by the intensive application of penicillin locally are almost as strikingly superior to those obtained by sulphonamide therapy as these in turn were over the older methods. The reduction of the duration of treatment from weeks by the older methods to days by the sulphonamides is paralleled by the reduction of treatment from several days by the sulphonamides to as many hours by penicillin. Should it prove possible to standardize penicillin therapy to a less exacting routine than is required at present, an ideal method of treatment, free from the disadvantages of systemic medication, will indeed be achieved.

Summary

Local therapy by penicillin in a concentration of 2,500 units per c.cm. proved effective in 21 out of 22 cases of ophthalmia neonatorum reported previously.

In a further series of 38 cases reported here, 2 cases failed to respond.

Twenty-five of 38 cases had been treated by intensive application of penicillin (drops instilled every 5 minutes). The results were better than those obtained by the instillation of penicillin at half-hourly intervals (as in the 22 cases reported previously) or at hourly intervals (as in 13 cases in the present series).

The 25 cases treated intensively included the 2 cases that showed no response and 5 cases that relapsed after initial clinical cure; 4 of these 5 relapses responded well to a second course of penicillin. Of the 18 cases that responded initially to treatment 13 showed clinical cure within 12 hours, and a further 4 within 12 to 24 hours.

Severity of the clinical condition does not appear to affect the duration of treatment.

Penicillin is effective against all the common causal organisms of ophthalmia neonatorum, including the presumed virus of inclusion blennorrhoea.

Local penicillin therapy is likely to replace general sulphonamide treatment as the method of choice in ophthalmia neonatorum.

Thanks are due to Dr. E. N. Young, of the Southern Group (L.C.C.) Laboratories, for her painstaking bacteriological examinations; and to Dr. Olga Blum, Dr. Rela Bartfeld, the Matron, and Sister Condon, of White Oak Hospital, for their collaboration. I am indebted to Prof. Sir Alexander Fleming for his interest and help.

REFERENCE

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PENICILLIN TREATMENT OF HAND INFECTIONS

BY

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AND

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The local use of penicillin in powder and paste (lanette wax form) in the treatment of hand and finger infections has been shown by Florey and Williams (1944) to reduce the time required to clear up sepsis, to diminish pain, and to save an average of nine man-days for each case as compared with controls. In this series 100 cases of paronychia, pulp whitlow, web-space infections, and suppurative tenosynovitis, in all groups of the population, have been treated with penicillin liquid and cream locally, with results that mainly bear out Florey's findings, but with two main differences—namely, in the results of treatment of osteomyelitis and suppurative tenosynovitis.

Principles of Treatment

In all cases in which incision was necessary general anaesthesia was used, and a blood-pressure cuff to give a bloodless field. There was no soaking of the fingers or application of heat of any kind. Penicillin was applied either in liquid form or as a cream on a fine-mesh gauze wick. The cream consisted of penicillin mixed with a base—eucerin L.M. The penicillin in this cream was found by our pathologist (Dr. Seiler) to keep its potency for a longer time than the penicillin in lanette wax. The dressings were all done in a special dressing unit; the dresser used the "no-touch technique," and modern methods of prevention of cross-infection were employed. Of the total 100 cases (representing over 500 dressings) the number of times a second organism was grown was 19. Cultures were taken at the time of operation, and sensitivity to penicillin was tested. Cultures were also taken as a routine at the change of each dressing.

Dressings were done once daily if liquid penicillin was used, or every two days with penicillin cream, since it had previously been found that, although liquid penicillin in an open wound lost its activity in about 24 hours, when cream (penicillin–eucerin L.M.) was used penicillin activity could still be demonstrated at the end of 48 hours.

Surgical procedures in all groups followed orthodox lines, except in the treatment of acute suppurative tenosynovitis. In this condition previous experience with orthodox incisions was so discouraging that a new technique was used. It was based on the observation that acute pyogenic infection of joints responded dramatically to repeated aspiration of the infected fluid and injection of penicillin liquid. None of these fingers was incised.

Results

Pulp Infections.—Thirty-six pulp infections arrived at the hospital, having had throbbing fingers for an average of seven days. In every case the organism was a sensitive *Staph. aureus* (coagulase-positive). In three-quarters of these cases the operation was the usual bilateral incision, and the remaining quarter had either the "hockey-stick" or the "fish-mouth" incision. None of these cases was treated as an in-patient, nor was any splinting done, and the average number of dressings was six. In about half the cases sloughing was present to an extent that mechanical removal was required, and here the time taken to heal was twice as long as when sloughing was not a feature. The occurrence of sloughing seemed to bear no relation to the length of time before operation. The average number of days to "no growth" was 9, and the period off work 17. All the end-results were good.

Paronychia.—There were 32 cases in this group. In all except four the causative organism was *Staph. aureus* (the others, *Str. pyogenes*). Fourteen of these cases had pus under the nail by the time they were first seen, and enough nail was removed at operation to allow access of the penicillin cream to all the infected area. The average time before being seen at hospital was 10 days. In just over half the operations it was found necessary to open the finger on both sides. In the remainder one lateral incision sufficed. On one occasion the pus could be aspirated through a needle, followed by penicillin injection through the same needle. Dressings were done at 48-hour intervals, and on an average four dressings were required. For all this group the average number of days off work was 12; the average number of days before a sterile culture was obtained was 5. The final result was satisfactory in every case.

Web-space Infections.—This group contained 23 cases, and the average time before treatment was 11 days. The operation consisted of an incision between the distal crease of the palm distally to the beginning of the web. Fourteen of these cases were infected by a sensitive *Staph. aureus*. The average time to "no growth" was 9 days and off-work 19 days; each case required on an average seven dressings. Sloughing as a prominent feature was present only once, and chemotherapy was used on two of four patients admitted (because of lymphangitis or adenitis).

Tendon-sheath Infections.—There were nine patients who had an acute suppurative tenosynovitis affecting one of the fingers for an average of four days, the organism in six cases being *Staph aureus*, in three *Str. pyogenes*. None of these fingers was incised; instead, pus from the sheath was aspirated opposite the proximal phalanx, and after aspiration of all that was possible 1 or 2 c.cm. of penicillin was injected through the same needle. The puncture wound was then sealed off with collodion. No splinting was done, and all of these patients were treated as in-patients; the first five cases were given sulphathiazole for five or six days. Active movements were encouraged from the first, and the relief of pain was dramatic in all but one case. This case failed to respond to treatment, and amputation was necessary because of a fulminating infection of the whole finger. In seven cases the results were perfect after one, two, three, or four punctures of the sheath (at 48-hour intervals). One patient apparently had a perfect result after four treatments (aspiration of pus and injection of liquid penicillin), but a month later had developed a slight flexion deformity of the finger. This has remained stationary, and the finger can be used. The average stay in hospital for this group was seven days, and the time off work 13 days. There was no difference in the clinical course when sulphathiazole was used, and the last four cases (all perfect results) were not given systemic chemotherapy.

Osteomyelitis.—Another group, comprising cases of osteomyelitis, were tried with local penicillin, and although one could get negative cultures in a time not appreciably longer than with the above groups, the clinical course of the disease did not seem to be affected. The results of treatment were uniformly bad. It is difficult to report accurately on this group because, first, amputation was often carried out relatively early; secondly, some of the cases were sent elsewhere for *x*-ray therapy; and, finally, some are still unhealed.

Comments

Early on it was realized that removal of slough helped considerably, and the results show this to be true. After trying trypsin and pyruvic acid it was felt that simple excision with a pair of sharp nail scissors was not only quicker but usually more effective.

When this research was started penicillin at a strength of 50 units per c.cm. was used for a few weeks. Subsequently the strength varied from 50 to 2,000 units per c.cm. From our analysis, the strength of the penicillin employed had no effect on the result.

Many hands were swollen as a result of prolonged soaking, and others (about 30%) had had operations (mostly without anaesthesia) before attending hospital. For all groups the average time before being seen was nine days—longest in the web-infection group, and shortest in the tenosynovitis group, probably because of the severity of the pain and disability in the latter.

The most striking effect of penicillin treatment as compared with other methods was the freedom from pain post-operatively, especially in the tenosynovitis series, and the absence of post-operative complications (spreading infection, lymphangitis, adenitis). The most gratifying finding was the spectacular results in acute suppurative tenosynovitis, a condition attended by distressing results in our hands prior to aspiration-injection therapy.

Conclusions

Penicillin used locally is effective in the treatment of infections of the fingers, such as pulp whitlow, paronychia, and web-space infections, when the organism is susceptible.

It is possible to get perfect results in the treatment of acute suppurative tenosynovitis of the fingers by aspiration of the sheath and injection of penicillin.

It is important to remove slough when using penicillin locally.

Local penicillin has no apparent beneficial effect on the end-result in acute osteomyelitis of the phalanges.

Penicillin cream (in a new base—eucerin L.M.—Dr. Seiler) is an improvement on other methods of applying penicillin locally.

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INFECTED BRONCHIECTASIS TREATED WITH INTRATRACHEAL PENICILLIN

BY

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In most cases of bronchiectasis there is a secondary infection of the dilated bronchi and bronchioles. It is rare for this to be caused by one organism, but the mixed flora in the sputum often includes bacteria susceptible to the action of penicillin, and it was thought that this antibacterial chemotherapeutic agent might have a beneficial effect in the treatment of the disease. It is clear that, in general, a reduction in the bacterial infection of the bronchiectatic cavities, or even their sterilization, although reducing the volume of sputum, would not affect the deformity of the air passages, and infection would recur, but the improvement in the patient's local and general condition might enable a lobectomy to be carried out with a considerable reduction in the operative risk.

Although penicillin would be fully active in the presence of pus, the coexistence of a mixture of organisms of varying susceptibility implies the desirability of obtaining a relatively high concentration of penicillin in the cavities; this cannot, in our experience, be obtained by systemic treatment. An aerosol containing penicillin, as used by Knott and Clark (1945), would probably be equally ineffective because of the deficient aeration of the collapsed area of lung connected with the dilated bronchi. It was therefore decided that the best method of getting adequate penicillin to the infected area was by injection of a solution into the trachea, using a technique similar to that employed in carrying out bronchography.

Technique

The patient practised postural drainage for 20 to 40 minutes before the injection. The skin was rendered analgesic with 2% procaine in the midline of the neck, between the cricoid cartilage and the first ring of the trachea. 2 c.cm. of 2% amethocaine hydrochloride (decicain) was then injected rapidly through a No. 14 needle into the trachea and the patient was asked to try to avoid coughing. The syringe was removed from the needle, which was left *in situ*, and the patient was placed in such a position that fluid introduced into the trachea would run into the bronchiectatic cavities—e.g., well over to the left if the left lower lobe is affected. A solution of penicillin containing 10,000 units per c.cm. was prepared and 5 to 8 c.cm. injected rapidly through the needle into the trachea, the needle being immediately withdrawn and the patient encouraged not to cough. The patient was kept leaning in the appropriate position for 15 minutes after the injection. It was found that with an injection of 50,000 units the sputum coughed up 12 hours after the injection contained between 10 and 100 units of penicillin per c.cm., and with the larger doses of penicillin—i.e., 80,000 units—the sputum after 24 hours still contained up to 10 units per c.cm. Daily treatment was carried out for eight to ten days, and the only complaint from the patients was of some soreness of the skin of the neck. All solutions were made up in saline, and a very fine needle could therefore be used.

Case Records

Case 1.—The wife of a publican was admitted to hospital on Oct. 15, 1944, complaining of pleuritic pain in the right lower chest and general malaise. She had had a perforated duodenal ulcer three months before; this had been sutured under inhalation anaesthesia, but owing to war conditions no details of her immediate post-operative progress are now available. Since the operation she had had recurrent colds and cough, with sputum, and a general feeling of malaise and undue shortness of breath on exertion. On admission it was found that she had coarse crepitations at both bases, with a pleural friction rub at the right base. After two days a small pleural effusion appeared on the right side; this resolved in one week with rest in bed. However, the moist sounds and bronchial breathing persisted at the left base, and a radiograph indicated some fibrosis in this area. Bronchograms revealed an early cylindrical bronchiectasis at the left lower lobe. Her sputum, which was fairly copious, averaging 1 oz. to 2 oz. a day, was purulent and non-offensive, and culturally showed a predominant growth of a pneumococcus sensitive to penicillin; no tubercle bacilli were present. Her haemoglobin was 86% (100% = 14.9 g. of haemoglobin), and she had a normal white cell count. Her sedimentation rate was the upper limit of normal. She was treated with postural drainage in hospital with some improvement in symptoms, but she still produced copious sputum. Intratracheal penicillin was then started, consisting of 50,000 units of penicillin intratracheally for 3 days and 80,000 units for the next 5 days. Owing to her domestic responsibilities she was given the second part of the treatment as an out-patient. Her sputum became mucoid instead of purulent, and culture showed only a few colonies of diphtheroids; it decreased in quantity to less than 1/2 oz. a day. After discharge the patient was symptomless for two months and remains well. The sputum is still mucoid, and is coughed up only with difficulty. She is able to do a full day's work.

Case 2.—A housewife aged 32 was admitted to hospital on Jan. 5, 1945, when 7 months pregnant, complaining of undue shortness of breath on exertion and cough with purulent sputum. She gave a history of pneumonia at the age of 14, since which time she had always had a cough with sputum. For one year she had been breathless on even slight exertion; this became worse during her pregnancy. She had lost her appetite and complained of the foul taste of her sputum. On examination she was cyanosed, and in the chest there were signs of bronchial spasm and coarse rales at both bases, more marked on the left than on the right. Bronchograms revealed bronchiectasis in the left lower lobe. Her sputum contained a varied bacterial flora, with a penicillin-sensitive pneumococcus predominating. She was treated with intratracheal penicillin, 60,000 units a day for 10 days. Her sputum remained copious, but was less purulent and less offensive, and aerobic culture showed a steadily decreasing number of colonies, the final specimen being sterile. One unit of penicillin per c.cm. was present in the sputum 24 hours after injection. Her general condition considerably improved, and she had a normal labour without undue shortness of breath or exacerbation of her pulmonary symptoms.

Case 3.—A gatekeeper aged 59 was admitted to hospital on Oct. 20, 1944, complaining of increasing cough and sputum and loss of appetite for five months before admission. He had had osteomyelitis of the right femur and a right lung abscess in 1940, since which time he had always had a cough, with occasional pain in the right chest and copious foul-smelling sputum. The latter had increased in quantity to 8 to 10 oz. a day, and was so offensive that he had lost his appetite; he had also become very short of breath. On examination he was emaciated and utterly miserable; the only relevant physical signs were at the right base, where there were diminished movement, an impaired percussion note, distant bronchial breathing, and coarse rales. His sputum contained a very varied flora, including a non-haemolytic streptococcus, pneumococci, and species of *Neisseria*, fusiforms, and spirochaetes. Most of the organisms were sensitive to penicillin. His haemoglobin was 56%. Radiographs showed bronchiectasis of the right lower lobe. He was treated with 50,000 units of penicillin intratracheally each day for 8 days and then 80,000 units for 5 days. There was marked subjective improvement; the volume of sputum was reduced to less than a third of its previous volume and became inoffensive, he began to sleep well, and his appetite returned. The physical signs in his chest, though less well marked, were still present, and his haemoglobin rose to 84%. He again took a considerable interest in life, and looked forward to having a lobectomy performed, which, as a result of the improvement in his general condition, was thought to be a reasonable risk.

Discussion

These three examples illustrate the types of case in which intratracheal penicillin would be of value. An early case was so improved that the patient declined lobectomy, as she felt there was nothing wrong with her. In the second case the patient was enabled to get over the latter months of pregnancy and delivery without any extra difficulty arising from her chest condition. In the third case a patient who was clearly going downhill was rendered fit enough for lobectomy to be considered.

There would appear to be two uses for this form of therapy: (1) to improve the general condition of the patient before lobectomy; (2) to sterilize the bronchial cavities at regular intervals, especially during the winter. It might be used to replace bronchoscopy with suction or the creosote chamber. Intratracheal therapy should be combined with daily postural drainage, and can easily be performed upon an out-patient. It is inevitable that the cavities will become reinfected with pathogenic organisms, and it is too early to say how long they will remain sterile, but in cases in which the predominant pathogen in the cavities is penicillin-sensitive the treatment does provide a means at least of temporary improvement.

Summary

The technique of intratracheal administration of penicillin is described.

Three illustrative cases are reported in which this treatment was beneficial.

We wish to thank Dr. J. D. Fiddes, medical superintendent, and Dr. J. B. Penfold, pathologist, St. Andrew's Hospital, Billericay, for valued co-operation.

REFERENCE

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EFFORT SYNDROME IN THE WEST AFRICAN SOLDIER

BY

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Major, formerly R.A.M.C.

There is no reference in the literature to effort syndrome in the West African, nor have I been able to find any paper dealing specifically with this condition in black-skinned people. This paper records 12 cases of effort syndrome in West African soldiers serving with the Royal West African Frontier Force (R.W.A.F.F.), and seen in a general hospital on the Gold Coast between Dec., 1941, and Dec., 1942.

Observations

The signs and symptoms of effort syndrome as tabulated by Wood (1941) were used as a basis for diagnosis, and questions were directed to elicit any of the symptoms not mentioned by the patient. A thorough physical examination was made in each case, and such investigations as examination of the blood for malaria parasites, radiographs of the chest, and erythrocyte sedimentation rates were carried out when necessary in order to exclude a physical cause of the disability.

The symptoms complained of were breathlessness (in all cases), palpitation (in 10 cases), fatigue (9), dizziness, precordial pain, cramps, and sweating (8), headache and frequency of micturition (6), trembling (5), nervousness, insomnia, and paraesthesiae (4), sighs, throbbing in the head, and anorexia (3), flushing, dry mouth, and diarrhoea (1). The symptoms occurred on exercise in all cases and on excitement in four.

Of signs, tremor was present in 7 cases, excessive sweating of axillae or palms (6), nervousness, overacting heart, and resting pulse rate over 100 a minute (5), hyperpnoea or tachypnoea and cold clammy hands (4), asthenic posture (1). Sighing and hyperaesthesia over the site of precordial pain were not noted in any case; flushing cannot be observed in black men. The highest blood pressure recorded was 142/82. The chest expansion, measured at the fourth rib, varied from 3/8 to 2⅝ in., with an average of 1¼ in.; a similar average was obtained in 16 controls, but I have the impression that the West African is a poor thoracic breather and cannot be compared with the European in this respect. A standard of breath-holding for 30 seconds was adopted; six patients failed in this. The average time was 32 seconds, with a minimum of 8 and a maximum of 55 seconds. In 11 controls the average time was 64 seconds, varying between 30 and 110 seconds. I found it difficult to get satisfactory co-operation in this test, but the controls appeared to try harder than the patients, many of the latter breathing before they had any apparent distress or discomfort. An exercise tolerance test, as recommended by the Horder Committee on Effort Syndrome (1940), was carried out. In 8 cases the pulse failed to return to its original rate within one minute after the end of the exercise, and in 3 cases within two minutes. Three patients were distressed after the test.

Case Histories

Case 1.—A Kumasi (Ashanti) Christian, aged 35. Speaks English very poorly. Private in Gold Coast Regiment (G.C.R.). Service 1 year 8 months. Symptoms started 9 months ago in East Africa while doing P.T. Sent to hospital, in which he remained for three months; having 10 injections into the arms and 10 into the buttocks. Had dysentery in E. Africa 2 months before the onset of the present disability. Likes the Army, but "owing to my sickness I want to be discharged and go home." Did heavy work as a farmer in civilian life. Strong and active as a child. Nothing relevant in family history.

Case 2.—A Creole (Sierra Leone) Christian, aged 26. Speaks excellent English. Shorthand-typist before the war. Private in the West African Army Medical Corps (W.A.A.M.C.). Service 1½ years. Symptoms began 6 months ago in E. Africa during P.T. Admitted to hospital, where he remained in bed for a month with a diagnosis of "rheumatic carditis"; malaria parasites were found in the blood. Has remained well on light duty since discharge from hospital, but on one occasion, when he was obliged to do some heavy work, experienced precordial pain and a sensation as if his chest were being clamped. He now feels that physical work might "humbug" his heart. Volunteered for service in the W.A.A.M.C., where his superior education might be of use, rather than risk conscription at a later date into a combatant unit, for which he did not think himself strong enough. Finds Army life "rough." A keen scholar as a child, being a veritable bookworm. "I always had a notebook in my pocket." Passed the Cambridge School Certificate at the age of 14½. Not popular with other children, who were jealous of his scholastic achievements. Not keen on sport. "Cricket is a decent game, but football is all bullying." Family history: nothing relevant.

Case 3.—An Accra (Ga.) Christian, age doubtful—about 45. Speaks English fairly well. Bus-driver as a civilian. Sapper in W.A. Engineers. Service 2½ years. Symptoms started 4 months ago while mine-lifting in E. Africa. To hospital for 7 weeks; received 20 injections into arms and buttocks. Had dysentery while in hospital. Was told that he had heart disease and should not do any hard work. Likes the Army, but is not happy in his unit. Did well at school. At the age of 9 cut his foot while playing football, and has never played since, because he thinks it is too dangerous. (West Africans play football unshod.) Reliant on his parents. Family history not obtained.

Case 4.—An Accra (Ga.) Christian, aged 31. Speaks English fairly well. Carpenter in civil life. Corporal in W.A. Engineers. Service, 4½ years. Symptoms started 9 months ago during an air raid in E. Africa, and has been unable to do heavy work since then. Likes the Army, but is sure that he cannot carry out his duties in his present health. Strong and active as a child, but would not play football, because "you get wounded plenty." Family history: two nephews (twins) have fits; otherwise nothing relevant.

Case 5.—An Ashanti Christian, aged 25. Speaks English well. Lorry driver as a civilian. Private in G.C.R. Service 2 years 4 months. History of 1 year 8 months. Onset of symptoms in E. Africa during P.T. In hospital for 6 weeks. He was told that he should never do heavy work again. Likes the Army, except that his chest troubles him. Did well at school ("I was always clean and smart"); popular with other children, but especially with the clever ones. Had never avoided physical exertion until onset of present disability. Nothing relevant in family history.

Case 6.—An Avatime Christian, aged 22. Speaks English well. Lorry-driver and farmer before military service. Private in W.A.A.M.C. Two years' service. History of 13 months. Symptoms started while serving in E. Africa. Intelligent and active as a child. Does not enjoy football in the Army because "the other side try to injure you." While in E. Africa was much upset by the news of his father's death, the patient being the eldest son, and so responsible for the rest of the family.

Case 7.—An Akim Abuakwa (Fanti) Christian, aged 23. Speaks very little English. Civil occupation, mason. Private in G.C.R. Three years' service. Symptoms first occurred while on the march in E. Africa 9 months ago. To hospital for a month. Has been told by doctors on two occasions that he should not do heavy work again. Has done only light duty since returning to the Gold Coast 2 months ago. Healthy and active as a child, but not especially clever. No relevant family history.

Case 8.—A Kumasi (Ashanti) Christian, aged 28. Speaks English well. Grocer before the war. Driver in W.A. Army Service Corps. Service 2 years 1 month. Nine years' history. Symptoms started while at school, but lasted only a few weeks, being cured by a native doctor. Left school six years ago, and did light work in his father's grocery store. Joined the Army and remained well until 18 months ago, when the symptoms recurred after he had been in E. Africa for 3 months. Attended hospital for 10 months as in-patient or out-patient and received about 20 intravenous injections. Informed that his heart was the cause of the trouble. Did no further heavy work in E. Africa. Has been on full duty since return to Gold Coast 3 months ago. Patient was timid and retiring as a child. Would not stand up to other children, but reported any bullying to the teacher "because we were forbidden to fight." Similarly, he was once assaulted and robbed, but called for his father instead of defending himself "for the man was bigger than I." Was very reliant on his parents. History of abnormality of behaviour in one brother and two distant relatives.

Case 9.—A Twi Christian, aged 35. Speaks English fairly well. Blacksmith. Sapper in W.A. Engineers. Service 2 years. Disability began 12 months ago during service in E. Africa. In hospital for 6 months, but with no improvement. Had 17 intramuscular and intravenous injections. Told by his doctor that his heart and chest were weak. Symptoms have persisted since return to Gold Coast with diagnosis of "V.D.H. and cardiac enlargement." Likes the Army, "but my sickness troubles me too much." Schooling interfered with by ill-health and persistent pain in the ribs. Would not play games at school because they were not properly controlled and he tired too quickly. Avoided quarrels with other children. "It is my habit not to fight; I was born like that." Thirteen years ago drank palm wine in which ju-ju medicine had been placed; he became "nearly mad," and would shout and sing in the street. Cured by fetish priest. Doubtful history of pulmonary tuberculosis in two brothers. (Screening of this patient's chest showed no abnormality in lungs or cardiac shadow.)

Case 10.—An Osu (Ga.) Christian, aged 29. Speaks a little English. Bus-driver as a civilian. Driver in W.A.A.S.C. Service 2½ years. Symptoms started 8 years ago, but stopped when he joined the Army. They recurred 6 months ago, after a lorry accident. Improvement followed treatment by a native doctor, but the disability had become worse again. Dominated by father, who did not like him to mix with other people. Not very clever at school. Did not play football for fear of injury; he used to run occasionally, but not much, because he never won. History of insanity in grandmother.

Case 11.—An Anlo (Ewe) Christian, aged 25. Speaks a little English. Fisherman in civil life. Private in W.A.A.S.C. Service 4 months. Had symptoms for a short time before joining the Army, but they recurred 3 months ago. Is afraid that he may die. Likes the Army, but "my sickness hinders me." Education interfered with by ill-health, chiefly abdominal trouble. Avoided exertion because it would hurt his heart. History of insanity in uncle.

Case 12.—A Krobo (Ga.) Christian, aged 29. Speaks English well. Lorry-driver as a civilian. Signalman in W.A. Corps of Signals. Service 2 years. Symptoms for 16 months. In hospital a year ago for 6 weeks; records of this admission not available. Strong and active as a child. Clever scholar. Nothing relevant in family history.

Discussion

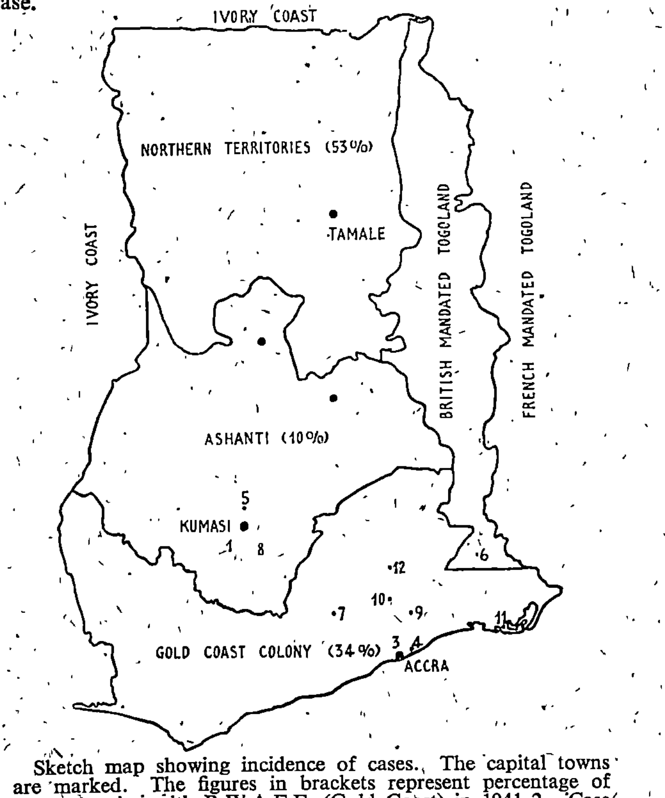
The difficulties facing the physician who attempts a psychiatric investigation of the West African native are very great, and no attempt has been made to diagnose the psychological abnormalities underlying these cases. It will be noted that patients Nos. 2, 4, 8, 9, 10, and 11 were disinclined to exertion from childhood, especially with regard to competitive sport. Two patients (Cases 2 and 8) did light work as civilians, but sedentary occupations are few in West Africa. The first 9 patients had served in the Abyssinian campaign in 1940–1. Factors which may have initiated or fostered the patients' disabilities are:

(a) Acute Fear.—The symptoms in Case 3 started immediately after the man had tripped over and fallen on a mined road, and in Case 4 after the patient had had to run some distance and dive into a slit trench, having been caught unawares by an enemy airplane.

(b) Infection.—Case 2 had malaria parasites in the blood on admission to hospital in E. Africa. Case 1 had dysentery about 2 months before the onset of symptoms, and Case 3 a week after admission to hospital in E. Africa.

(c) Encouragement of Patient's Conviction of Physical Disability.—Cases 1, 2, 3, 5, 7, 8, 9, and 12 had been retained in hospital for periods varying from one to six months. Cases 1, 3, and 9 received many injections, which were almost certainly antispirochaetal. Syphilis occurs in the West African, but yaws is universal. (Kahn tests were positive in four cases in this series.) Patients Nos. 2 and 9 were told that their hearts were affected, and No. 5 that he would never be able to do hard work again; No. 8 stated that his heart had been examined frequently, and that he had been told it was beating too fast. Every patient made spontaneous mention of his heart during the interview or examination.

In order to illustrate the most striking feature of this investigation a very brief account of the geography of the Gold Coast is necessary. The country forms a rough rectangle, about 350 by 190 miles, with its long axis running from north to south, and its base resting on the Gulf of Guinea. It is divided into three parts—the Gold Coast Colony in the south, the Northern Territories (N.T.) in the interior to the north, and Ashanti between the two. British Mandated Togoland skirts the eastern flank of the country. The West African soldiers, recruited in the Gold Coast and serving with the R.W.A.F.F. in 1941–2, were supplied by the three main districts as follows: Northern Territories, 53%; Ashanti, 10%; Gold Coast Colony, 34%; miscellaneous, 3%. The accompanying map shows where the patients in this series lived. It will be observed that, with the exception of Case 2, all the patients hailed from the southern half of the country, and that the Northern Territories, supplying 53% of the native strength, did not provide a single case.



Sketch map showing incidence of cases. The capital towns are marked. The figures in brackets represent percentage of troops serving with R.W.A.F.F. (Gold Coast) in 1941–2. Case Nos. indicate where each patient lived. Case 2 came from Freetown, Sierra Leone.

What is the explanation of the preponderance of cases from the Colony and the apparent immunity of the N.T. man? It is provided, I suggest, in the lower standard of mentality found in the people of the N.T. compared with that of the Colony natives. Not only are the latter a more intelligent people inherently but their mental outlook has been, and is being, changed by contact with Europeans, and there is evidence that this Europeanization is an important factor in determining the liability of the West African to suffer from effort syndrome. European coastal trading posts were established nearly 500 years ago by the Portuguese. European influence was at first confined to the vicinity of such posts, but it gradually spread, and by the Bond of 1844 British "power and jurisdiction" were accepted by many of the tribes living in what is now known as the Colony. To-day a relatively large proportion, although still a minority, of the people in the Colony are European in their outlook; their mode of living and thinking has been affected by close contact with Europeans, and by the radio, cinemas, newspapers, and so on. It is these southern tribes which supply the African lawyers, priests, and doctors, and "black-coated" workers such as teachers, clerks, and accountants. Our relations with Ashanti were of an interrupted and sanguinary nature until, after the Siege of Kumasi, Ashanti became a British colony in 1901, since when European influence has been steadily increasing. It is noteworthy that of the three patients from Ashanti two lived in Kumasi, the capital town and administrative centre, while the third lived only 10 miles north of the town. The Northern Territories became a British protectorate in 1901, but this change has had comparatively little effect on the life of the native.

All the patients under review showed evidence of their contact with Europeans. Thus they all spoke English—only one so poorly that an interpreter was required throughout the interview; but I would estimate that in a general ward an interpreter would be required in at least half the cases if a full history was to be obtained. Further, all these patients were Christians; in a general surgical ward of 40 beds 20 patients were Christians, 15 pagans, and 5 Mohammedans. Huxley (1944), surveying conditions in British West Africa, states: "Not more than one child in about ten gets any education at all," yet only one of the patients had received no schooling. On the whole their intelligence was well above that of the average native of the Gold Coast. I had the opportunity of observing Case 2, the Creole from Sierra Leone, who was posted to the hospital as a nursing orderly, and I found him to be perhaps the most intelligent African in the unit, being secretary to a study circle formed by some of the English-speaking personnel.

The response of the individual to mental conflict and such emotions as anxiety and fear, though depending to a great extent on his innate personality, is also affected by his upbringing, education, and experiences. It is generally accepted that a crude solution to mental conflict—as, for instance, conversion hysteria—is found more often in the less intelligent, while in the more intelligent occur such reactions as effort syndrome, which are subtler and less obviously related to the causative emotion. In the last war Rivers (1918) pointed out that conversion hysteria was more common in the "other ranks" and effort syndrome in the officers, and he suggested that one possible cause may be found in the difference of education, the officer being more widely educated and his mental life more complex and varied. I think it is reasonable to apply Rivers's hypothesis to the Gold Coast West African as between Colony man and N.T. man, taking into consideration the generally lower plane of intellect found in the West African. The patients in this series have, on the whole, been much influenced by "white" civilization. Their sphere of thought has been widened, and their ability to reason increased by knowledge and experience, this process being, of course, accompanied by a repression of the cruder instincts through a stricter mental censorship. The N.T. man still thinks simply, his powers of reasoning are limited, and he is much influenced by suggestion. During the period under review many cases of conversion hysteria were seen in the hospital; I regret that I have no figures or notes available, but I feel safe in stating that the majority of these cases were N.T. men. Certainly I found the language difficulty a great hindrance in getting *en rapport* with these cases, in contrast to the comparative ease with which one conversed with the patients with effort syndrome.

Summary

Twelve cases of effort syndrome in West African soldiers are recorded, and a summary of the case histories is given. Some of the possible predisposing causes are noted. It is suggested that the influence of European civilization is an important factor in determining the incidence of effort syndrome in the West African, and evidence is offered in support of this suggestion.

My thanks are due to Prof. Sir Francis Fraser, and to Dr. G. L. Alexander of the Colonial Medical Service, for criticism and advice; to Lieut.-Col. R. R. Bomford, R.A.M.C., who encouraged me to undertake this investigation; to Major T. Hodgson, M.B.E., R.W.A.F.F., for the figures relating to the enlistment of recruits; and to the Director-General, Army Medical Services, for permission to publish this paper.

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Medical Memoranda

Confluent Smallpox Treated with Penicillin

The use of penicillin in the case recorded below was a logical attempt to minimize secondary infection of the very extensive lesions of a severe confluent smallpox. The view that the patient had everything to gain and nothing to lose was encouraged by Prof. J. W. S. Blacklock, of Glasgow Royal Infirmary, to whom I am indebted for the generous supply of penicillin. The diagnosis was one of great simplicity, and the prognosis was given as the gravest possible by Sir Alexander Macgregor, medical officer of health, Glasgow, Dr. R. J. Peters, deputy medical officer of health, and Dr. J. Watson, medical superintendent, Robroyston Hospital, Glasgow.

Case History

The patient was an unvaccinated merchant seaman aged 38. He presumably contracted smallpox in a North African port, but the disease did not develop until he was at sea, bound for home. In the morning of March 26 he shivered repeatedly, and complained of headache, pains in the limbs, and sore throat. He was isolated in the ship's hospital, there being considerable fever and constitutional upset. The eruption began to appear on the forehead late on the 28th. He was removed to Robroyston Auxiliary Hospital on March 30, shortly after the ship reached port.

He was afebrile when seen on admission, and seemed only moderately ill. The eruption was very pronounced over the whole body. On the face it was made up of coalescing vesicles of large size. The scalp was markedly involved, though confluence was not so complete. There were numerous vesicles on the mouth, palate, and gums, especially so where teeth had been removed. Some degree of laryngitis could safely be attributed to lesions in the respiratory passages. On the trunk the rash was profuse and was papular and papulo-vesicular. On the wrists and hands it was practically confluent, particularly over a scar on the left leg. The trunk had very numerous lesions, there being many even on sites usually free of eruption. Of the lesions in general it can be said that the areolae were marked on the head and neck and less so elsewhere.

It was expected that a stormy illness would follow a rash of such profusion, and accordingly penicillin was given by intramuscular injection, it being feared that delirium might interfere with a continuous intramuscular drip. He was given 20,000 units of calcium penicillin early on March 31, by which time he was again sharply febrile. The injections were repeated every fourth hour, and later, as the rash matured, every third hour. By April 4 it was obvious that the illness was not likely to prove as severe as had been expected, and, the patient being fully co-operative, a continuous intramuscular drip was started, which gave him considerable relief. He received 100,000 units daily till April 7, by which date he was free of all constitutional upset and in fact convalescent, it being the 13th day since the onset. In all he received 800,000 units of penicillin. The highest temperature was 101.8° F., recorded on the 8th day of illness. Thereafter there was a steady fall by lysis. At no time was there any feature of clinical interest in the heart, lungs, or urine.

Comment

The evolution of the rash presented some points of interest. On the face it followed a fairly classical course, becoming a wholly confluent pustular mask. Crusting and desiccation were, however, pronounced by the 7th day of efflorescence, or the 9th day of his illness. Thereafter the skin of the face cleared rapidly. Facial oedema lasted no more than 24 hours, and was never very severe. At the time of his discharge, on April 25, there was no evidence of excess granulation tissue, and pitting promised to be minimal. On the trunk and limbs two features were noticeable: most of the lesions failed to increase in size after starting penicillin therapy, and most of them crusted, without going on to pustulation, on or about the 6th day after the eruption first appeared. Desquamation was complete everywhere except on the palms and soles by the 13th day of the eruption, or the 15th day after the onset of the illness.

It is not suggested that penicillin alone was responsible for the happy issue. It is well recognized that the immunity responses may so alter that the outcome of such an illness may well transpire to be other than that first envisaged. Nevertheless I am convinced that penicillin in this instance achieved all that was expected of it, whereas in comparable illnesses of previous outbreaks the intensive use of sulphonamides failed to prevent several fatalities. With the probability of further virulent smallpox reaching our ports, it may well fall to others to confirm the impressions gained from the treatment of this patient.

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Empyema complicating a Pneumothorax treated with Penicillin

The following case is interesting in that a pneumothorax occurred as the result of swallowing a safety-pin and a cure was effected by the use of penicillin.

A girl aged 2 years was admitted to hospital on Dec. 17, 1944, having swallowed a safety-pin, which lay point upwards opposite thoracic vertebrae 6 to 8. The pin was removed by a rotatory movement (in the absence of a pin-closer), and as injury to the oesophagus was suspected the patient was started on a course of sulphathiazole.

A radiograph taken on Dec. 18 showed a right-sided pneumothorax. Nothing except the sulphonamide was given by mouth from Dec. 19 to 22, and the pneumothorax did not increase in size after Dec. 20. The patient now appeared well, but on Dec. 23 there was a dullness at the right base, and a radiograph taken on Dec. 27 showed a small pleural effusion. On Dec. 30 a few c.cm. of thin pus was aspirated, and aspirations were repeated every other day until Jan. 4, 1945, when 50 c.cm. of thick pus was obtained. Culture of this pus showed pneumococci, which were penicillin-sensitive. The temperature ranged between 98° and 100° until on Jan. 1 it reached 101°. On Jan. 2 sulphathiazole was discontinued.

Penicillin therapy was started on Jan. 4, when 60,000 units in 50 c.cm. of normal saline were injected into the right pleural cavity. The injection was repeated on Jan. 6 and 8, and after the third injection the temperature remained normal. 40 c.cm. of thick pus was aspirated on Jan. 11, and a fourth injection was given on that day. This pus and 50 c.cm. aspirated on Jan. 17 were sterile, so that the fourth injection may have been unnecessary. Subsequent radiographs showed gradual expansion of the lung but persistent opacity at the right base, which was interpreted as thickened pleura, as no pus was aspirated after Jan. 17.

The patient was discharged on March 17. On March 27, when seen at the out-patient department, she was well, and a radiograph showed complete expansion of the right lung with a small amount of pleural thickening at the parietes.

Hull. L. A. Quirk, M.D.

Volvulus of Caecum with Reversed Rotation of Mid-gut

Volvulus of the caecum associated with reversed rotation of the midgut is a rare condition, so that details of the following case may be of interest.

Case Report

A woman aged 59 was admitted to hospital on Sept. 8, 1943, and stated that twenty-four hours earlier she had begun to have lower abdominal colicky pains, and that her abdomen had become larger. She had vomited several times and had not passed faeces or flatus since the onset of the pain. One week before the present attack she had experienced a similar pain which had lasted for two hours.

On examination the patient was a thin, frail woman in fairly good general condition. The abdomen was distended and tympanitic, the distension being chiefly central abdominal. Audible peristalsis was present and rectal examination revealed no abnormality. A Ryle's tube was passed into the stomach, and the fluid withdrawn was clear and bile-stained. A diagnosis of large-bowel obstruction was made and operation performed.

At operation under a spinal analgesic a right paramedian incision was made and the following condition found: a volvulus of the caecum, first part of the ascending colon, and lower ileum was present, the volvulus consisting of two turns about its axis. The greatly distended caecum was lying in the centre of the abdominal cavity. When the volvulus had been untwisted it was found that the caecum and ascending colon were mobile and had a definite mesentery. The transverse colon just distal to the hepatic flexure disappeared beneath the mesentery of the small intestine, and reappeared again on the left side. Drainage of the caecum was performed by means of a tube inserted through the terminal ileum, the tube being brought out through a small gridiron incision in the right iliac fossa.

Progress.—The ileostomy tube was removed one week later, and the ileostomy rapidly closed. The patient was discharged from hospital three weeks after operation.

Crumpsall Hospital, Manchester. Norman G. Godfrey, F.R.C.S.

Reviews

A REVOLUTIONARY SCHEME OF LOCAL GOVERNMENT

Physician, Heal Thyself. A Study of Needs and Means. By G. Scott Williamson, M.D. (Pp. 133. 5s.) London: Faber and Faber.

The title of this book gives little clue to its contents. It is a plea for a revolutionary scheme of local government which Dr. Scott Williamson calls "Liberal Socialism," defined as "the government of society by the individual for the individual." He thinks he can reconcile the claims of the community with those of the individual. He gives a clear and dogmatic exposition of this thesis applied in detail to our medical services. The author is a convinced believer in the rights of the individual, which have been neglected by what he calls "monopoly socialism"—government by bureaucracy. Medical services should be primarily local and directed not centrally but by the residents in the area, who could be trusted, if the means were provided, to see that good medical service would be forthcoming. His experience as medical director of the Peckham Pioneer Clinic has inspired many suggestions which seem reasonable, however Utopian they may appear at first. The overriding duty of the doctor is "to protect his patient," as his "counsel for the defence"; therefore the patient must have his own doctor, and not the State's doctor. Local clinical centres are essential, and all practice must be centred there. They must be "fully equipped with the tools and services required for efficient diagnosis and treatment"; staffed by general practitioners, who are the keystone of the whole service; the consultants and specialists are advisers used by the doctor in charge of the patient. Great stress is laid on a *free* transportation service for patients to the centre, to their homes or employment, and to hospital when necessary. So much of the time of doctor and patient might be saved by this as would be equivalent to adding 1/2 or 1/3 doctors to the list, and so enable the new service to start at once. To detect the minor ailments, whose importance he cannot stress too much, all members of the family should be overhauled periodically as at Peckham. These centres must have district hospitals, the beds being under the control of the doctors who send in the patients. "Their own doctor must see them through every illness because only he can assess the success of any treatment." "The sick person is the doctor's *patient* and the specialist's *case*." The specialist would be interested, if perhaps annoyed, by what Dr. Williamson has to say about his real status—viz., that of a technical adviser, on certain aspects of a *case*, to the doctor who is in charge of the *patient*. The future consultants and teachers should be "super-general practitioners" chosen from among those who have "succeeded in, and not retreated from, general practice." They must be elected by the men among whom they work. They would act as teachers and as executive officers, seeing that the instructions of the patient's own doctor are carried out. Patients must be paid their full wages while sick, their places being taken by apprentices and others who are being trained to do that particular work; trade unions should be responsible for this supply. He holds it to be as logical to pay the workers essential for the community, and to keep their jobs open while sick, as it is to do the same for civil and other servants of the Crown. The centres and hospitals should be under the control of lay committees elected by the potential patients in the area, as being the only people who can say whether the service is satisfactory or not. The role of the central Government is to collect the insurance contributions. It is merely the agent of the individual subscriber, and should no more be allowed to spend his money than his bank would be allowed to spend his savings. Subscriptions to the service should be based not on a flat rate but according to means, and these can be ascertained by dividing the income of the family by the number of dependants. "The rich must not be allowed to contract out of any public service." The local share of the money collected must be handed over to the local committees to spend according to the needs of the locality. The patient will pay his own doctor by drawing a cheque on his "local medical bank." He will no longer be a "panel patient" but "a patient with a cheque book." A suitable way for finding out what the doctors in total should receive would be to take their earnings in a year in which they did most work. As to the distribution of the money among the doctors the author is not too clear, for here he strikes the problem of how to distribute a limited pool equitably, and this has defeated all who have tried to solve it. There are patients who are too anxious to be visited and doctors who are too anxious to oblige. This must be met by surcharging the doctors with any excess over the mean, and thus a doctor "whose anxiety exceeded the mean would pay for his idiosyncrasy."

This is a bald outline of new and very interesting proposals undoubtedly attractive to many, both patients and doctors. But it all seems too easy—though the author has no doubt about it. It would certainly be opposed by the State Socialists and by the bureaucracy. The author's general philosophy of "Liberal Socialism" is open to criticism at many points. As one example, he says that "Nature hates dying as fiercely as she loves living." It could just as easily be argued that Nature is quite indifferent and that dying is as much a part of Nature as living.

This refreshing book can be cordially recommended to all interested in the future of medical service. Over and over again Dr. Scott Williamson emphasizes that he approaches this problem on the theory that the primary interest is the *individual* patient. He has no use for schemes whose main solicitude seems to be the community.

A. C.

ENDOCRINOLOGY OF REPRODUCTION

Female Endocrinology, including Sections on the Male. By Jacob Hoffman, M.D. (Pp. 788; illustrated. 60s.) Philadelphia and London: W. B. Saunders Company. 1944.

It has frequently been observed by reviewers that textbooks of general endocrinology have suffered invariably from the size of the subject, which is so large that it is almost impossible for one man to tackle it with any equality of standard. In many such books one branch of the subject is often excellently described, while others are neglected or treated in a manner which is mediocre or frankly bad. Dr. Hoffman's book is the first exception to this rule which we have met. It is true that he does not claim to treat of general endocrinology, but only of the reproductive aspects, which badly needed a modern textbook. Nevertheless, this is in fact a general textbook, for the author recognizes that the endocrine glands are so intricately linked that it is impossible to treat of one or two without instilling at the beginning a working knowledge of glandular physiology and pathology in general, and stressing throughout the influence of other glands. Thus it comes about that though in this book the spotlight is on the endocrinology of reproduction, the rest of the stage is well lit also.

The surefootedness with which Dr. Hoffman picks his way through the tangled undergrowth of stout brushwood and rotten boughs could be possible only for one whose general knowledge of his subject is great. To read Dr. Hoffman on the endocrinology of sex is to be convinced that he could with equal ease have chosen any other path and have written a textbook equally good with the emphasis shifted to other glands. It is the clear critical sense with which the author discards the rotten wood, and holds fast to that which is good, which gives the book its singular value. The bibliographies are short. Almost equally valuable is the breadth of mind with which he avoids the error of too much "hormone consciousness," seeing endocrine disorder always against the background of general medicine, bearing in mind especially the constitutional, psychological, and neurological factors which lie behind the bald "diagnosis" of too much or too little activity in this gland or that.

In England at least (and we have no reason to believe that it is different elsewhere) the practice of clinical endocrinology has too often been a hit-and-miss business, based on no sound foundation of experiment, over-optimistic and sometimes actively harmful. Worthless mixtures of inactive tissue extracts are still administered, with no benefit to anyone but the manufacturers, by doctors who have seen them "well spoken of in the advertisements." Potent preparations, especially of oestrogens, are injected in a mood of cheery optimism without even the preliminary precaution of a diagnosis. Were Dr. Hoffman's decently critical work on every doctor's desk the sufferers from endocrine disorder would suffer less and some of the hormone mongers would be the poorer.

AEROSOLS

Aerosols in Theory and Practice. By Archibald C. Lock, M.I.E.E. (Pp. 40. 5s.) London: Phantosol Products, Ltd.

An aerosol may be roughly defined as a suspension in air of fluid particles so small that they do not wet a solid surface with which they come in contact. It is now well known that suspension of certain disinfectants in this form is, under certain conditions, a remarkably efficient method of disinfecting air. Whether aerosols of any kind will ultimately be preferred to the use of glycol vapours for this purpose has yet to be seen. Those interested, particularly in the mechanics and physics of this subject will find much information in a booklet entitled *Aerosols in Theory and Practice* by Archibald C. Lock, the technical and research manager of Phantosol Products, Ltd., who manufacture apparatus for producing aerosols. He deals mainly with the theory of the subject, and the conditions necessary for efficient application. There is also a section on the use of aerosols as insecticides.

Notes on Books

For the fourth edition of *Medicine for Nurses* (W. H. Smith and Son, Greengate Street, Stafford, or through any branches; 2s. 6d.) Dr. W. Gordon Sears has carried out many minor alterations while retaining its general form. Cross-references to the author's *Materia Medica for Nurses* are not altogether an advantage, and in general there still seems too much detail for the average nurse. Accounts of the pathology of pneumonia (p. 241) or of the differential diagnosis between diabetic coma and hypoglycaemic coma (p. 366) seem beyond the scope of medical nursing. Dr. Sears might well assert that such knowledge is demanded by the syllabus, and so long as the demands of the G.N.C. remain so complicated this book will be of the greatest value.

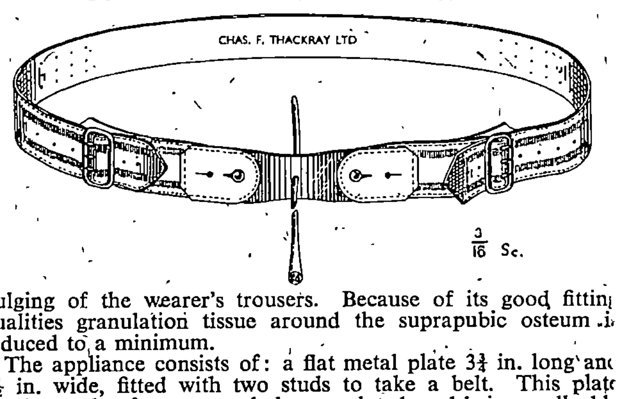
Preparations and Appliances

A METAL SUPRAPUBIC PLATE

Dr. W. Pearce writes from Moortown, Leeds:

The appliance shown in the figure is designed to overcome some of the difficulties experienced by wearers of a rubber suprapubic pad. Rubber next to the skin produces moisture and heat; these thick rubber pads in consequence lead to a friction dermatitis which is very tender and painful to the patient. This condition is entirely eliminated by wearing a metal plate. Being a good conductor of heat it rapidly dispels the heat.

Vaseline or liquid paraffin used to lubricate the catheters cause a curling up of the rubber pads which makes them quite unusable. The metal plate is unaffected by these substances. It fits snugly to the abdomen, is not bulky, and causes no bulging of the wearer's trousers. Because of its good fitting qualities granulation tissue around the suprapubic osteum is reduced to a minimum.



The appliance consists of: a flat metal plate 3¾ in. long and 1½ in. wide, fitted with two studs to take a belt. This plate can be made of copper and chrome-plated, and being malleable can be moulded where necessary to the wearer's abdomen. In the centre is a hole to take a size 18 English gauge standard rubber catheter. This hole is suitably bored so that the catheter is a fairly tight fit. The belt is of webbing of suitable width, lined inside with chamois leather so that it will be comfortable and prevent trouble from friction. It has been found an advantage to have two buckles, one on each side of the appliance over each iliac crest.

This appliance has been made for me by Messrs. Chas. F. Thackray Ltd., of Park Street, Leeds, to whom I am indebted for the able manner in which they have carried out my instructions.

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PROGRESS IN THE PSYCHIATRY OF WAR

At this stage in the war, during which we have seen so many great strides taken in both medicine and surgery, it is pertinent to ask what have been the advances made by psychiatry. Development has been as great in this as in other fields; and when we take into account how much less is known of the working of the mind than of the body the proportionate advance that has been made is even greater. There is no need to mention here the progress in treatment of the psychoses, in neuropathology, endocrinology, electro-encephalography, and along many other lines, to which an interesting special number of the *Journal of Mental Science*[1] was recently devoted. The impetus of war experiences has made itself principally felt in the study of personality, normal and abnormal, and of the neuroses. The stresses of war tend to provoke a neurotic type of breakdown, and during this war, as in the last, there has been no increase in the incidence of the psychoses. In a careful study Aubrey Lewis[2] has shown that among civilians the incidence of the neuroses has been surprisingly low—lower than in the Forces, and perhaps little greater than in days of peace. The reason for this is not clear, but it may be related to the end of unemployment, better standards of nutrition, and the provision of a real aim in life. Compared with the men and women in the Forces the civilian has retained liberty of action, allowing him to deal in his own way with the stresses of enemy action.

Numerous studies[3-7] have contributed to our knowledge of the clinical features of neurotic breakdown. All observers agree that there are symptomatic differences between the neuroses of the last war and this. In recent years anxiety neuroses and reactive depressive states have predominated, whereas in the last war the commonest neurosis was conversion hysteria, and anxiety states were principally confined to officers. The same observation has been made in Germany, where it was attributed to the National Socialist ideology.[8] In this country the difference has been attributed to a generally higher standard of education of the public; but it may also be the result of a higher standard of education among medical officers, who are now prepared to admit that a man may be ill with anxiety, and no longer require that he should be hysterically blind, deaf, or paralysed before admitting that the mind may react harmfully on the body. "Disordered action of the heart"—a favourite diagnosis in the last war—has given place to 'effort syndrome"; and now that that has been shown by Paul Wood,[9] Lewis,[10] M. Jones,[11] and others to be in every respect the equivalent of an anxiety neurosis it too has lost favour and has become a rare diagnosis. No longer do we talk of "shell shock": the organic approach has given place to such a preference for psychological interpretation that, with one exception (Anderson[12]), there have been no descriptions of the abnormal neuropsychiatric states that certainly arise from blast injuries. But such states as the result of head injury have been studied very closely, as appears from the recent review by E. Guttman.[13] At a varying time after the injury a syndrome of headache, giddiness, and nervous instability (Symonds[14]) is likely to emerge, particularly in the elderly and the neurotically predisposed. These symptoms tend to come and go in a way closely related to circumstances, and may even appear to be hysterical in nature; but the importance of the organic substratum is not now doubted.

Bodily changes of a reversible physiological kind may also help to bring on neurotic syndromes, especially in the acuter war neuroses, as has been emphasized by Sargant.[15] Many acute anxious and hysterical syndromes, apt to arise in men exposed to heavy bombing and shelling, do not appear before there has been physical exhaustion by loss of weight and lack of sleep. Treatment by securing some days of sleep and building up the general physical state with abundant food and doses of insulin has proved very successful. Prophylactic sedation may also be of value in saving the man in the line who has begun to show signs of wear.[16-18] The main external causes of breakdown in battle are, however, psychological strain and tension. Symonds[19] has shown that in aircraft crews the effects of anoxia, of acceleration, and of decompression are not so important as the emotional tension resulting from the prolonged exercise of courage. Lord Moran[20] has emphasized the same point: courage is a capital account, on which big and repeated drafts can be made only at the risk of bankruptcy. Symonds[21] points out that there is another side: a man may become conditioned to the stimuli which arouse fear in the tyro, so that in him they lack their usual effect. Symonds has gone some way to interpreting these effects in the light of the interplay of excitatory and inhibitory mechanisms in the C.N.S. The emotion of fear is a normal one, and the stresses of war are such as to have their effect on normal men, who can thereby become neurotic. There is, however, much individual variation in susceptibility to stress. According to the Slaters[22] men vary in the degree to which they are predisposed to breakdown in much the same way as they vary in height or intelligence. Big deviations from the average are rarer than smaller ones; and men who are very short or very panicky, or on the other hand are tall or immune to anxiety, are rare in proportion to the degree to which they show these characteristics. These quantitative individual differences may well be determined in part by heredity. Differences in the type of neurotic response are associated with differences in bodily build. W. L. Rees and Eysenck[23] [24] have found that the broadly built and sturdy are more likely than others to show hysterical reactions, while the relatively tall and narrow are more prone to anxiety reactions and effort syndrome.

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[1] *J. ment. Sci.*, 1944, **90**. Special Number.
[2] *Lancet*, 1942, **2**, 175.
[3] Curran, D., and Mallinson, W. P., *British Medical Journal*, 1941, **1**, 305.
[4] Cooper, E. L., and Sinclair, A. J. M., *Med. J. Austral.*, 1942, **2**, 73.
[5] Love, H. R., ibid., p. 137.
[6] Slater, E., *J. Neurol. Psychiat.*, 1943, n.s., **6**, 1.
[7] Torrie, A., *Lancet*, 1944, **1**, 139.
[8] Störring, G., *Bull. War Med.*, 1942, **3**, 33.
[9] *British Medical Journal*, 1941, **1**, 767, 805, 845.
[10] *Proc. roy. Soc. Med.*, 1941, **34**, 533.
[11] *Lancet*, 1941, **1**, 813.
[12] *J. ment. Sci.*, 1942, **88**, 328.
[13] Ibid., 1944, **90**, 328.
[14] *Injuries to the Skull and Spinal Cord*, Brock, S., 1940, p. 69, Baltimore.
[15] *Lancet*, 1941, **2**, 212.
[16] Sargant, W., *British Medical Journal*, 1942, **2**, 574.
[17] Grinker, R. R., and Spiegel, J. P., not yet published in unrestricted form.
[18] Heath, R. G., and Sherman, S. H., *Amer. J. Psychiat.*, 1944, **101**, 355.
[19] *British Medical Journal*, 1943, **2**, 703, 740.
[20] *The Anatomy of Courage*, 1945, London.
[21] *Lancet*, 1943, **2**, 785.
[22] *J. Neurol. Neurosurg. Psychiat.*, 1944, n.s., **7**, 49.

From the point of view of the armed Forces the neurotically predisposed have to be weeded out from combatant duty. This is but one of the problems that face departments for selection of personnel. Men have also to be chosen for the occupations that will suit them best, and the best men have to be chosen for these occupations by a system of priorities. All duties in the Forces tend to become more and more specialized, and the round peg is less likely to break in a round than in a square hole. The work done along these lines is still secret history, but considerable success has been attained.[25] [26] Perhaps the most important part of prophylaxis is played by good training and the maintenance of corporate morale. However, even here the doctor can help (Spiegel[27]). Once a man has begun to show the first signs of breakdown he must be treated as rapidly as possible. Quite a different type of psychiatric organization has accordingly been built up in this war from that available in the last. Treatment has been predominantly in units near the front line instead of far away at the base. Apart from the physical methods already mentioned, abreactive techniques such as narco-analysis[28-31] have proved valuable. While reduced to a semihypnotic state by barbiturates or ether the man is forced to re-live the frightening experience which precipitated breakdown; recovery of lost memories, disappearance of panic states, and abolition of battle dreams may be obtained with little demand on the doctor's time. It seems that these traumatic neuroses are not entirely inaccessible to psychoanalysis,[32] but owing to the size of the problem short-cut methods have to be employed. The need for economy of time has led to group psychotherapy,[33] in which large numbers of men may at the same time be taken over their problems, so many of which are held in common. The acceptance by one man of a reasonable explanation has its effect on all the others. When the psychiatric history of the war comes to be written it will make a fascinating chapter and be full of lessons for the psychiatry of peace.

CHEMICAL DISINFECTION OF THE AIR

The war which brought into being underground communal dwellings for civilians and overcrowded training camps for Service men and women has given a great impetus to studies on the mode of spread of respiratory infections and on methods for their control. The older conception that respiratory diseases are spread only by direct droplet infection requiring close contact has given way to the view, supported by an increasing volume of evidence, that infected dust and droplet nuclei which carry the infecting agents a considerable distance from their source are also important vehicles. In other words, air, like water, can be polluted bacterially as well as chemically, and in any inhabited intramural environment "respiratory" infections may be acquired without direct contact with a human reservoir. The risk will be greatest where the load of infection is heavy, due either to a high proportion of carriers or to overcrowding; or where the community at risk contains a large number of susceptibles. Thus, hospitals for infectious diseases, children's wards, schools, barracks, transport vehicles, and places of assembly will be the main depots for the dissemination of air-borne infection, and practicable methods of control will have to be applied at these focal points if the incidence of respiratory infections is to be materially reduced.

Methods that have already been devised and tested in the laboratory are dust suppression by oiling floors and fabrics, and disinfection of the air by ultra-violet light or by special chemical disinfectants atomized into the air. These methods are now being tested under field conditions, and only this practical experience will tell us what will be their respective spheres of influence. The likelihood is that they will prove complementary to each other, particularly as both physical and chemical aerial antiseptics lose much of their efficacy in the presence of dust. Evidence that oiling of floors and bed-linen[1] and the use of ultra-violet light[2] are efficacious in controlling the spread of respiratory infections has already been published. On the other hand, field trials of bactericidal mists (the earlier name "aerosol" is regarded as a misnomer) have been rare, despite the large amount of experimental work both here and in America. However, technical difficulties are being overcome, and reports on the value of chemical disinfection of the air in hospitals and in Army barracks are now appearing. Thus Harris and Stokes[3] have carried out an extensive trial of vaporized propylene and triethylene glycols in the wards of a seaside convalescent home for children. Conditions were particularly suitable for testing aerial disinfection; most of the children were confined to bed with rheumatic infection or for orthopaedic treatment, so that direct droplet infection was minimal. There was little ward traffic and the children were out on the balconies during warm periods; infected dust was therefore probably not a serious factor. The six test wards were al identical except that three were on the ground floor anc three on the first. Propylene glycol was used in the firs two winters and triethylene glycol in the third winter. Th glycols were vaporized by immersion of an electric resistance coil in a beaker containing the fluid, and the vapou was dispersed by electric fans. One ward of a pair wa treated with the aerial disinfectant for a 3-weeks period followed by a 3-days break to allow any incubating infections to declare themselves; then the other ward was treate while the original treated ward served as a control. A record was kept of all upper respiratory infections, classified as coryza, nasopharyngitis, tracheobronchitis, and otiti media. Over a total period of 81 ward-weeks there were 13 infections in the treatment wards and 132 in the control wards—a ratio of 1 : 10. During the winter 1942–3, when the common cold was unusually prevalent, only 3 instances of coryza were reported in the treated wards and 79 in the untreated group; the incidence of other respiratory infections in the same period was respectively 2 and 21. The concentration of propylene glycol in the ward air was around one part in 15 million (0.069 mg./litre) and the relative humidity was 30–60%, which is too low for the most effective use of the glycols. It was not easy to maintain a satisfactory level of triethylene glycol, which, though much more potent than propylene glycol, has apparently a narrow range between bactericidal and precipitating concentrations.

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[23] *J. ment. Sci.*, 1945, **91**, 8.
[24] Ibid., p. 89.
[25] Rees, J. R., *British Medical Journal*, 1943, **1**, 1.
[26] Line, W., and Griffin, J. D. M., *Canad. med. Ass. J.*, 1943, **48**, 394.
[27] Spiegel, H. X., *Amer. J. Psychiat.*, 1944, **101**, 310.
[28] Mallinson, W. P., *J. roy. nav. med. Serv.*, 1940, **26**, 281.
[29] Sutherland, J. D., *British Medical Journal*, 1941, **2**, 365.
[30] Wilde, J. F., ibid., 1942, **2**, 4.
[31] Sargant, W., and Slater, E., *Lancet*, 1940, **2**, 1.
[32] Rosenberg, F., *Internat. J. Psycho-Anal.*, 1943, **24**, 32.
[33] Jones, M., *Amer. J. Psychiat.*, 1944, **101**, 292.

[1] Wright, J., Cruickshank, R., and Gunn, W., *British Medical Journal*, 194 **1**, 611.
[2] See *Aerobiology*: Amer. Ass. Advancem. Sci., Washington, 1942.
[3] *Amer. J. med. Sci.*, 1945, **209**, 152.

These remarkable results were obtained under almost ideal conditions for the application of aerial disinfection. They suggest that this method of control is particularly useful in virus infections which are spread, perhaps much more than bactericidal infections, by droplet nuclei and which probably require a very small infecting dose. But chemical disinfectants are also effective against air-borne haemolytic streptococci, as Cruickshank and Muir[4] originally showed with resorcinol, and as Robertson and his colleagues[5] have proved by a 65% reduction in their numbers from the use of glycol in Army hospital wards. However, the American workers agree with their British colleagues that dust-suppressive measures are at present the most effective and most practicable method of controlling bacterial respiratory infections in hospitals.

There are still many technical difficulties to overcome and new aerial disinfectants like the lactic acid group[6] to be tested. What is particularly needed in this country are facilities for properly controlled field trials of these new weapons against disease.

X RAYS IN INTESTINAL OBSTRUCTION

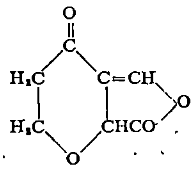
In the whole of surgery there is nothing that arouses greater anxiety than intestinal obstruction. One of the chief difficulties is the recognition of early and incomplete obstruction. Once the diagnosis has been made the main line of action becomes clear. Difficulties may arise later with regard to the amount of pre-operative preparation required, the right moment to operate, the anaesthetic, and the management of post-operative complications, and these decisions call for the exercise of sound judgment founded upon experience; but the whole process, in which the passage of time is of prime importance, will never be set in motion unless intestinal obstruction is first suspected. Confirmation of the diagnosis involves careful analysis of the history, prolonged and if necessary repeated physical examination, and the employment of any special diagnostic methods which may throw light on the problem.

The value of a recent monograph by Dr. Fredrik Koch[7] lies mainly in his assessment of the help which may be obtained from *x*-ray studies of obstruction due to adhesions and bands, though his painstaking and thoughtful statistical inquiries into the causation and results of this form of obstruction are also of much interest and importance. Since adhesions occurring in tuberculosis and cancer are excluded, his 145 cases fall naturally into two groups—those following laparotomy, especially for appendicectomy, comprising two-thirds of the whole, and carrying a mortality rate of 25%; and those without previous laparotomy, most frequently due to a Meckel's diverticulum, with a mortality rate of 36%. Koch advises that, whenever it is possible to do so, *x*-ray examination in the horizontal and vertical positions should be made, attention being paid particularly to the amount of gas in the small intestine. The appearance of fluid levels in the coils of gut is a later sign. He gives as a useful "control" the degree of gas distension found in association with renal calculus, perforated peptic ulcer, and acute appendicitis. Out of 119 patients examined a correct diagnosis of obstruction was made in 109, the mistakes occurring in the earliest stages —within 6 hours of the onset—where the accumulation of gas was minimal. He advises, further, that when operation is not immediately called for a small quantity of barium should be given and followed through, and he gives good pictures to show the arrest of the opaque meal in some of the doubtful cases.

The need for such special methods of diagnosis must be determined by the skill, patience, experience, and judgment of the clinician, but Koch makes out a good case for using *x* rays almost as a routine, and certainly when in doubt. His full review of the literature shows that he is not breaking new ground; but the thoroughness with which he has worked over his own material makes his record a worthy contribution to the subject.

PHARMACOLOGY OF PATULIN

As will be remembered, patulin is a product of the mould *Penicillium patulum*, and it was first described in detail by Birkinshaw *et al.*[1] in 1943. Its structural formula is shown on the right. It appears to be identical with claviformin,[2] clavatin, and clavacin.[3] A concentration of about 1 : 30,000 in glucose broth completely inhibits the growth of Gram-positive and Gram-negative bacteria. Appraisal of its properties was initially distorted by the claim (subsequently disproved) that it possessed curative action for the common cold. It has since been the subject of a very detailed pharmacological investigation by a team of skilled workers, and their recently published reports give an exhaustive account of this aspect of its action.[4]



Patulin appears to be a highly toxic substance, the dose required to kill 50% of the mice treated being 0.5 mg. per 20 g. if injected intravenously, or 0.3 mg. per 20 g. if injected subcutaneously or intraperitoneally: the greater toxicity by these two latter routes is curious. One of its chief actions is to damage the endothelium of the capillaries, causing a widespread and increasing oedema; this is accompanied by general peripheral vasodilatation. It also acts as a general tissue poison, as shown by its toxic effect upon the conjunctiva, upon ciliary movement, and upon the growth of fibroblasts in tissue culture; when applied to superficial wounds it delays healing, and ointments containing a concentration of 1 : 200 cause superficial necrosis. Minor pharmacological properties include a strong anti-diuretic action and a mild general stimulation of the respiratory, vasomotor, and other centres in the medulla oblongata. However, its general toxicity is thought to be too great to permit its therapeutic use. Doubtless all knowledge is valuable, but the investigators deserve our sympathy for having been led after all their careful work to this (clinically) disappointing conclusion. The organization of their research, however, deserves comment quite as much as its results do. The work was carried out as a collaborative study in the laboratories of the Therapeutic Research Corporation and in the Pharmacology Department of Oxford University. It is a good example of co-operation between academic and industrial scientists, such as was previously often described as one of the bases of (former) German pre-eminence in pharmacology and chemotherapy. It is also an omen of the increasingly large part in these fields which will be played by commercial laboratories. Sixty years ago advances in pharmacology depended mainly on the academic scientist working in isolation with limited resources; in the future they will depend much more on large, well-organized teams such as the one responsible for the work described above.

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[4] *Lancet*, 1940, **1**, 1155.
[5] *J. Amer. med. Ass.*, 1944, **126**, 993.
[6] Lovelock, J. E., Lidwell, O. M., and Raymond, W. F. *Nature*. Jan. 1, 1944, p. 20
[7] "Clinical and Roentgenological Studies of Acute Obstruction of the Small Intestines due to Adhesions and Bands," by Fredrik Koch, *Acta chir. scand.*, 1944, **90**, Suppl. 88, 165.

[1] *Lancet*, 1943, **2**, 625.
[2] Chain, E., Florey, H. W., and Jennings, M. A., *Brit. J. exp. Path.*, 1942, **23**, 202.
[3] Wiesner, B. P., *Nature*, 1942, **149**, 356.
[4] Broom, W. A., Bülbring, E., *et al.*, *Brit. J. exp. Path.*, 1944, **25**, 195.

CZECHOSLOVAKIA AFTER LIBERATION

A medical officer of the Czechoslovak Ministry of Health, Dr. A. Kleinzeller, at an U.N.R.R.A. conference in London has given some account of conditions in his country, from which he has lately returned. The main problems encountered in the liberated territory have been epidemics of dysentery, typhus, and typhoid, actual or threatening, and a difficult food and transport situation. The worst conditions were found in Moravia and Eastern Slovakia; in Western Slovakia and in Bohemia they were less severe. In Bohemia, for example, many of the hospitals are standing, whereas in Slovakia they were destroyed by the retreating Germans and Hungarians. The shortage of doctors has presented another urgent problem. In Bohemia and Moravia alone it is calculated that the normal medical population has diminished by one-half. This is due mainly to the exile of many Czech doctors, the departure of German doctors who had practised in Czechoslovakia, and the non-recruitment of students. The University of Bratislava remained open during the five years of the German occupation, but the Universities of Prague and Brno were closed and no doctors could be trained. The University of Prague has now reopened and has had applications from 2,800 students who wish to take up medicine. It has arranged shortened courses for a number of others who had already undergone some training. Dr. Kleinzeller described the German concentration camp at Terezin, about forty miles north of Prague, which he had visited the previous week. This was a camp with a population of 36,000, originally mainly Jewish. The Red Cross took over its protection on May 4, on which date a number of Czech doctors went in to cope with a severe situation arising from outbreaks of dysentery and typhus. The help of the Soviet army medical authorities had to be called in, and they took over the greater part of the task. In the Soviet hospital at Terezin there are now about 2,500 patients, mostly recovering from one or other of the epidemic diseases, and the Czech emergency State hospital has 1,200 more. Thanks to this double effort the epidemic has been stayed, and on the day of Dr. Kleinzeller's visit only five new cases of typhus were notified. In addition to the victims at Terezin a number of people are recovering from typhus in the Prague hospitals. The brighter side of the picture is the quick restoration of services, the resolute handling of the food and transport situation, and the assistance of U.N.R.R.A in the provision of medical personnel and supplies.

SUSPECTED PNEUMOKONIOSIS OF GRAPHITE WORKERS

Pneumokoniosis is a general term used to designate pulmonary reaction to inhaled dust, regardless of the type of dust or the kind of reaction. Certain dusts when inhaled in sufficient quantity give rise to typical pathological changes of the lung tissue—for instance, quartz dust may cause silicosis, and asbestos dust asbestosis. Silicosis was formerly attributed to a mechanical action of the quartz in the lungs, but tissue reactions similar to those of quartz were not produced in animals with diamond, silicon carbide, and other materials harder than quartz. The view is now therefore generally held that silicosis is due to a chemical action of dissolved silica, resulting in a destruction of primary phagocytes and the growth of redundant fibrotic tissue. No material that does not contain silica in some form is known to have a similar effect.

It is against this background that a recent communication by L. Dunner on pneumokoniosis of graphite workers[1] must be considered. Dunner presents skiagrams of five graphite workers which show various degrees of fibrosis The workers had been exposed to pure graphite dust for 17 to 30 years. In contrast to the marked *x*-ray abnormalities there were but few physical signs on auscultation and while three of the men were "chesty" (cough, sputum, shortness of breath) two had no complaints, and all felt fit for work. Dunner quotes Continental experience with workers exposed to graphite or carbon-black dusts, such dusts having been generally considered harmless. He believes, however, that his observations establish the fac that graphite inhalation does produce lesions in the lungs a fact not hitherto described in this country. But it mus be pointed out that in the most striking case, with massive opacities, 30 years of the working life have to be accounte for. Indeed, Dunner states that while no exposure to dus besides graphite was admitted to by any of the five men such exposure cannot be strictly excluded. It should be an invariable rule when describing possible dust lesions to give the occupational histories in detail; unless this is don it is impossible to attribute the lesions to a supposed cause

Graphite is a crystalline modification of the elemen carbon, and may be looked upon as intermediate between well-crystallized diamond on the one hand and amorphou carbon-black or ash-free anthracite on the other. Animal experiments with diamond, anthracite, and other forms of coal have, according to L. U. Gardner,[2] not caused an fibrotic tissue reaction, but V. A. Ravvin and P. A Eniakov[3] say that in animal-dusting experiments coals d bring about a limited change, anthracite more so than bituminous coal. From what is known at present it woul be surprising if inhaled graphite were to have any specifi damaging effect on the lung. To what extent the presenc of inert foreign material will impair lung function, or ho much of it would be required to constitute a hazard, i not known; nor do we know whether it would modif supervening infections. The lack of authentic symptom in the five graphite workers suggests that the "lesions inferred from the skiagrams may be accumulations o graphite, similar to "nodules" of an iron arc welder whic on necropsy were found to be collections of iron particles Knowledge of pneumokoniosis is still incomplete, and is a merit of Dunner's paper to have drawn attention t the *x*-ray appearances of the lungs of graphite worker It is to be hoped that more detailed investigations wi follow.

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[1] *Brit. J. Radiol.*, 1945, **18**, 33.

[2] *J. Amer. med. Ass.*, 1938, **111**, 1925.

[3] Private communication, quoted in M.R.C. Spec. Rep. Ser., No. 242, p. 151, 19

[4] Enzer and Sander, *J. industr. Hyg.*, 1938, **20**, 333.

THE CARE OF THE WOUNDED

An exhibition illustrating the care of the wounded in war is open to the public in the Mall, under the battlements of St. James's Palace, until the end of July. It is presented by the Red Cross and St. John War Organization in collaboration with the Army Medical Services, and sponsored by the *Daily Herald*. It was declared open by the Director-General, A.M.S.

The visitor is first introduced to a model of a battle area made to scale from an ordnance map representing ten miles of country and designed to show the normal lines of evacuation of wounded. Next comes a realistic reconstruction of a regimental aid post three-quarters of a mile behind the line, with battle casualties (life-size models) being brought in by stretcher-bearers and receiving first aid. Beyond this is a casualty clearing post formed by a field ambulance section, with its improved facilities for first aid and for making the patient comfortable for his further journey. A model of the advanced dressing station formed by headquarters of a field ambulance shows the provision for blood transfusion and for other treatment. Then we have a casualty clearing station in which urgent operations are being carried out by a lifelike team of surgeon, anaesthetist, sister, and operating-room assistant. The visitor next passes into a tented ward, supposed to be in the general hospital at the base, where patients spend some time before being invalided home or sent to the convalescent depot. Then there are a number of pavilions illustrating by photographs and models various aspects of the treatment of the wounded, such as the testing and use of penicillin. One pavilion is devoted to the activities of the Army Dental Corps and displays the various types of equipment for dealing with maxillo-facial injuries. Another is concerned with the preventive work of the Army Medical Services, such as the means of ensuring a pure water supply and protection against insect-borne disease. Occupational therapy, for which both the Army medical authorities and the Red Cross provide materials and instructions, is demonstrated in another pavilion. Then the eye is caught by such exhibits as an *x*-ray unit self-contained in its vehicle, a mobile dental unit, and an ambulance car, one of nearly a thousand which the Red Cross and St. John maintain in Army commands in this country and over-seas. One British motor ambulance which is on view has a history. It was abandoned at Dunkirk, and afterwards used by the Germans on both the Russian and Western fronts—it still bears German number plates and military markings—and was recaptured at Commeux last August.

A pavilion is devoted to the innumerable Red Cross and St. John services to the wounded—services which have no precise limits and adapt themselves to any need. They include the making of 13 million hospital garments by an army of 200,000 needlewomen, a library service which has put four million books into circulation among the wounded, 237 auxiliary hospitals in commission at the moment, and ambulances which have travelled eight million miles.

TUBERCULOSIS EDUCATIONAL INSTITUTE

Tuberculosis is a great national problem, and authoritative knowledge is required nowadays not only by doctors and medical students but also by social workers, health visitors, and interested laymen engaged in the campaign against the disease. In the near future new schemes of treatment, research, and restoration to working capacity will increase the need for education and training in modern ideas. Oversea and Empire visitors, doctors, and other health workers require instruction in British methods and antituberculosis measures. As briefly announced in the *Journal* of June 16, the National Association for the Prevention of Tuberculosis and the Joint Tuberculosis Council have formed a new organization, to be called the Tuberculosis Educational Institute, to supply these needs. It will be managed by a committee under the chairmanship of Dr. Frederick Heaf, with the following members: Prof. W. H. Tytler, Dr. A. S. Hall, Dr. A. Morland, Dr. J. C. Simpson, Dr. Norman Smith, Dr. D. P. Sutherland, and Dr. R. A. Young.

The functions of the new body will be: (*a*) to arrange courses, lectures, and demonstrations for the education of doctors, nurses, almoners, and social workers in tuberculosis; (*b*) to act as a centre of information in all matters connected with education in tuberculosis; (*c*) to recommend candidates for N.A.P.T. scholarships to assist doctors, almoners, nurses, and social workers to study tuberculosis; (*d*) to suggest lines of research in tuberculosis; (*e*) to issue a half-yearly index of tuberculosis literature; (*f*) to facilitate and encourage the study of tuberculosis in this country by visitors from over-seas.

The Tuberculosis Educational Institute will help the individual doctor or health worker seeking knowledge on the subject. A register of lecturers and tutors will be formed who will be available to give instruction to workers at home or from over-seas. A managing committee has arranged many successful refresher courses for doctors, health visitors, and social workers, and, with co-operation from postgraduate medical schools, these activities will be extended as opportunity offers to all parts of the country.

The work of the Tuberculosis Educational Institute will be arranged to fit in with the general scheme of postgraduate education now being planned. Its secretary will be the secretary-general of the N.A.P.T., Dr. Harley Williams, who has been placed at the service of the Joint Committee for Education (since its inauguration in 1943) by the Council of the N.A.P.T.

HEALTH AND SANITATION IN RANGOON

Health officers of the British military administration in Burma have announced that Rangoon is free from epidemics. The population is healthier than in any other part of liberated Burma, and has remained fairly well clothed, because of the large stocks of material which were left in the city in 1942. There has been no real food shortage in and around the city. Soap was produced in undamaged local factories, and thus contagious skin diseases, so prevalent in other parts of the country, have not reached epidemic proportions. Another reason for the local population's comparatively healthy condition was the attitude of the Japanese, who, contrary to what they did in most parts of Burma, made some effort to curb disease epidemics in Rangoon, where they came into daily contact with the inhabitants in the docks, munition factories, and supply dumps. Yet the Japanese refused to supply the city's hospitals with drugs; and left behind them large surplus stocks which the British military administration is using for the civilians. They removed the *x*-ray apparatus, although they did not use it themselves, and operations were performed without anaesthetics. To-day, broken sewer pipes have been repaired and the modern compression centre, now working again, has brought a greater part of the city's sewage system into operation. This area includes the crowded business, bazaar, and Chinatown sectors, where hundreds of civilians daily are returning from outlying districts. The 45-mile water pipe-line which brought fresh water to Rangoon—which has always suffered a natural water shortage—is under repair and will come into operation in a matter of days. At present there are sufficient water points in the city to supply the depleted population.

NUTRITIONAL LOSS IN FOOD PREPARATION

The losses of nutrients in the preparation of foodstuffs were the subject discussed at a meeting of the Scottish Group of the Nutrition Society at Dundee on May 19.

Prof. S. J. **WATSON**, of the East of Scotland College of Agriculture, gave a paper on the losses in conserving farm produce, a subject on which, he said, there was a dearth of accurate information. Losses from drying could not be avoided in grains, and in the case of potatoes disease and rotting took a toll; these losses had to be borne by the farmer. Many foodstuffs were still living when placed in store and had to continue to respire in order to live. Respiration involved the giving off of carbon dioxide, which resulted in a gradual loss of weight. In potatoes this loss amounted to about 1.3% per month, so that by the end of June some 15 to 20% had disappeared. The vitamin C in potatoes also fell during storage till it was almost half what it was originally; then it increased again to nearly the full amount just before sprouting began.

Miss **MARY ANDROSS**, of the West of Scotland College of Domestic Science, discussing this problem with special reference to cooking and plate waste, compared the relative loss when eggs were prepared in different ways. In scrambled eggs the loss was 13.5%, in poached 7.5%, and in an omelet 3%. In frying the loss depended on the temperature employed; at 126° C. it was only 1.5%, but at smoking temperature (235° C.) it was nearly 9%. In beef and mutton there was a loss of from 12 to 45% during cooking according to the cut, and plate waste was often very high. There were unexpected differences in the amount of waste between home-fed and imported meats. Losses in vegetables were frequently high, but varied with demand and with the season. Green vegetables were often so wilted when they reached the customer that much had to be rejected. This lack of freshness meant a big loss of vitamins A and C. Some other method of supplying fresh vegetables was needed to avoid the losses of essential elements. The speaker emphasized the importance of home production of vegetables, of increasing market-gardening facilities near towns, and of improving conditions of marketing. Investigations into the plate waste in nine schools showed that it averaged 7% for protein and for fat, but only 1.4% for carbohydrate. Plate waste in the home, on the other hand, was less than 2% for all the primary food factors.

Dr. C. P. **STEWART** said that fruit and vegetables when cooked might lose up to 30% of water and a corresponding proportion of water-soluble constituents. The water-soluble substances were more leached out by boiling than by steaming, and the process was increased by the duration of the cooking. Addition of baking soda.

by raising the *p*H, increased the loss of water-soluble materials, but the increase was not great and was compensated for to some extent by the shorter time required for cooking. Dr. Stewart pointed out that though the percentage losses during cooking appeared large, they might be of little real importance if the figures were small in relation to the total intake, but would be important in the case of certain vitamins which were not available in other foods. Ascorbic acid and aneurin were both subject to destruction during heating; the greatest loss occurred during slow cooking and while the food was kept hot before being served. For example, in April 150 g. of whole potato boiled and quickly served should yield about 10 mg. of ascorbic acid, but if mashed and kept warm for an hour before serving only about 3 mg. might be available. In meats or fish fat loss from liquefaction and leakage might amount to 7 to 20%. In the case of cereals, riboflavin, being relatively stable, was adequately conserved, but aneurin was more readily destroyed, especially when the *p*H was high. The loss was greater when baking powders were used instead of yeast.

Reports of Societies

THE ART OF COMMAND

Lord Moran, P.R.C.P., delivered the 56th Cavendish Lecture before the West London Medico-Chirurgical Society on June 19. His theme was "The Art of Command," and his illustrations were derived from his experiences as a serving officer in the 1914–18 war and as one privileged to have come into close contact with the leaders of the war of 1939–45. The citizen soldier of to-day, he said, unlike the yokel soldier of Agincourt, of whom Shakespeare wrote, "If these English had any apprehension they would run away," was an imaginative person, sceptical also, having been brought up, a child of the last war, to believe that war never settled anything. How was it that such a man had done so well? The effect of discipline, partly, but even more, he thought, *esprit de corps*. The young English officer did not easily become a juvenile Führer: he had an instinctive distrust of coercive measures, and therefore he fell back upon setting an example of imperturbability in the face of danger. Lord Moran recalled how one battalion of the Rifle Brigade had to cross a level space swept by shellfire. An officer dropped his gun and went back to pick it up with the same nonchalance as he would have picked up a dropped glove in the aisle in church. It had an immense effect on the men. That sort of example was infectious.

Of other qualities without which even genius was useless in war, Lord Moran mentioned toughness—the toughness exhibited by Foch: "My right yields; my centre collapses; situation excellent; I attack." But yet another quality was wisdom, a kind of greatness of which Eisenhower was an extraordinary example. Lord Moran found other examples in the Prime Minister and the late President Roosevelt, both of whom were incapable of petty things, and this led him into a personal digression: on an August day in Washington, on the eve of a journey to South Carolina, the President said to him: "You do not know the South Carolina sun. Look after the Prime Minister to-morrow." Next day, under a sweltering sun and amid clouds of dust raised by the tanks, a telegram was put into his hand by General Marshall: "You and Lord Moran are in command. Enough said.—Roosevelt." It was Roosevelt's pleasant way, in the midst of his own preoccupation, of reminding him of his particular charge. No wonder that the Prime Minister had said to him once, when they were walking in an orange garden at Marrakesh: "I love these Americans." When history came to be written the friendship between those two men would be seen to be one of the chief factors in the achievement of these years.

Another quality in command was knowledge of men. Some men who had themselves attained high positions were singularly lacking in their ability to pick the right people. They did not know a man when they saw him. The ability to know what was in a man, almost at a glance, was as invaluable to the commander of an army as it was to a consulting physician who might see a complete stranger every hour. Incidentally Lord Moran said that that was the late Lord Dawson's most extraordinary gift. He remembered being at a consultation with him, and after they had examined the patient they went into a room where there were seven relatives; Lord Dawson seemed to know, before anything was said, what was passing in the mind of each of them and the anxieties to which they were subject. It was no doubt a gift with which one was born; but it could be developed; and the way to develop it was to take an interest in one's fellow beings. Everybody claimed to have the gift of being able to judge his fellows. They would acknowledge that they could not bat like Hobbs or play the violin like Kreisler, but they would claim that they could sum people up. Yet it was one of the rarest of gifts.

In the earlier part of his talk Lord Moran attempted to define courage. Half a dozen answers, he said, might be given to the question "What is courage?"—that it was will power, lack of imagination, just phlegm, the result of discipline, the infection of example, the result of any idea which for the moment, possessing one, swept away fear. But three parts of courage was in control. A man had in his bank, said Lord Moran, a certain amount of courage, and when he became overdrawn he was finished as a soldier. It was not a fixed amount, for there was paying in as well as drawing out, but in the long run the soldier found that time was against him. People wore out in war just like clothes. Fatigue affected the soldier exposed to peril and hardship in exactly the same way as it affected the civilian who worked too hard over too long a stretch. One of the factors that lowered the morale of a soldier was his own thoughts—thoughts which went on festering in the mind.

In conclusion Lord Moran asked—and answered—three questions. Could war make any man a coward in time? He gave the verdict—without any time for the supporting proof—that modern war signally failed to make cowards out of good stock. When modern war had done its worst, if a man behaved badly and was unable to control his instincts, there was something wrong with the stock from which he came. Was imagination a help or a handicap in war? If imagination was controlled by character it meant the blossoming of the finest people of our land. And, finally, was courage common? If by courage was meant the capacity to act under orders it was common enough, but if by courage was meant the quality which gave a man some measure of leadership, then all the finest things in war as in peace were the possession of a few—a fraction of the people—in whose keeping was the honour of the race.

GYNAECOLOGY AND OBSTETRICS

At the April meeting of the North of England Obstetrical and Gynaecological Society Prof. D. **Dougal** demonstrated a specimen of granulosa-cell tumour of tubal type.

The patient, aged 22, had been married 2 years, and had a history of a three-months miscarriage soon after marriage. She complained of 17 months' continuous uterine haemorrhage, with backache as the only other symptom. The menarche had occurred at 11 years and her menstrual habit was 7/42 until the onset of the present complaint. Previous medical and surgical history was uneventful. Examination showed a well-developed young woman with normal secondary sex characteristics. Anaemia was present as a result of the bleeding. The right ovary appeared to be replaced by a readily palpable solid tumour about the size of a tennis ball. Granulosa-cell tumour was diagnosed, and on laparotomy this was confirmed, and in addition there was evidence of an antecedent pelvic infection leaving light film-like adhesions. Right salpingo-oophorectomy was performed. For three years she had now been perfectly well and had menstruated regularly, but she had not as yet become pregnant.

The specimen was a solid ovarian tumour, almost spherical, diameter 3 in. The tumour was encapsuled, lobulated, and of a bright yellow colour. Its consistence was firm and elastic. The histological picture showed well-developed tubules more or less divided into lobules by incomplete septa well supplied with blood vessels. The remainder of the ovary, containing Graafian follicles, etc., was seen stretched over the tumour outside the capsule. No recent corpora lutea were present. The general arrangement of the tumour suggested that it had originated in the medulla or hilum. The tumour was an encapsuled, luteinized, and hormonally active adenoma of the ovary. The hormonal activity seemed to be oestrogenic. It was a highly differentiated tumour, but along unusual lines, the tubular arrangement being not unlike that of Pick's testicular adenoma of the ovary, which, however, was a virilizing tumour. Traut and Butterworth (1937) described and illustrated a tubular type of granulosa-cell tumour. Similar types have been described by Varangot (1938) and D. N. Henderson (1942). In Henderson's case there was vaginal bleeding with precocious development of sex characters in a girl aged 7 years. This type of granulosa-cell tumour must be extremely rare.

Primary Carcinoma of Fallopian Tube

Dr. W. R. ADDIS read a note on three cases of primary carcinoma of the Fallopian tube. He pointed out that the first primary carcinoma of the Fallopian tube ever recorded was by Renaud of Manchester in 1847. In the next 96 years 227 cases were traced in the literature. They occurred in gynaecological cases roughly 1 in 6,000. This formed 0.5% of genital cancers in women. There was a survival rate of about 6%. Three cases had been recorded previously in the North of England Society.

The first was that of a woman of 39 who had had a child 17 years before. She had bearing-down pain with occasional gushes of clear fluid per vaginam, and this seemed to relieve the pain. The uterus was definitely enlarged and a fullness could be felt in both fornices. Supravaginal hysterectomy with the removal of both appendages was performed. The uterus contained a small fibroid. Both tubes were closed and dilated, and contained clear fluid. Projecting into the cavity of the left tube was a mass about the size of a thumbnail which proved to be a papillary adenocarcinoma. Soon after returning home she developed ascites and swelling of both legs and died within a year.

The second case was that of a married woman aged 55, a virgo intacta. There had been a slight post-menopausal haemorrhage for two months. Gushes of clear fluid occurred, noticed while playing golf. Diagnostic curettage revealed nothing abnormal. Six months later when she was seen again a large pelvic mass could be felt to the right of the uterus, having a fungating projection into the vagina. She died within a year of first being seen. In spite of the absence of pathological evidence, the history of intermittent gushes, etc., pointed to a primary carcinoma of the Fallopian tube.

The third case was that of a woman aged 60. She had two children. For five weeks she had had a blood-stained discharge; and she thought that she was having sudden losses of urine accompanied by lower abdominal pain on the left side. On dilatation of the cervix several ounces of fluid escaped, and this was collected. Bimanual examination showed a soft mass in the left lateral fornix. The fluid was reported by the laboratory as not being urine. Panhysterectomy was performed. The specimen showed a solid tumour about 1¼ in. by 1¼ in. just proximal to the fimbriated end of the left tube. The uterus contained a small endometrial polypus. Doran had described a watery discharge in 47% of cases, and it seemed to be the most typical symptom. Pain sometimes (but not always) accompanied this phenomenon. The expectation of life was apparently short. Dr. Tod of the Radium Institute pointed out that these cases were difficult for deep *x*-ray or radium therapy because of the mobility of parts and the fact that this type of cancer was resistant to radiation.

Peroneal Palsy after Parturition

Miss ELEANOR M. MILLS read a short paper on peroneal palsy following parturition. This was described by von Basedow in 1838, after which the majority of contributions had come from French obstetricians. In 1939 only 107 cases had been reported in the literature, though the condition was fairly common. The seven cases described by Miss Mills had been collected from the local records of hospitals over a period of three years.

The first case was a second para aged 37. Two years before, she had been delivered of a 9½-lb. baby with difficulty and forceps. Soon after delivery paresis of the dorsiflexors of the left ankle had appeared, and it was six months before she was able to get about. She had a contracted true conjugate, and a narrow subpubic angle and outlet. She still dragged her left foot slightly, tended to walk on the ball of the foot, and there was some definite wasting of the anterior tibial group of muscles on the left side. She was induced about three weeks before term, and labour progressed satisfactorily except for low forceps. A live 8½-lb. child was delivered. There were no signs of peripheral nerve damage after this delivery.

The second case showed some general contraction of the pelvis. The head was occipito-posterior, and manual rotation and forceps were required. Considerable force was necessary for extraction. The child was delivered strictly in the antero-posterior position. A stillborn 9-lb. baby was produced. On the next day the mother had pain, numbness, and tingling over the outer aspect of the left thigh and the whole of the leg and foot. Full dorsiflexion could not be obtained, and over the dorsum of the foot there was diminution of the epicritic sensation. By the sixth day she had regained full dorsiflexion and all disturbances of sensation had disappeared.

The third case was a primigravida. She had a long labour; the position of the child was occipito-posterior. Manual rotation and forceps extraction were performed with difficulty. A stillborn baby was delivered. Ten weeks after delivery, when seen by Miss Mills, she was noticed to have a generally contracted pelvis. She limped badly. Complete loss of eversion and extension of the ankle-joint were present, all sensory symptoms having by this time disappeared.

The fourth case, aged 34, was a primipara with ample measurements. The position was left occipito-anterior. She had a long first stage (77 hours) followed by a mid-forceps extraction. Delivery was exceedingly difficult. The child, 8 lb., was extracted. Pain in the right leg was complained of, and paresis of the anterior tibial and peroneal muscles of the right leg was found. Foot-drop was still present when she was transferred to the orthopaedic surgeon on leaving hospital.

The fifth case was a sixth para who was in labour 44 hours. The presentation was a brow lying in the right oblique diameter with face to the front. A craniotomy was necessary. Two days later pain appeared in the right leg and then paresis followed. She was treated by passive movements, and by the time of discharge the condition had cleared up.

In the sixth case manual rotation was necessary after a fairly normal labour and an 8¼-lb. baby was extracted with some difficulty. The next day cramp-like pain was felt in the left leg, and shortly afterwards paralysis followed. No sensory loss was detected. On discharge three weeks later the paralysis of the dorsiflexors of the left foot was still nearly complete. She was referred to an orthopaedic clinic.

The seventh case was one of albuminuria of pregnancy; but, as the albumin persisted, she was induced by rupturing the membranes at 38 weeks. The position was L.O.P. A deep transverse arrest of the head occurred; and manual rotation and forceps extraction were necessary, and were performed apparently without much difficulty. Next day tingling was felt in the right lower limb and dorsiflexion was impossible. There was no sensory loss. One month later there was still some slight degree of paralysis.

In the commentary Miss Mills pointed out that one or more of three essential factors were always present: disproportion, prolonged or difficult labour, or instrumentation. It appeared that the upper roots of the sacral plexus lay against bony walls of the pelvis and were thus exposed to pressure during certain difficult labours. Dorsal offshoots of these nerves received the chief injury. The external popliteal nerve was made up of these fibres, and therefore paralysis was chiefly located in the distribution of this nerve. The main mass of the sacral plexus was to some extent cushioned by the pyriformis muscle. It would seem that it was in the generally contracted pelvis rather than the rachitic pelvis that the plexus was in a more vulnerable position, because of the deep niches on either side of the projecting vertebral promontory in the rachitic pelvis. It would be noted that in two cases only did the paralysis occur on the side on which one would expect the pressure from the foetal head to occur. One must presume that the peroneal nerve had been damaged by instrumentation in four of the cases.

Lower-segment Caesarean Section

Dr. K. V. BAILEY read a paper on this subject. Since a previous paper which he gave to the Society in 1934 his series had increased by 285 cases, of which 75 had been elective. The operation had been carried out twice in 45 cases, three times in 4 cases, and four times in 1 case. There were 2 maternal deaths, and 3 children failed to survive. He had never been in two minds concerning the superiority of this operation over the ordinary classical one. In his series there were 22 cases in which the indication was placenta praevia. Particularly with local analgesia, bleeding was not excessive, and there had been no cases of sepsis or embolus. In the cases in which a lower-segment operation had been carried out more than once in the same patient he had always been gratified to find the perfect healing which the lower segment had undergone and the almost universal lack of adhesions to the scar. Five patients delivered themselves through the pelvis following lower-segment Caesarean section. He regretted that the majority of the cases—all but 31—had been under general anaesthesia. He now favoured local analgesia; if he had any criticism it would be (1) that the perfect premedication for all types was difficult to find; (2) that the well-trained nursing staff essential to deal with the mental and physical preparation of the patient and the theatre staff to assist at operation were not always available in outlying hospitals and nursing homes; and (3) that there might be some effects of premedication upon the child, for there was no doubt that the respiratory centre in some infants was highly susceptible to the influence of narcotic drugs.

He reiterated his view that lower-segment Caesarean section was the operation of choice in all cases, while admitting that the risk increased rapidly in non-elective cases, and particularly when potential or actual sepsis was present. But he believed the operation to be safest for mother and foetus. It could be used in clear, suspected, or infected cases without jeopardizing the general condition of the patient or exposing her to peritonitis. It allowed the use of trial labour, avoided embryotomy of the living foetus, and permitted the development of subsequent pregnancies without fear of uterine rupture. The operation should be carried out as often as possible before the commencement of labour or early in labour. The question of clinical skill in the assessment of indications and contraindications would, of course, always remain.

In the course of his paper Dr. Bailey gave some account of opinion in the United States, where the classical operation was still in vogue, notwithstanding the exclamation of one prominent American obstetrician, "How long will it be before the classical Caesarean section is outlawed?"

EXOPHTHALMOS AND ENDOCRINE DISTURBANCES

A discussion on this subject took place at a meeting of the Section of Ophthalmology of the Royal Society of Medicine on June 8, Mr. P. E. H. ADAMS presiding.

Dr. W. RUSSELL BRAIN said that this was a complex problem for which no current hypothesis was adequate. The syndrome called exophthalmic ophthalmoplegia was characterized by exophthalmos, chemosis, external ophthalmoplegia, swelling of lids, and, in severe cases, papilloedema. The puzzling feature in its aetiology was that such a clinical picture might be associated with (1) thyrotoxicosis, (2) myxoedema, or (3) a normal state of thyroid function. Two conflicting solutions had been proposed by British workers. Mulvany[1] believed that there were two forms of exophthalmos—thyrotoxic and thyrotrophic. Rundle and Pochin[2] maintained that exophthalmos in Graves's disease was due to an increase in bulk of retro-ocular tissues, the increase being due to fat and being greatest in the eye muscles. Rundle and Wilson[3] proposed to distinguish two forms of Graves's disease—an ophthalmic form without thyrotoxicosis, and a thyrotoxic form. Clearly this view was unsatisfactory, for if the ophthalmoplegia was due to increased fat caused by thyrotoxicosis what could be the cause of it in non-thyrotoxic cases?

There was now considerable evidence in favour of thyrotoxic exophthalmos and ophthalmoplegia, however thyrotoxicosis might operate. Some evidence had been forthcoming that exophthalmos might be produced by administration of thyroid extract and disappear on its withdrawal. There was also to be remembered the improvement in both exophthalmos and ophthalmoplegia which sometimes followed thyroidectomy, but neither exophthalmos nor ophthalmoplegia was usually severe in thyrotoxicosis, except perhaps in older patients. It must not be too readily assumed that exophthalmos which was not thyrotoxic was thyrotrophic, and vice versa. Might there not be a further factor? After thyroidectomy there was commonly a rapid gain in weight, and already, owing to the thyrotoxicosis, there was increased fat in the orbits. What was the effect of the rapid deposition of more fat? Were the progressive exophthalmos and ophthalmoplegia in such cases to some extent mechanically induced? If so, three causes of exophthalmic ophthalmoplegia would have to be recognized—namely, thyrotoxicosis, thyrotrophicosis, and the rapid change from thyrotoxicosis to hypothyroidism or even to normal.

Dr. Brain reviewed 61 cases he had seen, in 11 of which the condition had followed thyroidectomy and in 1 had followed thiouracil. In the post-thyroidectomy group males were affected at least four times as often as females, and as females got hyperthyroidism nine times as often as males, males were 36 times more likely than females to get exophthalmic ophthalmoplegia after thyroidectomy for thyrotoxicosis. This striking sex difference seemed to favour an endocrine factor in aetiology rather than mere increase in weight or myxoedema. For treatment he had chiefly used oestrogen for both sexes. The results were mostly disappointing, occasionally good. Most patients improved up to a point. He had increased the dose up to 20 mg. of stilboestrol in some cases.

An Attempt at Grouping

Prof. IDA MANN said that part of the difficulty of diagnosis might arise from failure to recognize that two entirely different conditions were concerned. It was possible to distinguish clinically between the condition in which there was a large amount of exophthalmos with a great deal of lid retraction, but no true oedema of the lids themselves, and the condition in which there was true oedema of the lids with proptosis. She divided her series of cases into three groups in the attempt to find out whether it was possible to distinguish from a clinical and treatment point of view these two main types—namely, one due to excess thyroxine, and the other to the action of the anterior lobe of the pituitary. The pituitary undoubtedly had a regulating mechanism, and under conditions of stress it might secrete more thyrotrophic hormone because there was need for more thyroxine to meet the emergency. Her three groups were as follows:

1. Cases in which there had been a primary deficiency of thyroxine with a compensatory excess of thyrotrophic hormone, which was thus present without thyroxine to utilize it. These were people in whom a gain in weight was first noted, coinciding with exophthalmic ophthalmoplegia and oedema of the lids.
2. Cases in which there was a history suggesting thyrotoxicosis, the initial symptoms being loss of weight, tachycardia, tremor, followed by ophthalmoplegia and exophthalmos. These were people in whom there had been an excess of thyroxine, and the thyroid had then atrophied or had been removed, and the symptoms had arisen sometimes following mental shock or anxiety.
3. Cases in which both conditions appeared to have started simultaneously—loss of weight, tachycardia, tremor, exophthalmos, and ophthalmoplegia all coming on after sudden shock.

Her first group consisted of three men and one woman, all between 50 and 60. Two conditions could be distinguished clinically in these people: oedema of subcutaneous tissue and protrusion of orbital fat. These two conditions looked quite different and felt different on palpation. In this group the basal metabolic rate was consistently low.

In the second group there were 10 cases—8 men and 2 women, their ages ranging from 44 to 76. In 7 of the cases there was a definite history of shock or mental strain, often associated with air raids. The basal metabolic rate was low among those who had had thyroidectomy, high among those who had not. The main line of treatment was thyroid extract for those who had had thyroidectomy, also tarsorrhaphy and plastic operations where necessary.

In the third group there were 4 cases—3 males and 1 female. All had a raised metabolic rate. In two cases there was much improvement after thyroidectomy or deep *x*-ray therapy, and others benefited from rest and operation on the eyelids.

End-results of a Syndrome

Dr. S. L. SIMPSON said that much might be done by a psychiatric approach to the problem in view of the large part which anxiety or shock played in thyrotoxicosis and in exophthalmic ophthalmoplegia. Much had been learned in recent years about duodenal ulcers, extrasystoles, disordered action of the heart, and effort syndrome, and it all seemed to depend upon which part of the tissues of an individual was susceptible to impulses from the hypothalamus and perhaps from the pituitary. He could not help thinking that they were looking at the end-results of a syndrome which could produce such widespread effects. Once aware of the mechanism, they could spend more time on the psychiatric approach.

He put forward a theory which he hoped to have the opportunity of testing in selected cases—namely, that in all these cases there was activity of the thyrotrophic hormone, and in some of them plus thyroxine. He had seen many hundreds of cases of people who had had very large doses of thyroxine, producing sweating and so forth, and he had never seen—though he knew it was reported here and there—exophthalmos of any severity caused by thyroxine alone. He thought that thyroxine must be ruled out as an uncomplicated cause of exophthalmos. If it was accepted that the pituitary thyrotrophic hormone operated both in Graves's disease and in the exophthalmic ophthalmoplegic group, in those cases which presented a different clinical picture the thyroid was incapable of responding to the thyrotrophic hormone. This was not improbable on clinical grounds, considering that the age of the patients concerned was about 50, and that they were predominantly in males, the thyroid being much less labile in men than in women. The theory could be put to the test by injecting these people with thyrotrophic hormone and watching for a rise in the basal metabolic rate.

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[1] *Amer. J. Ophthal.*, 1944, **27**, 589.
[2] *Clin. Sci.*, 1944, **5**, 51.
[3] Ibid., p. 17.

Simple and Malignant Exophthalmos

Mr. E. E. Pochin said that Rundle and he had collected a series of 17 cases of thyrotoxicosis coming to necropsy and had made a full removal of the orbital contents. Among other findings they established that the position of the eye was correlated with the degree to which the orbit was filled post mortem, and that that tissue was increased in the exophthalmic subject. Their diagnosis was that 6 of the 17 thyrotoxic cases had exophthalmos; in all these cases it was a simple exophthalmos, not the so-called malignant type, with oedema of the conjunctiva and chemosis. The position of the eye was correlated with a corresponding increase in the bulk of the retrobulbar tissues, and such increase was due to an increase of fat in the orbital tissues. This change occurred not only in exophthalmos subjects but generally in the whole group.

What was the relation between simple exophthalmos and malignant exophthalmos, in which there were florid and marked changes? Here he thought they should suspend judgment, not coming down at present too heavily on one side or the other. He did not think it could be established that the two were the same condition or different stages of the same condition, but equally it could not be established that the one was essentially different from the other. The distinction between simple and malignant exophthalmos was made at a stage when it was thought that simple exophthalmos was not associated with increase of bulk or with ophthalmoplegia, whereas malignant exophthalmos was so associated. But it had now been shown that there was an increase of bulk in such cases, though it was small, corresponding to the smaller degree of exophthalmos. On the other hand, it was quite clear that there were differences histologically between the simple and the malignant type. In the latter a gross oedema was present which was not found in the former. It was possible that the two were just the mild and the severe stages of a common process associated with increasing bulk of the retrobulbar tissues, and that when that bulk reached a certain stage secondary complications, possibly interference with vascular drainage of the eye, were encountered.

Nova et Vetera

THE FOLK-LORE OF TOOTHACHE

The quinquennial Wallis lecture on the history of dentistry[1] held before a joint meeting of the Sections of Odontology and the History of Medicine of the Royal Society of Medicine was delivered by Dr. J. D. Rolleston on Dec. 30, 1944.

After a short account of the popular aetiology of toothache, in which the worm played a prominent part, the lecturer dealt with the various forms of folk-lore treatment, which he classified as follows: human, animal, plant, and mineral remedies; transfer, hydrotherapy, charms, patron saints, especially St. Apollonia; filling, extraction, and miscellaneous cures. Owing to the wealth of material, as was shown by the extensive bibliography, no reference was made to superstitions connected with discoloration and mutilation of the teeth in savage races, the legend of the Golden Tooth, the tooth-brush and toothpick, and the various aspects of dental surgery apart from a brief allusion to filling and extraction. The lecture was illustrated by portraits of Pierre Fauchard, "the father of dentistry"; Peter Lowe, the founder of the Faculty of Physicians and Surgeons of Glasgow; Karl Sudhoff, the historian and author of a history of dentistry; Sir Armand Ruffer, the palaeo-pathologist; and Mr. C. E. Wallis.

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[1] *Brit. dent. J.*, 1945, **78**, 225, 257.

H. Ingraham and A. Hesse (*Amer. J. Syph. Gon. ven. Dis.*, 1944, **28**, 733) report a case of transmission of syphilis from a mother to her child *in utero* and from the child after birth to the father by contamination of his conjunctiva.

Correspondence

Bridging the Gap

Sir,—Dr. Ff. Roberts (June 16, p. 848), in common with the late Sir Thomas Lewis and the Goodenough Committee, stresses the importance of the transition from the pre-clinical to the clinical part of the medical course. He places much responsibility on the pre-clinical teacher, but while many of his assertions are individually salutary, there is another way of looking at the question. When the student starts pre-clinical work his mind, so far as the physical constitution of man is concerned, is a blank. In 18 months he must learn the language in terms of which he will think for the rest of his life. It includes not only the names, relations, and derivations of the parts of the body, but a visual or other mental image of the living systems and their interrelations. He is finally supposed to be able to regard a man as a whole, and in contemplating any part of him to see it in relation to its surroundings, and from it to be able to pursue any one of half a dozen physiological lines of thought which must not be confined within the barriers of the "systems" of formal teaching.

To raise the student by any method of teaching from zero to this point in the available time is impossible. He must raise himself, and he must use books, remembering that there is no perfect textbook and there never will be. Whatever the source of his knowledge, whether experiment or the spoken or written word, it is of little value unless he is building it into his own purely personal understanding of the body. The function of the teacher is to give instruction, guidance, and inspiration, always with the aim of fostering this self-reliant approach to facts which students often refer to as a desire to "get to the bottom of the matter"—in other words, to satisfy their own personal criteria of understanding. The aim is qualified by the practical necessity that whatever interest is aroused by a part, the final result must be an understanding of the whole, and the time is limited.

It is pardonable, and even desirable, in pre-clinical teachers that they should employ some diversity of method in achieving this end. I know of none who underrates the importance of bringing the student into the closest contact by way of his senses with the facts he must use as raw material. But many physiological and anatomical facts must be accepted at second hand, and the synthesis of all he knows, including the explanatory application of his previous knowledge of the physical sciences, must be a mental process and personal to the student. The teacher can help him greatly, but he cannot do his thinking and visualizing for him. Much of the raw material which is used in reaching the limited objective of understanding how the body is made and works has no other purpose, though it may serve to inculcate careful habits of observation and reasoning.

I conceive that the Goodenough Committee's emphasis on principles rather than facts, whatever they may mean by the actual words, is an expression of the belief that an understanding of the body as a whole—or perhaps one should say a working knowledge—can be achieved by the use of fewer facts than are now presented. Many clinical teachers believe that the selected facts should be "useful" to the student in his clinical years. There is sufficient truth in these ideas to make them deceptive if seen out of perspective. An attempt to apply them at present may be expedient, but should not be made blindly, or with our vision clouded by lip-service to a thorough scientific training. Medical scientific knowledge will continue to grow and cannot even now be encompassed by the medical student. The real question is whether he should base his understanding of the body on as few or as many facts as possible.

The foregoing remarks bear directly on the transition to clinical work. A man going to live in a foreign country may be equipped with a thorough grounding in the language, or with a phrase book, or with a compound of the two. Only experience can show the influence of previous training on his ability to become a useful citizen. In any event, the mitigation of his difficulties in the first few weeks will depend chiefly on those who receive him, and particularly on their sympathetic realization that by their standards he is woefully ignorant whatever the system on which he has been taught. Otherwise, the transition is a stimulating experience and not to be feared.

In pointing out the responsibility of the clinical teacher I again emphasize the magnitude of the *main* task of pre-clinical teachers in relation to the time at their disposal. The majority of them carry it out thoughtfully and to the best of their ability and with the knowledge that it is contributory. Some of their machinery, taken out of its framework, is susceptible to ridicule. Many desirable methods involving the use by students of anaesthetized mammals are excluded by law. Good and bad teachers and good and bad research workers are diffused throughout the course, and the sum of their influence defies easy generalization. A realistic approach to the problem of how to educate a doctor should not be too much influenced by the "reality" of his experiences in hospital. His mental scaffolding is also real and cannot rest on that which it is designed to support.

Time is the great enemy to ideals of education, which, as Dr. Roberts points out, alter but little. The nature of the compromise with time may be changed somewhat, may be improved somewhat in relation to a specific purpose, but it remains a compromise. If a more strictly vocational medical course is instituted, opportunity must be provided for some students to study the pre-clinical subjects more thoroughly, and not only in Oxford.—I am, etc.,

Department of Physiology, Liverpool University. W. H. Newton.

Generous Gifts from American Medical Women

Sir,—In July, 1940, Dr. Esther P. Lovejoy, chairman of the American Women's Hospital Board of the American Medical Women's Association, sent a cheque for $500 to the British Medical Women's Federation to be used "for the relief of civilians in bombed areas." Further sums were promised, and the Federation was asked to administer the fund. Every month a cheque for a minimum of $500 has been received—always for a larger amount during intensified bombing. In all £12,280 will have been sent to us, for we learn that we are to continue to receive $500 a month up to the end of this year. To commemorate VE-Day we received by cable a special thank-offering of $2,000 to be divided between four named hospitals. In her letter confirming this Dr. Lovejoy writes:

> "It has been a great privilege to be of a little help in our common cause. We are very lucky indeed as a nation to have been beyond the reach of bombs this time, although some little ones from Japan are floating in on the breeze to our western coast. The people in England have suffered continuous casualties for five years, and all we could do was to help them a little."

Throughout the war the money has been used to aid cases of special hardship in bombed areas in all parts of Great Britain and Northern Ireland, in hospitals, institutions, and private homes, and we shall continue to help in this way until the fund is closed.

We have endeavoured adequately to express our profound gratitude and appreciation to our medical colleagues in America, but we feel that this outstanding example of generous and practical sympathy on the part of women doctors over-seas deserves to be more widely known. It will be one of the many bonds of friendship between this country and the United States.—I am, etc.,

Janet M. Campbell,
President, Medical Women's Federation.

Rheumatism and Orthopaedics

Sir,—As an orthopaedic specialist who has for some years been interested in the problem of rheumatism, may I congratulate my friend Sir Adolphe Abrahams upon his comprehensive summary of some aspects of this problem and for the constructive proposals that he makes in his lecture entitled "Rheumatism: Postgraduate Instruction" (May 12, p. 671). As this lecture constituted his opening address at the postgraduate course upon rheumatism at the L.C.C. Rheumatic Unit at St. Stephen's Hospital in March of this year, it may be permissible to draw attention to the fact that ever since its institution and throughout the war this unit has given a course of lectures and practical demonstrations upon rheumatism twice a year, under the auspices of the Fellowship of Medicine, to large and growing numbers of postgraduates, including many doctors from the Services.

May I, from personal experience, endorse the remarks of Sir Adolphe Abrahams concerning the importance of avoiding watertight compartments and the great need for a broad knowledge of general medicine by the physicians who will staff the proposed rheumatism centres. At many clinics physical medicine very properly plays an important part, but the physicians are, in many cases, specialists in different highly technical branches of physical medicine. They can hardly be expected to have the broad outlook and general experience of medicine which are so necessary for the preliminary examination and sorting out of the patients. There is sometimes noticed a tendency for them to pin their faith on the methods of which they have special knowledge and experience to the exclusion of other forms of treatment. It falls to the lot of most orthopaedic and general surgeons to operate upon many patients whose chances of complete recovery have been jeopardized by the delay due to a too ready acceptance of the diagnosis of "rheumatism" as a cause of obscure pain. The suggestion, therefore, that a thorough grounding in general medicine should precede the more specialized training in rheumatic diseases seems to me to be admirable. It would be valuable also if, in the staffing of the new centres for rheumatism, the medical director and a good proportion of the medical staff were men engaged in general medical consulting work, preferably at the hospital to which the rheumatism centre is attached.

As an orthopaedic specialist I note with satisfaction the importance that Sir Adolphe Abrahams attaches to the orthopaedic aspects of rheumatism. The large numbers of cases of terrible deformity which are far too often seen testify to the fact that the orthopaedic aspects of rheumatism, and particularly the prevention of deformity, are not yet sufficiently appreciated in many quarters. The formation in 1942 of a Joint Committee of the Empire Rheumatism Council and the British Orthopaedic Association, one of the objects of which is to stimulate closer co-operation between physicians interested in rheumatism and orthopaedic specialists, should do much to remove this reproach from British medicine.

In the average rheumatic sufferer the orthopaedic aspects are never less than equal in importance to and often transcend the purely medical. This particularly applies to chronic cases in which the disease has "burnt itself out" and left stiffness and deformity. Such cases are almost 100% orthopaedic. Yet often such patients are referred to the physician and remain under his care for long periods when what is really required is expert orthopaedic treatment. It is of the utmost importance, therefore, that every new rheumatic centre should include a well-equipped orthopaedic department, and an adequate number of orthopaedic beds should be provided. The orthopaedic surgeon should have regular visiting days: the practice of referring cases to him at some other hospital does not make for the intimate co-operation that is essential. Orthopaedic specialists, as Mr. Capener observes (*B.M.J.*, May 26), occupy a kind of borderland between medicine and surgery, and their province includes not only the treatment but the prevention of deformities. However, at many rheumatism centres, although the advice of the orthopaedic specialist will often be sought in difficult cases, prevention will be the concern of the physician. The latter should be thoroughly versed in the principles of deformity prevention and in the technique of the application of plaster casts, which are often invaluable. He should be familiar with the optimum positions for joints, with methods of extension and injection and other medical orthopaedic measures. When deformity has occurred the advice of the orthopaedic surgeon should be sought without delay; every day that passes makes specialized orthopaedic treatment more difficult and success more problematical. Manipulation of stiffened arthritic joints under anaesthesia is a method of the greatest value in carefully selected cases, but this work is highly technical and *cases requiring manipulations under anaesthesia should always be referred to the orthopaedic surgeon.*

What does Sir Adolphe Abrahams imply by the term "orthopaedic physician" which he prefers to that of "rheumatologist"? I share his dislike of the latter term, which calls to mind the "watertight compartment" mentality, but if the implication is that the "orthopaedic physician" is one who specializes in the prevention of deformity, plaster work, etc., are we not encouraging an even more narrow sphere of specialism? Would such an ultra-specialist be likely to acquire that broad outlook on disease which Sir Adolphe Abrahams in the rest of his lecture so cogently advocates?—I am, etc.,

London, W.1. A. G. TIMBRELL FISHER.

The Edinburgh Outbreak of Smallpox, 1942

SIR,—I was very much interested, in a surprised sort of way, to read the article under the above title by Dr. C. Killick Millard (March 3, p. 304). My surprise and interest were all the greater when I realized that Dr. Killick Millard holds the same epidemiological ideas about vaccination which he apparently formulated about half a century ago.

Dr. Millard's interpretation of his classification of the 36 cases of smallpox which occurred in this Edinburgh epidemic into weeks is, from the epidemiological point of view, quite erroneous. It is well known that it is quite impossible to stop an outbreak of smallpox, where, as practically always is the case, the first cases are picked up in the course of ordinary medical practice, which means that there are a large number of contacts, under a minimum period of six weeks, for these reasons:

1. Protection by lymph vaccination against smallpox cannot be assured unless the individual exposed to smallpox has been successfully vaccinated at least 14 days before such exposure. Hence the occurrence of smallpox among persons vaccinated (even quite successfully) *after* exposure.
2. It takes at least one week even in the best organized of communities for a sufficiently large number of persons to be successfully vaccinated (that is, to develop an immunity against smallpox)—and it must be remembered that quite a large proportion of persons vaccinated do not "take" on the first vaccination or revaccination as the case may be—to put an effective check on the spread of the outbreak.
3. After this period sporadic cases of smallpox must be expected for a further minimum period of three weeks.
4. It is not necessary for a particular population to be 100% successfully vaccinated to stop an outbreak of smallpox in a community provided with doctors on the lookout for smallpox, ambulance, isolation hospital, and disinfection facilities, as Edinburgh is.

Of course, if the first case is discovered early—say on a train or in a ship—vaccination of all immediate and possible contacts may be all that is necessary; but I consider that the 1942 Edinburgh outbreak was handled in the only way possible, and because of the correct approach to it by the city health authorities it went "according to plan." That is to say, 25 cases occurred up to date when mass vaccination was begun—i.e., during the first week of outbreak as diagnosed—9 cases occurred during the immunizing period of 3 weeks, and only 2 cases during the sporadic period. The deaths from postvaccinal vaccination are regretted, but the deaths from smallpox would have been very much greater had not the population of Edinburgh been quickly and adequately protected by the measure of mass vaccination undertaken by the health authority.

The statement that "the less vaccination the better so long as we can achieve our object, which is effective control of smallpox," is quite meaningless, and one which no health officer in his right senses would even for a moment consider. The psychological effect of mass vaccination is, as Dr. Millard says, an important factor. My experience has been (and this is pretty general) that a good "take" has a marvellous effect on settling the nerves of a jumpy community, the fear of contracting smallpox being infinitely greater than the possible discomfort of a sore arm (even if it puts the patient to bed for a few days) or even of the possible contracting of post-vaccinal encephalitis.

Of course, there are always those unhappy persons who regard as a species of personal martyrdom what ordinary people take in their stride, and whose unreasoning and ignorant selfishness makes them perfectly willing to shelter behind the protective care of others. I have yet to see the conscientious objector to vaccination offering to nurse in a smallpox hospital or even to help vaccinate smallpox contacts. These peculiar gentry always manage to keep well away from danger but are loudest in their criticism of those who face it!—I am, etc.,

Assistant Health Officer, Union Department of
Public Health, Union of South Africa. A. L. FERGUSON.

Wanted: Prophylactic Vaccine for Typhus

SIR,—In connexion with the danger of an epidemic of typhus arising as a sequel to the terrible war that has just been waged in Europe, I would like if some of the readers of your widely circulated *Journal* could inform me what exactly is the best prophylactic for typhus, together with the name and address of the manufacturers, the best method of administering the prophylactic, and the actual cost. This information is necessary so that some of the prophylactic may be obtained for the County Louth Health Department for use in the event of an outbreak.

There has, I may add, been only one outbreak of typhus in the past 20 years in County Louth, which occurred in 1939. There were five cases in all and three deaths, giving a case mortality of 60%, which is something close to the usual mortality rate met in most outbreaks of typhus exanthematicus. The amazing feature about the County Louth outbreak of typhus (1939) was that it was proved pretty conclusively by the then M.O.H. for the county, together with an inspector (medical) from the Department of Local Government and Public Health, that the cause of the outbreak was the wearing, by those attacked, of clothes which they had taken from an old trunk where they had been stored for some time and which belonged to people who experienced an attack of typhus a considerable period before 1939.

With regard to the suggestion that rickettsiae bodies survived for a long time in the clothes contained in the trunk, thus bridging a prolonged interval between two outbreaks, is this possible? Or is it more likely that there might have existed a reservoir in the domestic rat, transmission from rat to rat being by the agency of the rat flea, and when the flea was hard put to it to find a new host he bit man, and in this way the outbreak occurred?

So far as I am aware the prophylactic vaccines used in typhus are: (1) that prepared by Durand by propagation on the mouse lung of the rickettsiae; (2) Weigl's vaccine, which consists of killed rickettsiae, prepared by injecting the anal aperture of the louse with *Rickettsiae prowazeki*, and allowing the organisms to multiply for a week, the lice being fed during the intervening period on immune subjects: the lice are then crushed in phenolized saline; (3) vaccine prepared by Cox by growing the rickettsiae on the yolk sac of the developing chick embryo.—I am, etc.,

Public Health Department, Dundalk, Eire. JOSEPH FAHY.

Attenuation of Measles

SIR,—It has been said that the age of 5 years forms a sharp dividing line between measles as a menace and measles as a nuisance, and for the general practitioner, who, in the main, has to deal with epidemics of measles, the very vital question arises whether there is a practical method of attenuating measles in the dangerous period up to the age of 5. In describing such a method, which is simple and often practicable, I am fully aware of the vast amount of work that has been done in the prevention of measles by convalescent serum, pooled adult serum, and serum globulin, but a remark recently in the *Journal* (March 3, p. 300) leads me to stress the importance of the following method, for which, of course, I do not claim originality.

In a general way the children of a family escape measles until the eldest goes to school at the age of 5. Within two or three years this child usually contracts measles. It has been my practice now for some years to inject 8 to 10 c.cm. of whole blood from one of the parents intramuscularly into the younger child or children. After a considerable experience of this method I am prepared to say that one can look forward with confidence to an attack of measles in the younger children so attenuated as to be trivial to a degree. The cough is slight or absent, as is the febrile state, the rash is trivial and fleeting, there is no conjunctivitis as a rule, and it often seems a farce to keep the patients in bed, if indeed they so consent. Admittedly, the degree of immunity conferred varies, but that matters little if attenuation is considerable. A few points deserve mention:

(1) The dose of blood should be given to the juniors as soon as the rash occurs in the older child; 8 to 10 c.cm. is adequate. (It used to be said that 10 to 20 c.cm. was necessary.)

(2) The donor parent obviously must have a definite history of measles.

(3) No blood grouping or matching is necessary.

(4) In a family, the very high susceptibility to measles is here an advantage. One *knows* when the attack is coming in the inoculated though the incubation period is prolonged.

(5) Lasting immunity is believed, on good authority, to follow an attenuated attack.

(6) It is sometimes possible to use some whole blood from an older child previously protected by an attack. In such a case 5 c.cm. or less should be given. It is more likely to cut out the attack altogether.

(7) The great advantage of whole blood is its simplicity and its immediate applicability, and, further, it is much more likely to secure attenuation only than convalescent serum. I do not, of course, deny the value of complete prevention in certain cases.

(8) There has been no general reaction to the blood injected, and only slight local tenderness.

During the epidemic since October last I have notified 92 cases of measles. I have injected blood in 25 contacts: in 23 cases from parents, in 2 from protected older children of the family; 14 had definite but much-attenuated measles. The most pleasing feature was that the cough was absent or slight, except in a child subject to croup, who developed croup. One child had a profuse rash and conjunctivitis, but a trivial illness and coughed for one day. Eight children had no attack; four of these were under 1, and may not have had true exposure to infection. The other three ought, by all the rules, to have had an attack.

During recent weeks letters have appeared in the *Journal* advocating the routine use of the sulphonamides in uncomplicated measles at the outset. The indiscriminate use of such potent drugs, not incapable of doing harm, in a brief self-limited febrile illness where defervescence occurs spontaneously in a few days, hardly appears in accord with sound therapeutic principles. It is rather like cracking a nut with a sledgehammer. Surely, it would seem more rational to reserve these drugs for possible complications. The reasons given for their routine use appeared singularly unconvincing, especially as, as Dr. L. G. Jacob pointed out, no attempt seems to have been made with controls.

In this connexion it would not seem out of place to mention that in my 92 cases the four complications were two cases of acute laryngitis, one bronchopneumonia, one possible case of glandular tuberculosis (not proved). There were no deaths. I would make no claim, of course, to any special treatment except in those cases where attenuation was secured.—I am, etc.,

London, N.W.7. A. H. MORLEY.

Artificial Respiration in the Newborn

SIR,—The need for artificial respiration in the newborn is an emergency which faces all doctors with fair frequency. The method of applying the mouth to the infant's mouth with a napkin intervening is commonly used. With this method one has assurance that air is really entering the lungs of the child. The method can be more conveniently applied by means of a small (infant-size) anaesthetic facepiece, with a flexible tube attached, the end of which can be held in the operator's mouth. I have had one of these made with a metal mouthpiece which can be easily held by the teeth.

This contrivance has the advantage of enabling the operator to stand in a comfortable position and to observe the patient. The mask, which has a pneumatic-cushioned edge, is held in close apposition to the child's face over mouth and nose. Needless to say, before the apparatus is used the presence of mucus is dealt with in the proper manner. To facilitate drainage this method can be applied with the child in the head-down position.

I should be interested to learn if this very simple idea has been found useful in the experience of others.—I am, etc.,

Rhayader. J. POOLE.

Painless Childbirth

SIR,—We have long felt that experienced obstetricians should be grateful to Dr. Grantly Dick Read for his valuable contributions to an understanding of the care and control of a woman's emotions before and during labour. We would like, however, to comment on two of the statements in his letter in the *Journal* of June 2 (p. 784).

He asks: "Do scientific and biologically minded men, even though they have no particular philosophy, really accept without question that the most desirable experiences of a woman's life and her obvious natural urges are rewarded in their ultimate perfection by an ordeal of pain and danger?" In our opinion the answer is unquestionably, Yes; and this view is upheld by a study of reproduction throughout the whole animal world. So far as we know no species of mammal is immune from the dangers of reproduction. Anyone who has witnessed a cow or mare in the process of giving birth to its young would never question whether it is a painful process, and a study of the evolution of reproduction will reveal abundant evidence that Nature is meticulously careful with the preservation of the species while she is often ruthless with the parent. Surely it is more true to say that pregnancy is a healthy process from the point of view of the race rather than of the individual. When the mammalian scale is reached and the egg is retained in the maternal body during its development, it is hardly surprising that a strain is thrown on the maternal organism, which now has to supply all the needs of the foetus.

The second point we wish to comment on is what Dr. Grantly Dick Read considers to be normal labour. We have all heard of the primitive races to whom childbirth is almost a painless function. But these people belong to a pure racial type in whom the shape of the head and the types of pelves are almost a constant. We, however, have to deal with a very hybrid race. Between the various classical types of pelves, we meet with every graduation and combination of types. And, of course, the foetal head will show an almost equal variation of shape and size. It is hardly surprising, therefore, that the slight deviation from normal is a very common occurrence. We presume that Dr. Grantly Dick Read would not expect such cases to be "quite painless."—We are, etc.,

R. CHRISTIE BROWN.
London, W.1. E. R. REES.

Women in Labour

SIR,—A careful reading of the correspondence on women in labour added to one's own experiences of maternity work in a rural practice, where time is always pressing owing to the distances that have to be travelled, leads to the conclusion that some 90% of women in labour desire and require analgesia terminating in anaesthesia. This, to my mind, can only be achieved, short of the introduction of some new drug, by either: (1) the invention and introduction at a reasonable price of some new mechanical inhalation machine which is 100% foolproof for self-administration under a nurse's supervision, as is the Minnitt, and which is, unlike it, 100% effective in 100% of cases; (2) the attendance for a minimum of 8 hours of an anaesthetist.

As to (1), it should not be beyond the wit of man to produce such a machine sooner or later. But as to (2), there are two governing factors that for many years seem insuperable: (i) Medical man-power. (ii) The fees that any anaesthetist would rightly require for such attendance would be beyond the reach of the vast majority of the patients who require his services, and would also preclude any national maternity service from employing practitioners in such capacity, for obviously no man could average more than 5 to 6 cases weekly.

Only in one way can these two apparently insuperable difficulties be solved, and that is by the recruiting and training of a body of "unqualified" anaesthetists for maternity work. There are many branches of medicine where doctors rely exclusively on such medical auxiliaries, without whose work much could not be accomplished—such as laboratory and radiography technicians—and once the inbred conservatism that is always manifested towards the unqualified be overcome, there is nothing revolutionary in the idea, except, perhaps, the ends to be gained.

After a training period of 2 to 3 years, which should include a good grounding in biology and physiology with a far longer practical training in anaesthetic administration than the medical student ever obtains, there would be to hand a body of auxiliaries available for the long hours of attendance requisite in maternity work, and who, owing to the much shorter training period undergone as compared with the doctor, would be willing to receive fees at a much lower rate than the qualified anaesthetist. One proviso I would add—namely, the administration of such auxiliaries be limited entirely, to inhalation anaesthesia and to maternity work alone.

To the many obvious and justified criticisms that will and can be levied against this suggested scheme, three questions can be posed at once: (1) How else is the demand of women in labour to be met? (2) Does not the competence attained by many district midwives with "rag and bottle," after somewhat sporadic training by the local practitioner, augur well for what could be done after 2 to 3 years' special training? (3) Who, with the exception of the specialist anaesthetist, gives a better gas-and-oxygen anaesthesia than the average dentist?—I am, etc.,

Lincoln.

SIDNEY WRAY.

SIR,—Some years ago now a mother nearing the end of her second labour told me that in her first labour I had given her chloroform, and asked that she should feel all that a woman could experience on this occasion. She told me later that the feeling of the child slipping out of her was the most satisfying thing in her life. Some time ago a woman consulted me about the sickness of pregnancy, and when I told her that this was out of date now, she replied that she had read a book which said pregnant women were sick, so she was. I told her that happy pregnant women were not sick, so she stopped being sick at once.

The point I am making is that mind affects matter. The doctor who says "the penalty for a normal labour is having to go through hell unaided," and talks about labour as "an unforgettable nightmare," will surely have a lot of troublesome women who need a whole lot of anaesthetics and analgesics. Surely the average woman, if correctly trained mentally and if protected from "folk," is well able and willing to deal with an average labour without a lot of analgesics and anaesthetics. This is not sadism, but common sense and experience. If a woman is unduly sensitive to pain, or if the labour is abnormal or prolonged, then help will be required. Pethedrine fills a gap in our needs, and is worthy of wide recognition and use.

But I cannot help thinking that the secret of easy midwifery is small babies. I have found the induction of labour by castor oil, quinine, and pituitrin safe and good; but it does not always work. One hesitates to rupture the membranes without some very definite indication for induction. If, therefore, someone can discover for us something that will start labour off easily, surely, and safely he will be doing the cause a great service, for then we need have no large babies and less tiresome midwifery, and, incidentally, there will be less need for analgesics and anaesthetics in labour.—I am, etc.,

Rotherham.

ERIC COLDREY.

SIR,—I read the letters on women in labour with interest and would like to add my word to that of Mrs. Jean Sutton (June 9, p. 823) on the subject of normal labour.

Before the birth of my first child, 21 months ago, I read *Revelation of Childbirth*, by Grantly Dick Read. I have had no medical training, but I concluded that his arguments were sane and sound. Regular and recognizable contractions began at 5 p.m. on the day my baby was due. They caused me no pain, and I was unafraid. At 10 p.m. I retired, and, relaxing completely, fell asleep. I awoke at 4.30 a.m. with a strong contraction, and the midwife was sent for. Contractions were then occurring at four-minute intervals and the midwife was puzzled at my "light-heartedness." At about 5.45 a.m. I experienced some discomfort with each contraction. On entering the second stage and pushing hard, however, the discomfort ceased entirely. My baby was born at 6.40. Unfortunately the practitioner who attended me mistook my refusal of anaesthetic to be due to some religious obligation and thought I was intent on "suffering unnecessarily," so that after a rather undignified battle, during which the head crowned, I was obliged to breathe through the wretched chloroform mask.

My second child is due in a month's time. I am not a brave woman, neither am I insensitive to pain (a visit to the dentist makes me feel sick with apprehension and very dry in the mouth), but I look forward with great joy not only to seeing and holding the new baby, but to bearing it. I think that to a woman who has been instructed on the conduct of labour and is free from fear normal childbirth is a supreme experience, and I appeal to all doctors to help, and not to hinder, more women to find it so.—I am, etc.,

GWENDOLINE ROWNTREE.

Caudal Analgesia

SIR,—I have just received by air mail a cutting of Prof. F. J. Browne's interesting letter on continuous caudal analgesia (May 26, p. 746). I would like, if your space permits, to make a few further observations.

First, it is consoling to find that in this quarter obstetric analgesia is being followed and carefully assessed. On the other hand Prof. Browne quotes in support of his views and presumably therefore concurs with this statement: "The use of such a hazardous procedure . . . to relieve the *usually innocuous pains of labour* [my italics]." This remark so well illustrates the point I wish to make in the opening paragraph of my original letter that further comment (except perhaps from those who have borne children) is superfluous.

Criticism of the alteration in mechanism of the labour leading to a more frequent use of forceps is, of course, valid; it should be mentioned, however, that in the great majority of cases this involves only the low outlet forceps to bring the head over the perineum. This procedure is, I believe, devoid of risk to mother or baby under proper conditions. Dr. Hingson has emphasized (accounts in the popular press very naturally do not represent his views) that this method is applicable to patients under good hospital conditions, and then to only 75% or so of these for this and other reasons. This proportion in a widely constituted and well-equipped maternity service would represent a very large number of patients benefited.

It is not denied that fatalities have occurred, as evidenced by the cases referred to by Prof. Browne; the salient question is, surely, whether these were avoidable and could be corrected by variation of the technique, or intrinsic in the method—e.g., the case of sepsis, an obviously controllable factor. Reference to the inception of any method of anaesthesia will lead to at least as startling an array of discouraging facts. More difficult to explain than these early mishaps would be the figures, which I shall hope to provide, of the latest large series without them, if one is to start with the assumption that the method is dangerously unsound.

As my address and the demobilization plans of the Navy will explain, I am not in a position to provide the references for the positive side of the picture immediately, but I hope to obtain them before they are too late to be of interest. I should be very pleased to have Prof. Browne's further comment on them; my own experience is so small and my ignorance so large that I cannot without these references offer him any more immediate "cannon fodder."—I am, etc.,

T. B. FITZGERALD,
Surg. Lieut.-Cmdr., R.N.V.R.

Obstetric "Specialism"

SIR,—I fear to tread the path where the controversy on women in labour has led, but I must agree with the principles enunciated by Dr. E. K. Mackenzie (June 9, p. 823), where he says "it would be a good thing if many of these 'Fellows' spent two or three years under the supervision of a competent G.P. before being permitted to proceed to hospital for special experience." Criticism of our colleagues and institutions is sometimes unpleasant, but it is frequently healthy, helpful, and democratic; and so I agree with his stricture concerning "the variety of stillborn infants, etc." While at probably the best-known maternity institution in the world I did a short course in midwifery a few years ago, and I witnessed the arrival of stillborn babies, who, in my judgment, would have been saved by a low-forceps delivery; but this would have increased the forceps rate, the record for which low rate was held by another institution.

I disagree, however, when he says that midwifery "is that department of medicine where diagnosis is easiest." Surely not! This is too sweeping a statement.—I am, etc.,

Swansea.

L. W. HEFFERMAN.

Sex Dispersion of Intelligence

SIR,—On reading the article on the difference between the sexes in dispersion of intelligence by Dr. J. A. Fraser Roberts (May 26, p. 727) I recalled some investigations in America that were carried out by Prof. E. L. Thorndike over 40 years ago. His conclusions were identical with those of Dr. Fraser Roberts—i.e., that while there was no marked difference between the average intelligence of boys and girls the individual differences in boys were greater than those in girls, and that greater extremes of brilliance or dullness were to be found in boys than in girls. I quote from the only publication that I remembered:

> "Such statistics as I have been able to secure give measures in 26 objective tests, with from 100 to 1,500 individuals, and in 25 records of school marks with from 60 to 1,000 individuals" (page 114).
>
> "These facts make it extremely probable that, except in the two years nearest the age of puberty for girls, the male sex is slightly more variable. From the time of puberty for boys to maturity this difference seems to increase rapidly . . . it proves conclusions about the capacities of the sexes in general based upon the comparison of the extremes in both cases to be certainly risky and probably false. For instance, suppose that we picked out the hundred most gifted intellects from a million men and a similar 100 from a million women. Even if in both sexes the average intellectual ability was identical we should, if the variability of women was 95% of that of men, probably find no woman of our hundred who was equal to any one of the 100 men" (p. 115). (*Educational Psychology*, by Edward L. Thorndike, Lenke and Buchner, New York, 1903.)

—I am, etc.,

London, S.W.3. MORRIS CUTNER.

Electro-convulsive Therapy Apparatus

SIR,—Perhaps you will permit me to make a few technical comments on the small portable electro-convulsive therapy apparatus described by Dr. A. Spencer Paterson (May 12, p. 666).

In *Recent Advances in Neurology and Neuropsychiatry* (London, 1945) the authors state with reference to E.C.T. apparatus that "any apparatus constructed on sound electrical principles that can deliver exactly the required voltage for an exact period of time measured in 1/10th of a second is suitable for the work." They might have added to advantage that an E.C.T. apparatus, as is the case with all electro-medical apparatus, should have a margin of electrical safety to justify the use of the term "foolproof." It is because, in our opinion, the apparatus described by Dr. Paterson falls down on all the above-mentioned desiderata that I venture to trespass on your space.

It seems to me that the designers have sacrificed efficiency and safety to considerations of weight, space, and cost. The following are the main points which demand criticism:

1. The earthing of one side of the patient is very unwise, as Leduc pointed out some 30 years ago. Earth-free patients' circuits have been stipulated by electrologists as the only reasonable security against accidental electrocution due to faults, and it is not for nothing that this practice has been adopted by specialists for so many years now.

2. A good transformer delivering the calibrated voltage accurately on load has to be built on liberal lines if it is to avoid bad regulation, and the tempting overall weight of 11 lb. implies an insufficient transformer core. Besides, to cover 70 to 150 volts in only seven steps is, in my opinion, too coarse a control. Moreover, with good voltage regulation very much shorter dosages than are possible with this clockwork timer should be used, 0.1 to 0.3 sec. to make good E.C.T. practice. Times exceeding this at voltages between 70 and 150 represent an overdose on 95% of cases and invite convulsion trauma.

3. The omission of a time-loaded fuse in the patients' circuit seems to invite trouble if any faults are encountered in the set-up of patients' leads.

4. As regards the timer, clockwork devices of this type suffer from fatigue and are unsuitable for the short timing necessary, and, moreover, the range should extend from 0.1 sec. An electronic or condenser switch with an interlock to prevent the possibility of prolonged shock with its fatal complications is the correct method of approach.

5. The threshold of sensibility for the most sensitive patients is about 200 microamps A.C. 50 cycles. Why, then, use currents for measuring up to 1,000 microamps? And why not use a straight-line calibrated bridge circuit which is much easier to read?

The observations are made in view of the fact that few psychiatrists who make good and legitimate use of E.C.T. have much knowledge of the electrotechnical principles involved in the construction of the apparatus which they employ. It is important, then, to have guarantees of safety, accuracy, and efficiency.—I am, etc.,

D. P. MEDHURST, S.M.I.E.E.,
Member of the Electrical Power Engineers Association.
London, W.C.1.

Aborting the Common Cold

SIR,—The method tried by Dr. W. Edwards for aborting colds by inhaling chlorine gas (June 2, p. 785) seems to be useful mainly for colds starting in the nose. But for one common site of onset, the pharynx, which is injected and feels "sand-papered," nasal inhalation is not likely to be effective. This type may respond to frequent paintings with antiseptics, or with plain glycerin—also effective sometimes for a post-nasal onset. The rare type beginning with a painful area in the trachea just above the manubrium I have found sometimes can be aborted by a few treatments with short-wave diathermy to the neck. Patients have their own remedies, as a patient I knew who could almost always abort a cold by going to bed and taking a dose of warm castor oil; and another who could cure his colds in one day by sitting before a very hot fire (whatever the weather) and drinking several bottles of beer!

One of the simplest and surest remedies for colds beginning in any site is the one I described in the *Journal* of March 5, 1932 (p. 449). The essential is to gargle with water as hot as can be borne for a few minutes every quarter of an hour or so for an hour or two. Antiseptics may be added to the water, but the heat is the essential. It acts probably by activating the lymphoid immunity tissues in the tonsil and Waldeyer ring. It is also a help if, at the times of gargling, the arms up to the elbows are placed in very hot water for a few minutes (and the feet, if they are chilled). Adjuvants are hot drinks, nasal sprays, or snuffs, and a minimal erythema dose of ultra-violet light to the chest, back and front.

Colds are like fires: the easiest and most certain time to put them out is at the earliest onset, but prompt action is essential.—I am, etc.,

London, W.1. J. H. DOUGLAS WEBSTER.

SIR,—I am very interested in Dr. W. Edwards's discovery (June 2, p. 785) of treating catarrhal respiratory conditions with gaseous inhalants of acid character. A similar treatment was well known about twenty years ago in Germany, under the name of Prof. Kuhlenkampp's acid therapy. The professor, a non-medical man, had found that the labourers in his factory, where a certain amount of hydrochloric or sulphurous acid was in the air, did not suffer from affections of the respiratory tract. This was ascribed to the acidity of the air. The method was subsequently elaborated; a whole book was published about it with many diseases on the list, but as it required an inhalation chamber it was not easily applicable in private practice. If Dr. Edwards's method be usable anywhere it might be helpful in a number of diseases.—I am, etc.,

Bristol. B. BANETH.

Intestinal Obstruction from Ingested Dried Fruit

SIR,—The five cases of intestinal obstruction caused by ingested fruits reported in the *Journal* of May 26 (p. 734) encourage us to ask for the hospitality of your columns for the report of this case of obstruction.

A stout woman aged 59 years, a typical "Piccadilly flower girl," was admitted complaining of abdominal pains, vomiting, and constipation of two days' duration. Her tongue was dry, furred, the abdomen was distended, with no localized tenderness. There was a firm, irregular scar in the right lower abdomen after appendicectomy 32 years ago; provisional diagnosis was made of small-intestinal obstruction due to adhesions. At operation some large adhesions were found and divided, but this did not reveal the actual site of obstruction. Systematic inspection revealed a firm, yellowish, ovoid mass, measuring 6½ cm. by 2¼ cm., obstructing the lumen of the ileum about two feet from the ileo-caecal valve. Its removal led to relief of obstruction and uneventful recovery. The foreign body proved to be half a dried peach, which had been soaked in water overnight but which had been swallowed without mastication.

We consider that, owing to the increasing consumption of dried fruit, the general public should be advised to prepare and to masticate them properly; and in view of the number of cases already reported, this aetiology of acute intestinal obstruction should be more readily considered in the differential diagnosis.

Our thanks are due to Mr. K. F. D. Waters and to our medical superintendents for their advice and permission to publish this report:—We are, etc.,

J. L. Coles.
St. Mary Abbots Hospital, Kensington, W.8. A. Beck.

Belsen Camp

Sir,—My attention has been drawn to an article in your issue of June 9 (p. 814). In the interest of accurate recording it is felt that Dr. Collis should be aware of the following facts:

(1) The typhus area including Belsen Camp was uncovered by the 11th Armoured Division during April 15 and not April 17 as his account suggests.

(2) The first individual to enter the camp was the Divisional A.D.M.S., Col. D. Bluett, who went in about midday on April 15.

(3) The first medical unit began work in the camp at approximately 4 p.m. on April 15. This was the Divisional Field Hygiene Section.

(4) Incidentally this unit was the only medical unit working there until April 18. It spent the first two days completely within the wired enclosure, and during the first 24 hours the S.S. men were still in control of the camp.

(5) It was due to the foresight of Col. Bluett that supplies of A.L.63 and disinfectant were available for this initial effort. Up to the afternoon of April 18, when another Field Hygiene Section came up, some 15,000 inhabitants of the camps had been deloused.

(6) The fact that the 11th Armoured Division provided some troops, water-carts, the greater part of its hygiene section, and its whole laundry and bath unit, while active operations were being carried out, is deserving of mention in any account of Belsen.—I am, etc.,

F. R. Waldron,
76 (Br.) Field Hygiene Section, B.L.A. Major, R.A.M.C.

Alien Doctors

Sir,—Major Stallard in his letter voices the opinion of all the doctors with whom I have personally come in contact during the past few years. I do not exaggerate when I say that the position with regard to what Major Stallard euphemistically refers to as Central Europeans is galling. I have myself offered my services, free and without prejudice as to their continuation after the war, to two hospitals in the Midlands. One of these did not deign to answer my letter. By the other I was told that the acceptance of my offer might prejudice the position of returning officers. Meanwhile "Central-European" doctors and other strange importations were given the jobs. *Quousque tandem ?*—I am, etc.,

Kingswinford. Wm. A. O'Connor.

Oxford and Cambridge University Parliamentary Constituencies

Sir,—In order that as many electors as possible may be able to register their votes at the forthcoming election, I shall be obliged if you will allow me, as Registration Officer for the Cambridge University Constituency, to draw the attention of the electors to certain points of procedure. It should be noted that what follows does not apply to persons for whom proxies have been appointed, or to those who have applied for registration as Service postal voters.

Voting will not be in person, but by means of voting papers issued by the Vice-Chancellor as Returning Officer. They will be posted to electors by June 29. It will help to secure the earliest possible delivery of voting papers if every Cambridge University elector who has reason to think that his permanent address is not that which appears in the University Parliamentary Register will write at once to me at the University Registry, Cambridge. An elector who wishes to vote and has not received a voting paper by July 3 should write to me immediately giving the address to which a voting paper is to be sent to him.

I have been asked by the Oxford University Registrar to say that a similar procedure should be followed by electors of the Oxford University Constituency. They should communicate with him at the University Registry, Oxford.—I am, etc.,

W. W. Grave,
Registrary, University of Cambridge.

Obituary

N. BISHOP HARMAN, F.R.C.S.

We have received the following tribute from W. A. D.:

The death of Mr. Bishop Harman removes one to whom the nation owes a debt of gratitude for his eminent services in promoting the care of the eyesight of the population. It was 45 years ago at the beginning of the present century that Mr. Brudenell Carter, after a visit to some of the London Board schools, pointed out in a letter to the *Times* how much of the efforts of the teachers was nullified by widespread unrelieved defect of vision among the school-children, many of whom appeared to be semi-blind. This letter produced notable results. The School Board in 1901 instituted the regular testing of the children's eyesight by the teachers and appointed six "oculists" to supervise the tests. Mr. Bishop Harman was one of the six. Thus began an association with the Education Authority which produced far-reaching and beneficial results. With the sympathetic support of Dr. James Kerr, who was later appointed chief medical officer to the Board, Harman proposed numerous reforms which were duly carried out. Fine work hitherto practised in infants' schools was abolished; so were slates and pencils. Sewing by artificial light in girls' departments was prohibited.

When the London County Council took over the work of elementary education Harman was appointed ophthalmic consultant. The presence in the ordinary schools of a number of children with high myopia for whom the ordinary methods of education were harmful led Harman to the conclusion that it was necessary to establish separate classes or schools with a curriculum and teaching methods specially devised to meet their needs. The first such school was established under Harman's supervision in 1908; and within a short time the whole of London was provided with special "myopic" schools, or, as they were later and better called, "sight-saving" schools. Harman himself devised special desks and apparatus for these schools, and it was due to his energy and drive that they became successful. His methods were adopted in large provincial centres and were followed enthusiastically by our transatlantic cousins. The lighting, both natural and artificial, of schools of all types was also a question which Harman made his own, and he was instrumental in securing the adoption of greatly improved standards. He also paid close attention to the type of school books, for which he formulated standards which were largely followed in school practice.

There is thus no part of the field of ocular care which Harman has not illuminated by his genius and knowledge, and it is not too much to say that the diminution of blindness and partial blindness from preventable causes in childhood has been greatly helped by his work.

The death, at the age of 59, of Robert Sharp Lawson, F.R.C.S., senior surgeon to the Leicester Royal Infirmary, has deprived his colleagues of one whom they regard as one of the most distinguished surgeons who has ever served on the staff of that institution. Born at Blackford, Perthshire, he received his medical education at Edinburgh University, where he had a brilliant career. After qualifying he became house-surgeon to Sir Harold Stiles, for whom he acted for a time as private assistant. He became R.S.O. to the Dreadnought Hospital, Greenwich, relinquishing that post to join the Navy, in which he served from 1914 to 1918. After the war he spent some months working with Sir Robert Jones in Liverpool, thereby laying the foundation of a lasting enthusiasm for orthopaedic surgery, which was to prove of signal benefit to the hospital where his life's work was to be done. He was appointed to the Leicester Royal Infirmary in 1919, and quickly established a reputation, both in general surgery and in orthopaedics. He was really the founder of the orthopaedic and fracture service which has developed into such an important and efficient department. He was an original member of the Provincial Surgical Club of Great Britain, of which he was secretary for two years and in which he always took a keen interest. His colleagues and the medical profession over a wide area, and very many house-surgeons who had the privilege of working with him, will always remember him as a most gifted surgeon and a valued consultant; but they, and many surgeons all over the country, will also particularly recall his courteous and polished manner and his remarkable gifts of friendship and hospitality. Shortly before the war an attack of coronary thrombosis compelled him to rest completely for six months. He returned to work at the outbreak of war with restored health and vigour, and, though he must have been well aware of the risk of a recurrence, he faced and coped with the increased work and responsibility of the war years.—T. C. C.

Mr. Claude Douglas, consulting surgeon to the Leicester Royal Infirmary, died at Oxford on June 9 in his 93rd year. The son of James Douglas, M.D., he was born at Bradford in August, 1852, and studied medicine at St. George's Hospital, qualifying in 1873. He obtained the F.R.C.S. in 1888, after having been surgeon to the Leicester Provident Dispensary for seven years. Mr. Douglas was honorary surgeon to the Leicester Royal Infirmary from 1886 to 1911. During the last war he served as lieutenant-colonel, R.A.M.C.(T.F.), on the staff of the 5th Northern General Hospital, Leicester. He held office as president of the Midland Branch of the B.M.A. in 1901 and as vice-president of the Section of Surgery when the Association met at Leicester in 1905.

Dr. Charles Vincent Dingle, who died on June 7, was M.O.H. for the county borough of Middlesbrough from 1898 until 1936, during the period when the foundations of the health services of the town were being well and truly laid. His introduction to Middlesbrough was at the time of the virulent smallpox epidemic which, raging there during 1897 and 1898, attacked 1,405 of the townspeople. His previous experience on the staff of the public health department of the City of Newcastle stood him in good stead during this difficult period. He became one of the foremost authorities on smallpox in the North of England and was the author of many special reports on vaccination and smallpox. He was appointed medical officer to the Tees Port Health Authority in 1904, and became the town's first school medical officer in 1908. During his term of office Dr. Dingle tackled the high infantile mortality with the causative bad housing in Middlesbrough with great vigour and determination, and was instrumental in carrying through, against much opposition, some extensive slum-clearance schemes. He saw a large part of the town converted from privy middens to the water-carriage system of sewage disposal, and also established the maternity and child welfare services on a most satisfactory basis. On his retirement in 1936 he had seen the public health department grow, through his guidance and inspiration, into a very important and vital factor in the life of the town. He was well loved by his colleagues and staff for his kindly and courteous manner, and nowhere was his cheerful personality more in evidence than in the various social functions in the hospitals and other institutions under the control of his department.—T. L. H.

Dr. Thomas William Higgins Burne, of Chesham Bois, Buckinghamshire, late senior surgeon, Federated Malay States, died suddenly on June 2, aged 65. He graduated B.M., B.S.Lond. in 1908 from St. Bartholomew's Hospital and went to Malaya, becoming medical officer in charge of the General Hospital, Johore, and chief surgeon, Selangor. This title was altered to chief surgeon, F.M.S., in 1927 and he was made senior surgeon in the following year. He married Dr. Catherine Violet Turner, and after returning to England became honorary medical officer to Chesham Cottage Hospital and medical officer to the Amersham Institution. He had been a member of the B.M.A. since 1910.

Dr. Thomas Fernandez died suddenly at his home in Sutton Court Road, Chiswick, on June 5. After spending his early youth in India and Ceylon, Dr. Fernandez studied medicine at St. Catharine's College, Cambridge, and graduated M.A. in 1919. He continued his medical studies at Guy's Hospital, and took the diplomas M.R.C.S., L.R.C.P. in 1920. He won the University cue for billiards while at Cambridge, and was an excellent golfer. He leaves a widow, Christine, daughter of the Rev. James Mayo, D.D., of Warkworth Terrace, Cambridge, and a son, John Anthony, a young man of great promise, who, after a period at Trinity College, Cambridge, is engaged on specialized research for the war.—C. B. C.

Dr. Roger Bullock, of Stratford-on-Avon, late surgeon lieutenant-colonel, Warwickshire Yeomanry, died on June 9. He was born at Warwick on Nov. 7, 1862, son of Thomas William Bullock, M.R.C.S., and from Rossall School went to Queen's College, Birmingham, with an entrance scholarship, in 1881. He qualified M.R.C.S. and L.S.A. in 1887, and was then house-surgeon at the Birmingham General Hospital. Returning to Warwick he became medical officer to the local dispensary and cottage hospital and also to the Heathcote and Fosse Hospitals under the Warwickshire Joint Hospitals Board. He served for a year during the last war with the Warwickshire Yeomanry in the Egyptian Expeditionary Force, was mentioned in dispatches, and received the Territorial Decoration. Later he became Deputy Commissioner for Medical Services for the Warwickshire area under the Ministry of National Service. Dr. Bullock joined the B.M.A. in 1890 and was emergency officer for Warwick and Leamington 1938–40. He was a J.P. for the county and borough.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examination indicated:

Final M.B.—*Part I (Surgery, Midwifery, and Gynaecology)*: G. S. Andrew. J. Armstrong, T. W. Backhouse, G. B. Barker, J. C. Bayliss, A. M. H. Bennett, A. V. G. Bibby, M. Binnie, J. E. Blundell, B. H. Brock, A. R. Buckley, E. H. W. Burt, F. J. Conway, M. G. Cox, D. G. Davidson, W. H. Davies, J. A. R. Debenham, J. A. Dew, J. M. Drew, J. O. P. Edgecumbe, E. Ellis, R. H. Ellis, R. Finlayson, J. F. Fisher, A. E. Flatt, A. L. Furniss, D. A. G. Galton, J. M. Garratt, E. B. Gethen Smith, J. H. H. Glyn, J. H. Gough, A. W. I. Hall, D. Hamilton, R. Hodgkinson, G. F. Jolly, W. R. Juckes, C. H. Kinder, P. K. Ledger, D. W. L. Leslie, A. H. Littlewood, A. B. McGrigor, C. McIver, J. McMillan, P. N. Magee, N. B. Malleson, K. E. Marsh, E. P. G. Michell, R. H. B. Mills, G. S. Ostlere, P. P. Philip, J. E. Pitts, B. R. Pollard, C. W. A. Pullan, J. S. Rivers, J. T. Rowling, M. Shirley, C. C. D. Shute, I. B. Smith, R. S. Smylie, W. M. B. Strangeways, A. J. Underwood-Whitney, M. W. P. Ward, P. Watson, W. B. Webb, R. H. Whitworth, N. P. L. Wildy, R. H. Wilkinson, I. P. Williams, C. J. Wilson, I. D. P. Wootton.

Women: H. F. Barnes, C. B. P. Bosanquet, M. A. Brown, M. H. Moller, C. M. Plackett, F. M. Saunders, P. M. Townshend, G. B. Wrong.

UNIVERSITY OF LONDON

Prof. R. J. S. McDowall, M.D., and Mr. V. E. Negus, M.S., F.R.C.S., have been appointed Fellows of King's College.

In view of the fact that Sir John Bland-Sutton built and paid for the Institute of Pathology, of which the professor is the director, and that the school has now received a bequest of approximately £600 a year from Lady Bland-Sutton, the title of the University Chair of Pathology tenable at Middlesex Hospital Medical School has been changed to "Bland-Sutton Chair of Pathology."

Lionel Sharples Penrose, M.D., has been appointed to the Galton Chair of Eugenics tenable at University College from the date on which he is able to take up his duties. Claude Rimington, Ph.D., has been appointed to the Chair of Chemical Pathology tenable at University College Hospital Medical School from May 1.

The Western Ophthalmic Hospital, Marylebone Road, N.W., has been added to the list of institutions from which the University receives certificates in respect of part of the experience as clinical clerk or dresser for the purposes of the M.B., B.S. degrees; the South Middlesex Fever and E.M.S. Hospital, Isleworth, has been included in the list of hospitals approved for instruction in infectious diseases and fever hospital administration for the D.P.H.; and the appointment of assistant pathologist at the West London Hospital has been approved for the purposes of the M.D. examination (Branch 11).

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Prof. F. Wood Jones, F.R.S., F.R.C.S., has been appointed the first Sir William H. Collins Professor of Human and Comparative Anatomy in the College, and will take up his duties on retiring from the chair of anatomy at Manchester University at the end of the year.

The College has been gratified to receive a donation to the Restoration Fund from the Director-General, Army Medical Services, and the Regular Officers of the Royal Army Medical Corps. This brings up the total of the fund to nearly £40,000.

At an ordinary meeting of the Council of the College, held on June 14, with Sir Alfred Webb-Johnson, Bt., President, in the chair, the sixteenth Macloghlin Scholarship was awarded to Peter George James Duncan, of Epsom College.

Sir Reginald Watson-Jones was appointed representative on the Court of the University of Liverpool for three years from Jan. 1, 1945. Prof. Ernest Finch was reappointed representative on the Court of Governors of the University of Sheffield for three years from July 1. It was reported that Sir Frank Colyer had been appointed a Hunterian Trustee.

Votes of thanks were accorded Mr. C. A. Boughton Knight for providing storage space at Downton Castle, Ludlow, for 30,000 books during the war years; to the Royal Society of Medicine for storing other parts of the College library in safe premises at St. Albans; and to the Royal Cancer Hospital for giving safe custody for the College plate at Pollards Wood during the war years.

Diplomas of Fellowship were granted to the following successful candidates:

E. J. J. Borges, P. H. Lenton, W. R. Welply, Doreen Nightingale, F. X. Darné, I. J. Thomas, D. G. Lambley, A. H. Harvie, W. Houston.

Diplomas of Membership were granted to Jack Upsdell (Cambridge and Middlesex Hospital), and David Verel (Cambridge and London Hospital).

Diplomas in Anaesthetics were granted jointly with the Royal College of Physicians of London to the following successful candidates:

E. Asquith, W. Atkin, N. W. Bartrop, R. A. Binning, Angela J. Brayn, Diana M. M. Carr, D. J. Carter, J. Clutton-Brock, T. A. Copp, Audrey M. Dealler, W. M. Dinwoodie, Elizabeth H. Flett, A. C. Forrester, Mary Foster, Margot W. Goldschmidt, K. N. A. Herdman, H. C. Hill, J. K. Irving, B. D. L. Johnson, B. Kenton, J. Lorber, W. S. MacGowan, G. D. McGrath, H. P. Price, W. K. Rae, Kathleen M. Rains, D. Reckless, Mary McC. Richmond, Renée Ritchie, A. L. G. Robertson, W. N. Rollason, B. Sullivan, A. Tom, H. Walton, B. H. Wilshere.

The Services

Col. (local Major-Gen.) S. Arnott, C.B.E., D.S.O., late R.A.M.C., has been appointed a D.D.M.S., and has been granted the acting rank of major-general.

The following medical officers have been mentioned in dispatches: Surg. Capt. G. E. D. Ellis, R.N., Surg. Lieut.-Cmdr. F. W. Baskerville, R.N., Surg. Lieut.-Cmdr. R. B. H. Faichney, R.N.V.R., Temp. Acting Surg. Lieut.-Cmdr. F. C. Edington, R.N.V.R., Temp. Surg. Lieuts. G. M. Baird and D. R. Kerr, R.N.V.R., and Surg. Lieut. J. D. B. Baird, R.C.N.V.R.

R.A.F. BIRTHDAY HONOURS

The names of the following medical officers of the R.A.F. appeared in the recently published Birthday Honours List:

O.B.E. (Military Division).—Group Capt. R. H. Stanbridge, R.A.F.; Group Capt. R. G. James, R.A.F.O.; Wing Cmdr. J. B. Wallace, R.A.F.; and Squad. Ldrs. H. O. Hughes, D. N. Matthews, and A. Russell, R.A.F.V.R.

M.B.E. (Military Division).—Fl. Lieut. J. Hood, R.A.F.V.R.

Commended for Brave Conduct.—Fl. Lieut. D. Crichton, R.A.F.V.R.

Mentioned in Dispatches.—Air Cdre. F. J. Murphy, R.A.F.; Group Capts. V. R. Smith, C. G. J. Nicolls, and L. Freeman, R.A.F.; Wing Cmdrs. C. C. Barker, K. B. Redmond, J. L. Roche, and P. A. Wilkinson, R.A.F.O.; Wing Cmdr. W. D. Peock, A.A.F.; Wing Cmdrs. D. G. Smith, L. L. Ingram, J. C. Taylor, D. J. Dawson, and F. V. Maclaine, R.A.F.; Wing Cmdrs. J. A. Lennox and O. Plowright, R.A.F.V.R.; Squad. Ldrs. M. R. Chassels, A. P. Gorrie, G. L. Gryspeerdt, L. D. A. Hussey, W. L. James, T. S. B. Kelly, J. H. McElney, R. E. McKenzie, D. H. G. MacQuaide, E. J. Blair, C. W. D. Cole, N. Vere Hodge, E. H. Jones, J. H. McCoy, I. M. MacGregor, F. L. E. Musgrove, A. J. S. Bell Tawse, and T. H. Cullen, M.B.E., R.A.F.V.R.; Squad. Ldr. J. B. Murphy, R.A.F.O.; Fl. Lieut. K. G. Eckersley, R.A.F.; Fl. Lieuts. A. H. Cutting, C. H. Dhenin, G.M., A. H. Fairlamb, and R. M. Emrys-Roberts.

CASUALTIES IN THE MEDICAL SERVICES

Killed in action.—Capt. John Philip Irwin, R.A.M.C.

Previously reported missing at sea, now presumed killed.—Capt. Jenkin Robert Oswald Thompson, R.A.M.C.

Died in Hong Kong on Sept. 8, 1944, while a prisoner of war.—Surg. Lieut.-Cmdr. William Donald Gunn, R.N.

Died in Germany as the result of an accident.—Surg. Lieut.-Cmdr. James Leo Malone, R.N.

Died from enteric fever in India.—Lieut. Edith Mary Robson, R.A.M.C.

Wounded.—War Subs. Capts. D. H. Brown, A. F. Crick, G. C. Griffiths, E. G. Hardy, and J. Watson, and Temp. Major D. Macrae, M.C., R.A.M.C.

DEATH IN THE SERVICES

Major R. G. Gayer-Anderson, R.A.M.C.(ret.), who held the Egyptian rank of Lewa (major-general) with the title of Pasha, died on June 16 at the Little Hall, a beautiful early fifteenth century house at Lavenham, Suffolk, which, it was announced in 1942, he and his twin brother, Col. T. G. Gayer-Anderson, late R.A., would leave by will to the Surrey County Council as a hostel for young artists and art students. He was born on July 29, 1881, in Northern Ireland, and from Tonbridge School went to Guy's Hospital, qualifying M.R.C.S., L.R.C.P. in 1903. After house appointments at Guy's he joined the R.A.M.C. in 1904, and reached the rank of major in 1914, but was seconded to the Egyptian Army 1907–17. He received decorations for service with the Tagoi Patrol after working with the leprosy inquiry at Kordofan, and on the Sudan sleeping sickness commission and leprosy commission. Grenville Gayer-Anderson withdrew from the practice of medicine and was appointed assistant adjutant-general for recruiting, Egyptian Army, 1914–17. He served at Gallipoli and in Arabia, and became political officer to the Red Sea Patrol. He was wounded and received further decorations from the Khedive, and during the Egyptian revolution, 1919, acted as senior political officer for Upper Egypt. He retired from the Army in 1920 to become senior inspector under the Ministry of the Interior at Cairo, and two years later Oriental Secretary at the Residency. He continued to live in Cairo until 1942, interesting himself in the study of Egyptology and Eastern antiquities. He was appointed subcommissioner (Middle East) by the British Red Cross and Order of St. John War Organization in 1941, and after his return to England lived with his brother at Lavenham. He handed over to the Egyptian nation the Bayt-el-Krediea (a sixteenth century Arab house in Cairo) as a museum of Oriental arts and crafts.

Medical Notes in Parliament

On June 15, before the prorogation and dissolution of Parliament, the Royal Assent was given to the Camps Act, Town and Country Planning (Scotland) Act, Education (Scotland) Act, Family Allowance Act, Water Act, and to other Acts.

Scottish Health Services Reviewed

When closing for the Government the debate on June 12 which was devoted to national health, Cmdr. Galbraith, Joint Under-Secretary for Scotland, surveyed public health in that country. He said that despite the strains of war the health of the Scottish people, as shown by health indices, had in many respects been better than in the immediate pre-war years. Stillbirths since 1939 had been reduced by 9.5 per 1,000 births. The maternal death rate had fallen from 4.9 per 1,000 live births in 1938 to 3 in 1944. In 1938 maternal deaths totalled 432; in 1944, 293. The 1944 rate was half what it was 10 years ago. Infant mortality in Scotland had fallen from 69.5 per 1,000 live births in 1938 to 65 in 1944, the lowest ever recorded, but still far too high. In children between 1 and 5 years the death rate in 1944 was only half what it was immediately before the war and was six and a half times lower than at the beginning of this century.

Notifications of diphtheria dropped from 10,210 in 1938 to 6,805 in 1944. Deaths from diphtheria among children fell from 430 in 1938 to 163 in 1944. Of these 163 deaths only four occurred among children who had been immunized. The Department of Health was satisfied that the campaign for immunization had enormously reduced suffering and deaths among the child population. There was room for further effort. In Scotland tuberculosis was the greatest problem at the moment. Notifications of non-pulmonary tuberculosis remained fairly constant. Notifications of pulmonary tuberculosis increased from 4,793 in 1938 to 7,276 in 1944. Deaths rose from 3,431 in 1938 to 4,174 in 1941. Since then they had declined slightly to 3,935 in 1944. In Scotland more beds had been made available for pulmonary patients, but over 1,700 cases awaited admission to hospital. The shortage of nurses was acute in many hospitals and most serious in sanatoria. The shortage of doctors was another difficulty in that they could not expect any rapid relief, but the civilian health services were being maintained.

Mr. Maxton asked whether steps had been taken to release young men from the Army to take up studies as medical students.

Cmdr. Galbraith replied that medical schools were absolutely full at present and were turning out as many doctors as possible. Demobilization of doctors from the Forces came under the ordinary demobilization scheme.

Mr. Maxton asked whether boys who had never been in the Army were to have a higher claim on the limited accommodation in medical schools than those who were now in the Forces.

Cmdr. Galbraith said every facility was being given to men in the Services to train themselves for their professions. Continuing his survey he said the school health services had shared in staffing difficulties, but the physical education and nutritional state of school-children had not suffered. In 1944 in Glasgow boys of 5 years of age showed an increase, compared with 1930, of 0.93 of an inch in height and of 1.98 lb. in weight. Boys of 13 showed increases in the same period, covering some 14 years, of 1.67 inches and 6.82 lb. Mortality from cancer had increased from 5,657 in 1919 to 8,735 in 1944. It was regrettable that the war had prevented progress along the lines of the Cancer Act, 1939. It was hoped that considerable advance in facilities for earlier diagnosis and treatment would now be available. Success depended on the willingness of all concerned to co-operate. He appealed to hospital authorities, voluntary and municipal, to get together and consider how best they could use their combined resources to the maximum advantage of cancer patients. The officers of the Department of Health would give any help in their power in the preparation of schemes to that end.

Speaking of the E.M.S. hospitals Cmdr. Galbraith said the demand for accommodation for civilian casualties had been light in Scotland and it had been possible to use many beds for other purposes. The emergency hospitals had treated 34,200 patients from the waiting lists of the voluntary hospitals. Under the supplementary medical service some 10,000 workers had been referred for examination or treatment in hospital. Thousands of extra beds in well-equipped hospitals had been provided by the E.M.S. With alterations to adapt them to peace requirements, these beds would go a long way to remedy the shortage. The Department of Health would aim to integrate these new hospitals with the permanent hospital system of the country. The method of doing so would be considered in relation to post-war development of the hospital services generally.

Replying to points raised in the general debate, Cmdr. Galbraith said the number of nurses in all the nursing services in Great Britain was a little under 200,000. The number of vacancies in those services was 32,000, not taking into account additional demands such as those made by the block system of training nurses. Nor did it take account of the development under the new health service. Questions had been asked about the upward trend of tuberculosis, which had increased between 1913 and 1943 by about 21%. This might well be due to cases being brought to notice through examination for national service. More people had been examined by radiography and other means. Fear of tuberculosis affected recruiting for tuberculosis nursing. Hospitals had been asked by the Health Departments and the Ministry of Labour to give nurses an *x*-ray examination and other tests before allowing them to start work in tuberculosis wards.

Wheat Extraction

Replying for the Ministry of Health on June 6, Mr. Hamilton Kerr told Mr. Stokes that the Standing Committee on Medicinal and Nutritional Problems was asked in writing for its advice before the wheat extraction was reduced from 85% to 80%. This matter was considered by the committee on three occasions, the number of members present varying from 14 to 16, which was the total membership of the committee.

International Conventions on Smallpox Vaccination

Mr. Viant inquired on June 7 why it was proposed in the International Sanitary Conventions for Maritime and Aerial Navigation to fix the validity of a certificate of vaccination against smallpox at not more than three years from the date of issue. Mr. Willink answered that the period of three years specified in the form of international certificate of vaccination against smallpox which related, as the form showed, to a vaccination or revaccination found by the certifying doctor on inspection to have given satisfactory results, had been recommended by international bodies of high competence and experience before its inclusion in the Convention of 1944 by the participating Governments.

Mr. Willink also stated that responsibility for the provisions of the International Sanitary Conventions of 1926, 1938, and 1944, and the International Sanitary Conventions for Aerial Navigation, 1933 and 1944, rested upon the Governments, including His Majesty's Government, which concluded them. The Conventions did not compel travellers to be vaccinated or inoculated. A traveller who had not been vaccinated or inoculated might find, however, on entering the territory of a particular country that restrictions were imposed on him under regulations made by the Government of that country. No Government could be expected to disregard the danger involved from the entry of unprotected persons without restrictions. The general object of the Conventions was to avoid unnecessary quarantine restrictions by the agreement of limits to the degree of restriction which might be imposed in given circumstances. They also included provisions designed to help the local health authorities of the countries of entry to determine, in respect of individual travellers, whether any and, if so, what restrictions were necessary. Mr. Willink saw no reason to seek modification in the Conventions.

Lord Douglass told Mr. Viant on June 5 that the International Sanitary Conventions, 1944, did not require ratification and were now in force.

Pneumoconiosis and Silicosis in Wales

Mr. Seaborne Davies, on June 7, asked what information the Minister of National Insurance had about the prevalence of silicosis and pneumoconiosis in the slate quarries in Caernarvonshire, and whether he would make a scheme in respect of the industry under the Workmen's Compensation Acts. Mr. Peat answered that workmen employed underground in slate mines had been covered by a compensation scheme for silicosis since Jan. 1, 1940. There appeared to be no evidence of the occurrence of disease in the open quarry workings, but recently evidence had been obtained of the occurrence of pneumoconiosis, including silicosis, among men employed in the splitting and dressing sheds. Mr. Hore-Belisha was prepared to consider an appropriate extension of the scheme to men employed in these processes.

On the same date Mr. James Griffiths asked the number of applications received during the past twelve months from among slate quarrymen and miners of North Wales for certification by the Silicosis Medical Board, and what number were granted certificates. Mr. Peat replied that the number of such applications dealt with by the Silicosis Medical Board during the twelve months ended May 30, 1945, was forty-three, and thirty-seven certificates were granted.

R.A.F. Medical Demobilization

On June 8 Mr. Bowles requested an assurance that doctors, medical orderlies, and other medical staffs would not be retained in the R.A.F. after their release group had been reached. Mr. Harold MacMillan replied that in these categories it had only been necessary to restrict the release of nursing orderlies in the group lists so far promulgated. Release would be generally in groups determined by age and length of service, but to maintain the force for the war against Japan it would be necessary to deal separately with the different categories.

U.K. Casualties

Mr. Churchill stated on June 12 that the fatal casualties suffered in Europe by the armed Forces of the United Kingdom between Aug. 1, 1943, and April 30, 1945, were: Royal Navy, 14,036; Army, 56,552; Royal Air Force, 20,336. Of the total casualties suffered by the Royal Air Force, 13,148 were air-crew officers and other ranks of Bomber Command.

Ratio of Doctors to Army Personnel

Sir James Grigg, in reply on June 12 to Mr. Seaborne Davies, said the ratio of medical officers of the R.A.M.C. to Army personnel, male and female, in S.H.A.E.F. and 21 Army Group was about 1 to 382. The responsibilities of the R.A.M.C. included, however, considerable assistance to the other Services and to Allied Forces and to displaced persons. The degree of assistance given by the R.A.M.C. in connexion with these extraneous commitments, and the volume of the latter, fluctuate so greatly, that any exact ratio of doctors to patients or potential patients of all categories was impossible to assess. There were something of the order of 1,400 people of various categories who had to rely on each member of the R.A.M.C. for health services. In theatres of war where active operations were going on the supply of doctors was too low. It might be that there was a feeling in the R.A.M.C. that the proportion was too high and that many of them might be released to help their hard-pressed colleagues at home. It would not be certain that that feeling was not connected with a desire to get home. The average over the United Kingdom was much less than 1 doctor to 4,000 of the population.

Blood Transfusion Service

Major Kimball inquired on June 14 about the future of the blood transfusion services organized during the war in connexion with the Emergency Hospital Scheme.

Mr. Willink replied that, although demands had fallen with the end of the German war, the Emergency Blood Transfusion Service must be kept in being for some time to meet the needs of the Service and civilian patients for whom it was being used. When the emergency was over it was intended to provide a blood transfusion service on a permanent basis. Changes in organization consequent upon the transition from war to peace were now being considered in detail.

Infant Death Rates

The following infant mortality rates per 1,000 live births were recorded in the largest towns of England and Wales in 1943: London 51, Birmingham 55, Liverpool 81, Manchester 61, Sheffield 56.

Corresponding rates provisionally reported in respect of towns in Scotland, Northern Ireland, British Dominions, and America were as follows: Edinburgh 54, Glasgow 82, Belfast 111, New York 30, Chicago 29, New Orleans 39, Baltimore 44.

Training of Midwives

On June 14 Mr. Willink rejected a suggestion from Mr. W. J. Brown that in view of the shortage of maternity nurses he should consider reverting to the earlier practice, as an emergency measure, of regarding six months' maternity training for trained nurses and one year for untrained nurses as adequate for the time being. Mr. Willink added that one of the main objects in lengthening the course of training for midwives in 1938 was to raise the standard of midwifery, following the imposition on local supervising authorities of the duty of establishing a service of domiciliary midwives. The lengthening of the training course had been reflected in an improved midwifery service. Reduction in the period at the present time would be retrograde. He did not, therefore, feel able to invite the Central Midwives Board to consider a revision of their training rules in the way suggested.

Tuberculosis in Returned P.O.W.s.—Three-quarters of the British prisoners who have returned have been examined by mass miniature radiography and the rest will be examined when they return from leave. So far 294 have been found to be suffering from tuberculosis: this is about 3 in every 1,000; 158 have been admitted to civil sanatoria and 136 are in military and E.M.S. hospitals awaiting admission.

Wheat Germ in Flour.—Sir E. Graham-Little suggested on June 14 that Col. Llewellin, to save shipping space and to provide protein, protective substances, and minerals contained in the wheat germ, should during the present stringency increase in the highest measure the proportion of wheat germ required to be included in the national bread. Col. Llewellin answered that the definition of national flour already provided for the inclusion of the maximum quantity of wheat germ which, having regard to the type of milling plant, could be included in national flour at the present rate of extraction in the United Kingdom. Careful examination of samples from all mills indicated that these instructions were being observed.

Vaccination Deaths.—Asked on June 14 what were the ages of the persons certified as dying in 1944 from vaccination or any other symptom connected with vaccination, Mr. Willink reported that the sexes and ages of the persons referred to were as follows:

Assigned Causes of Death	Ages of Males	Ages of Females
Vaccination	—	4 months 4 „
Vaccinia	6 weeks	13 „
Post-vaccinal encephalitis ..	31 years 31 „	3 „ 22 years
Generalized vaccinia	4 weeks	5 months
Encephalitis myelitis	3 months	—

The death of one female child aged 21 months was assigned to septicaemia, vaccination being mentioned on the certificate.

Notes in Brief

Returns from local authorities in England and Wales show 35 deaths from diphtheria during 1944 among immunized children under 15 years of age, compared with 700 deaths from diphtheria among non-immunized children. No information is available on deaths among persons over 15 years of age.

In 1943 and 1944 a total of 7,621 other ranks were discharged from the Army suffering from tuberculosis and 42,480 suffering from psychiatric disorders. It has not yet been possible to extract from the records the figures for earlier years or for officers.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* during the week notifications of measles fell by 1,992, those of dysentery by 32, and those of diphtheria by 13, while an increase of 176 was recorded for scarlet fever, and of 51 for whooping-cough.

There were no large local fluctuations in the trend of scarlet fever, and most areas showed a slight rise. Warwickshire and Yorks West Riding each reported 28 more cases of whooping-cough than last week, and Lancashire 37 fewer. Yorks West Riding also showed a rise of 20 for diphtheria. Measles, especially in the counties surrounding London, was on the decline; but Kent recorded a rise of 111.

Two large outbreaks of dysentery were reported during the week: Buckinghamshire, Chepping Wycombe M.B. 59 cases, and Hertfordshire, Bishop Stortford U.D. 39 cases. The other large returns were those of Lancashire 67, London 48, Glamorganshire 25, Middlesex 22, Northumberland 21, Yorks West Riding 16, Surrey 15, Kent 14, Berkshire 13, Staffordshire 12, Warwickshire 11, Lincolnshire 11.

In *Scotland* the incidence of infectious diseases fell, measles notifications being 85 fewer than last week; whooping-cough 41, dysentery 36, and scarlet fever 29. The largest returns for dysentery were from the cities of Glasgow 44, Edinburgh 31, and Aberdeen 18.

In *Eire* diphtheria notifications fell by 30, and measles by 24. In Wexford, New Ross U.D., the cases rose from 7 to 16.

In *Northern Ireland* diphtheria notifications fell by 8 cases, but measles rose by 11.

Plague in Europe

Bubonic plague has appeared in Ajaccio, Corsica; it is thought to be related to that of the outbreak of last December in North Africa.

Week Ending June 16

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,314, whooping-cough 1,130, diphtheria 438, measles 7,890, acute pneumonia 389, cerebrospinal fever 47, dysentery 464, paratyphoid fever 1, typhoid 5. One case of typhus was imported.

No. 23

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended June 9.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	52	2	23	1	1	66	6	21	2	2
Deaths		—	—				1	2		
Diphtheria	423	23	103	78	10	470	28	163	87	25
Deaths	8	—	1	2	1	3	1	1	2	—
Dysentery	426	48	119	1	—	181	38	80	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	5	—	—		—	2	1	—	—	—
Deaths		2					—			
Erysipelas			47	4	1			42	8	1
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				28					17	
Deaths	45	5	5	9	3	41	5	15	7	1
Measles*	8,463	472	325	40	14	3,078	242	416	179	46
Deaths	4	—	2	1	1	4	—	2	—	—
Ophthalmia neonatorum	62	7	14	—	—	60	5	23	1	—
Deaths										
Paratyphoid fever ..	4	—	7 (B)	—	—	3	—	2 (B)	1 (B)	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	427	23	4	12	3			5	2	8
Deaths (from influenza)	15	1	—		—	19	1	2	—	—
Pneumonia, primary ..			169	20		738	61	200	26	
Deaths		20		7	6		33		8	8
Polio-encephalitis, acute	3	—				1	—			
Deaths		—					—			
Poliomyelitis, acute ..	6	—	1		—	4	1	2	2	—
Deaths		—					—			
Puerperal fever		1	12		1		1	15		—
Deaths										
Puerperal pyrexia‡ ..	128	7	11	1	1	179	11	14	—	1
Deaths		—					—			
Relapsing fever ..	—	—			—	—	—			—
Deaths										
Scarlet fever	1,409	45	210	21	34	1,428	78	194	28	59
Deaths	1	—	—	—	—	2	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	6	2	—	3	3	1	1	3	8	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	2	1	—	—	—	—	—	—	1	—
Deaths				—	—				—	—
Whooping-cough* ..	1,033	53	88	28	20	2,473	242	156	34	17
Deaths	2	—	1	—	—	11	2	1	—	—
Deaths (0–1 year) ..	283	35	50	28	23	319	49	58	31	18
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4,060	585	578	219	112	3,889	573	591	231	118
Annual death rate (per 1,000 persons living)			13·1	14·1	§			13·6	15·0	§
Live births	6,729	779	876	460	268	7,454	877	989	425	297
Annual rate per 1,000 persons living ..			17·5	29·7	§			20·1	—	§
Stillbirths	209	21	25			246	26	30		
Rate per 1,000 total births (including stillborn)			28					29		

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* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to movements of population, birth and death rates for Northern Ireland are still not available.

Medical News

There will shortly be published an advertisement for a Scottish Secretary of the British Medical Association to succeed Dr. Robert Craig, who has reached the age of retirement. A considerable period will be allowed for the sending in of applications so as to enable practitioners serving in the Forces, wherever they may be, to apply.

A meeting of the Middlesex County Medical Society will be held at the Royal Society of Medicine (1, Wimpole Street, W.) on Wednesday, July 4, at 5 p.m., when Sir Reginald Watson-Jones will speak on "Accident Services in the R.A.F."

The National Baby Welfare Council (29, Gordon Square, W.C.1) announces that in view of the General Election taking place during the first week in July, National Baby Week will be celebrated this year from July 15 to 21.

Dr. J. Johnstone Jervis, medical officer of health for the city of Leeds and professor of public health in Leeds University, has been elected president of the Society of Medical Officers of Health for the session 1945–6.

Twelve countries have been invited by the Persian Government to take part in an International Medical Congress, to be held in Teheran during the first nine days of July. They are Great Britain, Russia, the United States, France, Egypt, Syria, the Lebanon, Palestine, India, Turkey, Afghanistan, and China.

The fourth group of distinguished Belgians to visit this country as representatives of the Belgian Fondation Universitaire and guests of the British Council have arrived in London. They are: Profs. M. Florkin, Faculty of Science and Medicine, Liège; F. Albert, Faculty of Medicine, University of Liège; F. Bremer, Faculty of Medicine, University of Brussels; A. Castille, Faculty of Medicine, Louvain; J. C. Firket, Faculty of Medicine, Liège; and H. R. Fredericq, Faculty of Medicine, Liège; M. Jean Willems, hon. secretary, University of Brussels; and Prof. L. M. Gyselynck, Faculty of Law, Brussels. They will meet leading British authorities in their particular spheres in universities and research institutions in London, Cambridge, Oxford, Liverpool, Edinburgh, Glasgow, and Belfast.

The British Council has arranged a medical course for members of the U.S. and Dominion Forces on leave, to be held at the University Overseas Club, Birmingham, from July 9 to 14. The programme includes addresses by Dr. H. P. Newsholme, M.O.H., Birmingham, on "Public Health Administration"; by Prof. H. P. Gilding, on "Plasma Proteins"; by Dr. H. Guy Dain on "The State and Medicine"; by Lieut.-Col. A. Torrie, on "The Health of the Mind"; by Prof. A. C. Frazer on "Recent Advances in Fat Absorption"; by Dr. J. F. Brailsford on "Radiology of the Chest"; by Prof. K. D. Wilkinson on "Infectious Hepatitis"; and by Dr. Brian Taylor on "Intrathoracic New Growths." There will also be visits to the Queen Elizabeth Hospital, to the Medical School of the University, to Barnsley Hall Emergency Hospital at Bromsgrove, and to the Dudley Road Hospital, Birmingham.

The Howard League for Penal Reform hopes electors will bring to the notice of candidates for election to Parliament its recent resolution calling for a comprehensive measure of penal reform which is urgently needed in view of the abandonment of the Criminal Justice Bill of 1938. The resolution also calls for unity of all parties in demanding a Bill which will provide, among other things, for: observation centres, improved remand homes, and other facilities for full medical and psychological examination of offenders before sentence: hostels for adolescents on probation and otherwise; control of residential schools by Ministry of Education, not the Home Office; possession of diploma in psychological medicine by every prison medical officer; non-penal colonies for habitual criminals; and abolition of imprisonment for all persons under 21, of corporal punishment, and of the death penalty.

The Minister of Health sent on June 13 a message to every voluntary hospital which has taken part in the Emergency Hospital Scheme expressing warm thanks to the governing body, the medical, nursing, radiographic, and other technical staff, and the administrative, clerical, domestic, and other staffs, as well as all the voluntary workers who have co-operated with them, for their splendid work during the last six years. "Often under air attack, and always under the handicap of staff shortages and other wartime difficulties, the voluntary hospitals have given the Government magnificent assistance in the treatment and care of Service casualties and sick, air-raid casualties, and all the other classes of patients for whom I am responsible under the Emergency Hospital Scheme. This has been patriotic service of the highest order. We still have to finish the war with Japan, and it will be necessary to ask many of the voluntary hospitals to keep on giving their help, although perhaps on a reduced scale. I know that for as long as the need exists the Government can rely upon your co-operation."

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE. LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

D.D.T. for Bees, Wasps, and Hornets

Q.—*Has any work been published on the effect of D.D.T. on bees, wasps, and hornets?*

A.—There are several short notes on the toxicity of D.D.T. to bees in the *Journal of Economic Entomology* of 1944 (**37**, 159, 537, and 849). The chemical is quite toxic to bees, both as a stomach poison and by contact. The last of the accounts mentioned describes a way of exterminating colonies of bees in unwanted places by blowing in D.D.T. powder with a dust gun. (About 5 oz. of 20% dust was used.) This method might be employed for nests of wasps and hornets; though there appears to be no actual published information on the use of D.D.T. for these insects.

Types of Syringe Needle

Q.—*How many different types of syringe needle are in common use—e.g., Record, Luer, etc.? How does the gauging of these needles differ? The gauge is apparently expressed in terms of the external diameter of the needle; what is the relation between the external diameter and the lumen of the needle, and is the ratio the same with all sizes of needle? How does the method of manufacture ensure a smooth inner surface to the needle to prevent accumulation of debris?*

A.—There are three standard sizes of needle mounts which are in common use—namely, the Record, Luer, and S.I.M.A. With regard to needles some houses have their own series. The standard sizes are as under:

Hypo Range	Diam. B.W.G.	Diam. mm.	Length mm.
20	26	0.45	15.5
19	26	0.45	17.5
18	26	0.45	19
17	25	0.50	23.5
16	24	0.55	25
15	23	0.60	25
14	23	0.60	30
12	23	0.65	30
2	22	0.70	33
1	21	0.80	38

The above is the standard series of hypodermic needle sizes. In addition, exploring and aspirating needles are made from 1½ in. to 4 in. long in sizes from 14 to 20 standard wire gauge. The lumen of the needles varies in accordance with the external diameter, as the larger needles have a thicker wall. The method of manufacture ensures the internal bore being smooth, as needles are made by being drawn down from a short length of large-diameter tubing to fine sizes for hypodermic needles. When ordering, either the standard or Birmingham wire gauge should be used; this varies slightly, but the difference on fine sizes is infinitesimal.

The question of sizes of hypodermic needles and mounts has been considered by the Surgical Instrument Manufacturers Association and a standard series has been arranged. This standard has been approved by the British Standards Institution, and will be manufactured as soon as circumstances permit. Although the various series will continue to be made, it is hoped that eventually all mounts and needles will be of a standard size.

One Under-developed Breast

Q.—*A nullipara aged 23 has a right breast only half the size of the left, which is about normal. It is surrounded by a retracted nipple on which manipulation has had no effect, and small doses of stilboestrol have not altered the contour. I would appreciate advice.*

A.—The cause of this condition is not a hormone deficiency or imbalance (as is evidenced by the normal development of the left breast) but an inherent defect in the right breast, the tissues of which are incapable of response to the normal hormone stimulus. It is therefore not surprising that there has not been any response to stilboestrol, nor is there likely to be even if the dose is increased. Daily applications of an oestrogen ointment to the hypoplastic breast might be tried, but if they have any effect it is more likely to be due to the massage than to the ointment. Indeed physiotherapy—contrast bathing and regular massage—probably offers the only hope of improving matters. But it is a forlorn hope, and it is doubtful whether any treatment will produce even temporary, let alone permanent, enlargement of the affected breast.

Seborrhoea Capitis

Q.—*I am treating without success a persistent case of seborrhoea capitis in a man. The scalp is slightly irritated and red, possibly owing to the use of medicaments. Advice would be appreciated.*

A.—Seborrhoeic dermatitis has been prevalent and common during this war as in the last. In its treatment, especially when the scalp, face, or neck is affected, it is important to take into consideration the liability to eczematize. When in doubt it is a good rule to apply oily calamine with or without the addition of ichthammol, 1 or 2%. A messy application of this kind calls for a weekly shampoo, which should be followed by a fresh application of the oily lotion. When the inflammation has subsided sulphur in very weak concentration (less than 1%) in zinc cream can be tried. Inflamed seborrhoea capitis can be easily overtreated.

Sonne Dysentery Carriers

Q.—*A family of three children, aged 3, 8, and 14 years, has positive rectal swabs at the same time. The diarrhoea has ceased; stools appear normal, and they are quite well, but each has a positive swab between one or two negative ones. Is there any treatment that will clear up the infection and is there any reason why the two elder ones should be kept away from their day school, and for how long? The parents are worried at their absence from school.*

A.—Although it is not so stated, it may be presumed that these children were suffering from Sonne dysentery and are now convalescent carriers of the Sonne bacillus. The convalescent Sonne carrier is particularly difficult to cure by specific measures, but most cases clear up spontaneously in 3 to 4 weeks' time. For the more persistent carrier the safest and perhaps the most effective sulphonamide to use is succinylsulphathiazole, which in children aged 3 to 14 years should be given in 1½-gramme doses four times a day for 5 to 7 days. If it is not available, sulphapyridine, in rather smaller dosage may be tried. Whether these convalescent carriers are likely to be a source of danger to their school-fellows is a difficult question to answer. If they are taught the simple rules of good hygiene—to wash the hands after using the w.c. and before handling food—the risk of their spreading infection is minimal. As they are day-boys, there seems little justification for keeping them from school provided they are not allowed to act as food-servers during the midday meal. Sonne dysentery is often so mild that many cases are not diagnosed, and it is the *missed* case or carrier who is most likely to spread the infection.

Tenacious Plugs in Lungs in Asthma

Q.—*Is there any drug for removing the tenacious mucous plugs which form in the lungs in asthma? What quantity should be used and how often, and how long should each course of treatment last?*

A.—Tenacious mucous plugs which form in asthma are exceedingly troublesome and distressing. Probably the best method of dealing with them is to put the patient to bed and to give him an injection of adrenaline which will open the bronchioles widely. When the airway is thus made clear the natural ciliary action will remove the mucus by driving it upwards. So far as other drugs are concerned there is a prescription intended for this purpose in the *National War Formulary*, containing 3 gr. potassium iodide, 2 min. ext. stramon. liq., in 1/2 oz. chloroform water. This can be taken three times a day, or more often if necessary. The stramonium contains hyoscyamine and hyoscine, which dilate the bronchioles, while the potassium iodide loosens the tight plugs of mucus by causing a more watery secretion.

Herpes Labialis

Q.—*Have there been any recent advances in the treatment or prophylaxis of herpes labialis, or any new factors found in its aetiology? A woman patient, who can remember recurrences of a "cold on the lip" since her early childhood, has had 9 recurrences during the past year at intervals of a few weeks; and the more recent eruptions have left pigmented scars. No precipitating factor has been isolated. The patient is otherwise in good health.*

A.—Herpes labialis remains an intractable condition. Attempts have been made to treat it with vaccines of the causative virus or a related virus, but one would expect little success from such measures on *a priori* grounds. *X*-irradiation of the affected areas has also been recommended, but there does not appear to be any record of controlled tests of either vaccine or radiation therapy. At the moment, the only treatment one can recommend is measures to improve the physical and mental state of health.

Post-menopausal Pregnancies

Q.—*In some books of birth control it states that it is advisable to use anticonception methods for up to two years after menstruation has ceased. What is the explanation of this?*

A.—Some considerable time must inevitably elapse before a woman can be reasonably certain that she has had her last menstrual period, but, leaving aside such considerations, the explanation really depends on the fact that ovulation can occur without menstruation, and vice versa. The menopause does not necessarily imply cessation of ovarian function, and very often the climacteric occurs several years after the menopause. There is abundant evidence—such as the finding of signs of follicular activity and corpus luteum formation at operation—to show that ovulation sometimes occurs, although not necessarily regularly, after the menopause. Moreover, cases of pregnancy occurring several years after the last menses are on record, and reference was made to some of these in a reply published in the *Journal* of Dec. 11, 1943 (p. 771). However, the chances of a post-menopausal pregnancy are not high, and after 2 years' amenorrhoea they are extremely remote.

Diabetic Gangrene

Q.—*What is the modern treatment of diabetic gangrene of an extremity? I would particularly value advice regarding (a) application of heat or cold to the limb, and (b) amputation. Most textbooks advise that the limb should be wrapped in cotton-wool and kept warm; many teachers advise that the limb be kept ice-cold and the body warm. Which is physiologically correct? Again, regarding amputation, many advise the avoidance of amputation almost at all costs; others advise early amputation if the condition of the arteries permits.*

A.—Diabetic gangrene is usually a moist, septic spreading gangrene tending to cause death in coma. A line of demarcation rarely forms, so that in the established condition the only hope of relief lies in amputation. This should be done at a level at which the blood supply is adequate for healing and where the tissues are not grossly infected, after a preliminary period of treatment directed to carbohydrate, insulin, and fluid requirements. Conservative treatment should be reserved for those in whom, by reason of poor general condition, the risks of an operation are thought to be prohibitive. Many of this class, however, can be made relatively safe for amputation by first regulating their metabolism and occasionally by incision and drainage of superficial abscesses. A good deal of the operative mortality in the past has been due to sepsis in one way or another, and it is likely that in the future the prospects will be improved by the use of penicillin, so that more patients can be offered the benefits of surgery. Avoidance of amputation "at all costs" is an extreme view which will cost many lives.

In deciding on the level of amputation the primary consideration is the ability of the tissues at a given level to heal, having regard to the local circulation; the suitability of the stump for an artificial limb is of comparatively small importance. Arteriosclerosis is practically always present and is a hazard which must be faced; it has a decisive bearing on the amputation level. Where gangrene is limited to a toe or toes, local amputation is sufficient provided there is a good circulation in the foot. Where gangrene or deep infection has extended above the toes, a thigh amputation is best. An upper-leg amputation is permissible if the popliteal artery pulsates and if the leg is uninfected, but generally this is an unsafe amputation for arteriosclerotic patients. Any amputation below the knee may later need re-amputation through the thigh.

Local application of heat is the worst kind of treatment. It increases tissue metabolism, creating an increased demand for oxygen which cannot be met by the depleted blood supply; and it also encourages bacterial growth. The effect is spread of gangrene and of infection. Application of cold has the opposite effect and is obviously sound therapy; it also tends to diminish pain. It is sufficient to keep the limb exposed at room temperature. Actual refrigeration has been used as a preliminary to amputation. By effecting a "physiological amputation" it produces a great improvement in the general condition, so that this form of treatment probably has a considerable future. The rest of the body should be kept warm but not overheated. Reflex vasodilatation of the affected limb is a rational procedure, but its value is limited by the poor capacity of sclerosed vessels to dilate. Following amputation, however, it might make just the difference between success and failure.

Dystrophia Adiposo-genitalis

Q.—*What is the modern treatment for dystrophia adiposo-genitalis?*

A.—In this condition, which is also termed Froehlich's syndrome, adiposity and failure of sex development are the outstanding features; occasional dwarfism is a complication. Sex development can be produced by injections of gonadotrophic hormone (500 units per c.cm.) 1 c.cm. twice weekly for six weeks, the course repeated after an interval of some weeks. The treatment of the adiposity is that of adiposity in general—namely, diet and thyroid—and the response is only partial. The treatment of the dwarfism is by thyroid and growth hormone.

Relief of Tinnitus

Q.—*A woman aged 50 has suffered from "noises in the head" since a post-scarlatinal infection of the ear in childhood. These have become gradually more severe and distressing. Is there any means of relieving the symptoms?*

A.—A course of short-wave diathermy to the affected ear will occasionally relieve the tinnitus, and is worth a trial. If the tinnitus is high-pitched, the administration of nicotinic acid may help. Failing relief, the usual sedatives, acid. hydrobrom. dil. or phenobarbitone, should be given.

Fly Repellents

Q.—*What is the best fly repellent (with special reference to the article in the* Journal *of May 19 entitled "Dimethyl Phthalate as an Insect Repellent," in which indalone is mentioned)? What is indalone? What is its smell and consistency, what is its cost, and where can it be obtained? Is it the sort of thing which an old lady would be grateful to have sprayed on her pillow, or would she prefer to let the flies go on crawling over her nose?*

A.—It should be realized that most effective repellents act by contact rather than by the smell of the vapour. Their principal use, therefore, is against biting insects, either by treating the skin or else clothing over which the insect may travel on its way to bite. There does not seem to be much data on repellents for houseflies, though some American experiments in 1939 showed that indalone was much more effective than citronella in preventing flies from settling on a molasses bait. Indalone, which is αα-dimethyl α-carbo-butoxy dihydro-γ-pyrone, is an amber-coloured liquid with little or no smell. Like dimethyl phthalate it can be applied to the skin without danger. It is manufactured in the U.S.A. and cannot be freely purchased in this country at present.

Probable Case of Neurosyphilis

Q.—*Three or four years ago a woman consulted me for pains on the left side of her face. The pupil of her left eye was dilated and reacted to light but not accommodation. A Wassermann test was positive. Since then I have given her regular courses of injections of bismuth and arsenic preparations. Three subsequent Wassermann tests have still proved positive. Shall I continue with the treatment already given or can you recommend any other better remedies to be used by intramuscular injection, as this is much easier for a general practitioner than intravenous injection?*

A.—This question would be easier to answer if more particulars were available—e.g., previous history, family history, age of the patient, whether married or single, any miscarriages, state of other reflexes, etc. A dilated left pupil which reacts to light but not to accommodation is the exact opposite of the Argyll-Robertson pupil, but in view of the fact that the Wassermann reaction has been repeatedly positive it seems probable that the patient is suffering from neurosyphilis in some form. For this reason it is essential that an examination be made of the cerebrospinal fluid together with a complete clinical examination of the nervous and vascular systems; the former is beyond the scope of the average general practitioner and the patient should be referred to an expert syphilologist. Treatment will depend on the results of examination and particularly on the state of the cerebrospinal fluid. If the fluid is normal or shows only mild changes, potassium iodide by mouth and bismuth intramuscularly will probably prevent extension of any morbid process; if, on the other hand, the fluid shows marked changes, including a strongly positive Wassermann reaction and a paretic type of gold curve, more drastic methods are indicated, such as artificial fever (malaria) therapy followed by repeated courses of tryparsamide intravenously and bismuth intramuscularly. In this connexion it cannot be too strongly stressed that it is the patient who should be treated, not the positive serum reaction; the type and amount of treatment will depend mainly on the clinical signs and the effect of treatment on the reactions of the cerebrospinal fluid.

INCOME TAX

Child Allowance

R.M.'s child was born on April 3, 1944. Which is the first year for which he is entitled to the £50 allowance?

*** The full £50 is due for the year ending April 5, 1944.

Hospital Appointment

J. D. inquires as to the deduction of certain expenses.

*** (1) Cost of moving to take up appointment—not allowable. Such expenses are incurred anterior to, and not in the carrying out of, the duties of the appointment. (2) Expenses to be incurred in acquiring the D.P.M.—not allowable. Such expenses are of a capital nature and therefore not allowable against income.

LETTERS, NOTES, ETC.

National First-aid Service

Dr. Bowman Edgar (Kirkconnel, Dumfriesshire) writes: First aid has, along with medicine and surgery, made striking advances during the last five years. The experience gained in war and under attack from the air has proved how useful can be a system of well-organized rescue work. It is to be hoped that first aid will not be allowed in peacetime to drop back for lack of broad outlook and organizing keenness to the rut it has occupied for too many years. Is it not to be deplored that no fewer than three "Societies" (St. John's in England, St. Andrew's in Scotland, and the B.R.C.S.) appear necessary to carry on first aid in this small island? These societies are, without a doubt, doing excellent work each in its own sphere, but not one of them can speak for the British first-aid workers as a whole; not one of them is capable *per se* of organizing, or is entitled to co-ordinate, the work on a national basis, and so far no hint of a move in that direction has been heard from any of the three. The following true case is worth consideration. Some years ago a Government order was issued to certain works instructing that, for every so-many workmen employed, there must be one man holding a first-aid certificate. By going over the works with a small-tooth comb and accepting certificates dated up to *25 years* previously, the management was able to obtain the requisite "first-aid men" (alleged!). The letter of the law was thus obeyed. The spirit of the law and the interests of any injured man were apparently of no importance whatever. The works sent in their full quota of names; they did not state that 75% were quite inefficient. And there was no F.A.H.Q. with authority to intervene in the interests of the injured. The law had been obeyed; what happened to any casualties just didn't matter. This blind acceptance of certificates as evidence of training and ability to perform work efficiently brings us to one big question which must be squarely faced, and answered. Is first aid to achieve promotion in these coming post-war years to its rightful high place on the list of national services? Under all manner of enemy attack the British first-aider has proved, over and over again, his personal courage and the immense value of the training he has received. Does he not deserve to be raised to membership of a properly organized national service, with recognition and privileges as such? This reward to the "first-aiders of the 'blitzes'" could be achieved by establishing a representative "British Council of First Aid" with the following mandate: (1) The "continuation, intensification, and modernization" of first-aid training in Great Britain. (2) The standardization of this training over the whole country and the raising of examination standards. (3) Revision of the system of certification, the award of badges in place of certificates, and the establishment of these badges under the "unauthorized wearing" law. (4) Co-operation with Government Departments and the "High Command" in any questions touching first aid (as in the case mentioned above). (5) Recruiting of the best type of volunteer. (6) Consideration of conditions of service of full-time first-aid personnel. (7) The establishment, at the earliest possible date, of the "Royal First-aid Service of Great Britain." (8) The publication of an official up-to-date "Manual of British First Aid", with space at the end for quarterly "bulletins" of up-to-the-minute information. This is merely a preliminary survey of some of the steps required to set the service on a national basis, which is its just due.

Calciferol and Toxisterol

Mr. J. Greenbaum, B.Sc., Ph.D., writes: In the *Journal* of May 19 (p. 721) a correspondent asked a question concerning the existence and toxicity of toxisterol. The answer given was in error when outlining the sequence of ergosterol irradiation products, and particularly in stating that calciferol is the first irradiation product of ergosterol, which is then further irradiated to lumisterol, tachysterol, and toxisterol. The correct sequence of substances on irradiation is as follows: ergosterol, lumisterol, protachysterol, tachysterol, calciferol, toxisterol, and suprasterols. As will be seen from this, calciferol is an end-product of a series of substances, and is transformed into toxisterol, so far as is known, without intermediate compound formation, on further irradiation.

Corrections

Air-Cdre. T. C. St. C. Morton wishes to correct a typing error in his article on "Diodoquin for Chronic Amoebic Dysentery" published on June 16. The fourth line under "Conclusions" on page 832 should read "approximately one-fourth of the cases have relapsed," not one-third.

By a misprint in the obituary notice of Mr. Bishop Harman published last week the late Dr. Wallace Henry's name was printed as Henry Wallace.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY JANUARY 6 1945

HEALTH CENTRES AND THE NATURE OF GENERAL PRACTICE

BY
A. GARVIE, M.D.

The main purpose of this paper is to show that the segregation of doctors in Health Centres would diminish their opportunity to study aetiology. The clinical evidence is based on data selected from an epidemic of influenza and has been limited to the period chosen for the health survey field workers of the Ministry of Health in their review—namely, from Oct. 1 to Dec. 31, 1943.

From the respiratory complaints which occurred during this period two groups were extracted. These groups had a common characteristic in that the interval from the onset of the illness to the first consultation had been brief. In one group, however, the patient spoke of pain in his preliminary description, whereas in the other all suggestion of pain was absent. The term "cold" is usually applied by the patient to the latter. It causes minor discomfort and little incapacity. On the other hand, "influenza" is usually applied to the former and in general leads to incapacity for work. Many objections could be advanced against the terms "cold" and "influenza," but for clarity the terms are used throughout this paper in the above sense and are not based on the presence or absence of any specific type of organism.

The selection and subsequent analysis were effected by mechanical methods, otherwise too much work would have been involved. The methods are easy to handle, but it is impossible to give any brief and, at the same time, lucid description of them. I would therefore ask that, for the present, it will be accepted that the data in this paper have a high degree of accuracy and are totally free from any personal bias on my part.

It had been my impression that the distance a patient had to come to the surgery was an important factor in determining whether he came at all when he believed that his illness was unimportant. To test this scientifically I grouped my panel patients into four zones A, B, C, and D, where in A the patient would take less than 5 minutes to walk to the surgery, in B from 5 to 10 minutes, in C from 10 to 15 minutes, and in D more than 15 minutes. The patients in all four zones were industrial workers. They intermingled in factories and workshops, and so it was assumed that the incidence of influenza had been the same in all districts. The proportion, therefore, of influenza among my panel patients should have been the same in each zone, provided that the distance which the patient resided from the surgery did not affect his decision to seek medical attention. This was found to be true, the percentages being 4.2, 3.6, 3.1, and 4.5. The variation in these percentages has no significance, being within the probabilities of that chance difference of percentages between different groups of people exposed to the same risks. For colds there ought also to have been equality among the zones for the same reasons, but in fact the percentages showed progressive diminution from A to D, the figures being 6.5, 4.9, 2.85, and 1.75. These figures cannot be accepted as arising from any chance distribution. (The difference in percentage between the first and the third zones is 3.65, the standard error being 1.45, and between the first and the fourth 4.75, the standard error being 1.54.)

The result of this analysis leads one to conclude that where the patient believes he has influenza he will be seen by his doctor irrespective of distance, but where the patient thinks he has a cold, unless the surgery is very convenient, he will not ask for medical attention even when it is offered free of charge. It is evident, therefore, that some correction must be made in the *apparent* incidence of colds during an epidemic before it can be compared with the incidence of influenza. It was while engaged on this work that I realized that the segregation of doctors in clinical Health Centres would reduce the number of patients they had been in the habit of seeing and restrict the opportunities of any of them who wished to make a clinical study of aetiology.

A series of histograms has been prepared. They have been constructed on an assumption that, instead of the historic method of doctors "putting up their plates" in different areas of a growing town, the original practice of the small township had been able to retain a monopoly of the area. As the town had spread outwards and filled one zone after another, the increasing demand for doctors had been met by the original surgery becoming a clinical Health Centre, in which the number of doctors was increased according to the needs of a growing population. The 1943 epidemic occurred during this expansion. The varying pictures of that epidemic as it would have been seen by the doctors, according to the degree of dispersion of their practices at the particular time, are illustrated in the series of histograms. I have avoided going into the full mathematical details of how such histograms can be constructed, but the following account is given.

It was assumed that the average person in a town walked at about two and

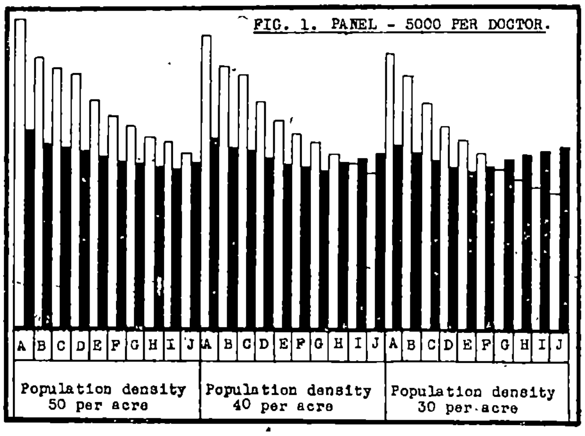
FIG. 1. PANEL - 5000 PER DOCTOR.

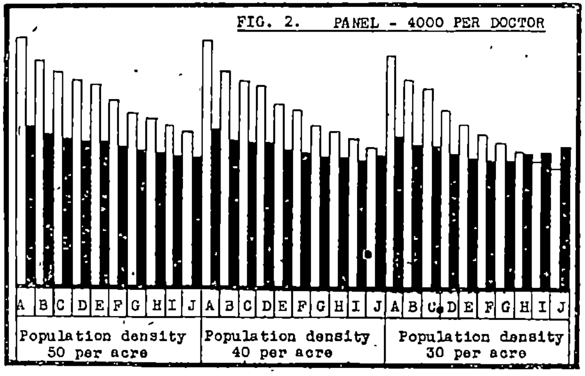
FIG. 2. PANEL - 4000 PER DOCTOR

Common colds = White columns.
Influenzas = Black columns.

A denotes data of a single isolated doctor, B the data of one of 2, C the data of one of 3 . . . J the data of one of 10 in a common consulting centre.

a half miles per hour, and so any person in approximately a hundred acres would be within five minutes' walk of the surgery, the surgery being situated at the centre of the zone. The possible number residing in this area constitutes the insured population of the first zone. Density of population is a widely varying quantity. Many authorities advocate a maximum of twelve houses per acre, and, as the average number of persons per house is 3.75, three population densities were analysed—namely, 50, 40, and 30 per acre. The density for any large area is, of course, affected by open spaces, factories, shops, schools, churches, etc., but, to give the clinical Health Centres full advantage of ideal conditions, it was assumed that the population grew in equal density over a large area. Two different sizes of panels are studied, one limited to 5,000 persons and the other to 4,000. These figures are chosen because it is doubtful if a greater number than 5,000 will be allowed per doctor in the immediate future, and, on the other hand, the figure of 4,000 appears to be the minimum number which makes aetiology a worth-while study (Figs. 1 and 2).

These histograms illustrate that, no matter at what period of development of the clinical Health Centre the epidemic of 1943 had occurred, the incidence of influenza as reported by the staff would have been much the same. There would, however, have been a persistent decline in the *apparent* incidence of colds as the size of the centre grew. If the epidemic had occurred in the time of the small township with a single doctor, he might have regarded it as an epidemic primarily of colds, with some influenza. If, on the other hand, it had occurred when the town had developed to such an extent that ten doctors were required at the clinical Health Centre, it would have been accepted as an epidemic of influenza accompanied by some increase in colds. It will be noticed that, with diminishing densities of population, this variation in the apparent type of the epidemic becomes more marked.

MEDICAL SERVICES IN CONTINENTAL COUNTRIES

7.—SPAIN

Spain has had a Ministry of Health, but under the new regime, apparently, public health is a department of the Ministry of the Interior. The Director-General of Public Health, who is himself a medical man, holds a non-political appointment. He is selected from among public health specialists. Under him are the provincial and municipal officers of public health, who are appointed to their respective posts as a result of examination. On entering the service the newly qualified man is usually appointed to a village, where he is paid a small salary by the local authority but also undertakes private practice. In course of time he is promoted to higher categories and may become a provincial inspector of public health. One such official holds office in each of the 49 provinces of Spain.

All this arrangement of offices in the public health service is in medical control. The Spanish medical profession, loosely organized as it is, has been very successful in insisting that medical questions should be determined by medical people and in preventing the interference of any lay bureaucracy. Any appeal by a public health officer or any dispute which arises is decided by a medical tribunal, except in the last resort, when the matter may be taken to a civil court. In the same way, if there is a complaint against an officer the municipal authority making the complaint refers it to the provincial inspector of public health, and if no satisfaction is obtained from him, to the Director-General, and only if this recourse fails does the matter go to the courts.

In taking charge of a village the first duty of the appointed officer is the medical care of the poor. For this he is paid at a scheduled rate. It is only a small sum which he receives in respect of his office—perhaps, in a village of 3,000 or 4,000 people, £150 a year—but he is allowed also to practise for private fees. It is the local authorities who decide what level of income gives title to free medical service. After serving in a small village the medical officer may be promoted to a larger one or to a town, where exactly the same plan holds good. In addition to his clinical work he fulfils the usual functions of a medical officer of health and undertakes any duty in the sphere of forensic medicine which may be necessary. In smaller places he may have to perform certain specialist services; in the larger towns specialists are available at the hospitals.

Hospitals in Spain belong to the State, to the province, or, in the large cities, to the municipality, but they all receive subsidies from State funds. The sense of communal responsibility for care in sickness as in other matters is strong in Spain. There are also a few voluntary hospitals under the Red Cross; these are maintained, not by voluntary subscriptions as we understand them, but by means which appeal more to the Spanish temperament, such as the proceeds of a lottery or a bullfight. Most of the hospitals are staffed by part-time medical officers. Indeed, the only hospitals in Spain which do engage whole-time consultants are the Red Cross hospitals. The employing body of the part-time staff of the provincial and municipal hospitals is the State, but here again the medical officer deals with medical superiors up to the Director-General, and not with any lay authority at all.

In Spain there are 27,000 doctors to a population of 24½ millions. They are organized in provincial "colleges" which are federated in a national association with representatives from each college on the controlling body. These colleges speak and act for the profession. They undertake on behalf of the doctor the collection of debts and negotiate in such matters as income-tax assessment. An argument over the amount of the doctors' fees would be determined by the local college. If a dispute went so far as the civil courts the college would provide expert evidence. The whole system in Spain is directed towards keeping medical matters in professional hands so far as possible, and it would be difficult for any man to carry on practice unless he had the support of the college of his province.

Health Insurance and a Capitation Fee

A good deal of medical practice in Spain is carried on through health insurance societies, some of which are large and powerful bodies. About 60% of the working people are said to be insured for health. They pay usually about four shillings monthly as premium, and for this they receive not only general practitioner treatment but consultant and specialist service as necessary, though not usually in-patient hospital maintenance. What is known in this country as funeral benefit is also included. Out of the premiums paid the general private practitioner may receive about 20%, so that a practitioner would need to have about 500 insured persons on his list to command an income of some £240 a year.

The medical student is assisted to a very large extent. Ever since medical teaching was instituted the way to the profession has been made easy for the poor student. Thus if a small farmer can find the money to maintain his son for the necessary years in a boarding house in Madrid or Valencia or other university centre, and can purchase his books, the young man may receive his medical education free.

Private practice is strongly entrenched in Spain, and the system is not likely to be exchanged, even under a totalitarian government, for any other. This is all the more noteworthy because many doctors are earning only a precarious livelihood. Let it be remembered that Spain is a poor country; that it has twice the area of the British Isles but only half the number of inhabitants; that although it has eleven universities a large proportion of its population is still illiterate; and that the feudal nature of land ownership has weighed down the small agriculturist (and agriculture is the mainstay of Spain's economic existence). But although a large proportion of Spanish people cannot afford to pay a private doctor and the medical profession is overcrowded the doctors are opposed to a State medical service. The only party which has put forward proposals of that nature is the Falangist party, and they have gained little or no support in spite of the tempting prospect of economic security for the doctor.

In 1941 the death rate in Spain was 18.7 per 1,000. The birth rate exceeded it only by the narrow margin of 0.9 per 1,000. Pathological services are available through local private doctors. There are municipal laboratories in the cities, and provincial laboratories to which specimens may be sent from the villages.

The writer of this article is indebted to the Spanish Embassy and to Dr. Martinez Alonso, an outstanding medical man of Madrid who has been in this country for some time, for many of the facts contained in it, but they must not be regarded as responsible for any inferences drawn from them.

FROM THE PRESS CUTTINGS

"This means that the B.M.A., while rejecting the administrative structure outlined in the White Paper, will approach the negotiations with the Minister of Health not on the basis of negative demands, but with a programme of concrete proposals."—*Evening Standard.*

"The profession are trying to plan the best medical service possible for all, while the Government are limiting their field to the provision of a service that will enable them to work the social insurance scheme. Everyone would agree that health depends a little on security, but few would place security before health."—From a letter in the *Times.*

LABOUR PARTY AND THE WHITE PAPER

The recent Labour Party Conference in London adopted without dissent a motion of the Socialist Medical Association welcoming the White Paper on a National Health Service as an essential part of the social security scheme for 100% of the people and urging the labour movement to support it and press for such improvements as would bring it into line with the Labour Party's own policy as expressed in its publication "A National Service for Health."

Dr. D. Stark Murray, in moving this resolution, compared the Labour Party's "statesmanlike document" on this subject, with the contradictory decisions made at the B.M.A. Representative Meeting during the previous week. If the Labour Party did not support the White Paper, he said, the opposition would whittle it down and make it unworkable. The opposition was of two kinds: first, the general political opposition to anything which embodied a social advance for the working classes of this country; and, secondly, the professional opposition, "and there you have reaction at its very worst." "We had the spectacle last week," Dr. Stark Murray continued, "of men speaking about freedom and democracy and putting up a plea which, to my mind, as one who sat through the whole of the B.M.A. conference, appeared an attempt to make the world safe for hypocrisy. There was one speaker who went so far as to say that the treatment for rheumatism when it occurred in the working-classes was to see that they went on working. That is the kind of reaction you get from some of my professional brethren whenever anything is suggested which would be for the benefit of the working-class. Harley Street has developed a new definition of democracy: "Government of the people by the doctors for the doctors!"

At the B.M.A. meeting, he added, local government was attacked in a way reminiscent of Mussolini. And what did they decide? That not until institutional and specialist services had been brought into the insurance service and had been in operation and well tried should they begin to consider the women and children of this country. There was never a bigger attempt to prevent advance than that attempt of the B.M.A. But the small clique who stampeded the B.M.A., while they began the conference with 80 votes, could muster only 27 on the last morning. The Questionary showed 60% of doctors in favour of a service for the whole nation, and he believed that the Labour Party in its health service programme could count upon the support of 80% of the younger doctors of this country. Without a proper health service for 100% of the population the people could not have the social security they desired. No social security scheme could be guaranteed to work without a health service. Their main point was that they believed, in the Labour Party, that health required one single standard of treatment, no division between "private" and "panel," a 100% complete service for 100% of the people.

The report of the National Executive of the party, which was adopted at the Conference, generally supports the Government plan, while admitting that it is an obvious compromise and deficient in some directions. The deficiencies of the White Paper are: (1) the failure to stress the importance of good food and housing, sound town planning, full employment, satisfactory conditions of work, and the right use of leisure as factors on which the promotion of health depends; (2) the absence of reference to the need for developing the industrial health service and linking it to the general health service and to the Ministry of Labour; (3) omission of mention of the need for many more nurses; (4) absence of reference to the requirement, as many more doctors will be needed, that medical education be thrown open to all classes, regardless of financial position; and (5) the lack of prominence given to medical and social research. The National Executive is in favour of full compensation for loss of practices; the money involved would be small in relation to the total cost of the service.

NURSING IN A NATIONAL HEALTH SERVICE

The memorandum on "The Place of Nursing in the National Health Service," which was published recently by the Royal College of Nursing and discussed, in the presence of the Minister of Health, at the College's annual conference in November, is to be the basis of negotiations with the Ministry. The negotiations are, we understand, to start at once.

The preamble to the memorandum states that the College approves the Government's intention to provide a health service for everyone, and regards the provision of a complete nursing service as its special target. This is very far from being the case at present. Few people realize to what extent the success of the health plan will depend on the number and quality of nurses available to staff the hospitals and clinics, to carry out preventive work, and to help educate the public on its full meaning and use.

Criticisms of the White Paper

The memorandum contains a number of criticisms of the White Paper. For instance, it is pointed out that the emphasis is almost wholly on a curative structure for sickness rather than on the promotion of healthy living. Again, though the College admits the administrative expediency of bringing the National Health Service within the framework of local government, members of the College maintain that the present proposals should be regarded as a short-term policy only, pending complete reorganization of the local government machine. It is also doubted whether the opinions of the advisory bodies to be set up by the Minister will carry sufficient weight with the local authorities concerned. Much depends on the Minister himself, and on the encouragement he gives to the new bodies to initiate schemes of their own as well as advising on schemes submitted to them by others. Lastly, representation of the nursing and midwifery services on the central and local health councils is quite inadequate for services involving something like a quarter of a million workers. The health councils, being predominantly medical, would have neither the time nor the knowledge to deal with the many problems which arise in the nursing and midwifery field. The College considers, therefore, that the Minister should set up an Advisory Council on Nursing and Midwifery.

The Hospital Services

The hospital, says the memorandum, is the basic training of the nurse, and reorganization of hospital services must ensure that this basic training is not only safeguarded but improved. In the words of the Goodenough Report on Medical Schools, "the spirit of education must permeate the whole health service," and the regrouping of hospitals offers an excellent opportunity for introducing that wider basic training recommended by the Horder Committee on Nursing Reconstruction—a training which would introduce the student nurse to many branches not hitherto covered in her curriculum, such as the nursing of the chronic sick, mental and infectious diseases, and tuberculosis. The memorandum has other suggestions to make: for example, more privacy for patients in hospital wards, less congestion in out-patient departments, regular bus service for out-patients and patients' relatives, ambulance facilities for taking discharged patients to their homes, better classification and institutional care for the chronic sick. Much of the care expended in hospital is wasted for lack of follow-up work after the patient's discharge.

Health Centres

The College has in mind much more comprehensive functions for health centres than the grouped medical practices outlined in the White Paper. "The health centres should not only be concerned with the physical health of the people but should be a centre for all educational and recreational activities which have a bearing on health." Social workers, district nurses, and health visitors have their place in the health centre, which should run its own service of "home helps." The medical examination of juveniles for industry might well be carried out at the centre, where all relevant information would be accessible; the centre might also provide mobile clinics to serve the smaller factories in the locality. The College considers the exclusion of an industrial health service from the national scheme to be a grave weakness.

Home Nursing and Care of the Aged

The "full home nursing service" mentioned in the White Paper, states the memorandum, should not be limited to district and visiting nursing, but should include full-time nursing in the home, day and night if necessary. The present wide employment of private nurses will be beyond the means of most people in future, but the scope of district nursing might be widened to include whole-time nursing, or, alternatively, local authorities might provide "pools" of nurses at present engaged in private practice to meet local emergencies, such nurses to be employed under nationally agreed scales and conditions of service.

No health plan would be complete, the memorandum concludes, which did not contain plans for the grouped housing, in homely surroundings, of people who, unaided, cannot entirely look after themselves and yet wish to retain a measure of independence. The College considers that the experienced State-registered nurse has a leading part to play in the organization and administration of communities for old people.

Correspondence

Medical Demobilization

Sir,—In the *Supplement* of Dec. 23 (p. 173) you print a letter from Capt. P. T. Davies, who has obviously misunderstood the phrase "go into reverse" in the statement on demobilization published by the Central Medical War Committee. Capt. Davies has erroneously concluded that the return of medical officers from the Forces under the Government's re-allocation of man-power scheme will be arranged on the principle of "last in, first out." This is by no means the case. On the contrary, as is indicated in your editorial footnote, it is length of war service coupled with age which will as a general rule determine priority of release.

There will, however, be a limited number of cases in which it will be considered necessary, on the ground of urgent civil need in particular areas, to apply for individual medical officers to be transferred from the Forces out of their turn—that is, before they are due for release according to the age-service formula. Applications for such transfers will be considered by the Central Medical War Committee, which will make recommendations to the Service Departments. It is in connexion with this part of the scheme (Class B of the White Paper) that the phrase "go into reverse" was used; and all that is meant by this phrase is that the machinery of the Central and Local Medical War Committees, which was set up primarily for the purpose of arranging the recruitment of doctors to the Forces, will be used to arrange the opposite process of return from the Forces, so far as transfers in Class B are concerned. There is no reason to suppose that men transferred in Class B will normally be men with short periods of service, and the words quoted by Capt. Davies were not intended to convey any such meaning.—I am, etc.,

H. S. Souttar,
Chairman, Central Medical War Committee.
London, W.1.

What's in a Word?

Sir,—The summing up by the Chairman of Council (Dec. 10, p. 165) of the four days' deliberations and argument of the A.R.M. is masterly in its brevity and its clarification of the kaleidoscopic nature of the 370 motions on the White Paper. Most of us will find it difficult to do otherwise than approve of the general conclusions arrived at.

I would venture, however, to draw attention to a tactical error in the use of one word, which seems to me to weaken our whole position and is likely to lead to a misunderstanding on the most vital issues at stake. I refer to the use of the word "wish" in the penultimate paragraph dealing with some of the most fundamental objections to the Government's proposals. It reads as follows: "We have stated emphatically that we do not *wish* to be employed by local authorities, etc. . . ." Surely the intention is, and the paragraph should therefore read, that "We have stated emphatically that we refuse absolutely to be employed by local authorities. . . ." The word "wish" suggests a mild protest but leaves the matter apparently still open to argument and negotiation, whereas the fact is that, in regard to control by local authorities, civil direction, whole-time salaried service for general practice, we are adamant and refuse absolutely.

The Chairman of Council in his summing-up expressed the Council's welcome of "ginger from within." It is to be hoped therefore and urged that the Council in its forthcoming conversations with the Government will not wait upon the Minister with "wishes" and pious hopes but face him with minimum demands which must be satisfied as a prerequisite to any negotiations.—I am, etc.,

Oxford. J. Frankland West.

The Ministry of Health and Radiology

Sir,—I trust a storm of indignation will sweep the profession upon reading and considering the implications of the advertisement in the *Journal* of Dec. 16 (p. 12) by the Director of Establishments, Ministry of Health: published on the very day you report the proceedings of the A.R.M., so soon does the bleak complexity of the political plan behind the White Paper unfold itself.

It would appear that, presupposing the continued existence of the E.M.S. hospitals under its central control, the Ministry of Health already assumes to itself the right to decide whether or not a fully qualified doctor may pursue a course of postgraduate study in the specialty of his choice and thereafter offer himself for examination. To the successful candidate the Ministry offers the "specialist" a salary not at all removed from that paid to a technical assistant in the same Department.

Many questions immediately spring to mind, not least those concerning the future status of the examining bodies—whether university or Royal College or learned society—and the General Medical Council. It is an open secret (not readily forgotten) that in discussions with a former Minister of Health the representatives of the profession utterly rejected a Ministerial proposal which would have had for its effect a transference of the right to grant licences to practise from the General Medical Council to the Minister of Health. Is this departure of the Ministry the first step in achieving the same result by another means?

One wonders what will happen if unfortunately the autonomy of the voluntary hospitals is destroyed. One is intrigued to know which will be the next specialty involved—physiotherapy, ophthalmology, gynaecology, surgery, medicine, and so on down to practice in the Health Centre. One asks if the effect of these examinations will be to raise or lower the standard of radiology.

A couple of years ago I would vehemently have refuted any suggestion that the Ministry of Health would one day conduct its own examinations. Perhaps the Faculty of Radiologists can explain the circumstance.—I am, etc.,

Maurice Wigfield.
Watton-at-Stone, Hertford.

H.M. Forces Appointments

ARMY

War Subs. Lieut.-Col. (local Brig.) R. O. Ward, D.S.O., O.B.E., M.C., T.D., R.A.M.C., has relinquished the local rank of Brig.

ROYAL ARMY MEDICAL CORPS

Lieut.-Col. B. C. O. Sheridan, M.C., having attained the age for retirement, is retained on the active list supernumerary to establishment.

REGULAR ARMY RESERVE OF OFFICERS

Col. K. Comyn, late R.A.M.C., has ceased to belong to the Reserve of Officers on account of disability.

LAND FORCES: EMERGENCY COMMISSIONS

Royal Army Medical Corps

Major D. Ross, M.B.E., T.D., has relinquished his commission on account of disability and has been granted the honorary rank of Lieut.-Col.

War Subs. Capts. S. Mark, J. E. B. Elliott, L. Bapty, M.C., R. Morton, S. Canter, O. V. Jones, and P. Cosgrave have relinquished their commissions on account of disability, and have been granted the honorary rank of Capt.

Lieut. Y. M. Dervish has relinquished his commission on account of disability and has been granted the honorary rank of Capt.

To be Lieuts.: E. Shephard, B. Appel, A. W. Banks, R. L. Batten, J. C. Campbell, A. S. Carruthers, R. M. Chambers, J. S. Chapman, F. Denny, M. C. H. Dodgson, E. R. Edmunds, J. C. Forfar, M. T. Gillies, K. M. Gough, T. P. Grant, C. Harris, J. Hinchliffe, A. R. Hyslop, W. H. W. Jayne, J. M. Johnstone, T. D. Kellock, J. V. Kent, F. R. S. Knight, J. L. MacKenzie, K. M. Mackenzie, S. A. Marsh, R. D. Millward, K. H. Miller, K. Milne, D. Ollivere, H. P. Phillips, W. M. Politzer, J. E. L. Price, W. E. Prosser, F. I. Rackow, D. A. Rawson, A. Roper, D. L. Scott, J. Sharp, N. K. Smith, A. M. Stalker, S. J. Steel, J. Stohlner, M. C. Stone, I. G. Thomson, J. S. Thorburn, D. A. Tilsley, G. R. Venning, G. R. Wadsworth, R. Walkingshaw, H. E. R. Wem, R. H. Seville.

BRITISH MEDICAL ASSOCIATION

CONFERENCE OF RADIOLOGISTS

A Conference of Radiologists, arranged jointly by the Radiologists Group of the B.M.A., the Faculty of Radiologists, and the British Institute of Radiology, will be held at B.M.A. House, Tavistock Square, London, W.C.1, on Saturday, Jan. 20, at 10 a.m. All radiologists are invited, whether members or non-members of these bodies. The agenda will be sent to members; radiologists who are not members of any one of the three bodies may obtain an agenda on application to the Secretary of the B.M.A. at the address given above. The business of the Conference will be to consider radiological questions arising from the White Paper on a National Health Service.

POSTGRADUATE NEWS

A series of postgraduate lectures will be given in the West Medical Theatre of Edinburgh Royal Infirmary on Thurs., Jan. 18 and 25, Feb. 8, 15, and 22, and March 8, 1945, at 4.30 p.m.

DIARY OF SOCIETIES AND LECTURES

Royal Society of Medicine.—*Tues.*, 2.30 p.m., Section of Psychiatry. *Wed.*, 4.30 p.m., Section of Physical Medicine.

Medical Society of London, 11, Chandos Street, W.1.—*Mon.*, 5 p.m., Pathological Meeting.

BIRTHS, MARRIAGES, & DEATHS

The charge for inserting announcements under this head is 10s. 6d. This amount should be forwarded with the notice, authenticated with the name and address of the sender, and should reach the Advertisement Manager not later than first post Monday morning to ensure insertion in the current issue.

BIRTHS

Boney.—On Dec. 28, 1944, to Hilary (*née* Long) M.B., F.R.C.S., wife of Knowles Boney, M.D. M.R.C.P., Lieut.-Col., R.A.M.C., a son.

Howells.—On Dec. 8, 1944, at County Hospital Bangor, to Ola (*née* Brown), wife of Lieut. J. G Howells, R.A.M.C., a son—John David Barry

MARRIAGES

Clift—Newell.—On Dec. 14, 1944, at Kirk Hammerton, Yorkshire, Arthur F. Clift, F.R.C.S., to Dorothy C. Newell, M.B., Ch.B.

MacGregor—Morris.—On Nov. 18, 1944, in Madras, Malcolm Eliot MacGregor, Surg. Lieut. R.N., to Marigold Ancred Morris, R.N.V.A.D.

Scott—Hudson.—On Dec. 28, 1944, at Twigworth Church, Gloucester, Wing Cmdr. Ronald Leslie Scott, B.Sc., M.B., Ch.B., R.A.F., son of Mr and Mrs. David Scott of Glen Rosa, St. Andrews Fife, to Gwendoline Mary, daughter of Mr. and Mrs. Arthur Hudson of Kingsholm, Gloucester

DEATHS

Kelynack.—On Dec. 23, 1944, Theo N. Kelynack, M.D., M.R.C.P., J.P., of 9, Arden Grove, Harpenden, aged 78.

McRobert.—In a road accident in England in December, 1944, Ronald, medical student at Bart's, only son of Lieut.-Col. G. R. McRobert I.M.S., and Mrs. McRobert, Madras, aged 2 years.

SUPPLEMENT TO THE

BRITISH MEDICAL JOURNAL

LONDON SATURDAY JANUARY 13 1945

THE L.C.C. AND THE NATIONAL HEALTH SERVICE

WELCOME TO THE GOVERNMENT'S PROPOSALS

The London County Council, with Mr. Somerville Hastings, F.R.C.S., in the chair, at its meeting on December 19 debated the White Paper on a National Health Service, and passed a resolution welcoming the Government's proposals as representing a considerable advance towards a full health service for the people which could, over a period of years, be built up, improved, and developed with increasing advantage to the community.

The debate arose on a long report presented in the name of Lord Latham, the leader of the council. The administrative county of London will form a single unit for the purposes of the service, and it is assumed that the county council will be constituted the planning and administering authority. Maternity and child welfare work, tuberculosis dispensaries, and epidemiological inquiries will be delegated to the metropolitan borough councils. The authors of the report consider that the salaries and conditions of service of the medical staff of the borough councils should be laid down and approved by the county council. The council agreed to a recommendation that no right of nomination or appointment by professional or other bodies to membership of any committee of the council charged with the administration of the scheme could be acceptable. It was considered "not unlikely that the question of direct representation on joint authorities would be pressed by certain interests."

On the provision for hospital and consultant service the question was raised how far national insurance would confer on an individual the right to demand free treatment at any hospital or clinic within the plan. It was considered that it should be made clear whether settlement or residence was immaterial. With regard to the financing of voluntary hospitals the council considered that the principle of direct grants being made by the Minister and of the standard payment being determined by him, without reference to the joint authorities, was undesirable, and a recommendation was agreed to that if it was decided that any payments to voluntary hospitals should be made direct by the Government, the payments to each voluntary hospital should be related solely to the particular services rendered. The feeling was that, as voluntary hospitals are not to be compelled to come into the plan, there should be safeguards in any scheme which permits the pooling of Exchequer payments in order to avoid money going to a voluntary hospital which for any reason cannot be an effective part of a local scheme or which would require undue expenditure to make it efficient.

Health Centres

On health centres the comment was made that if doctors could "opt" for centre or separate practice at the outset it would not be known how many wanted to be centre doctors until the scheme was about to start, particularly as many young doctors from the Services would want to enter the new scheme on demobilization and their wishes could not be ascertained in advance. The lag even for structural alterations of existing premises would probably extend over months. Where were such doctors to practise in the meantime? "All this points to the desirability of consulting local doctors as soon as a Bill is passed, and a scheme prepared on which a start can be made in any area where the existing doctors are likely to wish to work in a centre and where a centre is likely to be needed."

Another comment was that if the dual system under which general practitioners will be engaged partly in group practice and partly in private is to be permitted, steps should be taken to ensure that patients using the public service are not at a disadvantage as compared with private patients. The report stated that it would probably be very difficult to disabuse certain people of the belief that better service would be given to those who paid for it as a separate item of private practice. Again, what was to be done in the case of a person who preferred to pay for his own family doctor treatment but could not pay for consultant or private ward treatment? The local committees of the Central Medical Board would no doubt be available for the settlement of disputes relating to the family doctor service.

On the question of compensation reference was made to the fact that the setting up of a general practitioner service would bring about the disappearance of the council's district medical service, and that questions of compensation might be anticipated here, particularly in view of the fact that certain district medical officers are still senior poor law officers. The need for a comprehensive inquiry into the superannuation aspects of the new scheme was stressed.

In Praise of Municipal Hospitals

Mr. Reginald Stamp, chairman of the Hospitals and Medical Services Committee of the council, said that of 2,500 hospitals in the country, the municipalities owned 1,500, and those among the largest, while of the 1,000 voluntary hospitals a considerable number were very small indeed. In the L.C.C. the number of municipal hospital beds was 37,202, as against 15,000 in the voluntary hospitals, and the services given in the municipal hospitals outnumbered in almost every department those given in the voluntary. Moreover, the L.C.C. contributed to the voluntary hospitals a sum of £340,000 a year. He appealed to the voluntary hospitals to "unbend a little," and come into co-operation with an authority like the L.C.C. Given such co-operation, the L.C.C. could so link the various local services together that the right service was available at the right time and in the right place.

Mr. J. W. Bowen, chairman of the Mental Hospitals Committee, considered that the Government scheme was wise in its provisions. The proposals did away with any suggestion that mental health should form an isolated service. There was at one time a distinct danger that mental health might be excluded or not referred to in this general scheme. The local authorities who had the main charge of mental treatment had for long carried out their services with marked efficiency and great concern for the patient. The L.C.C. had made a valuable precedent by linking together its mental health and public health administration under the direction of one department. He hoped that the Government would revise the lunacy and mental deficiency law without delay in order that detailed proposals for including mental health services in the comprehensive scheme might be formulated.

From the opposition benches Dame Barrie Lambert, formerly chairman of the Hospitals and Medical Services Committee, commented upon the delay in presenting this report to the council. The White Paper appeared in February. It was at first acclaimed as promising a marvellous piece of legislation and it had a wonderful "press," but a month afterwards everybody was damning it, and its only friend left was the L.C.C. Everybody knew that many of the proposals of the White Paper must be scrapped. She read from the report in the *British Medical Journal* the statement of the Chairman of the B.M.A. Council to the Annual Representative Meeting that the idea of joint boards was likely to be dropped. She welcomed this, because she had seen in the idea of the joint board the possible absorption of the council's services in a still larger authority, and just as Mr. Churchill had no desire to assist in the liquidation of the British Empire, so she had no wish to be associated with any kind of liquidation of the fine service which had been established in London. She felt that a great deal could properly be delegated to the metropolitan borough councils, especially in relation to the tuberculosis services, given full co-operation on the part of such councils.

Dame Barrie moved, and Miss Vickers seconded, that the following recommendation be substituted for one brought forward by Mr. Reginald Stamp:

> That the Council is satisfied that if the dual system under which general practitioners will be engaged partly in group practice and partly in private practice is

permitted, the medical profession can be trusted to carry out their duties in such a manner that patients using the public service are not at a disadvantage.

The original recommendation had it that if the dual system was permitted steps should be taken to ensure that there was no disadvantage to patients using the public service. Dame Barrie Lambert's amendment was lost, 18 voting in favour and 47 against.

As stated, the various recommendations were adopted, and the view appeared to find general favour that the scheme should be ready, if possible, before demobilization, so that men and women returning from the Forces should feel that something had been done to provide a better England, and returning doctors could be offered posts without having to find capital to purchase a practice. But the note of caution was sounded that the time factor must be taken into account, and that even on the administrative side the shortage of staff for undertaking a task of such magnitude would probably cause delay, so that it might be desirable to bring in the scheme by stages.

MEDICAL SERVICES IN CONTINENTAL COUNTRIES

8.—NORWAY

[The writer is indebted to Dr. Karl Evang, Director-General of the Norwegian Public Health Services, Royal Norwegian Ministry of Social Welfare, now in London, for the information contained in this article.]

Public Health Administration

In Norway the State directs the more important parts of the public health service; local agencies throughout the country have their policies outlined at the centre, but within that framework they have independence and initiative. The public health service is a branch of the Ministry of Social Welfare. At its head is the Director-General of Public Health (Dr. Karl Evang), under whom are a number of departments, including one for clinical matters, another for drugs and medicines, a third for the administrative arrangements for the prevention and treatment of tuberculosis, a fourth for the provision for cases of mental disorder.

The State Institute of Public Health is a Rockefeller benefaction. It furnishes the central health authorities with a first-class laboratory for bacteriological tests, serum tests, and analyses of water and foods, and at the same time manufactures vaccines and conducts research. The members of the medical faculty of Oslo University are required to give the Director-General expert assistance. Each of the twenty provinces in Norway has a chief public health officer, and the districts into which the provinces are divided are also in charge of officers. In each of the municipalities it is required that there should be a Board of Health, the chairman of which is the local public health officer or another doctor employed for the purpose, while the members include a number of local councillors and others. These municipal boards of health enjoy a good deal of autonomy, but there is an appeal from their decisions to the Ministry of Social Welfare. They supervise all the important hygienic services, the control of tuberculosis, the inspection of housing conditions, and other matters which fall to a sanitary administration. They issue regulations which constantly extend and supplement the general law. It is claimed for them that they represent a successful attempt to introduce local democratic management into the public health system.

Only in the large cities is the public health officer a whole-time officer of the authority. Generally he is also engaged in private practice and derives only part of his income from the State for his public health administrative work. At present Norway is divided into 378 public health districts, most of them rural.

Whilst State medical care and the public health system has been developing in Norway four national voluntary health organizations have come into existence. These are the Red Cross, with about 100,000 members; the Women's Voluntary Health Organization, with about 110,000 members; the National Association against Tuberculosis, with 150,000 members; and the Norwegian People's Relief, with about 170,000 members. There are also smaller bodies, such as the People's Health Association, the Mental Hygiene Society, and the Norwegian First-aid Society. The larger organizations receive income directly and indirectly from public funds and co-operate closely with the health authorities.

Hospitals

In 1937 Norway had 391 hospitals, with a total of 26,000 beds. This number included 7,000 beds for mental patients and 6,000 for the tuberculous. An endeavour has been made to develop the hospital system in such a way that the more complicated cases can readily be transferred from the small local hospitals to the large central ones. The smaller hospitals are encouraged to be first-aid centres or observation stations. More than 80% of the hospitals are publicly owned and operated, either by the State or by the local authority. The private hospitals are for the most part conducted by voluntary health organizations, like those already named, but all are subject to supervision by public health authorities. The patient's expenses are paid either by the patient himself or by the State, or, most often, by the health insurance administration. A patient in a public hospital receives exactly the same treatment no matter whether he is a private, an insured, or a poor relief patient. It is medical considerations only which determine whether he has a private room.

The hospitals have a regular staff of medical officers on fixed salaries and working whole-time. Private practitioners do not usually have the opportunity of continuing to treat their patients in hospital, though in some of the smaller hospitals there is a system whereby local practitioners may hold temporary positions on the staff. Two large general hospitals at Oslo as well as a number of small special hospitals form part of the medical teaching system of the university. Plans for establishing a second medical school at Bergen were being prepared before the war.

Health Insurance

Norway introduced a compulsory health insurance system in the same year as Great Britain. It was for wage earners below a certain income level. It has been extended until by 1940 about two-thirds of the total population of Norway came under this system. Shortly before the war a Bill was drafted, and would probably have secured a majority in the Storting, under which all Norwegian citizens would be covered. The expenditure on sickness insurance before the war was 65 million kroner (about £3,300,000 on the pre-war value of the krone), of which about 15 million represented doctors' fees.

The insured person and his family have the right to free medical attendance by general practitioners and specialists, free treatment in hospital for 26 weeks (or 39 weeks in the case of tuberculous and cancer patients), physiotherapy, dental treatment, and financial allowances for maternity, among other benefits Compulsory members are divided into income groups and pay in proportion to their income, the member himself paying 6/10ths of the premium, the State 2/10ths, and the authority and the employer 1/10th each. A class of voluntary members pay 7/10ths themselves, the State 2/10ths, and the authority 1/10th Sickness insurance is administered by local bodies elected from the county councils.

It has been possible to combine virtually universal compulsory health insurance with freedom of choice of doctor and freedom for the doctor to practise where he chooses. Most doctors, both general practitioners and specialists, derive the larger part of their income through the health insurance system, in which they are paid, not on a capitation rate, but according to the amount of work they do. The consultation fee is the basis of the income, and to that is added a fixed tariff for special examinations. There is no limit to the number of insured persons a doctor may accept

A person in Norway who has need of medical advice or treatment can always consult a doctor and, if necessary, receive treatment in hospital. In most cases the treatment will be under the insurance system.

The Medical Profession in Norway

In 1939 Norway had about 2,400 registered medical practitioners, one for every 1,250 inhabitants; about 10% were women. Until the German occupation which resulted eventually in the closing of the university, about 100 student qualified each year. The medical training occupies from 7 to 7½ years, and a most Norwegian youths have not completed their college course until the age of 21 or 22, the young doctor is usually approaching 30 before he can start in practice. Emphasis is laid on giving the students an all-round medical education and no specialization is begun during this period of undergraduate study. No one is allowed to describe himself as a specialist unless he actually possesses th authorization of an expert board of medical men elected by the specialist branch of the medical association.

There are about 1,000 midwifery districts, each served by a district midwife who receives a small regular salary, two-fifths of which is paid by the State two-fifths by the province, and the remaining one-fifth by the municipality. She also derives some income from th health insurance and poor relief funds and to a small extent from privat patients. On the basis of present birth statistics there are about 27 births pe midwife annually.

Norway has made great strides in combating disease. The ordinary epidemic diseases no longer offer any severe threa Doctors are required to report all case of epidemic infection. the patients are isolated in hospitals, and all expenses in connexion with isolation and treatment are covered by public funds. Tuberculosis is the greatest single hygienic problem, though during the present century tuberculosis as a cause of death has dropped from the first to the fourth place, being preceded by cancer, bronchitis, and pneumonia, and infirmities of age. Bovine tuberculosis has, practically speaking, been eradicated. Only two other countries—the Netherlands and New Zealand—show higher figures for the average span of life. The total mortality dropped from about 20 deaths per 1,000 inhabitants in 1840 to 15 in 1900 and 10 in 1935. Deaths due to tuberculosis declined by about two-thirds during the first third of this century. Before the present war Norway was one of the group of countries (Netherlands, New Zealand, and Australia being the others) which showed the lowest infant mortality rates in the world.

A COMPREHENSIVE HEALTH SERVICE

BRISTOL DISCUSSION CLUBS' PROPOSALS

In the Bristol area over a period of some weeks in the autumn of 1944 the discussion clubs comprising what is known as the Industrial Discussion Clubs' Bristol Experiment considered the Government's White Paper on a National Health Service, and each club wrote an independent report. The executive committee of the Experiment then met the Bristol Study Group of the B.M.A., and the various findings were summarized and discussed. The result is a memorandum "presented by citizens and doctors of Bristol" in which the summarized opinions are offered as a constructive alternative to the White Paper. It is signed by Dr. F. Milling, chairman of the B.M.A. Study Group, and Mr. C. E. Pegg, chairman of the Executive Committee of the Bristol I.D.E.C.

Two Points of Divergence

On only two points do the Industrial Clubs' conclusions differ from those of the B.M.A. Group. One relates to payment in the general practitioner service. The Clubs consider that all general practitioners in the national service, either practising in Health Centres or in very sparsely populated areas where a Health Centre would not be adequately attended, should be paid by the State. The B.M.A. view is that the medical profession desires that remuneration of private doctors should be by capitation fee. The other point is the financing of a State service. The Clubs maintain that the complete cost of running the service should be a national charge, payable from funds raised by Budget means, any increase being met by income tax. The B.M.A. view is that the cost should be met by individual contributions assisted by State grants.

The structure on which the two sides to the discussion are agreed is that the control of the service should be under a Minister of Health, and that the Ministry should be reorganized to administer all matters of national health at present handled by different Departments, and the non-health functions of the present Ministry reallocated elsewhere. The Ministry should be assisted by medical advisory councils to be elected periodically. These councils should have a right to tender advice to the Minister and afterwards to publish such advice, and all draft regulations should be referred to them. The country should be divided into regions covering natural hospital and medical areas, subdivided into local areas, both regional and local control to be exercised by a body elected as to half of it by the professional interests concerned and as to the other half by the lay electorate.

Nationalization of Hospitals

The memorandum comes down on the side of nationalization of all hospitals, the present management of hospitals, if efficient, to be retained. It is suggested that there should be "locality hospitals," one to every ten Health Centres, in which general practitioners could treat their own patients, or send them for examination, advice, or treatment, and also central hospitals, where specialists could carry out work beyond the scope of the "locality hospitals."

The medical, nursing, and domestic staffs of hospitals should be paid by the State, with standardized conditions of service for each category. A national ambulance service should be created, co-ordinating all the present varied organizations. There should also be a central bureau to give urgent information about available beds and ambulances. A directorate of hospital inspection should be established, and, finally, the out-patient departments should be drastically reorganized, greatly enlarged, and better staffed and equipped, and waiting time reduced.

Consultants and specialists should be paid by salary or sessional fees, or both, consultants to be selected from an approved list by regional boards and to come under regional control. Their numbers must be greatly increased. "Training to be free and open to all, enabling young men or women of any class to specialize." Specialized equipment should be the property of the nation and available to the whole medical profession.

The General Practitioner Service

On the general practitioner service there is agreement on the following points among others:

Increased remuneration to be given in unattractive areas.

Training facilities to be enlarged, enabling young men and women of any class to become doctors.

Numbers of doctors to be largely increased as soon as possible.

Maximum number of patients per practitioner, 2,000, the figure to be revised from time to time.

The family doctor principle to be maintained.

The N.H.I. system to be entirely superseded by the new scheme.

Health Centres to be under regional control.

Centres to undertake the whole of the work coming within the scope of general practice, including child welfare.

People to come automatically under medical supervision of the Centre or National Health Service doctor, preferably on a family basis.

No sale or purchase of Health Centre practices to be allowed.

Compensation to be considered on an individual basis by regional board.

Every person to have a right to annual medical examination, children at more frequent intervals.

Individual health dossiers to be compiled giving a complete medical history.

As for clinic services, the result of the discussions was to favour the incorporation of existing clinics in a State health service with a view to making them Health Centres or a basis for such centres. It was also the view that the school medical service should be incorporated in the State scheme and the children be automatically covered by Health Centre examinations. An industrial medical service, with full-time doctors in large works and groups of small works, should be a part of the scheme, as also should convalescent homes.

On the financial side the opinion was that the existing funds of the N.H.I. scheme at present held by approved societies and other bodies on behalf of their members should revert to the Exchequer so as to be available for the health of the people for whom they were provided. Foundation funds, gifts, and legacies to hospitals should be pooled and devoted to the maintenance of research institutions.

Correspondence

What's in a Word?

SIR,—I agree with Dr. Frankland West that the intentions of the A.R.M. might have been more effectively expressed by a stronger word than the word *wish*. "We have stated emphatically that we do not *wish*. . . ." Nevertheless, this "emphatically stated" *wish* may carry no less weight than some expression of a more robust nature. The actual resolutions of the A.R.M. count, not my words describing them.—I am, etc.,

Birmingham H. GUY DAIN

The Health Service

SIR,—The upheaval caused throughout the medical profession by the Government's proposals for a health service is slowly becoming appreciated in political circles, but one thing now appears clear to most, and that is, that the present time is not ripe for the suggested full-scale health service as outlined in the White Paper. It also becomes quite clear that doctors in this country, and a large proportion now serving with the armed Forces, will resist any attempt to turn us into full-salaried local government civil servants. Let us be frank and strip the White Paper of trimmings; without doubt if these proposals were to go through as they are presently set out the profession would simply become in time part of another group of civil servants. The doctors do not want it, and when the public understand it more fully they will dislike it still more.

As to the doctors in the fighting Services, the directorates of the three Services may say, and in fact have stated, that serving doctors are at liberty to express their views on Service medicine and State medicine, but as one who saw service throughout the last war and again for some time in the present conflict with the R.A.F. medical service I know from personal experience that, except for those holding senior rank in these Services, the remainder (those who have to do the work) prefer to remain either anonymous or silent on these vital issues simply for fear of "reprisals." It seems grossly unfair that at a time like the present the opinions and views of these fighting men cannot be heard while an attempt is being made to force issues during their absence that must determine the future and destiny of the medical profession.

and essentially that of the younger members.

Therefore the letter signed by eight M.P.s, published in the *Times* on Nov. 16, introduced indeed a welcome note from the House of Commons, and may yet prove the seed for a practicable solution of many of our difficulties. Briefly, the letter suggests a reorganization of the medical services throughout the country in two stages (and here it would seem proper to add that the profession has been seeking such a reorganization for many years, but not on the lines as advocated in the White Paper). First, it is recommended that the hospital and consultant services throughout the country should be rearranged, with the latter paid for their services (whole and part time), but still left free to carry on private practice. There is a strong feeling that such a reorganization should be carried out on a regional basis, as for some long time advocated by the Nuffield Hospital Trust and fully described in their memorandum, published in 1941, entitled "A National Hospital Service." Secondly, for the present, extend the "panel system" both ways, but proceed no further until our doctors return from the fighting Services. When they have returned, but not before, let us all together consider and discuss the final reorganization for a general practitioner service, but do not let us commit the cream of the profession in their absence on service to something they may not desire, nor indeed perhaps be prepared to co-operate in. The Government would be wise to step cautiously, for there is no doubt the profession this time is aroused, remembering past and more recent injustices of panel practice legislation; it may be that on this occasion, having reached the boiling-point, the doctors are not likely to cool off readily, for they are not convinced that the Government's proposals are in the best interest of the sick.—I am, etc.,

London, W.1. NORMAN P. HENDERSON.

The N.H.S. Proposals from the Patient's Viewpoint

SIR,—I am not a medical practitioner but as I act as attorney to a number of doctors in the Services I beg the courtesy of a few lines in your esteemed *Journal*.

1. It appears that the great majority of general practitioners are against many of the proposals in the White Paper.
2. It appears that the majority of laymen are neither in favour of nor against the proposals.
3. It appears, however, that these proposals may be forced on the public as a result of the activity of a politically minded minority.
4. In my view this may be prevented if doctors distribute in their waiting-rooms pamphlets pointing out the disadvantages *to the patient* of the White Paper proposals if these are carried out in their entirety and to their logical conclusion.

Certain of these disadvantages are as follows:

(*a*) Centralization of surgeries (renamed clinics). This would mean longer journeys for the patient.

(*b*) Under group practice the patients will not be able to get the doctor whom they want when they want him, but will require to accept the doctor in attendance at the time of the visit.

(*c*) The doctor will be responsible to the State and not to the patient, who presumably will not be able to change his doctor. The patient will require to attend the doctor assigned to him however unsympathetic and however little faith the patient may have in the doctor. It is impossible to combine a free choice of doctor to the patient with a salaried service.

(*d*) When certifying, the doctor will need to remember that his duty is to his paymaster—the State—and not to the patient.

(*e*) When, as may happen in the future, all doctors are State employees it will be impossible to get a second opinion, and if a dispute arises with the State—e.g., over sickness or workmen's benefit—no independent opinion will be available.

There are, of course, certain advantages to the patient in the White Paper proposals, but we can rest assured that the supporters of the White Paper will do everything to bring these to the notice of the electors.—I am, etc.,

London, N.W. RAMSAY BROWN.

Local Authority Control

SIR,—In your report of the A.R.M. (Dec. 16) and your summary of the "main decisions of the Representative Body" (Dec. 23) you gave special prominence to the Woolwich resolution: "That the profession should not be controlled by the local authorities as at present constituted." This was accepted without discussion, as it was only a modification of the wording of Principle D. You omitted, however, to give even equal prominence to a more important motion by Newcastle-upon-Tyne to amend that Principle. The last sentence of Principle D as passed at the 1943 meeting was: "The profession rejects any proposal for the control of the future medical service by local authorities as at present constituted." The Newcastle amendment proposed that the words "as at present constituted" be deleted. This was carried.

The A.R.M. has asserted. therefore. that no reconstitution or modification of local authorities will make control by those bodies acceptable to the profession. That is a major decision, and goes much further than the Woolwich resolution. Our negotiators now have no authority to discuss changes in local authorities with the Minister, and must make that clear to him. They must, therefore, have alternative proposals to put before the Minister, and one of the most constructive proposals of the meeting was Dr. H. B. Morgan's. He suggested the formation of bodies incorporating the principle of Whitley Councils throughout the administrative structure. If Dr. Morgan would expand this proposal in more detail in the columns of your *Journal* he would be rendering a great service to the profession.—I am, etc.,

Bishop Auckland. A. H. PROCTOR.

FROM THE PRESS CUTTINGS

"The B.M.A. revealed then [at the 1939 annual conference] that they were prepared even for the minor problems of a wartime task—right down to petrol allocation. The phrase was: "We are organized for any emergency without financial consideration." Truly an efficient organization whose deliberations to-day must have great weight."—From the *Glasgow Citizen*.

"They have set up a Negotiating Committee, and will meet the Minister of Health, but they will meet him under instructions to preserve the essential freedom of the profession, and we would like to think that their attitude will be a salutary lesson, taken to heart in time by the Conservative members of the Coalition."—From the *Tablet*.

"In the long run responsibility educates; the more intelligent the members of an organization are the more they are stultified by rigid control from without or above, the more they are developed by responsibility coupled with freedom at all levels."—From *Time and Tide*.

BRITISH MEDICAL ASSOCIATION

CONFERENCE OF RADIOLOGISTS

A Conference of Radiologists, arranged jointly by the Radiologists Group of the B.M.A., the Faculty of Radiologists, and the British Institute of Radiology, will be held at B.M.A. House, Tavistock Square, London, W.C.1, on Saturday, Jan. 20, at 10 a.m. All radiologists are invited, whether members or non-members of these bodies. The agenda will be sent to members; radiologists who are not members of any one of the three bodies may obtain an agenda on application to the Secretary of the B.M.A. at the address given above. The business of the Conference will be to consider radiological questions arising from the White Paper on a National Health Service.

WOMAN MEMBER OF COUNCIL

The Council of the Medical Women's Federation has decided to recommend its members to support the candidature of Dr. Janet Aitken in the election of a woman member of Council by the women members of the B.M.A.

Branch and Division Meetings to be Held

MACCLESFIELD AND EAST CHESHIRE DIVISION.—At West Park Hospital, Macclesfield, Sunday, Jan. 21, 11.30 a.m., Special meeting. Agenda: To consider Representative's report on A.R.M.

DIARY OF SOCIETIES AND LECTURES

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.—*Tues.* and *Thurs.*, 2.30 p.m., Goulstonian Lectures by Lieut.-Col. C. H. Stuart-Harris: Influenza Epidemics and the Influenza Viruses.

ROYAL SOCIETY OF MEDICINE.—*Tues.* 3 p.m., Section of Pathology; 4 p.m., General meeting of Fellows *Thurs.*, 4 p.m., Section of Dermatology. *Fri.*, 5 p.m., Section of Obstetrics and Gynaecology: 6.30 p.m., Section of Radiology.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.—At 26, Portland Place, W., *Thurs.*, 3 p.m., Brig. N. Hamilton Fairley, F.R.S., A.A.M.C.: Chemotherapeutic Suppression and Prophylaxis in Malaria—An Experimental Study undertaken by the Malaria Research Unit, L.H.Q., Australia Followed by a discussion.

EDINBURGH POSTGRADUATE LECTURES.—At Edinburgh Royal Infirmary, *Thurs.*, 4.30 p.m., Prof. C. F. W. Illingworth: Gastric Function in Relation to the Treatment of Peptic Ulcer.

BIRTHS, MARRIAGES, & DEATHS

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BIRTHS

HYLTON.—On Nov. 14, 1944, in Ahmednagar, India, to Dr. Lorna Hylton (*née* Petersen), wife of Major William H. Hylton, R.A.M.C., a daughter.

WILKINS.—On Jan. 2, 1945, at the Queen Elizabeth Hospital, Birmingham, to Margaret (*née* Roe, M.B., Ch.B.), wife of John G. Wilkins, a son.

MARRIAGE

VENNING—BARKER.—On Jan. 2, 1945, at St. Barnabas Church, Heaton, Bradford, by the Rev. Kenneth Kay, assisted by the Rev. A. Cumming, Geoffrey Richard Venning, B.M., B.Ch., Lieut., R.A.M.C., only son of Lieut.-Col. and Mrs. A. N. Venning, of Stoneycroft, Yateley, to Mary Ruth Barker, B.M., B.Ch., younger daughter of Col. and Mrs H. W. Barker, of 4, Oak Mount, Bradford.

DEATHS

HORSBURGH.—On Jan. 3, 1945, at his residence, Fallowfield, Ryde, after a short illness, Edward Leslie Horsburgh, M.D.Lond., B.S.

MOONEY.—On Dec. 29, 1944, suddenly, Annie Mooney, L.S.A., late Assistant Medical Officer of Health for Oldham and for many years School Medical Officer of the same Borough.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL

LONDON SATURDAY JANUARY 20 1945

MEDICAL SERVICES IN CONTINENTAL COUNTRIES

9.—GREECE

Both general and special hospitals are well organized in Greece. There are hospitals attached to the University of Athens, other voluntary hospitals, municipal hospitals in the chief towns, and Red Cross hospitals. Many voluntary hospitals owe their existence to wealthy Greek families. Greeks who have made a great deal of money in trading abroad have found pleasure in establishing and endowing large hospitals in their native land. Thus it comes about that in Greece some of the finest hospitals are quite distant from the towns. A famous hospital for skin diseases was founded by funds provided by a number of Greek benefactors. Another example is the gynaecological clinic due to the munificence of Mme. Venizelos.

The hospitals are staffed by part-time officers. Whole-time clinical appointments are not favoured. It is strongly held that a clinician must have private practice if he is to avoid a groove. Moreover, a hospital appointment is regarded as carrying a prestige which is of assistance to the private practitioner. The only whole-time posts are the laboratory ones, and even the whole-time pathologists are allowed to do a certain amount of private work. Many of the university professorships also are part-time appointments.

The administrative and clinical sides of hospital work in Greece are sharply differentiated. The director or superintendent of the hospital is not a medical man. The members of the medical staff are engaged by a medical committee. Discipline, too, is retained in professional hands. Neither the Government nor a municipality can dismiss a physician if he is doing his work properly. Payment by patients, sufficient to cover expenses, is a general rule in the municipal and in some of the voluntary hospitals.

The public health service in Greece, including the epidemiological and immunological service, is well organized. There is a school of hygiene (Rockefeller Foundation), and a bacteriological laboratory in Salonika collaborates with the Pasteur Institute in Athens. Most of the medical officers of health are not well paid, and some of them, although technically whole-time officers, are allowed to carry on a certain amount of private practice. Local self-government is not developed in Greece as it is in Great Britain, and the central Government encroaches to some extent upon the municipal sphere.

General practice is on a free competitive basis. The Greek doctor is essentially an individualist, and the general shape of practice is not unlike that which obtains in Great Britain. The question of national health insurance has come forward, but has not developed into anything like the panel system we have in this country. It must be remembered that Greece is an agricultural country, agriculture employing more than half its six and a half million population. The consulting body consists of professors at the University of Athens and medical specialists at the hospitals. There is not the distinction which obtains in this country between general and consulting practice, and the requirements for university study and diploma are the same for both. Medical practice in Greece, as becomes the country in which the art of medicine was born, is of a high standard, involving seven years of preparation. The University of Athens has a famous Faculty of Medicine with (in 1938) four honorary professors, twenty-three ordinary professors, eight extraordinary professors, and thirty-eight lecturers. Attached to it are eleven institutes and thirteen clinics in associated hospitals. In normal times the number of medical students in the schools was about 1,800, and about 500 were examined each year. Doctors in Greece take a great part in Red Cross work. The head of the Greek Red Cross holds a position equivalent to the head of the Navy, Army, or Air Force. The organization is independent of the Government, and carries out a very large amount of work.

The Minister of Health is at the same time Minister of Social Welfare and Public Assistance. He is advised by a Medical Board, whose president is usually the professor of hygiene at the university, and whose membership consists of representatives of the university, the hospitals, and the general body of the profession. The board is at liberty to publish its views independently of the Minister.

For many years past Greece has had to deal with the refugee problem, and this has had considerable repercussions on its own health services. At a time when they were weary themselves with long fighting the Greeks had to receive suddenly a number of people, mostly helpless women and children, infinitely more wretched. Every kind of building had to be turned into a hospital. A large proportion of the refugee population had to be settled in parts of the country where malaria was endemic. Overcrowding also facilitated the spread of tuberculosis. Typhoid, paratyphoid, and dysentery had to be countered. Dispensaries were established in the villages. Distribution of quinine and medicines was organized. The services of public doctors were made available. The result was that a marked diminution in morbidity and mortality was shown in the refugee population and their resistance to infection improved.

But it is largely as a result of the refugee invasion that many hygienic reforms have come about in Greece. Many of the dispensaries formed originally for the refugees became part of the permanent structure of the health service. Education in hygiene is now a part of the curriculum in all Greek schools. All pupils are required to be vaccinated against smallpox, and a determined effort has been made to stamp out malaria and trachoma. The private doctor as well as the teacher takes part in health education. Tuberculosis showed signs of becoming a great danger, but an antituberculosis society was established in 1925, and an active tuberculosis campaign was begun under the joint auspices of the public health service, the Refugees Settlement Commission, and the Health Committee of the League of Nations. What setback there may have been during the present war cannot yet be stated. The death rate in Greece in 1939 was 13 per 1,000.

By decrees of 1923 Greek doctors are organized in State medical societies associated with the chief towns. The Medical Society of Athens was founded in 1835, the Association of Greek Doctors in 1906, the Pan-Hellenic Medical Society in 1925.

The writer would like to acknowledge the kind help given by Dr. A. P. Cawadias, president of the Greek Red Cross Executive Committee, in assembling some of the facts set out above, but he must not be regarded as responsible for the article.

Correspondence

Certification for Priority Milk

SIR,—The recently issued rules for certification for privilege supply of milk and eggs must cause the deepest concern to those of us who fear a bureaucratic supervision of the practice of medicine. In the case of tuberculous pleural effusion, enteric group of fevers, and bacillary and amoebic dysentery certification is taken out of the hands of the physician and placed in those of the tuberculosis officer and medical officer of health. Speaking of the country as a whole I think it will be accepted that the general physician, especially if he is on the staff of a voluntary hospital, has far more clinical experience in the differential diagnosis of these diseases and their dietary necessities than the tuberculosis officer or the medical officer of health. In fact the original diagnosis in the great majority of cases is made by the general physician.

The insistence by the Ministry of Food that these cases shall be certified only by public health officers raises the question of the motive of the Ministry responsible for the drafting of these regulations. It savours of the bureaucratic control of the practice of medicine that many of us fear most in a "State" medical service. The following motives especially should cause us concern:

1. The regulations have been framed without the advice or against the advice of any medical man with knowledge of medical practice in the country, or possibly by a Ministry official with no knowledge of medicine.

2. The integrity or ability of medical practitioners is suspected by the Ministry.

3. The Ministry wish certification to be done by a class of M.O.s who are under their influence or not entirely free agents.

I hope, therefore, that the strongest protests against these regulations will be made by the profession as a whole and by the B.M.A. in particular.—I am, etc.,

Canterbury. H. A. TREBLE.

General Practitioner Service: the First Stage

SIR,—Capt. Edward Cobb, M.P., in his advocacy of the development by stages of a National Health Service, states that the first stage should obviously be the planning and co-ordination of the hospital and consultant services. This view has the support of the President of the Royal College of Surgeons and other eminent consultants, and, rather to my surprise, of the Representative Meeting, although the approval by the last may have been due to a desire to stave off as long as possible unwelcome and undesirable interference with private practice.

But I humbly submit that this contention is wrong, and that the first stage necessary is the improvement of the general practitioner service and its better integration with the hospital and consultant services. The general practitioner is the doctor who sees the patient first. Any failure on his part—personal or due to lack of proper facilities for diagnosis and treatment—may lead to the patient suffering irremediable damage before the consultant is called in. How much of the chronic illness which forms so large a proportion of the conditions treated in hospital—estimated by American investigators to be as many as 84%—results from unsatisfactory early treatment? A book recently published by the Commonwealth Fund of America, *The Care of the Discharged Hospital Patient*, shows how many hospital beds and how much money can be saved by the efficient home treatment of these patients, and I submit that at least as satisfactory results would follow the development of a more satisfactory general practitioner service, differing, however, from the American experiment in that a large part of the improvement would be in the direction of cure instead of alleviation only.—I am, etc.,

London, W.8. HAROLD H. SANGUINETTI.

All Round the Clock

SIR,—I am in hearty agreement with the contents of Dr. C. A. Robinson's letter (Dec. 16, p. 166) deploring the long hours of duty of general practitioners, not merely in time of war but also in peacetime. We have for too long been the slaves of the public, who have come to expect and demand our services at all hours of the day and night, not excluding Sundays and holidays. General practice at least is nothing less than a refined form of slavery, not only for the doctor but in many cases for his domestic staff and others in his employ. He and they are not expected to eat, sleep, or have reasonable relaxation. No other profession and no business man would tolerate such a state of affairs, and one would think that the health and lives of patients demand the cool clear brains which only proper relaxation can give.

The fact is, that the medical profession is badly organized and the public badly trained. How long can we endure such a state of affairs? The death rate among doctors is 40% higher than among bank officials in the same social group, according to the Registrar-General's mode of classification. All this is preventable. After the age of 35 no doctor should be expected to get out of bed once or more during the night (and perhaps not be able to get off to sleep for the rest of the night) and then go on duty at 9 a.m. the following morning.

I suggest that no matter what system we general practitioners work under after the war, emergency squads of young men under 35 be appointed for all districts, whether town or country, to do night work in rotas; of course no day work. A doctor can elect to go out to a case at night if he wishes, or give advice or call on the flying squad. This would help to reduce the number of night calls which are made to allay anxiety in people suffering from "wind-up"; they will prefer to call in their own doctors during the day rather than a stranger during the night. Now when reform is in the air, let us strike a blow for our own liberties.—I am, etc.,

Hull. L. I. HARDY.

NEGOTIATING COMMITTEE

The Negotiating Committee held its first meeting on Friday, Jan. 12, at B.M.A. House. It consists, it will be remembered, of 31 members, and is representative of the British Medical Association, the Royal Colleges, the Scottish Corporations, the Society of Apothecaries, the Society of Medical Officers of Health, and the Medical Women's Federation. At the outset the committee elected Dr. H. Guy Dain as its chairman, Sir Alfred Webb-Johnson as its vice-chairman, and Dr. Charles Hill as its secretary. After a preliminary meeting in the morning, it met the Minister of Health, the Parliamentary Under-Secretary of State for Scotland, and officials in the afternoon. In general the Negotiating Committee, or subcommittees set up for special purposes, will be meeting the Minister and his colleagues weekly.

H.M. Forces Appointments

ROYAL NAVY

Surg. Cmdrs. R. W. Higgins, O.B.E., D. H. Kernohan, J. Hamilton, and J. C. Souter to be Surg. Capts.

Surg. Lieut.-Cmdr. J. G. Vincent-Smith to be Surg. Cmdr.

Surg. Lieut. (Emergency) M. Urie to be Surg. Lieut.-Cmdr. (Emergency).

Surg. Lieut. M. E. MacGregor has been transferred to the Emergency List.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Lieut.-Cmdrs. J. F. Corr, G. P. McCullagh, K. Forsythe, V.D., C. A. Mather, and J. F. Heggie to be Surg. Cmdrs.

Surg. Lieut. F. W. Paul to be Surg. Lieut.-Cmdr.

ARMY

War Subs. Major I. Fraser, D.S.O., O.B.E., R.A.M.C., to be a Consultant, and has been granted the local rank of Brig.

ROYAL ARMY MEDICAL CORPS

The initials of Lieut.-Col. C. H. K. Smith, O.B.E., M.C., are as now described and not as stated in a *Supplement* to the *London Gazette* dated Dec. 12, 1944.

Major S. P. Sykes has reverted to retired pay on ceasing to be employed, and is restored to the rank of Lieut.-Col.

Short Service Commissions.—Capt. R. H. Berry, from Supplementary Reserve of Officers, to be Lieut., and to be Capt.; War Subs. Capt. T. E. Cleghorn, from Emergency Commission, to be Lieut., and to be Capt.

REGULAR ARMY RESERVE OF OFFICERS

ROYAL ARMY MEDICAL CORPS

Major H. D. Lane, M.C., has ceased to belong to the Reserve of Officers on account of disability.

Capts. J. A. Brocklebank and C. M. Fraser, from Supplementary Reserve of Officers to be Capts.

TERRITORIAL ARMY

ROYAL ARMY MEDICAL CORPS

Major R. V. Powell has relinquished his commission on account of disability, and has been granted the honorary rank of Major.

ROYAL AIR FORCE

Air Cdre. (Temp. Air Vice-Mshl.) A. Grant, C.B.E., K.H.S., to be Air Vice-Mshl.

Gp. Capt. (Temp. Air Cdre.) (Acting Air Vice-Mshl.) A. F. Rook, O.B.E., K.H.P., to be Air Vice-Mshl. (Temp.).

Gp. Capt. (Temp. Air Cdre.) (Acting Air Vice-Mshl.) T. J. Kelly, M.C., to be Air Cdre.

Gp. Capt. (Temp. Air Cdre.) K. Biggs, M.C., to be Air Cdre.

RESERVE OF AIR FORCE OFFICERS

Squad. Ldr. G. L. Burgess has relinquished his commission on account of ill-health, retaining his rank.

ROYAL AIR FORCE VOLUNTEER RESERVE

Fl. Lieut. R. O'Meara has relinquished his commission on account of ill-health, retaining the rank of Squad. Ldr.

Fl. Lieut. K. S. P. Blatchley has relinquished his commission on account of ill-health, retaining his rank.

Fl. Lieut. F. F. Sligo has relinquished his commission on appointment to R.N.Z.A.F.

Flying Officers J. M. G. Costello, G. L. Moore, R. Morris, W. F. Rogers, W. J. H. Sayers, J. W. Squire, D. C. Tennant, and A. M. M. Wilson to be War Subs. Fl. Lieuts.

WEEKLY POSTGRADUATE DIARY

EDINBURGH POSTGRADUATE LECTURES.—At Edinburgh Royal Infirmary, *Thurs.*, 4.30 p.m., Mr. G. H. Macnab: Actinomycosis.

DIARY OF SOCIETIES AND LECTURES

ROYAL SOCIETY OF MEDICINE.—Mon., 4.30 p.m., Section of Odontology. *Tues.*, 4.30 p.m., Section of Medicine. *Thurs.*, 5 p.m., Section of Urology. *Fri.*, 3 p.m., Section of Epidemiology and State Medicine; 4.30 p.m., Section of Disease in Children.

BIRTHS, MARRIAGES, & DEATHS

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BIRTHS

DAVIE.—On Jan. 7, 1945, at Frogmore Nursing Home, Norwood Green, Middx., to Nancy (*née* Turner), wife of A. Brodie Davie, M.B., Ch.B., a son—Alistair Brodie.

DICKSON.—On Jan. 12, 1945, at Ardencaple Nursing Home, Nunthorpe, Middlesbrough, to Betty (*née* Wood), wife of David C. Dickson, F.R.C.S.Ed., of Upsall Grange, Nunthorpe, a son.

MACDONALD.—On Jan. 7, 1945, at Putney, to Anna (*née* Hovell), wife of Capt. I. D. MacDonald, R.A.M.C., a daughter.

MARRIAGE

BORTHWICK—BERRY.—On Dec. 20, 1944, at St. Andrew's Church, Poona, India, by the Rev. J. B. Primrose, assisted by Major Caddy, S.C.F., Robert Donnan Borthwick, Capt., R.A.M.C., son of Major W. S. Borthwick, T.D., and Mrs. Borthwick, Lee, London, to Margaret Eleanor Berry, Q.A.I.M.N.S/R., only daughter of Mr. and Mrs. William Berry, 59, Wellesley Avenue, Belfast.

DEATH

STEWART.—On Jan. 4, 1945, at 12, Norfolk Road, Lytham, Robert Stewart, L.R.C.P.Ed., L.R.C.S.Ed., L.R.F.P.S.Glas., D.P.H., aged 71 years, beloved husband of Elizabeth Stewart.

On Jan. 4, 1945, Dr. Charles Hill, Secretary of the B.M.A., addressed a large public meeting at Brighton on the White Paper, and on Jan. 17 he spoke at the Royal Philosophical Society at Glasgow. His future engagements include addresses to lay audiences at Lincoln on Jan. 22, at Harpenden on Jan. 26, at Oldham on Feb. 14, and to the Birmingham, Brixton, and Horsham Rotary Clubs. At a Foyle's literary tea on Jan. 30 he will give an address on "Doctors." Dr. Hill will also speak at a Division meeting at Grimsby on Jan. 22, and at a joint meeting of the Oldham, Ashton-under-Lyne, and Rochdale Divisions on Feb. 14.

SUPPLEMENT TO THE
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WHITLEY COUNCILS

During the discussions on a National Health Service at the Annual Representative Meeting of the B.M.A. in December Dr. H. B. Morgan asked the Representative Body to consider the advisability of incorporating, in the administrative structure the principle of Whitley Councils. The Chairman of Council, Dr. Dain, promised that the Council and the Negotiating Committee would investigate the working of Whitley Councils, and consider whether the method could be adapted to the needs of the medical profession. As a preliminary we give below some account of the machinery of these councils.

The Whitley Committee

Whitley Councils derive their name from the Right Hon. J. H. Whitley, M.P., former Speaker of the House of Commons, who was chairman of a Government committee appointed in 1916 on relations between employers and employed. The historical development of the main industries of the country during the preceding century had tended to range employers and employed in two separate camps with apparently opposing and conflicting interests, and the years immediately before the war of 1914–18 saw much industrial unrest. The Government felt that the period of post-war reconstruction would provide an opportunity for improving their relationship, and it accordingly appointed the Whitley Committee with the following terms of reference:

1. To make and consider suggestions for securing a permanent improvement in the relations between employers and workmen.
2. To recommend means for securing that industrial conditions affecting the relations between employers and workmen shall be systematically reviewed by those concerned, with a view to improving conditions in the future.

Throughout its work the committee emphasized the community of interest of all engaged in a particular industry, and sought to base co-operation between employers and employed on the development on voluntary lines of the methods of collective bargaining that already existed in many industries. The Ministry of Labour defines collective bargaining as those arrangements under which the wages and conditions of employment are settled by a bargain in the form of an agreement between employers or associations of employers and workpeople's organizations. In the middle of the nineteenth century the trade unions were concentrating on improving the conditions of work of the workers, and by 1900 many of the staple industries had adopted the practice of collective bargaining. At the outbreak of war in 1914 a large section of industry was covered by agreements, mostly local, relating to wages and working conditions, and the Conciliation Act of 1896 had encouraged the formation of voluntary conciliation arrangements. The Munitions of War Act of 1915, which included temporary provision for national arbitration on disputes in munition work, showed the value of a speedy reference to arbitrators whose award was enforceable at law, though the compulsory character of the arbitration was accepted only as a war-time measure. Experience of the Act, however, encouraged the regulation of wages on a national basis through centralized organizations.

The immediate cause of the appointment of the Whitley Committee was the disturbance originating in the Shop Stewards' Movement, which sought by unofficial and militant action to secure for the workers control of industry, first in the workshops and ultimately in the country generally. The Whitley Committee proposed to satisfy the desire of the workers for a voice in the organization of industry by the development of joint negotiating machinery, and it expressed its conviction that a permanent improvement in the relations between employers and employed must be founded on something other than a cash basis. Broadly, it recommended the formation in well-organized industries of joint industrial councils, the appointment of works committees representative of the management and workers in individual establishments, statutory regulation of wages in badly organized trades, a permanent court of arbitration, and Ministerial authority to hold inquiries regarding disputes. The committee's five reports were favourably received by the organizations of employers and employed, and its recommendations were adopted by the Government.

The Whitley Machinery

The committee's first report, completed in March, 1917, dealt with those industries in which organizations representative of both sides already existed. It recommended that joint standing industrial councils should be formed in the several industries. The councils should consist of representatives of the associations of employers and workers, and should meet at regular and frequent intervals to consider matters of mutual interest. (A model for the functions and constitution of a Joint Industrial Council, taken from the *Industrial Relations Handbook* recently published (1944) by the Ministry of Labour and National Service, appears as an appendix to this article.)

The Whitley Committee also recommended the establishment of district councils, similarly representative of employers and employed, to provide local machinery for the joint councils. In recommending these national arrangements the committee added:

> "It is not enough to secure co-operation at the centre between national organizations; it is equally necessary to enlist the activity and support of employers and employed in the districts and in individual establishments. The National Industrial Council should not be regarded as complete in itself; what is needed is a triple organization—in the workshops, the districts, and nationally."

Accordingly, in its third report the committee considered in more detail the establishment of works committees to provide a recognized means of consultation between the management and the employees. The object of the works committees would be to give employees a wider interest in, and greater responsibility for, the conditions in which they worked, to enforce collective agreements negotiated nationally, and to prevent friction and misunderstanding. They would not interfere with regard to wages and working conditions which were the subject of negotiation through national or district councils.

Arbitration

The fourth report of the Whitley Committee dealt with the machinery for conciliation and arbitration. The committee was opposed to any system of compulsory arbitration and the prohibition of strikes and lock-outs pending investigation. It preferred that differences should be settled within the machinery of the joint industrial councils. It also recommended, as supplementary provision, that a standing arbitration council should be established to which differences of general principles and differences affecting whole industries or large sections of industries might be referred when the parties failed to reach agreement through their ordinary procedure and wished to refer the differences to arbitration. The recommendation was given legal effect in the Industrial Courts Act, 1919, which established the industrial court as a permanent and independent tribunal in no way subject to Government or Departmental control or influence. Its members, who are appointed by the Minister, include independent persons, representatives of employers and of workmen, and one or more women. The court may sit in divisions and the president may decide whether any case should be dealt with a single member or by several members.

Development of Joint Councils

The reports of the Whitley Committee received a general welcome, and during the period from January, 1918, to December, 1921, 73 joint industrial councils were formed. To-day there are 98 councils constituted in accordance with the recommendations of the Whitley Committee. A few of them exclude questions of wages from their functions. Among the matters dealt with are unemployment, restoration of trade, research and the collection of statistics, education and apprenticeship, welfare, health, safety, workmen's compensation, and transport facilities. The councils vary in size, the number of representatives ranging from a dozen to 70.

Of the 73 formed in the early years 17 broke down before the end of 1921. Some of the factors contributing to the breakdown arose from war conditions and from the transition to peace, and some involved difficulties of wage adjustments. Another cause was the ineffective organization of the industry concerned. Recently formed organizations were inexperienced in methods of negotiation, and some were reluctant to entrust their representatives with adequate authority. In other cases the employers' or the workers' side was represented not by a single organization but by a multiplicity of organizations whose jealousies and rivalries impeded the smooth working of the joint council. Another cause of failure was the divergence of interests among the constituent bodies of a council—for example, between large employers and small employers or between the town and country sections of an industry. Such factors, of course, need not necessarily have led to friction and failure, and difficulties were in fact overcome amicably in other councils. They show that the successful working of Whitley schemes requires not only the machinery but also the good-will of both employers and workers.

Non-industrial Schemes

In its second report the Whitley Committee suggested that State and municipal authorities and persons employed by them should consider whether its proposals could suitably be adapted for their purposes. They were found to be appropriate, and the list of existing joint industrial councils includes the National Whitley Council for the Administrative and Legal Departments of the Civil Service, six Government Departmental industrial councils, three Government trade joint councils, a Joint Co-ordinating Committee for Government Industrial Establishments, and seven joint councils for local authority non-trading services.

The National Whitley Council for the Administrative and Legal Departments of the Civil Service was formed in 1919 "to secure the greatest measure of co-operation between the State, in its capacity as employer, and the general body of civil servants in matters affecting the Civil Service, with a view to increased efficiency in the public service combined with the well-being of those employed; to provide machinery for dealing with grievances; and generally to bring together the experience and different points of view of representatives of the administrative, clerical, and manipulative Civil Service." The official side is composed of persons of standing, who may or may not be civil servants, including at least one representative of the Treasury and one representative of the Ministry of Labour and National Service, while the staff side is composed of persons of standing, who may or may not be civil servants, appointed by nine specified groups of staff associations. In each Government Department there is a separate departmental council allied to the National Council and functioning on similar lines, the staff side being composed of representatives of associations of staffs employed within the Department.

In 1936 a Civil Service Arbitration Tribunal was set up by agreement between the Treasury and the staff side of the National Whitley Council. It consists of an independent chairman, a member from a panel appointed by the Minister of Labour as representing the Chancellor of the Exchequer for the time being, and a member from a panel representing the staff side of the National Whitley Council. Its function is to deal with questions affecting the emoluments, hours of work, and leave of civil servants on which there has been failure within the Whitley Council to reach agreement by negotiation.

The National Joint Council for Local Authorities' Administrative, Professional, Technical, and Clerical Services (England and Wales) was established in 1919 and its constitution was amended in 1944. Under the new constitution the National Council consists, on the employers' side, of 15 members appointed by 5 associations of local authorities and 15 appointed by and from the employers' side of the 15 provincial councils, and, on the staff side, of 15 members appointed by 5 staff associations and 15 appointed by and from the staff side of the provincial councils. The provincial councils cover the whole of England and Wales. The representatives on the employers' side of each council are elected from the affiliated local authorities within the area, and the representatives on the staff side are chosen from among the five organizations represented in the National Council. The scope of the council covers all administrative, professional, technical, and clerical staffs except clerks of local authorities and officers with a basic salary exceeding £700 a year, and part-time officers. In the cases of clerks of local authorities and officers with salaries exceeding £700 it is permissible for the local authority and the officer to make a joint submission to the council.

The purpose of the National Council is "to secure the largest possible measure of joint action for the consideration of salaries, wages, and service conditions of the administrative, professional, technical, and clerical staffs employed by local authorities, and to consider such proposals in reference to these matters as are submitted to it from time to time by the provincial councils." The council provides machinery for the regular consideration of these matters and takes steps to secure the recognition of wage agreements by employers and staffs. It also settles any differences that may be referred to it from a provincial council.

The functions of the provincial councils are "to consider any matters that may be referred to them by the National Council and to take executive action in connexion with decisions arrived at and matters deputed to them by the National Council; to make recommendations to the National Council; to consider salaries, hours, and other conditions of service; to consider differences between parties and sections of the service with a view to settlement, and in the event of any difference not being settled, to refer the matter to the National Council for decision." In practice, the settlement of wages and working conditions is, in general, left to the provincial councils, and the National Council intervenes and makes recommendations only when matters are referred to it by a provincial council or when the question is a national one.

A similar National Joint Council was formed for Scotland in 1937.

APPENDIX

(A) FUNCTIONS OF A JOINT INDUSTRIAL COUNCIL

1. To secure the largest possible measure of joint action between employers and workpeople for the development of the industry as a part of national life and for the improvement of conditions of all engaged in that industry. It will be open to the Council to take any action that falls within the scope of this general definition. Among its more specific objects will be the following:

Note.—No hard-and-fast policy is suggested as to what should constitute the function of an industrial council. This is a question which the employers and workpeople in each industry must settle for themselves.

2. Regular consideration of wages, hours, and working conditions in the industry as a whole.
3. Consideration of measures for regularizing production and employment.
4. Consideration of the existing machinery for the settlement of differences between different parties and sections in the industry, and the establishment of machinery for this purpose where it does not already exist, with the object of securing the speedy settlement of difficulties.
5. The collection of statistics and information on matters appertaining to the industry.
6. The encouragement of the study of processes and design and of research, with a view to perfecting the products of the industry.
7. The provision of facilities for the full consideration and utilization of inventions and any improvement in machinery or method, and for the adequate safeguarding of the rights of the designers of such improvements, and to secure that such improvements in method or invention shall give to each party an equitable share of the benefits financially or otherwise arising therefrom.
8. Inquiries into special problems of the industry, including the comparative study of the organization and methods of the industry in this and other countries, and where desirable the publication of reports.
9. The improvement of the health conditions obtaining in industry, and the provision of special treatment where necessary for workers in the industry.
10. The supervision of entry into, and training for, the industry, and co-operation with the educational authorities in arranging education in all its branches for the industry.
11. The issue to the Press of authoritative statements upon matters affecting the industry of general interest to the community.
12. Representation of the needs and opinions of the industry to the Government, Government Departments, and other authorities.
13. The consideration of any other matters that may be referred to it by the Government or any Government Department.
14. The consideration of the proposals for district councils and works committees put forward in the Whitley Report, having regard in each case to any such organizations as may already be in existence.

NOTE.—The following have also been included among the functions in some of the provisional constitutions which have been brought to the notice of the Ministry of Labour: (i) The consideration of measures for securing the inclusion of all employers and workpeople in their respective associations. (ii) The arrangement of lectures and the holding of conferences on subjects of general interest to the industry. (iii) Co-operation with the joint industrial councils for other industries to deal with problems of common interest.

(B) THE CONSTITUTION OF A JOINT INDUSTRIAL COUNCIL

1. *Membership*

The council shall consist of members, appointed as to one half by associations of employers and as to the other half by trade unions.

Associations of Employers	No. of Representatives
(1)	
(2)	
(3)	
etc.	
Total	

Trade Unions	
(1)	
(2)	
(3)	
etc.	
Total	

2. *Reappointment*

The representatives of the said associations and unions shall retire annually, and shall be eligible for reappointment by their respective associations and unions. Casual vacancies should be filled by the association concerned, which shall appoint a member to sit until the end of the current year.

3. *Committees*

The council may delegate special powers to any committee it appoints. The council shall appoint an executive committee and may appoint such other standing or sectional committee as may be necessary. It shall also have the power to appoint other committees for special purposes. The reports of all committees shall be submitted to the council for confirmation, except where special powers have been delegated to a committee.

4. *Co-opted Members*

The council shall have the power of appointing on committees or allowing committees to co-opt such persons of special knowledge not being members of the council as may serve the special purposes of the council, provided that so far as the executive committee is concerned: (*a*) the two sides of the council shall be equally represented, and (*b*) any appointed or co-opted members shall serve only in a consultative capacity.

N.B.—It is desirable to take power to appoint representatives of scientific, technical, and commercial associations upon committees and subcommittees of the council, and the above clause would give this power.

5. *Officers*

The officers shall consist of a chairman or chairmen, a vice-chairman, a treasurer, and a secretary or secretaries.

1. The Chairmen.—The Whitley Report suggests that the appointment of a chairman or chairmen should be left to the council, who may decide that there should be: (i) a chairman for each side of the council; (ii) a chairman and vice-chairman selected from the members of the council (one from each side of the council); (iii) a chairman chosen by the council from independent persons outside the industry; or (iv) a chairman nominated by such persons or authority as the council may determine, or failing agreement by the Government.

2. The Secretary.—The council shall be empowered to maintain a secretary or secretaries and such clerical staff as it may think fit. All honorary officers shall be elected by the council for a term of one year.

6. *Meetings of the Council*

The ordinary meetings of the council shall be held as often as necessary and not less than once a quarter. The meeting in the month of   shall be the annual meeting. A special meeting of the council shall be called within   days of the receipt of a requisition from any of the constituent associations or from the executive committee. The matters to be discussed at such meetings shall be stated upon the notice summoning the meeting.

7. *Voting*

The voting both in council and in committees shall be by show of hands or otherwise as the council may determine. No resolution shall be regarded as carried unless it has been approved by a majority of the members present on each side of the council.

8. *Quorum*

The quorum shall be   members on each side of the council.

9. *Finance*

The expenses of the council shall be met by the associations and trade unions represented.

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Correspondence

Medical Demobilization

SIR,—Capt. P. T. Davies (Dec. 23, p. 173) has put forward the point of view of the younger practitioner. I wish to put forward the opposite and equally selfish viewpoint. We who have lost our younger partners welcome the possibility of their return at the earliest possible date consistent with the needs of circumstances. I should like to remind him that many of us are doing the work of two men with the addition of evacuees and Civil Defence duties, that this state of affairs has been going on for two, three, four, or more years, and that most of us are wondering how much longer we can manage to keep it up. Let me also remind him that the majority of these partners are married men with families, who last saw their wives and their children on their embarkation leave if they were posted abroad.

One further point that Capt. Davies may not realize is that it is virtually impossible to replace any civilian practitioner who leaves his practice, whether from illness or death or any other cause, and that those who have died have, in nearly every case, given their lives in the service of their country as surely as the valiant young men lost in the Services.—I am, etc.,

Fleet, Hants. T. C. JAMESON EVANS.

SIR,—The eventual prospect of release from the armed Forces probably bulks too large nowadays in the minds of those of us whose service is extending up to and beyond the five-year mark. Our anxiety and preoccupation will not be diminished, however, by news from home of incidents such as the following:

A death vacancy recently occurred in a remote country practice: apparently no sufficiently active locumtenent could be found, and the civilian organization concerned demanded the release of a specific Service M.O. to fill the vacancy. This fortunate young man had no particular qualification except that, shortly before his call-up, he had negotiated with the late practitioner for a post-war purchase of the practice. He had served for one year in the Army, and his oversea tour comprised four months on L. of C. duties in N.W. Europe. The military authorities, actuated, let us hope, by a stronger sense of fair play, refused his release.

Most of us out here have heard of similar cases. There are many of us now in the thirties, with families approaching school age, who have gradually lost all touch with civilian practice and those in whose power the disposal lies. Not only is there the possibility of those vacancies that must be filled before the war ends going to those who have most recently left civil life: a much more depressing expectation lies beyond that. Actuated by both fresh memories of personal friendship and the desire to preserve the *status quo* in the present uncertain state of civil practice, there is bound to be strong pressure by influential and established individuals within or without the profession to secure the priority release of those with civil practices of their own when the end of the European war at last permits the return of a quota of serving M.O.s.

Surely the release of doctors, as of other sections of the community, should be governed by age and length of service. Any claim that the possession of a civil practice is a title to priority release as a key individual (Class B of the Army scheme) is tantamount to an assumption that those due for release in Class A cannot be trusted (even under the safeguards usually enforced) to run those practices as locumtenents until their owners are in turn due for release. Many recent letters in the *Journal* have contained the phrase, "We owe it to our colleagues serving over-seas. . . ." I think most of us would consider that debt (if any) well paid if we could have a specific and authoritative assurance on this point. Or must we resign ourselves to yet one more repetition of "To him that hath shall be given, but from him that hath not . . ." A chilly philosophy at the best of times, and by now altogether too cold to comfort those of us at the wrong end of the bargain.—I am, etc.,

P. DELAP,
C.M.F. Capt., R.A.M.C

Mental Hospital Doctors' Pay

SIR,—This is my position as second assistant medical officer after 14 years' service as such. Salary, £600, rising by £25 yearly to £700 (no emoluments). Up to now I have been charged £130 per annum for apartments, etc. Recently I have been granted a war bonus of £49 8s., but the amount charged for apartments has been raised to £150. (After paying this increased charge, income tax, and superannuation, the bonus is worth exactly £3 3s. a year.) After all deductions my cash payment amounts to £292 7s. 6d.

Compare the matron's position: on maximum service, £500 cash, emoluments valued at £150. The deduction is income tax on £500 only, leaving a cash payment of £343 7s. 6d. The third assistant medical officer would receive about £120 less than the second assistant medical officer and about half the amount the matron gets. Before the adoption of the Rushcliffe report scale the head male nurse was paid £330 per annum; now he gets £550, an increase of about 66%, antedated, of course, to April, 1943.

Considering the respective qualifications and the expense and study in acquiring these, it is very obvious that the salaries are out of all proportion. The time is surely ripe for substantial increases in the salaries of assistant medical officers in mental hospitals.

It is unlikely that visiting committees will make proper increases unless strong influence is brought to bear by the B.M.A. as indicated by "M.R.C.S." in the *Supplement* of Dec. 30 (p. 179).—I am, etc.,

P. Q. R.

Salaries of Health Department Civil Servants

SIR,—On looking through *Whitaker* recently I was surprised to find that in all Government Departments dealing with health, with the solitary exception of one in Scotland, the highest-salaried appointments are given to lay civil servants. If the medical profession is to be "shanghaied" into (or should it be "under") the Civil Service there will naturally be a considerable increase in such highly paid posts made available for lay civil servants, and it is as well to bear in mind that the salaries attached to such posts will presumably continue to bear the same relation to those allotted to the main body of medical men whose work is much more arduous and responsible. Also, it is highly probable that such "honours" as are distributed will continue to go mainly to the lay officials.—I am, etc.,

Totnes. B. H. SHAW.

Heatlh Centres and General Practice

SIR,—I was very interested to read Dr. A. Garvie's study on the incidence of colds and influenza in general practice (*Supplement*, Jan. 6, p. 1). I was pleased to see that medical research is carried out in general practice, but I am afraid I cannot agree with the conclusions. I have discussed this problem of treatment for colds with hundreds of people, and the majority of workers do not consult their doctors because it is easier for them to get medicinal treatment from the well-advertised wares in the chemist's shop without a considerable amount of waiting and inconvenience. I admit distance from the surgery is probably a factor, but the impression I gained is that the distance from the ubiquitous chemist's shop was a much more important factor, and if this was taken into consideration the conclusions that Dr. Garvie came to may have been completely different.

It may well be that when we have efficiently run health centres linked with proper and adequate pharmaceutical establishments the worker may certainly prefer attending his doctor rather than accepting something for which he has to pay over the counter, especially as the alternative will no longer be a long wait and an overcrowded waiting-room and a busy, overworked doctor. In the health centres, with clerical assistance, the doctors will, I am sure, have a better appreciation and realization of cold and 'flu epidemics and be in a better position to prevent them.—I am, etc.,

Princes Risborough. S. LEFF.

Towards Agreement

SIR,—Dr. Selby does well to remind us in his letter (Dec. 30, p. 179) of the dangers of coming to any agreement with the Government. However, to those of us who are convinced that State medicine is the ideal for the community, including the medical profession, loyal co-operation with the Government to produce the *ideal* scheme is the only course open.

Two conditions are essential to an ideal scheme—namely, that remuneration and service should be adequate and just to both parties to the agreement, and that each party should be safeguarded against lack of integrity in the other.

As in the last resort public respect and support will provide our greatest safeguard, stubborn opposition to any progress should find no place in our policy.—I am, etc.,

Stroud. HERMAN MOULD.

H.M. Forces Appointments

ARMY

Col. (Temp. Major-Gen.) S. W. Kyle, late R.A.M.C., Reserve of Officers, has relinquished the temporary rank of Major-Gen. on ceasing to be employed.

REGULAR ARMY RESERVE OF OFFICERS

Col. S. W. Kyle, late R.A.M.C., having exceeded the age limit of liability to recall, has ceased to belong to the Reserve of Officers and has been granted the honorary rank of Major-Gen.

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs. Major B. Day has resigned his commission and has been granted the honorary rank of Lieut.-Col.

War Subs. Capts. C. C. Brewis and A. C. Barker have relinquished their commissions on account of disability, and have been granted the honorary rank of Major.

War Subs. Capt. D. Rumney has relinquished his commission, and has been granted the honorary rank of Capt.

War Subs. Capts. M. A. Stanton and I. R. I. MacDonald have relinquished their commissions on account of disability, and have been granted the honorary rank of Capt.

Lieut. L. G. Leitch has relinquished his commission on account of disability, and has been granted the honorary rank of Lieut.

WOMEN'S FORCES

EMPLOYED WITH THE R.A.M.C.

War Subs. Capt. (Mrs.) M. H. Bunney has resigned her commission.

War Subs. Capts. (Mrs.) L. M. M. Lake and (Miss) N. M. Morrison have relinquished their commissions.

Lieut. (Mrs.) A. N. M. Crane has relinquished her commission.

The following M.O.s have been granted commissions in the rank of Lieut.: Sarah I. Cochrane, Winifred M. Curgenven-Robinson, Mary D. Dixon, Phyllis Eskell, Barbara J. Hussey, Mary P. Karney, Kathleen M. Knox, Flora Macaulay, Patricia E. Mitchell, Eleanor R. Raistrick, and Joan E. Spicer.

ROYAL AIR FORCE

Wing Cmdrs. F. L. White, C. G. J. Nicolls, and A. F. Cook to be Gp. Capts. (Temp.).

Squad. Ldrs. R. F. Wynroe, L. N. Trethowan, A. S. Amsden, H. D. Conway, J. R. R. Jenkins, G. B. MacGibbon, D. J. Dawson, J. R. Cellars, D. F. S. Shaw, J. H. Neal, R. H. Pratt, C. C. Barker, A.F.C., J. C. Taylor, W. T. Buckle, and E. S. Sidey to be Wing Cmdrs. (Temp.).

RESERVE OF AIR FORCE OFFICERS

Squad. Ldrs. R. G. James, P. A. Lee, E. Corner, H. S. Barber, H. F. Harvey, W. G. S. Roberts, D. W. I. Thomas, and E. W. R. Fairley to be Wing Cmdrs. (Temp.).

AUXILIARY AIR FORCE

Squad. Ldrs. W. D. Peock and N. R. Smith to be Wing Cmdrs. (Temp.).

AUXILIARY AIR FORCE RESERVE OF OFFICERS

Squad. Ldr. A. C. Fraser to be Wing Cmdr. (Temp.).

ROYAL AIR FORCE VOLUNTEER RESERVE

Squad. Ldrs. J. G. Milner, J. H. Doggart, A. C. P. Campbell, K. A. Latter, A. W. Badenoch, G. A. Jamieson, G. M. Rose, D F. E. Nash, H. B. Bagshaw, J. A. Pocock, A. G. Wilson, J. F. Bromley, A. Ronald, G. H. Bateman, J. G. L. Brown, H. A. Graham, and J. Howkins to be Wing Cmdrs. (Temp.).

Fl. Lieuts. L. O'N. Knox, H. A. Thomas, J. G. Bate, T. V. Mendlesohn, J. T. Burrowes, W. M. R. Henderson, J. G. Molony, D. C. Moore, N. McSharry, J. S. A. Linton, R. F. H. McElligott, A. O'Connor, W. P. D. Logan, B. E. Finch, C. Joseph, A. M. Goldthorpe, L. H. Buckland, J. O'Leary, W. H. Peck, F. S. Rae, W. Selbie, J. D. Thomson, M. Walton, C. E. Astley, R. O. Gillespy, P R. B. Grimaldi, K. N. Lloyd, A. M. Phillips, P. Murphy, D. S. Pattison, R. D. Henderson, W. E. Bryan, R. McP. Cross, D. O. Dickie, G. Fraser, A. G. Riddell, G. A. Strain, P. A. Tyser, I. D. Grant, T. H. Cullen, M.B.E., W. D. Doey, B. J. Frankenberg, G. N. L. Godber, J. H. Hurt, and J. W. Paulley to be Squad. Ldrs. (Temp.).

Fl. Lieut. (Temp. Squad. Ldr.) J. S. Davies has relinquished his commission on appointment to the R.C.A.F.

Fl. Lieuts. W. E. Rigby and N. K. Farley have relinquished their commissions on account of ill-health.

D. S. Lewes to be Fl. Lieut. (Emergency).

To be Flying Officers (Emergency): M. J. Collins, G. J. Flynn, S. W. N. Gibson, C. I. Kelly, J. D. Morrissey, and J. R. Ryan.

WOMEN'S FORCES

EMPLOYED WITH THE MEDICAL BRANCH OF THE R.A.F.

Fl. Lieuts. G. E. N Meyer and M. Calvert to be Squad. Ldrs. (Temp.).

INDIAN MEDICAL SERVICE

Col. J. P. Huban, O.B.E., to be Major-Gen.

Lieut.-Cols. R. A. Logan, O.B.E., and E. Cotter, C.I.E., to be Cols..

Lieut.-Col. J. H. Barrett has retired on account of ill-health.

Major W. J. Shipsey to be Lieut.-Col.

Capts. D. J. P. Parker, F. J. O'Dowd, and T. C. M. M. Morrison to be Majors.

Capt. (Mrs.) G. O. W. Millington has resigned her commission.

EMERGENCY COMMISSIONS

Capt. A. E. Stevens to be Major.

EMERGENCY HOSPITAL SCHEME

The following amendments have been made to the list of orthopaedic centres, fracture departments, and fracture clinics:

Region II, *Fracture Departments A:* Royal Infirmary, Bradford; St. Luke's Municipal General Hospital, Bradford; General Infirmary at Leeds; Royal Sheffield Infirmary and Hospital; The Royal Infirmary; Westwood Emergency Hospital, Bradford.

Region III, *Fracture Departments A:* County General Hospital, Worksop. *Additional Fracture Clinics C:* Worksop and District Cripples Guild Worksop.

Region VII, *Fracture Departments A:* Mount Gold Hospital, Plymouth. *Fracture Departments B:* Taunton and Somerset Hospital, Taunton.

Region VIII, *Fracture Departments A:* Caerphilly District Miners' Hospital, Caerphilly.

Region IX, *Fracture Departments A:* Royal Hospital, Wolverhampton; Birmingham Accident Hospital and Rehabilitation Centre.

Region X, *Fracture Departments A:* Royal Infirmary, Manchester; Withington Hospital, West Didsbury, Manchester; Salford Royal Hospital, *Fracture Departments B:* Eccles and Patricroft Hospital, Patricroft; Chorley and District Hospital, Chorley.

London Sectors, Sector 6, *Additional Fracture Clinics C:* British Red Cross Society Clinic, 7A, Queen Victoria Road, High Wycombe, Bucks. Sector 8, *Additional Fracture Clinics C:* British Red Cross Society Orthopaedic and Rheumatic Clinic, St. Anne's Hall, Bagshot, Surrey.

POSTGRADUATE NEWS

Clinical meetings are being arranged weekly at St. Stephen's Hospital, Fulham Road, Chelsea, S.W., on Fridays at 2.30 p.m., at which all medical practitioners are welcome.

DIARY OF SOCIETIES AND LECTURES

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.—*Tues.*, 3 p.m., Lloyd-Roberts Lecture by Mr. Desmond MacCarthy: Psychology in Literature.

ROYAL SOCIETY OF MEDICINE.—*Thurs.*, 2.30 p.m., Section of Neurology. *Fri.*, 10.30 a.m., Section of Otology; 2.30 p.m., Section of Anaesthetics; 2.30 p.m., Section of Laryngology.

BIOCHEMICAL SOCIETY.—At British Postgraduate Medical School, Ducane Road, W., *Sat.* (Feb. 3), 11 a.m.

ROYAL INSTITUTION, 21, Albemarle Street, W.—*Tues.*, 5.15 p.m., Mr. T. Wallace: Visible Symptoms Produced by Mineral Deficiencies.

B.M.A.: Branch and Division Meetings to be Held

NORTHERN IRELAND BRANCH.—Joint meeting with Ulster Medical Society at Whitla Medical Institute, College Square North, Thurs., Feb. 1, 8.15 p.m Meeting. Address by Mr. C. H. G. Macafee: Placenta Praevia.

BIRTHS, MARRIAGES, & DEATHS

The charge for inserting announcements under this head is 10s. 6d. This amount should be forwarded with the notice, authenticated with the name and address of the sender, and should reach the Advertisement Manager not later than first post Monday morning to ensure insertion in the current issue.

BIRTHS

DUFF.—On Jan. 8, 1945, at Salisbury, to Lydia M Duff, F.R.C.S.Ed. (*née* Grey) and Alexander Duff, F.R.C.S.Ed., a son.

HOOD.—On Jan. 6, 1945, at St. Brenda's Nursing Home, Clifton Park, Bristol, to Barbara (*née* Boyle), wife of Surg. Lieut.-Cmdr. M. C. Hood R.N.V.R., a daughter.

JACOBS.—On Jan. 11, 1945, at Hammersmith Hospital, W.12, to Lusia, wife of Alan L. Jacobs M.R.C.P., a daughter.

KELLY.—On Jan. 8, 1945, at the "Lindo Wing," St. Mary's Hospital, Paddington, W.1, to Peggy (*née* Stone), wife of Surg. Lieut. Reginald E Kelly, R.N.V.R., a daughter—Angela Margaret

MILLINGTON.—On Jan. 15, 1945, at the Maternity Hospital, Liverpool, to Olga (*née* Watson), M.B. Ch.B., wife of Surg. Lieut. Gordon Millington R.N.V.R., a daughter.

DEATH

MEREDITH.—On Jan. 16, 1945, in a Bournemouth nursing home, peacefully after a short illness R. W. H. Meredith, M.R.C.S., L.R.C.P. (ret.) aged 69 years 11 months, dearly loved husband of Lilian Meredith.

SUPPLEMENT TO THE

BRITISH MEDICAL JOURNAL

LONDON SATURDAY FEBRUARY 3 1945

CONFERENCE OF RADIOLOGISTS

A Conference of Radiologists arranged jointly by the B.M.A., the Faculty of Radiologists, and the British Institute of Radiology was held at B.M.A. House, Tavistock Square, London, W.C.1, on Saturday, Jan 20, to consider matters affecting the practice of radiology arising from the Government White Paper on a National Health Service. Dr. S. Cochrane Shanks was appointed chairman, and among the 43 radiologists present were Dr. Ralston Paterson, President of the Faculty of Radiologists, and Dr. Rohan Williams, President of the British Institute of Radiology.

RADIODIAGNOSTIC SERVICES

The Conference considered a recommendation by the Faculty that all radiodiagnostic work within the comprehensive health service should be under the direct supervision of a consultant radiologist. Dr. H. S. Howie Wood referred to the position of those practitioners who, although not engaged exclusively in consultant work and possessing no diploma in radiology, fulfilled a definite function as radiologists. He said the tendency was towards the extinction of this class of part-time specialists. The conference should recognize the status of "graded" or assistant radiologist, as the Central Medical War Committee had done. The words "provision being made for the utilization of the services of part-time radiologists" should be added to the resolution. Dr. P. C. Bhandari, speaking as one who, while in charge of a hospital radiological department in a town of 20,000 population and assistant radiologist at four or five other hospitals in the London area, was also engaged in general practice, thought that there were many practitioners doing this kind of combined work and doing it efficiently. A place should be found for them in the new scheme. Dr. R. Fawcitt, on the other hand, said that he had been in mixed general and radiological practice for a period, and in his opinion both jobs could not be done properly, while Dr. G. Q. Chance pointed out that because certain people had done both jobs well it did not follow that the principle was right.

Dr. Rohan Williams asked whether it was to be inferred that the term "consultant radiologist" related to a registered medical practitioner possessing a radiological diploma. After some discussion on this point the resolution was finally approved in the following terms:

> That all radiodiagnostic work should be under the direct supervision of a consultant radiologist who satisfies defined criteria of specialist status.

The Open or Closed X-ray Department

There was a lengthy discussion of the question whether the *x*-ray department should accept patients directly referred to it from sources outside the hospital, or whether all cases for *x*-ray examination under the new service should be referred through one or other of the clinical departments of the hospital.

Dr. Whately Davidson favoured the closed department; in his view a big responsibility would be placed on the radiologist if he were left to decide whether or not a particular radiological examination should be carried out in the wide range of cases that would be dealt with under the new service. Dr. G. F. Stebbing said that in a scheme which claimed to provide the best possible service for the patient the sparsely populated areas were entitled to the same facilities as the towns. If the new service was to be efficient it must be made available equally to patients in all types of area.

Attention was drawn to a recommendation of the British Institute of Radiology that the scheme should not preclude radiological investigation and treatment of private patients by the radiologist in any institution forming part of, or co-operating with, the comprehensive medical service. Dr. M. H. Jupe thought that the question of private patients should not be introduced at the present stage. Under a service which was really comprehensive, both general practitioners and patients would demand radiological services without formality or reservation. If the "closed department" idea were persisted in there would be a tendency to demand *x*-ray apparatus for health centres and to set up units in small centres staffed largely by general practitioners and radiographers. If direct access meant that there would be extra demands on *x*-ray departments the comprehensive service should ensure the increases in accommodation, equipment, and staff necessary to meet those demands. Dr. F. H. Kemp, supporting Dr. Jupe, urged the establishment of the principle that radiologists should have a status equal to that of any other member of the medical staff of a hospital or health centre, and should have the same right of approach by patients or doctors.

Dr. J. Blair Hartley said the problem had to be considered from the individual viewpoints of the teaching and the non-teaching hospitals. He would be inclined to support the closed department for the teaching hospital, but there was no method yet devised whereby an *x*-ray department could be "closed" effectively in the smaller non-teaching hospitals. The out-patient department was often in the charge of a part-time specialist who was also a general practitioner, and who could not reasonably be burdened with the responsibility of deciding whether or not a case sent to him by one of his general-practitioner colleagues should be referred to the *x*-ray department. Prof. B. W. Windeyer thought that from the teaching point of view the physicians in charge of out-patient departments would probably not be in favour of all patients referred from outside for radiological investigation undergoing a preliminary clinical examination in the out-patient department. There were other dangers in the closed department. It would be difficult to insist that patients referred by a general practitioner under the comprehensive health service should undergo a preliminary medical examination, sometimes by a relatively junior member of the hospital staff, and at the same time allow direct access to the radiological department for patients referred privately.

The Conference passed three resolutions on this subject:

> (1) That consultant radiologists should be regarded as full consultants with status and remuneration no less than those of other recognized consultants.
>
> (2) That while recognizing that there may be need for special arrangements in teaching hospitals, the normal arrangements of the comprehensive health service should ensure that all patients shown to be in need of radiological service receive it.
>
> (3) The scheme shall not preclude radiological investigation and treatment of private patients by the radiologist in institutions forming part of or co-operating with the comprehensive medical service.

Health Centres

The discussion on the provision of radiodiagnostic services was completed by two resolutions on facilities at health centres:

> (1) That if health centres are to be of the communal surgery type (the type contemplated in the White Paper) it is contrary to the public interest that radiological facilities should be available at such centres.
>
> (2) That if health centres are to be of the consultative type—diagnostic centres for special investigation—the specialist services available should include radiological facilities under the control of a consultant radiologist.

RADIOTHERAPY SERVICES

Dr. Ralston Paterson urged that in the interests of the patient, especially in connexion with the treatment of cancer, large centres were essential for first-class radiotherapy. On his proposal the following resolution was adopted:

> That radiotherapy should only be conducted by consultant radiotherapists. It should mostly be concentrated in large centres, which must be adequately equipped and linked with a university centre or other key hospital in the area.

REMUNERATION

On the subject of payment the Conference expressed the following opinions:

> (1) That the scales of remuneration for consultants and specialists, including consultant radiologists, should be negotiated centrally.
>
> (2) That in so far as the Government's proposals for salaried remuneration on a part-time basis contemplate the continuation of private practice in radiology, as in other specialties, it should be recognized that the potential income from private practice of the radiologist will be less than that of other specialists, and the part-time salaries of radiologists generally should be a higher proportion of the whole-time salary.

Concerning the range of remuneration the Conference was reminded that the Goodenough Committee had made recommendations for teaching staffs and that the Minister of Health was about to appoint a committee of inquiry on the range appropriate to general practitioners. It was decided to defer detailed consideration of these questions until the report of this committee was available.

OTHER MATTERS

The Conference approved a resolution of the Medical Committee of the British Institute of Radiology that consultant radiologists should be represented on the Central Health Services Council. A number of other matters were referred to the Radiologists Group Committee of the B.M.A. These included: (1) The criteria for specialist status; (2) a resolution that the possibility should be explored of arranging regional conferences of radiologists to discuss matters arising out of the discussions that are taking place with the Ministry on the organization of a National Health Service; and (3) the question of maintaining a closer liaison with radiologists in the Services, especially those serving over-seas, and of obtaining their views on important issues.

The meeting concluded with votes of thanks to the chairman, and to the secretariat of the B.M.A.

Correspondence

The Ministry of Health and Radiology

SIR,—Your correspondent Dr. M. Wigfield (*Supplement*, Jan. 6, p. 4) appears to be a man with a grievance, based on ignorance. Several points arise.

1. The Ministry of Health appoints a selection committee—mainly medical—to interview candidates and select those most suitable for specialist training as radiologists.

2. The candidates are required to take, *at their own expense*, the University of London course for the diplomas in radiology.

3. At the end of the course the candidates are required to take a diploma in radiology. The only ones available at present are the conjoint diploma in medical radiology (diagnostic and/or therapy) and the University of London academic diploma in medical radiology. Others may exist in the Provinces, but the Ministry has no connexion with course or diplomas, and pays for neither. Indeed, last year one candidate fell out for financial reasons.

4. The successful candidates are engaged as radiological junior medical officers to perform routine (radiological) duties in hospitals to which they are appointed (usually in accordance with their own wishes in the matter, for full choice is given where possible). Appointments are made only after consultation with the Central Medical War Committee.

5. The Faculty of Radiologists has nothing to do with course or diploma, and the British Institute of Radiology plays a part in this question only when asked to do so by the Conjoint Board of Examiners or by the University of London. The standard of examination is the concern of the examiners, not of the Ministry, and the examining body has the final say in such matters (and, in the case of the University, the Senate).

6. This will be the third course instigated by the Ministry during this war. Last year's ran well, and there were few complaints.

7. The Ministry of Health pays those appointed in accordance with standard E.M.S. rates for the work they can do at their hospitals, though time is needed before the inexperienced can start to perform useful work in a specialist capacity. The rates of remuneration are generous—as the majority of candidates agree; during the first course under this scheme, in fact, there was considerable ill feeling on the part of hospital house officers working at voluntary hospital rates.

8. At the conclusion of the course the successful diploma candidates continue to be employed, at the same rate of salary, until they are given the chance of accepting an appointment in a hospital where there is need for a radiologist. There is a "gentleman's agreement" to the effect that they should serve the E.M.S. for a further year after obtaining the diploma. There is no question of possession of "body and soul." Throughout (even those who fail the diploma are given another chance) the candidates are treated fairly, even though at times the wheels of authority do grind exceeding slow. It is supposed unofficially that the intention is to supplement services where they are most lacking. The duration of the E.M.S. is of no import at present so long as radiological or other services are available where needed by the medical profession in connexion with diagnosis and treatment of disease.

No, Sir, your correspondent's grievance is wrongly directed. One would rather expect him to be envious of the medical man, who is paid to become a specialist, and whose treatment by the Ministry is such that at the end of his training he remains in the employment of the Ministry, whole-time or part-time, of his own free will. Surely that is adequate testimonial of satisfaction with working conditions, and of the efficient, if slow, execution of the recommendations to the Ministry of their medical advisers.—I am, etc.,

"A.D.M.R."

The White Paper Proposals and Local Option

SIR,—The impression left upon me by the discussions at the A.R.M. is that on many of the questions at issue the meeting was reluctant to commit itself to definite decisions likely to tie the hands of our Negotiating Committee when at grips with the Ministry. On two matters, however, the R.B. was emphatic: (1) quite unanimously, that unless the administrative proposals were radically altered no agreement on the general proposals in the White Paper are possible; and (2) not so unanimously, that a whole-time salaried service is not acceptable to the profession.

On the first the whole profession is, and must remain, adamant, since with the administrative arrangements is bound up that freedom from clinical control which is the most vital issue of the controversy, whatever the system of service ultimately decided. On the second question, however, the profession is not so unanimous; yet, if any attempt by the Ministry to impose a whole-time salaried service on an unwilling majority is made that majority is justified in resisting to the uttermost. But if such resistance to the dictation of a lay body is justified for the majority, is that majority also justified in refusing to a not inconsiderable minority the right to choose the service it prefers?

Some Divisions have pronounced in favour of a salaried service. I can name at least three which are of considerable importance. Moreover, the results of the Questionary are significant. Over one-quarter of the Service members are in favour, and, in addition, as shown by another Questionary, one-third of the medical students, in due course to become members of the profession, have voted in favour of a salaried service. Is it safe, therefore, to say that round about 25% of the profession now or in the future are in favour of a whole-time service? I have already suggested that it would not be just to refuse these men and women the service they desire, but would it also be wise? Is such an attitude likely to lead to that unity of our front which should be preserved at all costs in face of the common adversary? Can we forget what happened in 1911, when, like Byron's young lady, we, "vowing we would ne'er consent, consented."

These considerations embolden me to put forward a proposal, in my mind for some time past, and briefly mentioned in my letters of Sept. 16 and Oct. 14, 1944—namely, that arrangements should be made whereby Divisions, parts of Divisions, or Health Centres should have the opportunity of deciding for themselves what kind of service they desire. Call it a system of local option if you like.

The right to choose should be given in the first place to Divisions. But some Divisions are too large, or too heterogeneous, for such a choice fairly to be made. I instance the two with which I am best acquainted: Chesterfield and Derby. Chesterfield is centred round the town of that name. It comprises urban practitioners in the town itself, partly industrial and partly residential, and a large number of rural or semi-rural practitioners scattered over a district of about fifteen miles' radius from the centre. Many of these doctors are single-handed, some very isolated, but nearly all practically whole-time contract practitioners, since in the mining area the miners' dependants are covered by a contract system for medical attendance. Hence, probably, the predilection of this Division for a whole-time service, since such would be, in effect, the result of the White Paper proposals. Derby is an even more striking example of a heterogeneous Division, comprising as it does the urban practitioners of Derby itself, who dominate its decisions, and almost one-half of the rural parts of the county, with many single-handed practitioners, some of them completely isolated from their colleagues. In areas like these the whole Division is hardly suitable for an option and should be split up into subdivisions for this purpose. Particularly should this apply to areas in which Health Centres are established. The staffs of such centres should be given an option as also should groups and even isolated practitioners. If such a system were established it would, in large measure meet the views of those of the Service members who desire a whole-time service; they would naturally choose whole time areas for settlement on their return

Is it administratively possible? The Ministry itself apparently sees no difficulty, since a salaried service is one of the methods proposed by it. Moreover at the urgent request of the West Highlands it has been decided to allow whole time salaried service in these areas—a striking example of local option in being

Would it lead to a universal whole time service? In comparison with the effects of the general proposals of the White Paper the influence of local option would be almost negligible. On the other hand, it might well be that, by satisfying the aspirations of a minority and thereby retaining its loyalty to the B.M.A., local option might actually have a retarding rather than an accelerating influence. At the same time, the preference of the majority for an independent type of practice would be fully met over the greater part of the country.

I venture to submit the above for the consideration of my colleagues, believing, as I do, that it is in the interest of unity, of justice, and of wise and far-seeing policy that some such compromise should be arranged.—I am, etc.,

Ashover. H. W. POOLER.

The Prime Minister's Free Choice

SIR,—I was interested in the report of the Scottish Clerks Association's annual meeting quoted in their journal for December, in which Sir Wm. Marshall, chairman of the Federation Committees of the English, Scottish, and Welsh Associations of Insurance Committees, made the following statement: "I am heartily in favour of the extension of medical treatment, but I do not want to find that treatment secured in a way that will not give the best results. I am a believer in the right of the individual to choose his own doctor, to choose his own treatment, to decide for himself where he is going. I do not want to submit myself to a Government official's decision on these matters. And let me point this out to you: our great Prime Minister to-day is a believer in choosing his own medical attendant. He is very fond of long journeys, undertaken in the interests of the State and to the great advantage of the State. Wherever he goes there are doctors, hospitals, specialists, and consultants, but Mr. Churchill takes his own doctor with him; he makes sure he has his own adviser with him. Lord Moran goes with him to North Africa, to the U.S.A., to Persia, to Normandy, because Mr. Churchill knows the value of free choice of doctor. What is good enough for the Prime Minister is good enough for me."

I had not heard this happy allusion mentioned at any meeting or conference, and I think it deserves a wider recognition.—I am, etc.,

WM. PARKER.
Chairman, Swansea Medical and Panel Committee.

The L.C.C. and the N.H.S. Proposals

SIR,—The Representative Body and the medical profession in general have declared their special and uncompromising hostility to the proposals in the White Paper which would place doctors and hospitals, including voluntary hospitals, so largely if not predominantly under the control of local authorities in each area. How profoundly justified this reaction actually is may be, I think, best gauged by the programme for the future role of local authorities as sketched by the London County Council in certain recommendations recently published which have been passed by the Council and submitted to the Minister of Health. The L.C.C. is by far the largest local authority in this country, with something like 100 separate hospitals under its direction. The example of this body will inevitably set the pace for the other local authorities throughout the country, and an examination of the claims made by the L.C.C. is of paramount importance to our profession. I abstract the principal recommendations hereunder.

They start off with the claim that the London County Council "shall be constituted *by statute* (the italics are mine) the authority for planning, controlling, and administering the proposed comprehensive medical practice, including all such functions which form part of it, throughout the administrative County of London," except for some minor functions which the L.C.C. is good enough to delegate to the metropolitan borough councils.

The Council further claims that it should have "adequate representation on the central and local advisory, executive, and technical committees" which may be appointed as a medium of negotiation between the doctors and the Minister of Health, but there is no reciprocal right for "professional and other bodies to membership of the appropriate committee of the Council charged with the administration of the scheme." It further claims the right to be "a party to any negotiations between the Minister of Health and the voluntary hospitals and doctors on matters which are likely, directly or indirectly, to cause financial obligations on the Council." As there are very few matters upon which such obligations will not be created, the claim seems to demand that the Ministry must admit L.C.C. representatives to all discussions with the profession. Further, the Council expresses its desire "to have the scheme ready before demobilization occurs."

All impartial observers are convinced that the White Paper proposals, as they stand, must result in the more or less speedy absorption of all the voluntary hospitals into the public hospitals scheme. There are 21 voluntary teaching hospitals in England and Wales, 13 of which are in London; all thirteen are schools of London University, which is thus responsible for the training of more than half of all the medical students south of the Tweed. The voluntary hospitals again have been and are the principal centres of medical research. The injury to medical education and to medical research which would follow the entrusting of these activities to be "planned, controlled, and administered by" the local authority in each area would indeed be irreparable.—I am, etc.,

House of Commons. E. GRAHAM-LITTLE.

The Medical Service Subcommittee

SIR,—Mr. Harcourt Kitchin (Dec. 30, p. 175) has done well to draw the attention of practitioners to the terms and conditions of N.H.I., though I find his use of the term "complete protection" and his general eulogy surprising.

It would take too long to discuss details of all aspects, so I go to the heart of only one section—the Medical Service Subcommittee—for, as Mr. Kitchin states, its decision is highly important to the doctor. But I consider that this committee is not one in which a doctor can place confidence, and as his professional reputation may be at stake it should be very much better constituted than at present so as to inspire a feeling of impartiality. The doctor can rightly be suspicious of the laymen, for it is well known how ready they are to be down on him if given a chance; particularly long standing is the contention between approved societies and the profession.

What of his colleagues? Their impartiality is strained because: (*a*) If they are zealous on behalf of the doctor they will be accused of favouring him at the expense of the patient, and they therefore rather tend to go in the opposite direction. (*b*) I believe that for some years before the war the B.M.A. and Panel Committees have tended to discourage any attempts to alter the Regulations, and this has influenced doctors on the Medical Service Subcommittees not to advise stronger action to fight cases. Finally and supremely, a doctor is not allowed active legal representation at the hearing. Doctors generally have neither training nor aptitude for defending themselves. In the circumstances just where legal help is most necessary it is denied. A patient has little responsibility in bringing a complaint; a doctor has much to lose and should have every defence available to him. Where, then, is this so-called complete protection?

For these reasons, therefore, the procedure should be changed. Some have tried for years to get an appeal to the Courts, though this has always been disliked and opposed by the B.M.A. That practitioners are indeed now sceptical of the protection of the N.H.I. Act and realize that a change is necessary is shown by several letters in the *Journal*, and at last even the Panel Conference has passed a resolution in favour of the right of appeal to the courts; though this will still have to be insisted upon if we are to get it.

My opinion is the Medical Service Subcommittees as at present constituted should be abolished and a body established independent of all the interests concerned, such as an arbitration court, which, I think, would be much fairer and give more confidence. At least legal support at the time of hearing must be allowed. I may be accused of prejudice, but if one reads the records in the *Journal* over the course of years and studies *Medical Insurance Practice* by Harris and Sack, one gets an impression of unfair verdicts and a general bias against the doctors. I think (if an appeal is made) that the Minister is fairer and more impartial than the lower committees, and more cases should be sent to appeal.

Why do so few cases come before the committees? Because practitioners and patients are blissfully ignorant of the multitudinous rules and regulations, and go on happily until someone has a grievance. Then the doctor first begins to realize what a tangle there is and how unfavourably he is situated. If more of these cases had been taken to appeal, or there had been an appeal to the courts, "Harris and Sack" might make pleasanter reading. It would perhaps be salutary to commence a new investigation ot the rules, for if the N.H.I. Act is to be extended, we had better know all about it. and then alter it to ensure that it really gives that "complete protection" which Mr. Kitchin praises.—I am, etc.,

London, W.9. S. CROWN.

All Round the Clock

SIR,—While agreeing with Dr. L. I. Hardy (*Supplement*, Jan. 20, p. 10) that the general practitioner (or "family doctor") is always overworked, even to a degree affecting his longevity, I must argue with his suggestion for cure. I submit that a willing readiness to serve his patients "all round the clock" must always be an essential characteristic of the family doctor (there are plenty of professions open to those unwilling to give so much). My own efficiency would be increased by a decreased pressure of work, and I assume the same to be true of my colleagues generally. But decreased pressure of work (and even increased longevity) would be too dearly bought were the price to be any lessening of our willingness to serve those who entrust their care to us. Dr. Hardy's "emergency squads" would be incompatible with a truly independent individual family-doctor service; their coming would only imply more control and government than we have hitherto considered tolerable.

Relief from overwork must come, not by a lessening of our personal responsibility to the individual, but by a lessening of the number of people for whom each one of us cares. The solving of this problem, *which is the basic problem of family doctoring,* depends on: (*a*) an adequate remuneration for each patient, and (*b*) an adequate number of doctors. Each area carries not the number of doctors needed for the work there but the number which the population can afford to support, so that industrial areas generally are under-doctored.

The question of remuneration is an involved one. Should we be paid by our patients or by the State? If the Government is to carry the responsibility should it do so by so guiding the country that each citizen can earn an adequate income or should it be done by doles? Here we are in the frightening country of the politicians. Sir William Beveridge has his opinion and I have mine, but what is the opinion of the profession? These are the basic questions which we should be thrashing out instead of allowing ourselves to be led by the nose into discussions on the structure of a medical service which only the politicians want. Once the question of remuneration is settled the supply of doctors will increase. There will still, however, be difficulties in the way of producing an adequate increase. The problem is delicate, since any attempt merely to bribe people into the profession must lead to a lowering of our standards, and this we must sternly resist. Here is another field for thought and discussion within the profession.

So, while sharing Dr. Hardy's anxiety about overwork, I would urge that we tackle the problem by getting to its roots, and not by such symptomatic treatment as he prescribes.—I am, etc.,

West Bromwich. D. SAKLATVALA.

FROM THE PRESS CUTTINGS

"The truth is that people do not want to be positively healthy. The suggestion exercised by the patent-medicine advertisers falls on receptive ground. People take patent medicines not because they are fatigued, anaemic, nervous, overworked, and suffering from sleeplessness and headaches, but because they like to think they are."—From the *Economist.*

"Isn't it better to tackle the problem of health from a social standpoint, and isn't all this concentration on treatment of the sick something of a red herring across the trail of social preventive medicine?"—*Birmingham Mail.*

"It is no use resenting the trend to totalitarianism—if by that we mean the increasing restriction of individual liberty by Government. European civilization is moving that way not because it wants to but because it can do no other. Whether it is a good thing or a bad thing is quite a different matter that time alone will decide."—*Medical Press and Circular.*

"By the attitude they have taken up the doctors have administered the first direct check to the planners of bureaucracy. For upon the docility of the medical profession and the consequent passing into law of the comprehensive health service depends the success of the other autocratic State schemes for control."—*Weekly Review.*

BRITISH MEDICAL ASSOCIATION

Election to the Council of a Woman Member

The following candidates have been nominated for election as a woman member of Council for 1944–5: Barbara M. L. Abercromby (Liverpool), Janet K. Aitken (London), Dorothy L. C. Day (Croydon). Voting papers will be issued on Feb. 3, 1945, to women members of the Association.

CHARLES HILL,
Secretary.

Meetings of Branches and Divisions

SUNDERLAND DIVISION

At a meeting of the Sunderland Division on Dec. 20, to which all the profession in the area had been invited, the Division's Representative, Dr. A. A. M. Nicol, gave a very full account of the proceedings at the A.R.M. and of the decisions taken. He explained the policy which would guide the Negotiating Committee in the meetings with the Minister of Health and the matters upon which it would take a stand. It was agreed that the A.R.M. had been successful and that the policy agreed upon was one to which the Division would adhere. A vote of thanks was given to Dr. Nicol for his services. Satisfaction was expressed with the election of Dr. Arthur of Gateshead to the Negotiating Committee, and the Division again affirmed its opposition to any form of service involving local authority control.

MEDICAL WAR RELIEF FUND

SIXTY-FIFTH LIST

Amount previously acknowledged £54,948 1s. 1d. *and* £100 3½% *Conversion Stock and* £40 3% *Defence Bonds.*

Individual Subscriptions

£20.—Dr. S. Whately Davidson, Newcastle-upon-Tyne (2nd donation).

£10 10s.—Anonymous; Mr. W. H. McMullen, London (2nd donation); Dr. L. Thomas, Halifax, N.S. (4th donation).

£5 5s.—Dr. W. D. Calderwood, Birmingham (5th donation); Dr. W. F. T. Haultain, Edinburgh (4th donation); Dr. C. P. Miller, Cheam (2nd donation); Drs. D. and Nellie M. Rocyn-Jones, Ruardean; Dr. E. R. Sweeney, London.

£5.—Dr. A. McK. Fleming, Nairobi (3rd donation); Col. E. W. Hayward, R.A.M.C. (2nd donation).

£4 15s.—Dr T. Marshall Bell, Southbourne (2nd donation).

£3 3s.—Dr Edith E. Stephens, London (3rd donation).

£2 2s.—Capt. N. Bickford, R.A.M.C. (14th donation); Dr. J. M. C. Given, Tunbridge Wells (5th donation).

£1 1s.—Lieut.-Col. W. H. Skardon Burney, Shrewsbury (2nd donation); Dr. J. F. McConchie, Wolsingham (4th donation); Dr. H. S. North, Brighton.

£11 3s. 8d. ($50.00).—Canadian Medical Association—per Dr. Patch (amount already sent £2,540 5s. 7d.); Dr. W. H. Craig, Pennant (2nd donation).

£10 10s.—Practitioners in East Herts area—per Dr. J. S. Ross (amount already sent £330 19s. 1d.); Plymouth Division—per Dr. Ramsay (amount already sent £354 17s. 6d.); Mr. H. F. Vellacott (8th donation).

£5.—Shropshire and Mid-Wales Branch—per Dr. Elliott (amount already sent £531 8s.); Dr. J. A. McClintock (6th donation).

Local Medical and Panel Committees

£283.—Surrey (10th donation).
£44 9s. 6d.—Newcastle-upon-Tyne (14th donation).
£43 11s. 1d.—Ayr County (16th donation).
£32 15s. 3d.—Midlothian (16th donation).
£20 3s. 4d.—Dunbarton County (16th donation).
£19 3s. 6d.—East Lothian (15th donation).
£5.—Norfolk (5th donation).

Total—£55,541 7s. 5d. *and* £100 3½% *Conversion Stock and* £40 3% *Defence Bonds.*

Sums for Books for Prisoners of War

Amount previously acknowledged £216 14s. 6d.

Cheques, payable to the Medical War Relief Fund, should be sent to the Hon. Treasurer of the Fund, British Medical Association House, Tavistock Square, London, W.C.1.

ADDITIONAL COAL SUPPLIES IN ILL-HEALTH

Inquiries are being received about the certificate for additional heating on medical grounds recently circulated to doctors by local fuel overseers. The Ministry of Fuel and Power consulted the B.M.A. before issuing the certificate, and pointed out that in order to conserve supplies it was necessary for distributors to know the length of time for which the extra fuel would be needed and there was no certificate already in use which could be adapted to ensure that this information would be included. Although appreciating these difficulties the B.M.A. felt that it could not approve yet another special form, and insisted that where a doctor wished to use a private certificate for this purpose he should be free to do so.

In a letter accompanying the certificate forms the local fuel overseer states: "A medical certificate in a form other than the enclosed . . . may be questioned." This has given rise to misunderstanding. It should be made clear that it does not preclude the use of a private certificate, but that if the period or the gravity of the case is not stated further inquiry may be necessary with additional trouble and inconvenience to all concerned. Where a satisfactory arrangement has already been made between the fuel overseer and local doctors the use of a private medical certificate should not cause any difficulty.

WEEKLY POSTGRADUATE DIARY

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.—*Thurs.*, 3 p.m. Bradshaw Lecture by Sir Girling Ball: End-results o Treatment of Growths of the Bladder.

EDINBURGH POSTGRADUATE LECTURES.—At Edinburgh Royal Infirmary, *Thurs.*, 4.30 p.m., Dr. R. Y Keers: Recent Developments in the Treatment o Pulmonary Tuberculosis.

DIARY OF SOCIETIES AND LECTURES

ROYAL SOCIETY OF MEDICINE.—*Tues.*, 4.30 p.m. Section of Orthopaedics; 4.30 p.m., Genera meeting of Fellows. *Wed.*, 2.30 p.m., Section o History of Medicine; 5 p.m., Sections of Surger and of Proctology. *Thurs.*, 5 p.m., Section o Ophthalmology. *Fri.*, 2:30 p.m., Clinical Section

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE 28, Portland Place, W.—*Wed.*, 3.30 p.m., Surg Rear-Adml. G. Gordon-Taylor: Surgery and Russia.

ROYAL INSTITUTION, 21, Albemarle Street, W.—*Tues.*, 5.15 p.m., Mr. T. Wallace: Methods o Diagnosis of Mineral Deficiencies.

BIRTHS, MARRIAGES, & DEATHS

The charge for inserting announcements under thi head is 10s. 6d. *This amount should be forwarde with the notice, authenticated with the name an address of the sender, and should reach the Advertisement Manager not later than first post Monday morning to ensure insertion in the current issue*

BIRTH

ROSS.—On Jan. 8, 1945, at Beeston Nursing Home Nottingham, to Margaret H. (*née* Wood) an Capt. George Ross, R.A.M.C., B.L.A.—a son.

MARRIAGES

MCDONALD—CADE.—On Jan. 9, 1945, at St Barnabas Church, Dartmouth, Ronald Stewa McDonald, Surg. Lieut., R.N.V.R., to Margare E. Cade, S.R.N.

MACKENZIE—PERRY.—On Jan. 9, 1945, at Hol Trinity, Northwood, by the Rev. G. C. Walke Kenneth Michael Mackenzie, M.B., B.S. Lieut., R.A.M.C., only son of Mr. and the lat Mrs. K. J. Mackenzie, of 6, St. Margarets Road Ruislip, and Rachel Mary, younger daughter o Mr. and Mrs. C. W. Perry, of 40, Eastbur Avenue, Northwood.

WINSTANLEY—PENNEY.—On Jan. 20, 1945, at Chris Church, Heaton Norris, by the Rev. Coli Lamond, Michael Platt Winstanley, M.R.C.S. L.R.C.P., elder son of Dr. and Mrs. Sydney A Winstanley, of Urmston, Lancashire, to Nanc Bennett Penney, M.B., Ch.B., only daughter o Mr. and Mrs. William Penney, of Heaton Chapel

DEATHS

RICHARDS.—On Jan. 13, 1945, at Coventry, Majo Henry Edward Sutherland, M.C., T.D., R.A.M.C (T.F.), (ret.), husband of Kathleen (*née* Wollaston), late Principal Medical Officer, Granada Windward Islands, in his 69th year.

WEST.—On Jan. 26, 1945, at Belmont, Hoddesdo Hertfordshire, Leonard West, M.B., Ch.B., J.P son of the late Thomas Edward West, of Leeds.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
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MEDICAL PLANNING IN AUSTRALIA

B.M.A. FEDERAL COUNCIL STATES ITS POSITION

While Great Britain is contemplating proposals for a National Health Service a similar situation is slowly maturing in Australia. The problems in both countries are very much alike—a resemblance only to be expected, as the *Medical Journal of Australia* points out, seeing that the people are of a common stock, enjoy the same kind of constitutional Government, and are served by a medical profession whose members are welded together by a heritage of ideals and traditions.

The Commonwealth Government has announced that it desires to establish a national medical service, financed by taxation, and available to every member of the community. The Government intends to go ahead with that policy whether the profession agrees to co-operate or not, but it is apparent that it would rather have such co-operation than otherwise. It hopes to find recruits for its service from medical officers of the armed Forces on their demobilization and from students who are receiving financial assistance from the Government to study medicine in the several medical schools of the Australian universities.

A Parliamentary Joint Committee on Social Security has been studying medical reconstruction among other matters, and has issued an interim report on that subject as well as reports on related services. The Joint Committee consists of representatives of all political parties in Australia, and must not be taken as necessarily expressing the view of the Curtin Government; nevertheless it does indicate, in the words of an Australian observer, "the direction from which the political wind is likely to blow." There is also in existence a body called the National Health and Medical Research Council, which was set up to advise the Commonwealth and State Governments on all matters of public health legislation and administration. This body has made it a cardinal principle that before any decision is reached full discussion must take place between the Government and the medical profession, but it appears that the Commonwealth Government does not always heed that advice, for a Pharmaceutical Benefits Bill, closely affecting the medical profession, has recently been brought in without such consultation.

National Health Insurance Not Favoured

The Parliamentary Joint Committee, to which the President of the Federal Council of the British Medical Association in Australia (Sir Henry Newland) and the General Secretary (Dr. J. G. Hunter) gave evidence, issued an interim report in 1943. The issue of the report was preceded by a letter by the chairman of the committee, Mr. H. C. Barnard, M.P., who stated that there was a unanimous objection to the National Health Insurance system as put forward in a Commonwealth Act of 1938 and in subsequent legislation or proposed legislation. The grounds of objection were the restriction of benefits to a particular income group, the limited range of such benefits, and the absence of any provision for dependants. He declared that there was general opposition to the panel and capitation system, "which has been discredited in Great Britain, and more recently in New Zealand, where a fee-for-service system has been introduced." The Parliamentary Joint Committee therefore strongly advised the Government to take no further action to implement the provisions of National Health Insurance legislation. The committee, he added, would proceed with the inquiry into forming a comprehensive health scheme, which it proposed to discuss with representatives of the medical profession before preparing a report to Parliament. In the meantime he considered that to bring in any major scheme of medical or related services would jeopardize the success of a comprehensive scheme at a later stage, and would be considered precipitate by the medical profession and vigorously opposed.

Good relations, said this chairman, had been established between the Parliamentary Joint Committee and the profession, "and we see no difficulty in cultivating the co-operation of the profession so long as adequate time is allowed for working out the necessary details and for consultation not only with representatives of the B.M.A. but with individual representatives of the profession." Meanwhile certain non-contentious measures, such as those relating to nutrition and maternal welfare, might proceed.

Federal Council's Plans

The Federal Council of the B.M.A., rather late in the day—in the autumn of 1943—set up a Planning Committee with definite terms of reference, and asked the six Branches in Australia to appoint similar committees. The Federal Council has been troubled a little by uncertainty as to its powers to bind the Branches, which were originally quite separate entities until the Federal Committee was formed in 1913, and later gave place to the Federal Council. After some long discussion last year the Federal Council came to the conclusion that the present arrangement between itself and the Branches, which is binding in honour only, is preferable to a legal agreement.

A number of the recommendations contained in the interim report of the Joint Parliamentary Committee were approved by the Federal Council, but to others it was unable to give approval. One paragraph which failed to secure approval advocated a full-time salaried medical service as affording the only satisfactory basis for a National Health Service. In "remote" areas—that is, areas of 1,000 people or more resident within a radius of 25 miles and unprovided with a doctor—the Joint Parliamentary Committee proposed that there should be a voluntary full-time salaried medical service under a "limited-term" appointment, and this was approved by the Federal Council, though it was intimated that a subsidized service would be preferred. But approval was not given to a further proposal that in other areas, country and town, there should be a part-time salaried service under a system of voluntary participation by general practitioners. The idea was that these doctors, while maintaining their private practice, should indicate what number of half-day sessions they would be willing to devote to a general medical service, the service to be provided at out-patient and consultant clinics, which would be equipped with diagnostic and treatment facilities and supervised by a salaried medical liaison officer responsible to the central administration. The general control of the clinics would be vested in the medical personnel of each.

The view of the Federal Council was that the proposals of the Parliamentary Joint Committee for out-patient and consultant clinics represented the first instalment of a drastic alteration in the form of medical services, and to any such alteration during the war, and for one year afterwards, it offered strong opposition. It did not object, however, to another recommendation, for the immediate establishment of a number of group-practice centres under suitable conditions. Its governing resolution read as follows:

> "That the Federal Council of the British Medical Association in Australia is opposed to a socialized medical service as it considers that it is not in the public interest that the medical profession should be converted into a salaried branch of the Government service."

As against any Government scheme which might prove unacceptable, the Federal Council agreed that a scheme emanating from the Victorian Branch, incorporating a fee-for-service principle, should be submitted to the Branches for their consideration as one acceptable substitute.

Hospitals Free to All

Another point urged by the Federal Council was that if any fresh expenditure on health services was contemplated by the Government during the war it should be primarily for the improvement of the hospital services. On this question of the hospitals the Commonwealth Government has requested the advice of the Parliamentary Joint Committee on a hospital benefit scheme. The committee is recommending an arrangement whereby the Government would pay from exchequer funds a subsidy equal to 6s. 6d. per daily occupied bed, for general medical, surgical, and obstetric cases. The subsidy would be subject to certain conditions, the first of which is that public bed accommodation should be provided for patients without additional charge. Any savings resulting from the payment of the subsidy will be paid into a trust fund for the expansion and improvement of hospital services.

The sum of 6s. 6d. a day, of course, does not cover the cost, but the amount was decided on as representing the highest average of revenue from patients' payments. To this have to be added the sums paid by the State Governments (reaching as high as 9s. 2d. per daily occupied bed in Queensland) and the sum obtained by donations. The payment of the subsidy is held to justify the abolition of any means test; in fact, it opens the doors of all public hospitals to all persons regardless of their ability to pay fees for medical treatment. It will inevitably bring about the end of the honorary system of medical attendance.

Later Developments

In the effort to seek agreement between the Government and the medical profession a Social Security and Health Services Conference was held at Canberra at the end of 1943, as a result of which certain matters were referred for exploration to a new Medical Planning Committee consisting of three representatives of the Parliamentary Joint Committee, three representatives of the British Medical Association in Australia, two representatives of a Social Security Medical Survey Committee, and a representative of the Commonwealth Director-General of Health. The conference led to wrongful statements in the lay press to the effect that the British Medical Association had agreed with the Commonwealth Government on a health service scheme for all Australia, when, in fact, it had only agreed on the principles which should govern a service, and all decisions had been tentative and without commitment. But, as the *Medical Journal of Australia* remarks, "When no Australian newspapers publish inaccuracies about the British Medical Association the millennium will have arrived."

The new Joint Medical Planning Committee has issued an interim report—a long document, comparable in extent with our own White Paper. It covers the ground of public health, hospital and ancillary services, and medical services. On the question of public health it ranges over the population problem, economic conditions, maternity and child welfare, the pre-school and school child, national fitness, nutrition, industrial hygiene, and the campaigns against tuberculosis and venereal diseases. On hospital services it proposes a Commonwealth expert advisory body charged with the responsibility of advising hospitals on planning, construction, and equipment, and, among other matters, it calls for a decentralization of out-patient services.

Concerning medical services, the report upholds the principle of the preservation of the doctor–patient relationship and of free choice. In the "remote" areas it favours a voluntary full-time salaried, or subsidized, medical service under a "limited-term" appointment, with improved hospital and transport provision and the services of the "flying doctor," and it adds that in all such appointments the emoluments and conditions of service should be such as to make the post attractive to a good type of competent doctor, and in particular they should include specific facilities for adequate postgraduate study. In the country (as distinct from the remote) areas, recommendations are made for consulting-room, domiciliary, and institutional practice, and a much closer collaboration is called for by more effective methods of communication and exchange of information between the hospital and the general practitioner.

In urban areas a method put forward by the British Medical Association for the evolution of a hospital system on a regional basis is supported by the committee, which also favours the scheme—originally turned down by the Federal Council—whereby doctors in such areas would retain their private practices but would agree to serve on a part-time salaried basis for a stipulated number of half-day sessions at out-patient and consulting centres. These would be, in effect, group-practice clinics, and the committee takes the view that experimental group practices at carefully selected places should be established so that different sets of conditions, types of practice, and methods of payment could be tested out.

Conference with the Government

At the end of September last a committee of the Federal Council was invited by the Minister for Health, Senator Fraser, to meet Government representatives "in order to formulate, if possible, plans for a medical service based on the policy that the service would be available to every member of the community without cost apart from taxation." The invitation was accepted, not without some misgiving based on the experience of previous Government conferences. Too often, apparently, in Australia, Ministers look upon a conference as nothing but an opportunity for a statement of Government intentions. In a leading article in its issue of Oct. 28 the *Medical Journal of Australia* refers caustically to the "peculiar ideas" of Ministers of the Crown as to what a conference is, and of the patience and long-suffering of the medical profession. At a previous conference, held in June, the Treasurer, who is the second figure in the Government, declared that a plan had been laid down, that apparently the medical profession would not co-operate, but that the Government intended to go on with its policy all the same. "All members of the profession," says the journal, ". . . whatever their views on medical politics may be, will regret this stand-and-deliver attitude."

However, the new invitation was accepted, and in long discussions for three days beforehand the Federal Council considered the instructions to be given to its six representatives. Eventually the discussions were crystallized into a number of resolutions, the first five of them moved by Dr. H. C. Colville of Victoria:

(1) To enter an emphatic protest against the formulation by the Government of a scheme involving a drastic alteration in the form of medical service to the community during the war or for one year afterwards.

(2) To make a formal request that such a scheme shall not be formulated during the specified period.

(3) To inform the Government that the Government policy having been stated to be a free medical service to all, with control by Government Department and a contract for service between the Government and the doctor, the Federal Council is agreed that such a policy is not in the public interest and is not acceptable to the Federal Council.

The fourth motion was an offer to the Government of the fullest co-operation of the Federal Council in bringing about certain specified improvements in maternal and child welfare and in dealing with tuberculosis.

(5) To inform the Government representatives that the Federal Council will be willing to discuss any scheme put forward by the Government for the expenditure of public money on the provision of financial relief for individuals arising out of illness in which the following conditions are observed: (*a*) that the negotiations shall not proceed beyond the stage of discussion until one year after the war; (*b*) that the scheme should retain the existing doctor-patient relationship; and (*c*) that the scheme shall be free from departmental or any other method of control which would interfere with the freedom of the profession and the public.

(6) To inform the Government that the Federal Council considers that in any scheme the individual, unless his financial circumstances so preclude, should retain some share in the financial responsibilities of his illness

No report is to hand as yet concerning this conference, but the general outcome appears to be a determination to keep the door open for further discussions. Since then the General Secretary of the Federal Council and the Medical Secretary of the Victorian Branch have visited New Zealand to study the fee-for-service system operating there, and the Minister for Health also proposes to visit New Zealand, presumably with the same object in view. It will be recalled that the New Zealand system came in for some unfavourable comment at the recent Annual Representative Meeting in London.

Views of the Australian Branches

At the same meeting of the Federal Council which gave instructions to its representatives the views of the Branches were reported on two questions referred to them by headquarters—namely, whether their members would be willing to participate in the working of a medical service which was available without cost to every member of the community, subject, of course, to conditions for practitioners being satisfactory, and, if this was so, what form of administration would be preferred, and what form of contract, including method of payment. The replies of the Branches may be summarized very briefly as follows:

Tasmanian.—No drastic change should take place until Service medical officers could take part in the deliberations. Detailed administration must be in the hands of an executive body, the majority of whose members should be appointed by the organized profession. The fee-for-service principle preferable if a proportion of the total fee was paid by the patient, but if complete freedom from direct cost had to be accepted further consideration should be given to a capitation system. Salaried service not acceptable.

South Australian.—Need for the Government to bring out a White Paper for transmission to the profession throughout Australia. Meanwhile, as proposals were still tentative, negotiations with the Government should be carried on.

New South Wales.—Government policy for a free service to every member of the community, with control by a Government Department, and a contract for service between Government and doctor, not in the public interest and not acceptable to members. Regimentation of both patients and practitioners inseparable from any Government scheme of free curative service departmentally controlled, and this was inimical to maximum efficiency and public confidence. Existing doctor-patient relationship must be maintained.

Victorian.—Members would be prepared to accept a scheme for a complete medical service available without cost to every member of the community only if it was conducted in accordance with certain resolutions which the Branch had adopted in January, 1944. Government proposals for a nation-wide medical service unacceptable. The only acceptable form of contract with the Government would be a broad general agreement covering schedules of fees and cognate matters.

Western Australian.—A scheme whereby some direct payment was made by the patient would be preferable to the free-for-all service proposed. Administration should be in the hands of a corporate body directly responsible to Parliament through the Minister and on which the practising profession should be adequately represented. Payment should be on a fee-for-service basis, except where the corporate body considered that a salaried or capitation method would result in more efficient service, but no such method should be inaugurated until sufficient practitioners were available to man the service efficiently. No one form of contract would be suitable for the whole of Australia.

Queensland.—A salaried basis for a nation-wide service not in the best interests of the community, and therefore not acceptable to the profession. If a general medical service was introduced, an income limit should not be imposed.

Although no resolution was passed on the subject, the view of the Federal Council appeared—to be against a corporate body. One member cited the Australian Broadcasting Commission as a warning example. This body had an ideal constitution, and its members had knowledge and ability, but gradually their powers had been cut down until the Commission was at the present time merely a means of Government.

The endeavours of our Australian colleagues to establish a satisfactory system of medical service will be followed with sympathy in this country, despite our own preoccupations. They have, as they acknowledge, learned something from us, and we may well learn something from them. They are concerned about the same issues, the form of control and contract, the 100% availability, the preservation of the principle that the first duty of the doctor is to his patient and not to a State-employer. A word should be said in appreciation of the Federal Council. In this country some members of the Central Council of the B.M.A. and its committees excite our admiration because they have travelled 400 miles to attend a meeting, but in Australia some have to travel 2,000 miles to attend the Federal Council, which usually meets at Melbourne or Sydney, and the difficulties of organizing meetings of the profession are correspondingly great. All the more outstanding is the achievement whereby organized medicine in Australia has been enabled to speak with a clear voice.

Correspondence

Medical Demobilization

SIR,—May I add my contribution to the recent correspondence on demobilization because mine is in many ways a typical case and I believe my views represent those of many other medical officers in the Forces.

I qualified in July, 1939, at the age of 29, having taken up the study of medicine rather later in life than usual. In September, 1940, I joined the R.A.F., and now, with four years and four months' service at the age of 34, I find myself in the age-service release group of 23—that is to say, in the same group as the man who joined up in September, 1939, at the age of 24 or the man who joined up at the age of 36 in September, 1941.

When the Government scheme for release was first published I allowed myself some sanguine thoughts about the prospect of release fairly soon after the defeat of Germany. How far my optimism was removed from reality may be judged by the fact that I was recently warned for over-seas and that in a few days I am to go on a course in tropical medicine. I do not know my destination, but believe the Far East is the most likely place.

There is a Government promise that no matter where a man is he will be brought back for release with the rest of his group, and if this promise is to be kept it seems unlikely that any man with a reasonable chance of early release would be sent to a far-distant place. I therefore conclude that I possess no such chance. I mention the question of overseas because it seems to me to throw some light on the prospects of release in terms of age-service groups. I do not and could not have any objection to going over-seas, because only six months of my service have been spent out of this country, a previous tour of duty having been terminated by a disability from which I have now recovered.

It is possible to state briefly what service in the Forces has meant to men like myself qualified just before or at the beginning of the war. It has seriously and perhaps even irretrievably damaged the chances of most of us of reaching the higher places in our profession. It has made us spend many years in a form of medical practice which, however useful in itself, is not generally reckoned to be valuable experience for most forms of civil practice. It has meant the disruption of family life, and I, who see my wife and children at three-monthly intervals for a few days, am luckier than a good many men who have been overseas for a long time.

How does this compare with the fate of those of our contemporaries who have so far remained in civilian life? Those who were able to follow the A—B2—B1 path through the hospitals, not always because of outstanding ability but often because of lack of competition, have been able to obtain invaluable experience and high qualifications with the permanent kudos resulting therefrom. Others in general practice, because their districts contained other doctors with Territorial or Reserve obligations or older men who felt they should join the Forces, have been left undisturbed. I quote these facts not to disparage the individuals concerned or to minimize the value of their work but to illustrate that circumstances have given them a big advantage, whether in professional experience and standing or in establishment in practice, over their contemporaries in uniform.

The Government plan for interim demobilization is, by definition, a scheme for reallocation of man-power. As regards the medical profession it should allow an exchange of doctors between the Services and civilian life whose magnitude depends on the energy and thoroughness with which it is administered. If the Central Medical War Committee takes the narrow view it will regard the scheme merely as a method of disposing of Service medical officers surplus to requirements after the defeat of Germany. On the other hand, if it believes that the notion behind the scheme is to use that surplus in order to effect as wide as possible a redistribution of the hardships of service in the Forces, it will concentrate mainly on recruitment.

Clearly every man released from the Services will eventually find his way into a civilian job and will thus free another man who may be eligible for recruitment. Once this scheme is in operation and made a continuous process a steady flow to and from the Services should result even after the release of the initial surplus. Let us suppose, for argument, that releases begin in September, 1945. I shall then be 35 years old with five years' service to my credit. I submit then that I shall have grounds for resentment if I cannot be released while any doctor of that age or under remains in civil life who has not served in the Forces and who is fitted by sex, nationality, and physical fitness to do so.

The profession must realize that many doctors will continue to serve, often in unhealthy climates, separated from their families, and cut off from all hopes of professional advancement, until after the defeat of Japan. It would be wrong, therefore, to adopt a "back to peacetime" attitude or to let such an attitude result in a tendency to expect absent partners, etc., to be released under Clause B. Every young man not called up and every man released out of turn means further delay in the release of people like myself, who can ask for no priority but do expect to get fair treatment.

This release scheme and its possibilities has aroused mixed feelings in me and in many other Service medical officers, and it would be a consolation if we could be assured that the points I have mentioned would receive the most sympathetic consideration of the Central Medical War Committee, and that we will really see an attempt to bring about a reallocation of medical man-power in the widest sense.—I am, etc.,

"SQUADRON LEADER G,"
R.A.F.V.R.

Certification for Priority Milk

SIR,—If the B.M.A. intends to lodge any protest on this matter it is to be hoped, and it may be assumed, that it will be phrased somewhat more happily than the contribution by your correspondent Dr. H. A. Treble (*Supplement*, Jan. 20, p. 9). His analysis of the motives alleged to actuate the Ministry of Food was masterly in that, while his second point might be justified as a personal opinion, the first was so sweeping as largely to discount its value, while the third merely provided a gratuitous reflection upon his professional brethren in the public health service.

It is not commonly suggested in your columns that general practitioners are under the influence of their patients when certifying, and, so far as I know, neither tuberculosis officers nor medical officers of health are in any position to fear the Ministry of Food. Perhaps, however, Dr. Treble could—by presenting some definite evidence—correct me on this latter point?

Until infectious disease blocks are more generally associated with general hospitals I should have imagined that the more certain the physician was in his differential diagnosis the less he would subsequently have had to do with cases of enteric and dysentery. I am not concerned here to discuss the Ministry of Food and its actions, since "bureaucrats" (a conveniently vague and omnibus term) share with the medical profession the faculty of collectively not always agreeing with one another, while at the same time failing individually to please everyone. If a member of one section of our profession must criticize practitioners in another the opportunity should at least be taken to advance facts and not merely to evince prejudice.—I am, etc.,

Stalybridge. JAMES GORMAN.

MEDICAL ATTENDANCE ON ITALIAN P.O.W.

When Italian prisoners of war who are working on farms, etc., in this country require medical treatment they are normally attended by a military medical officer or by a civilian medical practitioner employed at fixed daily rates of payment. It sometimes happens, however, that such a doctor is not available and a civilian practitioner is called in. In this case the civilian practitioner giving the treatment should claim a fee on Army Form O.1667, which should be sent to the Deputy Director of Medical Services of the Army Command concerned. The rates laid down in that form will be paid. It is emphasized that a civilian practitioner may be called in only when treatment from existing military services is not available.

PLANNING MEDICAL EDUCATION

Addressing a meeting of the Society of Individualists and National League for Freedom on Jan. 18 Sir E. Graham-Little said that some of the recommendations of the Goodenough report had a totalitarian flavour, particularly in the proposals to direct students to schools with the object of relieving congestion in London, to abolish certain of the Scottish schools, to remove certain of the London schools from London, and, more significantly still, to create two categories of students at the medical schools—those training to be general practitioners and those training to be specialists. During the war the Minister of Health called upon the qualifying bodies to reduce their curriculum in its final clinical stages by 6 months, and this had been done. It was now proposed that the training of the general practitioner should occupy some 4½ years instead of the average of 6 required before the war, and of the consultant some 10 years. It was also suggested that the cost of medical education should be borne in large measure by the State; there was always the danger that when the State paid for this education it would also prescribe its scope and content. The medical profession, Sir Ernest continued, had at last become aware of what was "cooking" for it at Whitehall, and a remarkable explosion of feeling had come about. The doctors, realizing the threat from centralization of control, had become progressively hostile to it. The feeling of the profession was most accurately conveyed in the resolutions of the Representative Body of the B.M.A., which had been, not unjustly, called the parliament of the profession. Unless the Minister withdrew those proposals which conflicted with the profession's recommendations there was little prospect of obtaining the number of doctors essential to carry out the recommendations of the White Paper. We had seen the Education Act held up by a similar dearth of teachers, and the Minister of Education had been obliged to flood the schools with recruits. No such expedient could be adopted in medicine, and the position of the Minister of Health would seem likely to become even more difficult than that of the Minister of Education.

H.M. Forces Appointments

ARMY

War Subs. Major M. F. Nicholls, R.A.M.C., to be a Consultant, and has been granted the local rank of Brig.

ROYAL ARMY MEDICAL CORPS

Major E. G. Dalziel, M.C., to be Lieut.-Col.

Capt. B. Lapedus has retired on account of disability.

Short Service Commission.—Lieut. (War Subs. Capt.) T. A. Reed, from R.A.M.C. (Emergency Commission) has been granted a short service commission in the rank of Lieut., and to be Capt.

SUPPLEMENTARY RESERVE OF OFFICERS: ROYAL ARMY MEDICAL CORPS

War Subs. Capt. J. T. Hemingway has relinquished his commission on account of disability, and has been granted the honorary rank of Capt.

TERRITORIAL ARMY

ROYAL ARMY MEDICAL CORPS

War Subs. Capt. A. H. H. Fraser has relinquished his commission on account of disability and has been granted the honorary rank of Major.

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs. Lieut.-Col. G. MacDonald has relinquished the local rank of Brig.

War Subs. Capts. H. R. W. Hawson and D. Harkins have relinquished their commissions on account of disability, and have been granted the honorary rank of Major.

War Subs. Capts. C. A. Palfrey, R. Murphy, I. W. Gallant, A. P. Nicolle, A. J. Patenall, and E. Joffe have relinquished their commissions on account of disability, and have been granted the honorary rank of Capt.

Lieut. J. K. Ogden has relinquished his commission on account of disability, and has been granted the honorary rank of Lieut.

To be Lieuts.: A. J. H. Aitken, C. H. Barnett, C. A. Barrett, L. S. A. Boothroyd, D. L. Broadhead, E. D. Cameron, F. B. E. Charatan, H. H. Collins, M. D. M. Collins, G. N. C. Crawford, J. McC. Dunlop, M. Ernest, A. M. Evans, F. N. Forster, B. J. Fowler, L. Frain-Bell, J. E. French, M. B. Garnett, S. R. S. Godkin, L. D. Golding, D. Headley, G. C. Hildrey, P. S. Kenny, E. Levy, W. Levy, O. C. Lord, T. R. Macdonald, A. I. Maclean, J. Mutch, J. T. Patton, D. H. Rees, D. L. Rees, J. J. Rivlin, A. J. Robertson, J. S. Robson, T. H. L. Rosser, J. H. Sherrey, R. G. Simpson, W. D. Sinclair, S. Smith, S. A. Styles, R. G. Tasker, W. G. Todd, W. G. Toole, B. Townsley, E. L. Barr, S. E. Bolton, W. St. J. Buckler, D. A. Forbes, R. D. Harland, J. Hart, C. B. Holmes, H. J. Houghton, C. B. Lanyon, I. Macleod, B. G. Paul, T. M. Pole, M. H. Russell, R. G. Seaver, E. F. R. Todd, J. L. Wakelin, E. G. Wright.

WOMEN'S FORCES

EMPLOYED WITH THE R.A.M.C.

The following M.O.s have been granted commissions in the rank of Lieut.: Thelma C. Cruickshank, Mary R. Ellis, Kathleen L. Prendergast, Renate H. Schulz, Isabel F. Sutherland, Edith A. C. Thomson.

ROYAL AIR FORCE

Wing Cmdrs. (Temp. Gp. Capts.) R. H. Stanbridge and R. W. White to be Gp. Capts.

Squad. Ldrs. (Temp. Wing Cmdrs.) C. G. Harold and T. C. Macdonald, A.F.C., to be Wing Cmdrs.

Fl. Lieuts. (Temp. Wing Cmdrs.) R. S. Peill, H. E. Bellringer, R. S. B. McClean, J. B. Wallace, G. H. Stuart, and D. J. Sheehan to be Squad. Ldrs.

Fl. Lieuts. (Temp. Squad. Ldrs.) R. F. Wynroe and L. N. Trethowan to be Squad. Ldrs.

ROYAL AIR FORCE VOLUNTEER RESERVE

Squad. Ldr. (Temp.) D. J. Williams has been granted the rank of War Subs. Squad. Ldr.

Fl. Lieut. E. B. Davies has been granted the rank of War Subs. Squad. Ldr.

Flying Officers J. Littler, D. H. Makinson, P. M. Ransford, O. L. S. Scott, R. D. Sweet, C. G. K. Thompson, and I. A. M. Thomson to be War Subs. Fl. Lieuts.

Flying Officer D. P. Fitzgerald has relinquished his commission on account of ill-health, retaining his rank.

WOMEN'S FORCES

EMPLOYED WITH THE MEDICAL BRANCH OF THE R.A.F.

Fl. Lieut. K. M. Poad has relinquished her commission on account of ill-health.

Flying Officers B. M. Corrigan, D. R. B. O'Brien, M. Small, and E. M. Troy to be War Subs. Fl. Lieuts.

INDIAN MEDICAL SERVICE

Major B. S. Nat to be Lieut.-Col.

COLONIAL MEDICAL SERVICE

The following appointments have been announced: J. G. A. McSorley, M.B., Medical Officer, Nigeria; F. J. C. Johnstone, M.D., D.P.H., D.T.M., Director of Medical Services, Gold Coast; W. J. Branday, M.R.C.S., Assistant Director of Medical Services (Hospitals and Personnel), Jamaica.

POSTGRADUATE NEWS

The National Association for the Prevention of Tuberculosis announces the following Tuberculosis Refresher Courses: Manchester, April 23 to 28; Hairmyres Tuberculosis Colony, Lanarkshire, June 26 to 28. Particulars may be had from Dr. Harley Williams, Tavistock House North, London, W.C.1.

WEEKLY POSTGRADUATE DIARY

EDINBURGH POSTGRADUATE LECTURES.—At Edinburgh Royal Infirmary, *Thurs.*, 4.30 p.m., Dr. A. E. Ritchie: Physiology of Peripheral Nerve Injury.

DIARY OF SOCIETIES AND LECTURES

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.—*Wed.*, 3.30 p.m., Hunterian Oration by Prof. G. Grey Turner: The Hunterian Museum.

ROYAL SOCIETY OF MEDICINE.—*Tues.*, 2.30 p.m., Section of Psychiatry. *Thurs.*, 5 p.m., Section of Dermatology. *Fri.*, 5 p.m., Section of Obstetrics and Gynaecology; 6.30 p.m., Section of Radiology.

BRITISH INSTITUTE OF RADIOLOGY, 32, Welbeck Street, W.—*Thurs.*, 8 p.m., Mr. L. Dudley: Stereoscopic Photography and Radiography. *Fri.*, 5 p.m., Medical members' meeting.

FACULTY OF RADIOLOGISTS: THERAPY SECTION.—At Royal College of Surgeons of England, Lincoln's Inn Fields, W.C., *Fri.*, 2.30 p.m. Discussion: Ankylosing Spondylitis. Openers, Drs. R. McWhirter, W. Wyatt, and F. Hernaman-Johnson.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.—*Mon.*, 5 p.m., Discussion: Uses and Limitations of Penicillin Treatment. To be introduced by Sir Alexander Fleming, F.R.S., and Dr. T. Izod Bennett.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, W.—*Wed.*, 3.30 p.m., Dr. G. H. Newns: The Problem of Infant Mortality.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 26, Portland Place, W.—*Thurs.*, 3 p.m., Prof. P. A. Buxton, F.R.S.: Use of the New Insecticide DDT in Relation to the Problems of Tropical Medicine. A discussion will follow.

B.M.A.: Branch and Division Meetings to be Held

LEIGH DIVISION.—At Boar's Head Hotel, Leigh, Sunday, Feb. 11, 3 p.m., Meeting. Address by Mr. F. H. Scotson: Penicillin.

NORTHERN IRELAND BRANCH.—Joint meeting with Ulster Medical Society at Whitla Medical Institute, College Square North, Belfast, Thursday, Feb. 15, 8.15 p.m. Addresses by (*a*) Prof. J. H. Biggart: Problems in the Pathogenesis of Rheumatic Fever and Subacute Bacterial Endocarditis; (*b*) Dr. Florence McKeown: Experimental Production of the Specific Rheumatic Lesion; (*c*) Dr. Yvonne Murray: Experimental Subacute Bacterial Endocarditis.

BIRTHS, MARRIAGES, & DEATHS

The charge for inserting announcements under this head is 10s. 6d. This amount should be forwarded with the notice, authenticated with the name and address of the sender, and should reach the Advertisement Manager not later than first post Monday morning to ensure insertion in the current issue.

BIRTH

BROWN.—On Jan. 31, 1945, at Maidstone, to Judy, wife of Dr. R. Crosbie Brown, H.M. Prison, Maidstone, a sister for Robin—Audrey Ann.

DEATHS

LOUDON.—At Linnwood, Hamilton, Lanarkshire, on Jan. 15, 1945, James Livingstone Loudon, M.D., C.M., F.R.F.P.S.(G.), D.P.H., former Medical Officer, Burgh of Hamilton, in his 80th year.

WILKINSON.—On Jan. 2, 1945, at 5, Chester Road, Poynton, Cheshire, Arthur Thomas Wilkinson, M.D., F.R.C.P., late Honorary Consulting Physician and Dean to the Manchester Royal Infirmary, aged 91 years.

The Secretary of State for Scotland has appointed Dr. R. J. Peters to be Deputy Chief Medical Officer in the Department of Health for Scotland; and the appointment of Dr. W. D. Hood as a senior medical officer in the Department is also announced. Dr Peters entered the service of the Glasgow Public Health Department in 1921, was appointed deputy medical officer of health for the city in 1935, and senior deputy medical officer in 1939; he has recently been associated with Prof. J. M. Mackintosh and Prof. G. F. W. Illingworth in carrying out a survey of hospitals in the West of Scotland. Dr. Hood joined the staff of the Department of Health for Scotland in 1938 and has been chiefly engaged on the establishment and development of the Emergency Hospital Services.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL

LONDON SATURDAY FEBRUARY 17 1945

HEARD AT HEADQUARTERS

With this issue we are reviving a series of notes on B.M.A. activities, contributed, not officially, by a detached but informed observer.

Lay Audiences and the White Paper

Recent experience has revealed the remarkable interest in the White Paper which lay audiences are displaying at public meetings addressed by the Secretary. For instance, a meeting was held last year at Bradford with an attendance of 2,000; another was held at Harrogate in a full hall holding some 700, a large crowd being turned away. A meeting held recently at the Dome, Brighton, was attended by about 1,800. At Grimsby a charge was made for entrance; over 2,000 applications were made for some 900 seats. Another large meeting was held recently in Glasgow under the auspices of the Glasgow Philosophical Society. Well-attended meetings of Rotary Clubs have been visited in all parts of the country. Similar public meetings are planned for Oldham, Coventry, and elsewhere.

There was an interesting and very successful experiment in Spalding at which doctors, doctors' wives, Members of Parliament, and representatives of public life and the Press were invited to hear an address by the Chairman of Council.

As a result of such meetings the effect of the White Paper proposals on the individual citizen is becoming better understood. A word of thanks should be said to the Honorary Secretaries of the Divisions who have organized these and other similar meetings—a difficult task at any time, and particularly difficult just now.

Charter for Health

The medical practice aspects of a National Health Service, being more controversial, have overshadowed the primary importance of environmental medicine, of which, however, the Association has never lost sight. Last December the Council set up a committee to prepare, for the information of the public, a statement of the profession's views and suggestions concerning housing, nutrition, and like matters. It has been very fortunate in obtaining the services as members of the committee of a number of persons distinguished in the various fields of nutrition, social biology and hygiene, public health and education, and maternal and child welfare. Sir John Boyd Orr is chairman of the new committee, and other members include Brig. F. A. E. Crew, Prof. Lancelot Hogben, Prof. J. A. Ryle, Prof. J. M. Mackintosh, Dame Janet Campbell, and Brig. J. R. Rees. Industrial medicine is represented by Dr. N. T. Glynn, and the education service by Mr. J. H. Newsom, chief education officer of the Hertfordshire County Council. In addition a number of members of the Association Council, with wide experience of practice, will prevent any tendency, should such arise, for the committee to become too academic or specialist. They have already got to work in preparing a "Charter," to consist of short, concise statements of the opinions of medical science on the basic facts of health. A number of experts, members of the committee, and others, have been invited to submit memoranda.

Late Replies

A few late replies to the Questionary have been received from Service doctors. They number 267, or about one-tenth of the total number received from those serving and a little more than 1% of all the replies. Naturally, so small a number, whatever opinions they expressed, could not modify the result. But in fact these late replies follow the same lines as the other Service answers, the analysis of which was published on August 5 last. In only one instance is there more than 5% difference. This is in the answer to the question whether the introduction of a National Health Service would mean that medical service in the country as a whole would be enhanced or would suffer. Of the late replies 48% considered that it would be enhanced, as against 41% of the replies already published.

The reactions to the White Paper show these late replies are favourable in 57% and unfavourable in 37%, as against 52 and 41% respectively in the bulk of the Service replies. On the 100% issue, 71% of these latest Service doctors expressed themselves in favour of accepting the basic proposal in the White Paper, as compared with 73% of their colleagues who had replied earlier.

General Practitioner Hospitals

The small general hospital staffed by general practitioners must not be lost sight of in the gravitational changes affecting the hospital world. The last Representative Meeting urged the importance of preserving and developing these hospitals to serve as nuclei of one type of Health Centre.

That is what they might well be—one of the experiments in group practice which the Association has urged should be undertaken before the Health Centre idea is fully accepted. Hitherto, however, the Association has spoken of this matter only in generalities. It was felt at the recent meeting of the Hospitals Committee that it was time to "come to the 'osses," getting down to details and saying, not merely that this should be done, but how it should be done. A small committee consisting of members of the Hospitals Committee and other people outside it has been set up to explore the question.

More Certificates

A form of medical report of unusual volume was placed before the Hospitals Committe of the B.M.A. at the same meeting. It is a report required from hospitals by the Ministry of Labour concerning patients who are about to be discharged with a residual disablement. In its covering communication the Ministry said that "the document at first looks formidable," and it does indeed, both first and last.

The chairman of the committee, Mr. R. L. Newell, said that he had improved his journey from Manchester by trying to fill it up for a hypothetical case, and he came to the conclusion that it would take him two hours. Another member said that to fill it up adequately he would have to be a physician, a surgeon, and a psychologist, not to speak of an ophthalmologist and otologist, and have to know something about occupational therapy and works' hygiene. It is, in fact, the kind of report which cannot be dealt with by one doctor, but will have to be passed from one consultant or one department to another. For filling in this report a fee of 10s. 6d. is proposed by the Ministry. The committee designated two of its members to meet the author of the document with a view to some simplification.

In addition to this, under the Disabled Persons (Employment) Act passed last year it will be necessary in many cases for the disabled persons to obtain a doctor's certificate, and a standard form (R.D.X.) has been drawn up. For this the Ministry suggests a fee of 2s. 6d. to be paid by the applicant. The General Practice Committee has suggested 10s. 6d. to be paid by the Ministry.

These reports and certificates on disablement are likely to be onerous, for under the scheme for the training and resettlement of disabled persons there will be, first of all, an ascertainment of persons already disabled, many of whom have been disabled for years; moreover, the disablement relates to the result not only of injury but of organic disease.

DOCTORS' PROFESSIONAL VOTE

Doctors who have professional premises in another district from that in which they live are entitled to a professional vote for those premises. This applies with particular force in London to doctors with professional premises in the Marylebone parliamentary division. They should note, however, that under the new Registration of the People Act they will not be entitled to such a vote unless they first complete the necessary form, which can be obtained from their town hall or local council's office, and return it to the Local Electoral Registration Officer of their district before Feb. 28 next—that is, within ten days' time. Doctors who fail to do this will be unable to record their professional vote at the general election. It should also be noted that the husband or wife of an occupier of professional premises is no longer eligible for the vote for those premises.

INSURANCE ACTS COMMITTEE

STANDARDS OF REMUNERATION INQUIRY

The Insurance Acts Committee at its first meeting of the new session on Feb. 1 re-elected Dr. E. A. Gregg as its chairman and reappointed its Rural Practitioners' and other subcommittees.

It was stated that the Minister would shortly announce the composition and terms of reference of the Government Committee of Inquiry on Standards of Remuneration. The chairman would be a well-known figure in the educational world, who had presided over or been a member of several statutory commissions and courts of inquiry. The four medical members would be as recommended by the Association. The names on the other side were not yet announced, but it was believed that they would command the confidence of the profession and the public. There would be two joint secretaries, one appointed by the Minister and the other (Dr. Kelynack) a member of the Association staff.

The desire of some members that the committee charged with the collection and presentation of evidence to this Government body should have a wider areal representation was voiced in the Insurance Acts Committee. It was urged that practices did differ markedly in various parts of the country, and that on the committee there was no representative of large areas of the north and west. The Chairman said it was most desirable that everyone should feel satisfied that the case was being satisfactorily presented, and although there might not be much in the contention for territorial representation on a body whose function was the collection and collation of evidence, it might be well to extend the membership to meet the objection raised. Dr. W. V. Howells (Swansea), Dr. Vaughan Jones (Leeds), and Dr. F. M. Rose (Preston) were accordingly added to the committee. A question was raised concerning the Highlands and Islands Medical Service, whether that should not have separate representation, but it was thought that the position would be met by asking representatives of that service to be among the first to present all the information they could to the committee.

The Evidence Committee has decided that a statistical inquiry be undertaken under the direction of Dr. A. Bradford Hill, Reader in Statistics at the University of London, to cover a large number—perhaps 5,000 or 6,000—general practitioners, selected at random, who will be asked to furnish particulars of their professional income and expenditure for three successive pre-war years. A report will then be prepared on the pre-war incomes of doctors of different ages in a variety of types of practice.

The question arose whether the expenditure on this statistical inquiry should be borne wholly by the National Insurance Defence Trust or in equal shares by the Trust and by the B.M.A. Although in the form in which the matter was first brought to the Insurance Acts Committee by officials of the Ministry the proposed Government inquiry referred to insurance practice specifically, the inquiry will be directed fundamentally to all questions of future remuneration, whether National Health Insurance as it is at present, National Health Insurance as extended, or the projected National Health Service. It was therefore agreed that the expenditure should be divided equally between the Trust and the Association, the Chairman remarking that if, as the matter proceeded, it became evident that the great advantage was with insurance practitioners as compared with those in other fields of general practice, a readjustment could be made.

The Treasurer of the Trust (Dr. J. W. Bone) reported that the income was suffering, though as yet to no marked degree, by the calling in of higher interest stocks and their replacement by investments carrying a lower interest. It was agreed to make a renewed appeal to panel areas which are backward in their contributions.

Following a resolution from the Hampshire Local Medical and Panel Committee, it was agreed to seek the advice of the Association's solicitor on the question whether, and if so how, the terms and constitution of the Trust could be amended in order to afford assistance to practitioners returning from active service to re-establish themselves in practice.

Question of Basic Salary

The committee devoted some time to a resolution, passed by a comparatively small majority at the Panel Conference at the instance of Surrey, requesting it to consider the desirability of practitioners entering the National Health Insurance Service being divided into three classes: those who desire to receive a full capitation fee for each State patient they accept, those who prefer to be remunerated by a basic salary and a reduced capitation fee, and a flying squad of practitioners who would receive a basic salary and be prepared to act as locumtenents. Dr. H. R. Cran, in bringing forward this proposal, said that it would make it possible for a practitioner to start in practice without having to put down a great deal of capital, and it would also assist a better distribution of practitioners.

The Chairman of Council (Dr. Dain) said that it would be a difficult thing to establish a service along these particular lines. Any method involving a salary would mean that the practitioner would be responsible to the person or body paying it, rather than to the patient. He had not yet seen any proposal for the payment of salaries to practitioners which succeeded in maintaining that aspect of the doctor–patient relationship. This, of course, would not prevent a group of doctors agreeing to work in a centre and accepting for that centre capitation fees proportional to the number of patients using it and dividing the payments among themselves. It was also well understood that there were certain special areas, such as the Highlands and Islands, where other considerations applied.

Other members thought that the proposal meant a partial acceptance of a State salaried service, which would run counter to previous resolutions. The Chairman said that the members of the Negotiating Committee would note the proposal and would bear in mind any elements of usefulness which it might contain.

Post-war Financial Assistance for Doctors

Dr. J. A. Brown, chairman of a joint subcommittee of the General Practice and Insurance Acts Committees which has been considering schemes for post-war financial assistance for doctors, brought forward a highly technical report on the subject; but it was stated that if approved, as it was, a statement more comprehensible by those not financially expert would be published and might be circulated to the younger members of the profession serving in the Forces. The subcommittee was asked to continue its work, and Dr. R. A. Forbes was added to its membership. One member suggested that the question of the doctor's house should be taken into consideration. "If you want to make a man bankrupt before he starts in life, require him to buy a house which the practice will not carry."

Dr. R. W. Cockshut said that the subcommittee was to be complimented on an able presentation, but it might now go further, and not merely work out schemes for financial assistance for these young practitioners on favourable terms but schemes whereby men who had had the fortune to be left at home and incidentally in most cases to make a certain amount of money might assist to the point of some sacrifice these younger men who had given up so much. It was agreed that the work of the subcommittee should be extended to cover this also.

Certification

As usual various matters relating to certification were on the agenda. The Isle of Wight again raised the question of the waste of time in giving monthly certificates to patients when a longer interval would do. The reply of the Ministry was that it would not be justified in allowing the issue of certificates for a period of three months but would be willing to amend the Certification Rules to allow more elasticity in the day of issue of special intermediate certificates. Dr. Howie Wood drew attention to a minute of the committee on April 20, 1944, in which it was stated that the Ministry had reminded the committee's representatives that it was always open to an approved society to use its discretion in individual cases, and had promised to explore the possibility of persuading approved societies to agree that in cases where a doctor wrote to the society asking for permission to issue special intermediate certificates at longer intervals than one month the request would be favourably considered. It was agreed that at the forthcoming meeting with the Ministry's representatives they should be reminded of this undertaking and pressed for something explicit on the subject. A number of other matters were referred to the representatives of the committee at their meeting with the Ministry, including the series of resolutions passed at the recent Panel Conference concerning sickness benefit in relation to pregnancy.

The arrangements whereby civilian doctors were to obtain assistance from Service medical officers in the event of an epidemic were referred to. It was stated that in one area at least this had not proved effective. The committee agreed to express its appreciation and thanks for the assistance received, but at the same time to ask for more.

The London Panel Committee raised the question of the issue of weekly war injury certificates. It was appreciated that probably the majority of doctors would give these certificates without charge even if they were entitled to make one, but the committee desired to know the precise position. At the beginning of the war the Association agreed to advise its members not to charge for these certificates, but it was not anticipated that they were going to be continuation certificates, nor that war injury certificates would include such things as injuries sustained at football. The generous gesture was not intended to cover the wide field which it had been made to cover since.

In spite of unusual travel difficulties there was a large attendance at the committee. One member, the representative for Inverness, Dr. W. J. Leach, apologized for his late arrival by explaining that he had been twenty-four hours in the train!

HOSPITALS' TRAINED NURSING STAFF

There is anxiety in hospital circles over the risk to the efficiency of the smaller hospitals and to the welfare of their patients which is implied in the direction of their trained nursing staff to E.M.S. and municipal hospitals by the Ministry of Labour. The National Advisory Council for Nurses seems to have agreed to a ratio of nine trained staff to 100 patients, and the Ministry of Labour is working to these figures. The Medical Board of the Rochdale Infirmary, in a statement of its own position, says:

> "This [ratio] means that in a hospital of 110 beds with a busy out-patient department either the nursing staff must be reduced to a level which means danger to acutely ill patients or the administrative staff must be reduced to a state of chaos. During the past year 2,160 operations were performed on in-patients at this hospital, so that at any one time at least one-third of the patients are acutely ill and require skilled attention. Under the above ratio we are allowed 10 trained staff. This must be divided as follows: 1 matron, 1 assistant matron, 1 sister tutor, 1 home sister, 3 ward sisters (for 4 wards), 1 theatre sister, 1 night sister, 1 casualty and out-patient sister. This means there are only 5 trained staff (3 ward sisters, theatre and night sisters) actually responsible for the nursing of 110 patients, at least 40 of whom have been operated upon in any one week; and this staff must presumably be on duty for 12 hours a day, as there are no staff nurses to replace them if they go off duty.
>
> "In the larger hospitals the number of trained staff essential for administration is not much greater than in a smaller one, and so a larger number of nurses are left for the actual nursing of patients; but even in these hospitals the numbers must be reduced to near the danger level, while the above figures undoubtedly show that in a 110-bed hospital the danger to patients is a very real one if this proportion of 9 trained staff to 100 beds is allowed to stand."

Correspondence

Ministry of Health and Radiology

SIR,—Your correspondent writing under the title "A.D.M.R." (*Supplement*, Feb. 3, p. 16) denies us the right to judge whether he is really qualified to answer Dr. Wigfield in the dictatorial manner he has. Has he made any contribution to the advancement of radiology or to the improvement in the status of the radiologist, other than his own? One would doubt it from the Nazi-like intolerance expressed in his letter.

Personally I believe Dr. Wigfield has a very just reason for calling the matter to the attention of radiologists. On reading the advertisement I wondered why radiology of all the specialist services should have been picked out for training, and why the Ministry's officials should be considered competent to judge of the worthiness of the applicant for the bounty. There are surely acute shortages in all spheres of activity to-day: no more in radiology than in any other. When the war is over we shall have good men enough and to spare who will be keen on radiology and anxious to serve it. Why clog up the specialty with subsidized "fillers" from the unfits or the E.M.S. and leave the more patriotic "builders" who are in the Services no chance on their demobilization to advance radiology.

The fact that a good initial financial inducement is offered to get house officers and unfits to sit for the examination is surely not all the reasons behind the choice of radiology at this time, and the possibilities of the future need some consideration. Though I have no "grievance, based on ignorance," as "A.D.M.R." expresses it, I have seen nothing in the memoranda issued in the radiological services of the Ministry of Health to induce me to persuade anyone to accept the dope offered.

I resigned my post at an E.M.S. hospital because I could get no support in checking the unnecessary waste from the ill-considered requests of inexperienced and undisciplined house officers.—I am, etc.,

Birmingham. JAMES F. BRAILSFORD.

Demobilization

SIR,—May I be permitted to suggest that, as at the present time there does not appear to be any constructive scheme for the demobilization of Service doctors except that which applies to all Service personnel, a scheme such as the one outlined by "Captain, R.A.M.C." (Jan. 13, p. 62), should be developed and strongly advocated by the Central Medical War Committee.

I think that five years in one of the Services is the maximum period that should be allowed, and at the end of this period the doctors in the Services and the E.M.S. should be interchanged. Apart from the existing scheme of age plus length of service other factors—such as a wife and children, ownership of a practice, the desire to specialize, etc.—should also play a large part in any demobilization scheme for doctors. I do not think it is expecting too much for a doctor of over 30, with a wife and children, five years' service in the Navy, and a desire to specialize, to long for his "bowler hat!" Like "Captain, R.A.M.C." I trust that I also may be forgiven for the prejudices apparent in this letter.—I am, etc.,

J. F. RAMSDEN.

Health Centres and General Practice

SIR,—Dr. S. Leff (*Supplement*, Jan. 27, p. 14) states that he cannot agree with the conclusions reached in my article (*Supplement*, Jan. 6, p. 1), but if Dr. Leff would refer to the article he must notice that it is fundamentally mathematical, and, therefore, the conclusions are wholly impersonal.

Far from disagreeing with the suggestion in his letter that if the chemists' shops were taken into consideration it would affect the conclusions, I would go so far as to suggest that he has probably supplied the main explanation for the difference of data between Zones A and D. Having gone so far in agreement, surely we can go the rest of the way and agree that the segregation of doctors in Health Centres by increasing the average inconvenience to patients will increase the numbers who will frequent the chemists' shops. This is of more than academic interest, for, while the segregation of doctors may not affect the mortality rate or the incidence of serious diseases, it will most certainly affect the "apparent" morbidity rate. This will lower the consumption of drugs at the Health Centres. It may even encourage some thoughtless official to draw invidious distinctions between Health Centres and single practitioners, giving credit where credit will be least due.

If the use of scientific methods cannot indicate to us how to be wise before some events, what is the good of employing them? If the Ministry of Health desires the maximum administrative control of general practitioners at minimum expense then it should segregate them. If, however, the Ministry's desire is to give maximum opportunity to develop some clinical knowledge of aetiology, the development of which is based, first, on a gift of friendship, and, secondly, on an analysis of the data of the sequence of events in many, many lives, the Ministry should see that general practitioners are scattered as widely as ever they can be. I do not write without evidence.

It would cloud the issue to reply to the other comments in Dr. Leff's letter. —I am, etc.,

Halifax. A. GARVIE.

A "Black Market" in Medical Practice

SIR,—You recently published a most challenging letter from Dr. F. M. Purcell (Dec. 30), and his gage does not, so far, appear to have been taken up. How, it may well be argued, can the development of a black market be envisaged in medical attendance? Are doctors more prone than other men to contract-breaking, and will they tend to seek undue increment by devious ways in breach of agreement freely entered into with the Government on behalf of the public, particularly after assurance that it is intended for the common weal?

The utter lack of indignant protest against this indictment is more than significant, unless we have come to place the utterances of Ministers in office upon a par with those of political candidates seeking election. The fallacy lies in supposing that the undertaking will be entered into freely; it will be imposed upon a majority much as were Government transactions with subjects in Stuart England and Hitlerite Germany. For at least a generation such compliance under duress (political or economic) is very likely to lead to black-market dealings and perhaps worse.

Inquiries conducted in every brief leisure moment merely confirm my long-felt suspicions that at least as many of the public as of the profession oppose the totalitarian medical service—that is to say, a majority. Modern bureaucracy is truly "a wonderful and a horrible thing," in the words of the Prophet. It might at first seem incredible that a numerically insignificant group of bureaucratic office-seekers could (and in the absence of unremitting opposition will) conclude between A and B a contract desired by neither of the parties, where A and B respectively represent millions and thousands of *far* more vitally important people than the contract promoters.

Equally staggering are some of the press comments. The *Times* may deem itself the official organ of Government, but rarely allows its consciousness of such high status to come between itself and its wits. Yet the leader of Jan. 9, 1945, reviewing the prolonged and active B.M.A. discussions, could only produce the fatuously trite and naïve comment: "The doctors do not seem to know what they want except to be left alone."

One of your correspondents has well said that the present medico-political dilemma results from the unfortunate dabbling in Socialism on the part of a largely Conservative Government. I fear that many medical men of the most Conservative persuasion will be a mite tempted at the next election to follow the advice of Dr. C. E. M. Joad and "vote Labour as the best of a rotten bunch."—I am, etc.,

Birmingham. PETER PARRY.

Towards Agreement

SIR,—Dr. Herman Mould (*Supplement*, Jan. 27, p. 14) considers that the ideal scheme of medical service can be obtained by "loyal co-operation" between the Government and the medical profession. Surely it follows that we must first secure an ideal Government and an ideal profession. If, moreover, "public respect and support" are to be our greatest safeguard in the future, the outlook is not rosy. We can honestly claim to have had both for many years, but they have not proved capable of persuading any Minister of Health to grant an adequate or reasonable panel fee. Are they likely to influence a Government determined to hoist a State medical service on the country with the public forbidden a voice in the matter? And can they influence any future Government, when the planners have obtained their final objective—the destruction of all personal freedom and liberty?

By all means let us co-operate in improving our health services to the utmost, but not in substituting totalitarianism for democracy.—I am, etc.,

Newnham. H. J. SELBY.

All Round the Clock

SIR,—May I submit a few notes on service "all round the clock." To-night, 11.15 p.m., open *B.M.J.*, read Dr. Saklatvala's letter. Decide member of noble profession (could have chosen something else), somewhat humbly go to bed. 12.15 a.m., telephone: "Urgent, haemorrhage; come at once, doctor." Crawl unwillingly out of bed. 12.45 a.m., arrive at house, find fat, cheerful, plethoric woman; "been flooding since yesterday morning, doctor, nearly sent last night; I'm a panel patient." Reassure fat woman; turn car in narrow lane, scrape wing. 1.5, arrive home, make oxo, no longer feel member of noble profession, but very disagreeable "put-on" G.P. Oh, Sir, an emergency squad as suggested by Dr. Hardy would suit me very well. Good night.—I am, etc.,

Burnley. HILDA SWINBURNE-JONES.

A maximum of six pairs of surgical rubber gloves is to be available during 1945 to doctors in private, general, or consulting practice who require them for professional use. A booklet of six certificates will be issued on application to the secretary of the Central Medical War Committee, B.M.A. House, Tavistock Square, W.C.1. Envelopes should be marked "Gloves" in the top left-hand corner, and a stamped addressed envelope should be enclosed for reply.

BRITISH MEDICAL ASSOCIATION

Election of Woman Member of Council

The following is the result of the election of a woman member of Council, 1944–5:

Barbara M. L. Abercromby (Liverpool)	140
Janet K. Aitken (London)	1,427*
Dorothy L. C. Day (Croydon)	68

* Elected.

No. of voting papers issued	3,826
No. returned	1,635
Spoiled papers	4

CHARLES HILL,
Secretary.

H.M. Forces Appointments

ARMY

War Subs. Major G. W. Bamber, R.A.M.C., to be a Consultant, G.H.Q., and has been granted the local rank of Brig.

ROYAL ARMY MEDICAL CORPS

Lieut.-Col. C. L. Emmerson, having attained the age for retirement, is retained on the Active List supernumerary to establishment.

Major A. E. Campbell to be Lieut.-Col.

Capts. R. O. A. Leroux and R. E. Waterston to be Majors.

REGULAR ARMY RESERVE OF OFFICERS

ROYAL ARMY MEDICAL CORPS

Capt. (War Subs. Major) W. S. C. Copeman, from Supplementary Reserve of Officers, to be Capt.

TERRITORIAL ARMY

Col. (Temp. Major-Gen.) Sir E. M. Cowell, K.B.E., C.B., D.S.O., T.D., K.H.S., R.A.M.C., has relinquished the temp. rank of Major-Gen.

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs Lieut.-Col. (local Brig.) W. Anderson, O.B.E., has relinquished the local rank of Brig.

War Subs. Capts. R. M. A. Ormston and J. Sherne have relinquished their commissions on account of disability, and have been granted the honorary rank of Major.

War Subs. Capts. J. W. Smith, A. Henderson, W. R. Worsdell, B. Moore, P. H. Beamish, and H. Copeman have relinquished their commissions on account of disability, and have been granted the honorary rank of Capt.

War Subs. Capt. G. A. Jones has been placed on the half-pay list on account of disability.

Lieut. D. W. Montgomery has relinquished his commission on account of disability, and has been granted the honorary rank of Lieut.

To be Lieuts.: D. Bell, C. H. Marshall, D. D. McCarthy, E. Taube, H. Trant, M.B.E., R. V. Bowles, W. O. Petrie, P. E. C. Manson-Bahr, G. E. Neville, G. C. Cochrane, J. W. Potter, L.-P. Ashton, H. Littna, T. Hughes, D. S. Dixon, A. Gellert, J. Dundas, N. D. Sanderson, R. Stewart, J. McK. Clark, K. S. Hocking, and H. Ehrlich.

POSTGRADUATE NEWS

The Fellowship of Medicine announces the following courses: (1) M.R.C.P. course in chest diseases at Brompton Hospital, Tues. and Thurs., 4.30 p.m., March 6 to 29. (2) Neurology at West End Hospital, Mons., Tues., and Fris., 2.30 p.m., March 2 to 27. (3) Anaesthetics at Radcliffe Infirmary, Oxford, all day, March 5 to 17. (4) Anaesthetics at various London hospitals, all day, April 9 to 21. (5) Week-end course in rheumatism at St. Stephen's Hospital, all day, Sat. and Sun., March 24 and 25. (6) Week-end courses in obstetrics at West Middlesex County Hospital, all day, Sat. and Sun., March 3 and 4. (7) Final F.R.C.S. clinical courses as follows: Metropolitan Hospital, Weds., March 7, 21, and April 18, 5.30 p.m.; London Homoeopathic Hospital, Weds., March 14, 21, 28, and April 4, 11, and 18, 5.30 p.m.; St. Mary Islington and Archway Hospitals, Weds., March 21 and 28, Tues., April 3, and Wed., April 11, at 2 p.m.; Hillingdon County Hospital, week-end course, Sat. and Sun., April 14 and 15; London Homoeopathic Hospital, Sat., April 21, 2.30 p.m.

WEEKLY POSTGRADUATE DIARY

EDINBURGH POSTGRADUATE LECTURES.—At Edinburgh Royal Infirmary, *Thurs.*, 4.30 p.m., Dr. R. Aitken: Some Unusual Forms of Dermatitis.

DIARY OF SOCIETIES AND LECTURES

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.—Lectures on Applied Physiology by Prof. John Beattie: *Mon.*, 2.30 p.m., Experimental Shock. *Wed.*, 2.30 p.m., The Physiological Effects of Burns. *Fri.*, 2.30 p.m., The Physiological Effects of Obstructions of the Alimentary Canal. Lectures on Anatomy by Prof. A. J. E. Cave: *Mon.*, 4 p.m., The Skin and its Appendages. *Wed.*, 4 p.m., The Subcutaneous and Subserous Tissues. *Fri.*, 4 p.m., The Fasciae.

ROYAL SOCIETY OF MEDICINE.—*Tues.*, 4.30 p.m., Section of Pathology. *Wed.*, 2 p.m., Section of Comparative Medicine. *Thurs.*, 5 p.m., Section of Urology. *Fri.*, 4.30 p.m., Section of Disease in Children; 3 p.m., Section of Epidemiology and State Medicine.

CHADWICK LECTURE.—At Royal Society of Tropical Medicine and Hygiene, 26, Portland Place, W.—*Tues.*, 2.30 p.m., Dr. J. D. Rolleston: The War and Infectious Disease.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, W.—*Wed.*, 3.30 p.m., Dr. I. H. Maclean: The Problem of Whooping-cough Immunization.

BIRTHS, MARRIAGES, & DEATHS

The charge for inserting announcements under this head is 10s. 6d. *This amount should be forwarded with the notice, authenticated with the name and address of the sender, and should reach the Advertisement Manager not later than first post Monday morning to ensure insertion in the current issue.*

BIRTHS

ACKNER.—On Feb. 8, 1945, in London, to the wife of Fl. Lieut. Brian Ackner, R.A.F.V.R., a daughter.

JONES.—On Jan. 22, 1945, at Llanelly, to Edna (*née* Jenkins), wife of Dr. Donald S. Jones, a son—Peter Sydney.

KELVIN.—On Jan. 31, 1945, at the London Hospital, to Pauline (*née* Okun), wife of Capt. Richard Kelvin, R.A.M.C., B.L.A., a daughter—Patricia Mavis.

MINETT.—On Jan. 11, 1945, at the London Clinic, Devonshire Place, to Mary (*née* Bull), wife of Dr. Jack Minett, Colonial Medical Service, a daughter.

SWINTON.—On Feb. 4, 1945, at Mayday Hospital, Croydon, to Marjorie (*née* Johnson), wife of Charles F. Swinton, Ch.M., F.R.C.S.Ed., a daughter.

MARRIAGE

JACKSON—MARTIN.—On Jan. 24, 1945, at St. Cyprian's, Marylebone, Gerald Christopher Arden Jackson, D.Sc., M.B., B.S., Capt., R.A.M.C., youngest son of the late Dr. and Mrs. M. J. Jackson, and Mary Honor Martin, Jnr. Cmdr., A.T.S., younger daughter of Dr. and Mrs. R. H. Martin, of Clanrye, Sudbury.

DEATHS

BUTLER.—On Jan. 29, 1945, at his residence in Hampton-in-Arden, Thomas Harrison Butler, D.M.Oxon, F.R.C.S., A.M.I.N.A., in his 74th year.

CARMALT.—On Jan. 26, 1945, suddenly, after a gallant fight against ill-health, Hugh Edward Carmalt, *M.C.*, aged 39, M.O. to 7th Royal Warwicks, 1939-41, and in practice in Handsworth, Birmingham, before the war, dear husband of Dorothy Carmalt, 3, Sandwell Road, Birmingham, 21.

COGAN.—On Jan. 24, 1945, at Wellclose, Chapel-en-le-Frith, Dr. Denis Cogan, dearly loved husband of Lily (*née* Farnon).—*R.I.P.*

LLOYD.—On Jan. 31, 1945, at 45, Kilworth Avenue, Southend-on-Sea, Edmund Eyre Lloyd, M.R.C.S., L.R.C.P., elder son of the late Deputy Surg.-Gen. Edmund Eyre Lloyd, Madras Medical Service, aged 72.

STAMBERG.—On Aug. 19, 1944, in Jersey, C.I., Arthur Clement Stamberg, O.B.E., M.B., C.M.Ed., D.C.M.S., Ministry of Pensions, Channel Isles area, member British Institute of Radiology and Ophthalmological Society, late Lieut.-Col. R.A.M.C., very dearly loved husband of Mary A. D. Stamberg.

WILSON.—On Jan. 31, 1945, at the Gables, Winterton, Sedgefield, George Shepherd, M.B., Ch.B., D.P.M., Medical Superintendent of the Durham County Mental Hospital, youngest son of the late William Wilson, Greenock, and beloved husband of Nancy Tarbet of Gourock. Deeply mourned.

RETURN TO PRACTICE

The Central Medical War Committee announces that Mr. J. Sherne, F.R.C.S., has resumed civilian practice at 43, Park Square, Leeds, 1. Dr. Sydney Tibbles is also practising again at 2, Harley Street, W.1.

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY FEBRUARY 24 1945

HEARD AT HEADQUARTERS

he following notes on B.M.A. activities ave been contributed by a detached but formed observer.

Merely Ignorance

The ignorance which some non-mem- rs of the Association display concern- g its work is almost beyond belief. And hen upon such ignorance is based pre- sterous criticism, no wonder there are y faces in Tavistock Square. I was own a letter from a doctor who, in turning the application form for mem- rship and saying that he had no use r it, delivered himself thus:

> " In any case many members could see, me ten years ago, that it was, even at at time, an urgent matter for the Asso- ation to formulate some sort of policy wards the future of medicine on be- lf of the patient, the public, the physi- an, and the State without waiting until e Government should find it necessary drag it [the Association] by the ears this work."

Of course, we have all been mistaken. he B.M.A., contrary to what we had ought, never issued in 1929 its memor- dum on a General Medical Service for e Nation. It never reissued it in 1938. never appointed the Medical Planning mmission. For twenty years it never ld meetings or passed resolutions or mulated reports urging upon the overnment the need for a reorganiza- n of medical services. These things a mere dream. Not until 1942, when Government, wide awake to the pros- ct of post-war reconstruction, began to erest itself in medical planning did the M.A. itself wake up.

What backwoods some men live in!

Medical Witnesses

The law's delays are notorious and ect medical witnesses among other ople. One practitioner told me the her day that he had been warned to end at the Central Criminal Court, but date or hour could be fixed, and he uld receive a further summons when attendance would be required forth- th. Meanwhile, of course, he can ke no firm engagement lest he be lty of contempt of court.

These delays cannot be helped until re is a drastic reform of legal pro- dure. Meanwhile Headquarters is ing up with the appropriate Depart- nt the question of fees for medical nesses. A 50% increase in such fees s made during the last war, but since n they have remained stationary. It felt that the time has come for a per- nent, not merely a temporary, increase. e minimum suggested is 1½ guineas for half-day attendance at magistrates' courts and 3 guineas for a whole day, and 3 and 5 guineas respectively for attendance at sessions and criminal courts.

The reason for the discrimination between the two kinds of courts is obvious. Attendance at sessions or criminal courts is much more time-consuming. At magistrates' courts offenders are dealt with more expeditiously; the doctor also can generally learn the time at which his case is likely to come on, and receive release directly he has given his evidence. At some criminal courts he may be left waiting about for days.

Evidence of Incapacity

In some industrial districts there is criticism of the new certificate form E.D.652. The form was prepared with a great deal of care by the Association, and was approved by the Minister of Labour, though there is no obligation on doctors to use it. Representatives of the North of England Branch, which in particular has taken exception to the form on certain grounds, met the General Practice Committee on the subject recently. Some certification difficulties were ironed out in the course of a long conversation, but industrial certification is a big question with many sides to it.

One ground on which the Branch took exception to the certificate was that on the reverse it provides for a statement that the patient "informs me that from (date) to (date) he has been suffering from . . . .", and it goes on to declare that he is now fit for work or that an independent examination is recommended. It was argued that the patient who had been away from work for a day or two might put down bronchitis or rheumatism or any malady he fancied, and the doctor, while not indeed certifying to the correctness of the diagnosis, would be the means of transmitting it, and might be considered to be guilty of loose certification.

Still, it is as plain as words can make it that it is the patient's information, and there is no endorsement of it, expressed or implied, by the practitioner. A good deal seems to turn upon the trustworthiness of the average industrial patient. No doubt there are some who will offer any excuse for a short absence from work, and perhaps will be more inclined to give it to the neutral doctor than to their sceptical employer or foreman. But the testimony of one member of the General Practice Committee with a considerable industrial practice was reassuring on the point. In his experience 99% of the workpeople in such cases are trustworthy. They do not call in a doctor for a minor illness of very short duration because they do not want to trouble him, and their statements as to what their condition on preceding days has been, if not always accurate, are at all events honest.

In any case the point was strongly made that the doctor's part in certification is not that of a detective.

A Concession

A useful concession has been made in the fees payable for medical examinations for posts in Civil Service Departments generally, including the Post Office. Sir Henry Bashford, medical adviser to the Treasury, in a communication to the Association, states that some years ago a fee, fixed at 15s., was arranged to be paid to Post Office local medical officers when asked to examine Post Office employees for suitable positions. In the case of boys and girls in the Post Office a similar earlier examination was made on first employment, and if the same doctor carried out both examinations, the fee was held to cover both—never a very satisfactory arrangement. It has now been agreed that the fee shall be paid for each examination, whatever doctor does it, in all cases.

Moreover, the Civil Service Commissioners have also been working on a 15s. basis for establishments in Civil Service Departments generally, and the Treasury has now agreed that the fee shall be raised to one guinea, applying to the Civil Service as a whole, including the Post Office cases just mentioned.

Weatherproof

Neither " blitzes " nor blizzards seem seriously to interfere with the attendance at central committees and subcommittees. The members turn up from all parts of the country, including the far north and far west, in all sorts of weather, sometimes with an apology for late trains, and with a wary eye on the clocks as the late afternoon wears on. But they come undeterred by the discomforts and uncertainties of winter travel, and they go through the business with a conscientious zest which, as one watches it, explains the strength of an Association which can enlist such unselfish service.

The other day, at a meeting of the General Practice Committee, while a snowstorm swept London and the Provinces, thirteen members out of a possible twenty turned up, and Scotland, Lancashire, and the Midlands, not to speak of the Home Counties, were all represented.

FROM THE PRESS CUTTINGS

" We were told, some time ago, that no controversial legislation would be introduced until the enemies of liberty were beaten. But invasions of liberty are occurring on every side . . . and, shortly, we may not even be able to choose our own doctors, but be compelled to have our pulses felt by bureaucratic hirelings with safe jobs and, after a year or two, peaked caps like tram-conductors."—Sir John Squire in *Illustrated London News.*

" It is hardly logical for the State to provide a health service for people at home and to ignore them while they are at work, or, if a national industrial health service is set up, to make it responsible to a different Government Department."—From the *Economist.*

MEDICAL WAR RELIEF FUND

FOURTH ANNUAL REPORT

This report covers the twelve months from Sept. 1, 1943, to Aug. 31, 1944. Dr. H. Guy Dain has succeeded Mr. H. S. Souttar as chairman of the committee of the Fund. Mr. Souttar ceased to be a member of the committee on resigning the chairmanship of the B.M.A. Council, but retains his membership of the Distribution Subcommittee. Dr. J. W. Bone has been appointed honorary treasurer in place of the late Dr. G. C. Anderson. Sir Hugh Lett has continued to act as chairman of the Distribution Subcommittee, and Mr. Zachary Cope was appointed chairman of the Prisoners-of-War Subcommittee.

During the period under review financial assistance was given to thirty-five applicants—nine more than in the previous year. A number of typical cases are summarized below. The total number of beneficiaries—some of whom have received more than one award—is now 113. As in former years, substantial assistance has been obtained for a number of applicants from other benevolent funds, including the Lord Mayor's National Air-Raid Distress Fund, the Far Eastern Relief Fund, the Officers' Association, the Officers' Families Fund, the Royal Air Force Benevolent Fund, and the Royal Medical Foundation of Epsom College. On the advice of the Distribution Subcommittee several applicants have applied for and received war service grants.

Financial Position

For the first time since the inauguration of the Fund the amount distributed in gifts and loans exceeded the amount of the contributions received during the year, but as there is still a substantial balance in hand the committee does not think it necessary at present to repeat the appeal for subscriptions which it made four years ago. It welcomes the spontaneous flow of subscriptions which is still continuing, and it is confident that a generous response will be given by the profession to a renewed appeal if this should prove necessary in the future. In former reports reference has been made to the magnificent support received from members of the profession in various parts of the Empire over-seas, and the committee again wishes to record its appreciation of their splendid help and, in particular, of further generous donations from doctors in Canada, which have brought the total sum contributed through the Canadian Medical Association to a figure exceeding £2,500.

Books for Prisoners-of-War

A subsidiary activity of the Fund is the provision of medical books required by British doctors who are prisoners-of-war. A special subcommittee has carried out this work in co-operation with the Educational Books Section of the Red Cross and St. John Prisoners-of-War Department. Books selected by the subcommittee are purchased and dispatched by the E.B.S., the cost being refunded to this organization. This arrangement has two important advantages. First, parcels of books sent by the E.B.S. bear the Red Cross label, which receives priority, and the books therefore arrive sooner than they would if sent by a bookseller. Secondly, the E.B.S. maintains a stock of medical books at Geneva, and the time taken in transit is greatly shortened when a request from a prisoner-of-war can be met by ordering volumes included in the "Geneva Reserve." During the year, 112 books were ordered for dispatch to twenty-five different camps and hospitals, the cost incurred being approximately £150. Only sums specially marked by subscribers for the purpose are used for the purchase of books.

Acknowledgments

Once again the committee of the Fund acknowledges its special indebtedness to the Royal Medical Benevolent Fund for its invaluable help, particularly in administering awards payable in instalments over a period of years. Grateful thanks are due also to the British Medical Association for its continued assistance, including the provision of accommodation for meetings; to the Red Cross and St. John Educational Books Section for most valuable co-operation; to Messrs. Price, Waterhouse and Company, who have generously given their services as honorary auditors; and to Mr. E. C. Pennefather, honorary secretary of the Distribution Subcommittee, to whom the Fund is much indebted for the resourcefulness with which he secures the co-operation of other organizations, and the tact and understanding shown in his correspondence with applicants.

Address for Subscriptions

Subscribers are asked to make their cheques payable to the Medical War Relief Fund and to send them to the Honorary Treasurer of the Fund at B.M.A. House, Tavistock Square, London, W.C.1. When a subscriber wishes his contribution to be used for the purchase of books for medical prisoners-of-war, this should be clearly stated.

APPENDIX I

Some Typical Cases

Dr. G. had volunteered for service with the Forces in 1939, leaving a successful practice which, being situated in a much-bombed London district, had declined very seriously during his absence. His own house had been bombed and, with a greatly decreased income, he had been obliged to face the expenditure involved in arranging accommodation for his family in the country. He had not been able to keep up the payments of interest on a loan negotiated in connexion with the purchase of his practice, and considerable arrears had accumulated. The pressure exerted on him by the insurance company was causing him great anxiety, which was relieved by the award of a substantial gift from the Fund.

Dr. H., who had practised also in an area which was largely destroyed by bombing, died prematurely after a period of most arduous work in the London "blitz." His house was rendered uninhabitable, and what remained of his practice was unsaleable. His widow required help, particularly for the education of her children. She was awarded a suitable gift to supplement a grant received, through the Medical War Relief Fund, from the Lord Mayor's National Air-Raid Distress Fund.

Dr. I. was killed while serving in the R.A.M.C. His widow hoped to obtain remunerative employment but needed temporary assistance in meeting educational expenses. The necessary provision was made by the Fund in co-operation with the Officers' Association.

Dr. K. had relinquished his commission in the R.A.M.C. on medical grounds after serving for more than three years. His practice, which was largely private and included only a small number of insured patients, had suffered seriously during his absence, and it had been necessary to use all his capital to defray the family expenses. He was given assistance, partly in the form of a loan, to tide him over the difficult period of re-establishing himself in civilian practice.

Dr. L., a serving officer, had been reported missing, and the education of his three young children presented a financial problem. One child was awarded a scholarship at a public school, and the additional assistance required was provided as a gift from the Fund.

Dr. M., a young married doctor with no children, was killed in action while serving in the R.A.M.C. The pension received by his widow was insufficient to cover both the cost of her maintenance and the expenses of a professional course of training which she was anxious to undertake and for which she appeared well fitted. She requested a comparatively modest sum annually for a period of years to enable her to pay the tuition fees. The Medical War Relief Fund and the Officers' Families Fund shared the responsibility of providing the necessary amount in yearly instalments.

APPENDIX II

STATEMENT OF ACCOUNT FOR TWELVE MONTHS ENDED AUGUST 31, 1944

No. 1 Account (Relief of Financial Distress)

	£	s.	d.	£	s.	d
To Balance brought forward:						
£7,000 3% National Savings Bonds, 1955–65..........	7,000	0	0			
£14,000 2½% National War Bonds, 1946–8	13,985	18	9			
£3,000 2½% National War Bonds, 1949–51	3,000	0	0			
£4,000 2½% National War Bonds, 1951–3	4,000	0	0			
£1,000 3% Defence Bonds, Post Office Issue	1,000	0	0			
£100 3½% Conversion Stock	96	0	0			
500 National Savings Certificates	375	0	0			
Deposit with P.O. Savings Bank and accrued interest ..	2,061	18	8			
Cash at bank on current account ..	2,413	18	5			
Cash at bank on deposit account ..	2,000	0	0			
Petty cash in hand ..	4	11	6			
				35,937	7	
Donations..........				3,778	14	
Interest on investments............				708	11	
Income tax recovered, 1943–4				90	1	
Interest on bank deposit				20	1	
Accrued interest on deposit with P.O. Savings Bank				86	14	
				£40,621	10	
By Loans advanced during year........	1,250	0	0			
Less: Repayment during year	5	0	0			
				1,245	0	
Gifts	4,747	17	6			
Less: Amounts refunded	330	0	0			
Less: Donations from Lord Mayor's Distress Fund ..	50	0	0			
				4,367	17	
Petty cash				8	8	
Printing and postages				4	18	
Honorarium to secretary of Distribution Subcommittee				100	0	
Balance carried forward at August 31, 1944:						
7,000 3% National Savings Bonds, 1955–65..........	7,000	0	0			
£14,000 2½% National War Bonds, 1946–8	13,985	18	9			
£3,000 2½% National War Bonds, 1949–51	3,000	0	0			
£4,000 2½% National War Bonds, 1951–53	4,000	0	0			
£1,000 3% Defence Bonds, P.O. Issue..	1,000	0	0			
£100 3½% Conversion Stock	96	0	0			
500 National Savings Certificates	375	0	0			
Deposit with P.O. Savings Bank and accrued interest ..	2,148	13	6			
Cash at bank on current account ..	1,288	10	4			
Cash at bank on deposit account	2,000	0	0			
Petty cash in hand..	1	3	1			
				34,895	5	
				£40,621	10	

Notes: (1) Gifts amounted to £4,857 17s. 6d., but in four cases instalments amounting to £211 remained unpaid. (2) Since the inception of the Fund loans to the total amount of £5,662 have been made; of this sum £642 15s. was repaid prior to August 31, 1944.

No. 2 Account (Books for Prisoners-of-War)

	£	s.	d.
To Balance brought forward	24	10	6
Donations........................	183	6	6
	£207	17	0

	£	s.	d.
By Cost of books distributed	88	0	6
Balance carried forward on current account	119	16	6
	£207	17	0

Note: The full cost of books distributed exceeds he figures shown, but it has not been possible yet to obtain invoices for certain purchases.

Examined with books and vouchers and found correct.

PRICE, WATERHOUSE & Co.
Honorary Auditors,
Chartered Accountants.
3, Frederick's Place,
Old Jewry,
November 21, 1944. London, E.C.2.

MATERNITY SERVICES IN SCOTLAND

REVISED TERMS FOR DOCTORS

All the main recommendations of the Scottish Committee of the B.M.A. for revised terms of service for doctors under the Maternity Services (Scotland) Act have, after continued pressure, been accepted by the Department of Health, which has asked local authorities to adopt them. The following are the revised terms:

Doctors' Basic Fees

1. For all antenatal, intranatal, and post-puerperal services rendered by a doctor in terms of a scheme, including services rendered to any patient who, after labour has begun, is removed to hospital or who dies, a fee of £3 3s. will be paid.

2. For all services rendered to any patient who is removed to hospital before labour has begun and is confined in hospital or who dies before labour starts the fee will be £1 5s.

3. (*a*). When the patient moves to another area before labour starts the fee payable for the services specified in (1) above will be 15s. to the doctor in the area from which she has removed and £2 8s. to the doctor in the new area to which she has gone. (*b*) The £2 8s. will be payable where the patient after change of residence is removed to hospital or dies after labour starts. Where the patient after change of residence is removed to hospital before labour begins and is confined in hospital or dies before labour begins the fee will be 15s.

These fees will be payable in any case where a pregnancy for which a midwife and a doctor have rendered any antenatal services terminates in abortion or miscarriage, as if the patient had been confined at the time of the abortion or miscarriage. There will be no differentiation in the fees paid for patients entitled to medical benefit under the National Health Insurance Acts.

Other Agreed Items

Mileage payments are to be increased *as a wartime measure* by 10%, such addition to be payable with the increased fees in respect of confinements occurring on and after April 1, 1944. In future doctors may submit the completed record form to the local authority within three months of confinement, not two as before. The term "labour" may be defined as the period from the onset of the first pain until the final stage, including repair of the perineum, if repair is necessary and done immediately.

In a letter to Branches and Divisions of the B.M.A. and to Panel Committees in Scotland, Dr. R. W. Craig, Scottish Secretary, says it is hoped that in view of the substantially improved terms of service those doctors who have so far not been willing to undertake the work under the schemes of local authorities will now be prepared to do so and will do their best to make the service as effective as possible.

STANDARDS OF REMUNERATION FOR GENERAL PRACTITIONERS

The full personnel of the committee set up by the Minister of Health and the Secretary of State for Scotland to inquire into the proper standards of remuneration for general practitioners in publicly remunerated practice is now announced. It will be remembered that as long ago as last August (*Supplement*, Sept. 16, p. 60) the Insurance Acts and the General Practice Committees of the B.M.A. met jointly to consider the merits and procedure of the proposed inquiry and elected three of the four medical members (the fourth had then to be nominated by Scotland).

The members of the committee as now announced are: Sir Will Spens (chairman), Master of Corpus Christi College, Cambridge; Dr. J. A. Brown, Birmingham; Dr. O. C. Carter, Bournemouth; Mr. E. Davies, solicitor, London; Sir Ernest Fass, former Public Trustee; Dr. W. M. Knox, Glasgow; Mr. T. Lister, accountant, London; Mr. J. L. Smyth, secretary, Social Insurance Department, T.U.C.; and Dr. S. A. Winstanley, Urmston, Lancs. The joint secretaries are Mr. H. F. Summers, Ministry of Health, and Dr. A. V. Kelynack, Assistant Secretary, B.M.A. The terms of reference are as follows: "To consider, after obtaining whatever information and evidence it thinks fit, what ought to be the range of total professional income of a registered medical practitioner in any publicly organized service of general medical practice; to consider this with due regard to what have been the normal financial expectations of general medical practice in the past, and to the desirability of maintaining in the future the proper social and economic status of general medical practice and its power to attract a suitable type of recruit to the profession; and to make recommendations."

Correspondence

The Ministry of Health and Radiology

SIR,—I am indebted to "A.D.M.R." (*Supplement*, Feb. 3, p. 16) for his seemingly authoritative correction of my false premisses, and hasten to offer my apologies through him to the Ministry of Health. No apology would have been necessary, nor indeed would criticism have been occasioned, had the Ministry or its adviser been less reckless in framing the advertisement which led to my outburst.

The advertisement clearly and definitely referred to "the examination," which, by common usage, means "the examination," and not, as now claimed by "A.D.M.R.," any examination for a diploma in medical radiology granted by the University of London, the Conjoint Board, or any Provincial university which may grant a diploma, and of whose existence "A.D.M.R." claims as much ignorance as that which he ascribes to me. Secondly, the advertisement stipulates the terms upon which "successful candidates" will be enrolled in the E.M.S. I would point out to "A.D.M.R." that "successful candidates," by common usage, means "successful candidates" and not, as he is at pains now to show, "selected applicants."

I refrain from discussing the merits of a State subsidy for medical education, even though the present expedient may be merely necessary as a counter to the machinations of the Ministry of Labour. However, at the "instigation" of the Ministry of Health a precedent has been established. Yet I dare to hope that many besides myself consider that any achievement, if worth while, merits personal sacrifice and individual endeavour. —I am, etc.,

Watton-at-Stone. MAURICE WIGFIELD.

General Practice and the Time Factor

SIR,—In the White Paper itself and in all the various articles about it, in both medical and lay press, I have never seen any mention of the time factor in connexion with general practice. It is always classed simply as general practice without any effort to differentiate between the very wide extremes contained within it.

It is the avowed intention of the Government and undoubtedly the desire of the medical profession to provide the public with the best possible medical attention. The arguments and differences of opinion, about which we hear so much, are not concerned with this common aim, but with the means of achieving it. There is no doubt that the great majority of the public are of the opinion that the panel patient does not get the same treatment as the private patient who is paying a comparatively high fee, and in many cases they prefer to pay a fee rather than avail themselves of the service to which they are entitled.

So far as I can see there are four factors that can affect the differences between the extremes of general practice: they are the doctor, the appliances, the drugs, and the time spent on each case. The first three of these are the same for all practical purposes throughout general practice, but the time factor varies through a very wide range. I am quite sure that the majority of the public do not realize this. They take it for granted that the doctor who charges 10s. 6d. earns three times as large an income as the one who charges 3s. 6d., whereas the profession knows that the average earnings of general practitioners do not vary greatly, because the one who charges 10s. 6d. spends three times as long over each case and sees approximately one-third of the number of patients per day. In other words, the doctor with time charges more, or the doctor who charges more has time. It is immaterial which way we put it. I wonder to what extent the politicians who are planning the future of medicine for us realize this. I believe that they intend to produce for the public one type of general practitioner service, and don't know the reason why they produce the other type, or perhaps they deliberately avoid the point on account of the extra cost.—I am, etc.,

Plymouth. A. R. WALKER.

"Public" Medical Care under N.H.S.

SIR,—One of the problems of a State Medical Service will be the treatment of those folk of refined and retiring natures to whom the publicity of the waiting-room or clinic will be a deterrent to proper attention. There are many who would rather die than enter the public ward of a hospital, and this from no snobbish motives: they are just made that way. I have to-day received a letter from a patient (a solicitor in county council employment), and he makes the somewhat novel suggestion that where the illness or disability is so trivial as to render visits unnecessary a small fee should be paid at the time by the patient who desires this luxury. He also suggests a supplementary fee for a private bed in a hospital where the patient is willing to pay for the privilege.

The suggestion is not really as novel as it seems. Harris and Sack, in their book *Medical Insurance Practice* (p. 163), consider that if a panel patient requires visiting purely for his own convenience where he should normally attend the surgery he might be legally charged a fee for the visit. Without expressing any personal opinions on the matter, I think this letter from my solicitor friend is worth quoting as expressing the views of many of the middle and professional classes who would welcome State assistance towards their medical expenses, but who would also be glad to pay supplementary fees for the amenities to which they have always been accustomed.

I know that the system would raise an outcry against "class distinction," but unless legislation is purposed to abolish class distinction it would seem that there will still be sections of our community separated from each other by cultural and financial gulfs until the millennium arrives, when we shall all be levelled down to one plastic homogeneous mass.—I am, etc.,

Tiverton. JOHN V. MAINPRISE.

Medical Planning in Australia

SIR,—As one of the representatives on the Council of two of the Australian Branches of the B.M.A. will you permit me to thank you for so lucidly putting before your readers the comparable difficulties now simultaneously confronting the medical profession both here and over-seas. I feel sure my constituents will appreciate the fact that in the midst of our own problems we have not forgotten theirs. It is as true in 1945 as it was in 1776 that "we must all hang together or assuredly we shall all hang separately."—I am, etc.,

Ormskirk. RICHARD J. A. BERRY.

H.M. Forces Appointments

ARMY

Col. J. G. Gill. C.B.E., D.S.O., M.C., late R.A.M.C., to be a D.D.M.S., and has been re-granted the temp. rank of Major-Gen.

War Subs. Major E. E. Prebble, R.A.M.C., to be a Consultant, and has been granted the local rank of Brig.

ROYAL ARMY MEDICAL CORPS

Short Service Commission.—Lieut. (War Subs. Capt.) J. M. La Ferla, from Emergency Commission (Malta Section), to be Lieut. and to be Capt.

REGULAR ARMY RESERVE OF OFFICERS

ROYAL ARMY MEDICAL CORPS

Capt. (War Subs. Major) W. E. Underwood, O.B.E., from Supplementary Reserve of Officers, to be Capt.

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs. Capt. J. Rickman has relinquished his commission on account of disability, and has been granted the honorary rank of Major.

War Subs. Capts. N. L. Probert, G. A. Jones, and M. J. Hilton have relinquished their commissions on account of disability, and have been granted the honorary rank of Capt.

Lieut. M. Libman has relinquished his commission on account of disability, and has been granted the honorary rank of Lieut.

WOMEN'S FORCES

EMPLOYED WITH THE R.A.M.C.

War Subs. Capts. (Mrs.) H. I. Goodall and H. M. D. Gilbert have relinquished their commissions.

War Subs. Capt. (Mrs.) M. J. Morgan has relinquished her commission on account of disability.

ROYAL AIR FORCE

Flying Officer H. N. H. Genese to be Fl. Lieut.

RESERVE OF AIR FORCE OFFICERS

Squad. Ldrs. (Temp.) G. James and H. L. Jenkins have been granted the rank of War Subs. Squad. Ldr.

ROYAL AIR FORCE VOLUNTEER RESERVE

Fl. Lieut. E. H. Jones has resigned his commission, retaining the rank of Squad. Ldr.

Flying Officer R. C. Howard to be War Subs. Fl. Lieut.

INDIAN MEDICAL SERVICE

Col. G Covell, C.I.E., K.H.P., to be Major-Gen.
Lieut.-Col. D. V. O'Malley, O.B.E., to be Col.
Lieut.-Col. T. S. Shastry has retired.

EMERGENCY COMMISSIONS

Capts. (Mrs.) B. F. Dickinson, E. M. Bowles, and L. M. Corall have resigned their commissions, and have been granted the honorary rank of Capt.

COLONIAL MEDICAL SERVICE

The following appointments have been announced: E. S Sutherland, L.R.C.P., L.R C.S., Assistant Medical Officer, Jamaica; C. H. Howat, F.R.C.S., Senior Medical Officer (Surgeon Specialist), Cyprus; G. Louw, M.B., Ch.B., Senior Medical Officer, Uganda; N. M. Maclennan, M.D., D.P.H., Director of Medical Services Kenya; B. O. Wilkin, M.B., Ch.B., D.P.H., Senior Medical Officer, Tanganyika.

Mr. H. N. Linstead, secretary of the Pharmaceutical Society, speaking at Aberdeen, Glasgow, and Edinburgh recently, said that the chances of the Government's proposals for a National Health Service being put into effect were substantial, but he thought the service would not be organized and ready to operate before 1948 at the earliest. We could afford this scheme, certainly for the first post-war years, for which alone we could at present provide with any certainty. If the scheme was to be universal substantially more than twice the present number of National Health Insurance patients would be embraced in it; he hoped the £420 income limit would be abolished. If the service was to be universal eventually, it should be universal from the beginning. If there was a shortage of doctors all should suffer from it equally. It would go far to destroy confidence in the new service if there remained a large number of the population paying for the service and suspected by the remainder to be getting something far better. One would hope that no attempt would be made to give a new lease of life to the National Health Insurance service, which could not be adapted to provide for even the minimum needs of another 20 million or more people. He was in favour of the type of health centre recommended by Lord Dawson's committee after the last war, where the patient was sent by the family doctor for further examination, for consultation with the specialist, and for minor surgery. The private consulting-room would remain as the normal meeting-place of the doctor and the patient.

POSTGRADUATE NEWS

The Fellowship of Medicine announces the following courses: (1) Neurology (suitable M.R.C.P.), at West End Hospital, Mons., Tues., and Fris., 2.30 p.m., from March 2 to 27. (2) Anaesthetics, at Radcliffe Infirmary, Oxford, all day, March 5 to 17. (3) Anaesthetics, various London hospitals, all day, April 9 to 21. (4) Rheumatism, week-end course at St. Stephen's Hospital, all day, Sat. and Sun., March 24 and 25. (5) Final F.R.C.S. clinical courses as follows: Metropolitan Hospital, Weds., 5 p.m. March 7 and 21, and April 18; London Homoeopathic Hospital, Weds., 5.30 p.m., March 14, 21, 28, and April 11 and 18; St. Mary Islington and Archway Hospitals, 2 p.m., on Weds., March 21 and 28, Tues., April 3, and Wed., April 11; Hillingdon County Hospital, week-end course, Sat. and Sun., April 14 and 15; London Homoeopathic Hospital, Sat., April 21, 2,30 p.m.

WEEKLY POSTGRADUATE DIARY

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W.—*West End Hospital for Nervous Diseases:* Mon., Tues., Fri., 2.30 p.m., course in neurology (suitable M.R.C.P.). *West Middlesex County Hospital:* Sat. and Sun., March 3 and 4, all day, week-end course in obstetrics.

DIARY OF SOCIETIES AND LECTURES

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.—Lectures on Applied Physiology by Prof. John Beattie: *Mon.*, 2.30 p.m., Rationale of Fluid Therapy; *Wed.*, 2.30 p.m., Kidney Function; *Fri.*, 2.30 p.m., Handling of Bad Surgical Risks (Diabetics, Nephritis, etc.). Lectures on Anatomy by Prof. A. J. E. Cave: *Mon.*, 4 p.m., The So-called Pelvic Fascia; *Wed.*, 4 p.m., Morphology and Classification of Joints; *Fri.*, 4 p.m., Growth Regions of the Skeleton.

ROYAL SOCIETY OF MEDICINE.—*Mon.*, 4.30 p.m., Section of Odontology. *Tues.*, 4.30 p.m., Section of Medicine. *Thurs.*, 4.30 p.m., Section of Neurology. *Fri.*, 10.30 a.m., Section of Otology; 2.30 p.m., Section of Anaesthetics; 2.30 p.m., Section of Laryngology.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, W.—*Wed.*, 3.30 p.m., Dr. Harold Balme: The Place of Rehabilitation in Hospital Service.

B.M.A.: Branch and Division Meetings to be Held

NORTH OF ENGLAND BRANCH.—At Royal Victoria Infirmary, Newcastle-upon-Tyne, Thursday, March 1, 2.15 p.m., Clinical Demonstration in the out-patient department by Dr. A. A. McI. Nicol and Mr. W. A. Hewitson. 3.45 p.m., Address by Major-Gen. W. H. Ogilvie: Application of Lessons of War to Surgery of Peace. Members of H.M. Forces stationed in the area are invited.

SHROPSHIRE AND MID-WALES BRANCH.—At Royal Salop Infirmary, Shrewsbury, Tuesday, March 6, 3.30 p.m., Demonstration of cases recently treated by penicillin. Members of H.M. Forces are invited.

BIRTHS, MARRIAGES, & DEATHS

The charge for inserting announcements under this head is 10s. 6d. This amount should be forwarded with the notice, authenticated with the name and address of the sender, and should reach the Advertisement Manager not later than first post Monday morning to ensure insertion in the current issue

BIRTHS

ALDRIDGE.—On Feb. 14, 1945, at Worcester, to Hilda (*née* Jennings), wife of Acting Squad. Ldr. L. W. Aldridge, R.A.F.V.R., a daughter.

SMART.—On Feb. 16, 1945, at Ipswich, to Ann, wife of Mr. Graham Smart, a son—Robert James.

MARRIAGES

COATES—GATENBY.—On Feb. 1, 1945, at the Garrison Church, Deolali, India, by the Rev. J. F. W. Ruddell, Major John Clapham Coates, R.A.M.C., son of Mr. and Mrs. A. Coates, of Keighley, and Assistant Matron Margaret Hildreth Gatenby, T.A.N.S., daughter of Mr. and Mrs. R. S. Gatenby, of Bridlington.

PATTISON—ANDREWS.—On Jan. 5, 1945, at St Peter's Church, Colombo, Peter Pattison, Surg Lieut., R.N.V.R., son of Dr. and Mrs. C. Lee Pattison, King Edward Hospital, Sheffield, to Third Officer Mary Andrews, W.R.N.S., daughter of Mr. and Mrs. C. F. Andrews, of the Mendips, Gibb's Road, Newport, Mon.

DEATH

MARSHALL.—On Feb. 13, 1945, at Parvey Lodge, near Macclesfield, Herbert Frank Marshall, M.R.C.S., L.R.C.P., F.R.C.S.Ed., beloved husband of Christian (*née* Haig Ferguson).

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY MARCH 3 1945

HEARD AT HEADQUARTERS

The Negotiating Committee

The discussions between the Negotiating Committee and the Ministry of Health have now continued for several weeks, and it is expected that the B.M.A. members on the committee will report to a special meeting of the Council on March 21 Readers may like to be reminded of the membership of the committee. It is as follows :

16 Representatives of the British Medical Association

Viscount Dawson of Penn, London.
Dr. H. Guy Dain, Birmingham.
Dr. J. C. Arthur, Low Fell, Co. Durham.
Dr. P. Martin Brodie, Edinburgh.
Dr. J. A. Brown, Birmingham.
Dr. R. W. Cockshut, London.
Dr. F. Gray, London.
Dr. E. A. Gregg, London,
Dr. J. A. L. Vaughan Jones, Leeds.
Dr. J. F. Lambie, Glasgow.
Dr. J. B. Miller, Bishopbriggs, Lanarks.
Mr. R. L. Newell, Manchester.
Dr. A. Talbot Rogers, Bromley.
Dr. C. H. Sedgwick, Rotherham.
Dr. S. Wand, Birmingham.
Dr. S. A. Winstanley, Urmston, Lancs.

3 Representatives of the Royal College of Physicians

Lord Moran, London.
Dr. H. E. A. Boldero, London.
Prof. Henry Cohen, Liverpool.

3 Representatives of the Royal College of Surgeons

Sir Alfred Webb-Johnson, London.
Sir W. Girling Ball, London.
Mr. H. S. Souttar, London.

2 Representatives of the Royal College of Obstetricians and Gynaecologists

Mr. Eardley Holland, London.
Mr. A. A. Gemmell, Liverpool.

3 Representatives of the Royal Scottish Medical Corporations

Prof. C. McNeil, Edinburgh.
Mr. H. Wade, Edinburgh.
Dr. J. H. Macdonald, Luss, Dumbartonshire.

2 Representatives of the Society of Medical Officers of Health

Prof. R. M. F. Picken, Cardiff.
Dr. G. F. Buchan, London.

1 Representative of the Medical Women's Federation

Dr. Mary Esslemont, Aberdeen.

1 Representative of the Society of Apothecaries

Dr. H. Seaward Morley, Midhurst, Sussex.

No General Releases

The man in the street is no military expert, though he may sometimes think he is, but when the Minister of Information says of the Deputy Prime Minister that, amicable as are their relations at present, in two or three months they may not be on speaking terms, the man who is still in the street may be forgiven for supposing that the European war is nearer to ending than the military situation suggests. That being so, it is natural for doctors who are carrying on their practices under conditions of great strain to think that the time has come to apply for the return of colleagues on active service. But they are likely to be disappointed yet awhile.

A circular sent out not long ago by the Central Medical War Committee to secretaries of local committees states that because of the reduced numbers of new medical recruits allotted to the Services for 1944, the falling out from casualties and other causes, and the need to build up for the war in the Far East a much more extensive hospital organization than has been required in the West, there must still be a strict limitation in the number of applicants for release selected for recommendation to the Service Departments. The skies may brighten, but the burden will have to be borne for some while longer.

The Government Tuberculosis Scheme

The Government tuberculosis scheme came in for some criticism at the last meeting of the Public Health Committee of the B.M.A. It was stated that sanatorium treatment is often made less effective or of no effect at all because it is not available as early as it should have been. The attention of the Ministry is being drawn to this matter by the Association.

Another point of dissatisfaction! A group of almoners engaged in tuberculosis care work in the areas of about twenty important authorities have sent a letter to the Association stating that the maintenance allowance scheme is inadequate, that there should be increases in the allowances in certain respects, and a higher "ceiling" for discretionary allowances. These workers know what they are talking about, for nobody comes closer to the economic side of illness than the almoner. The matter is being referred to the representatives of the Association on the Joint Tuberculosis Council, and if the recommendations are endorsed the Minister will be asked to extend and improve the scale.

The Local Deus ex Machina

Just over thirty honorary local secretaries of the Association have relinquished office since the end of 1943. In three cases, unhappily, the office was rendered vacant by death. Twelve of the Branches or Divisions concerned were over-seas. It would be invidious here to pick out names from such a list, though there are two or three instances in which the name of the secretary has for many years been almost synonymous with the name of the Division.

The Association is always under a great debt of gratitude for this faithful local service. Many, perhaps most, Division secretaries are men in busy practice ; very often they are secretaries also of the Local Medical War Committee, perhaps of the Panel Committee, and have all sorts of irons in the fire and keep them all hot. The reorganization of the peripheral machinery is now under consideration, but I believe that the Division will remain the basic unit—although some Divisions may be made more compact and the secretary will still be the man who gets things done.

FROM THE PRESS CUTTINGS

"As soon as medicine becomes an agency in social or industrial organization it ceases to be of any value to the community. That is a far more important question than the much-publicized one of freedom of choice of doctor, which even now is not always possible. You don't need medical advice when you have a cold, and the doctor won't help you much anyhow. But the State demands that you go to the doctor and waste his time. There is a real danger of the increase of that kind of thing being brought about by a State Medical Service. . . . How can better facilities be provided without buying up the doctors and putting the working population under a medical Gestapo? . . . It can be done, but only if the State is content to ensure that an efficient health service available to all does exist, and does not attempt to force doctors on patients, patients on doctors, or its own officials on either."—*Glasgow Bulletin.*

STOCKHOLM'S NEW HOSPITAL

A new hospital remarkable in its dimensions and innovations has lately been inaugurated in Stockholm by the King of Sweden. It is called the *Södersjukhuset* ("Southern Hospital") and is situated on the southern outskirts of the Swedish capital, overlooking Lake Mälaren Fig. 1). When fully completed it will have wards for 1,200 in-patients and fifteen polyclinics capable of dealing with about 1,000 patients a day. The total staff of doctors, nurses, and assistants will be about 1,200, equal to the number of in-patients. The hospital will have 5,400 rooms and 50 lifts. The standard ward accommodation is for 32 patients in five 4-bed rooms, four 2-bed rooms (Fig. 2), and four 1-bed rooms, and every ward has its own solarium (Fig. 3). Attached to each ward there is a room intended for conferences with doctors and others. The entrance hall accommodates 2,000 people, equal to the anticipated number of patients' visitors. It is provided with a post office, a café, and various small shops for the purchase of gifts for patients, also a crèche in which small children may be left. Every clinic has its own waiting room, and the construction of the whole building is such that patients and others from one clinic or ward will not need to pass through another department. A multiple plan has been adopted for the special departments whereby, for example, the *x*-ray department has two examination rooms, both operated from a mutual control room, and in the clinic for physical therapy one nurse supervises the treatment in two rooms. Among other noteworthy features is the organization of the kitchen, which recognizes the importance of diet in a hospital. From a central kitchen on the upper floor the food is conveyed in a semi-finished state to eleven branch kitchens (Fig. 4), where it is cooked and seasoned, and where special-diet dishes are prepared. Thence the food goes straight down in lifts to the several wards, and the patients gain from the rapid service of meals and from a more varied dietary in accordance with their needs.

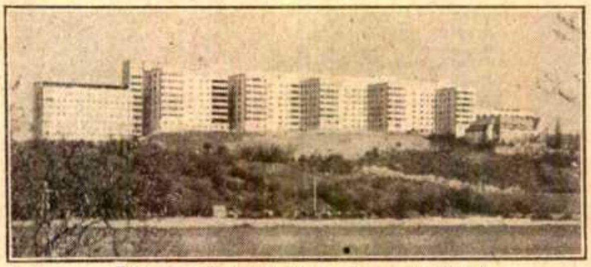

FIG. 1.—General view of new hospital.

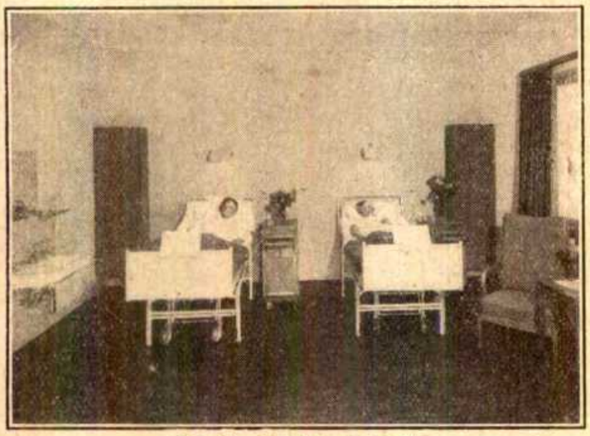

FIG. 2.—Interior of ward.

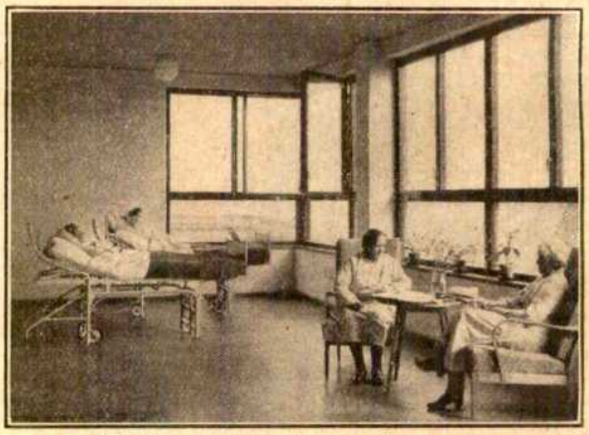

FIG. 3.—A solarium in one of the wards.

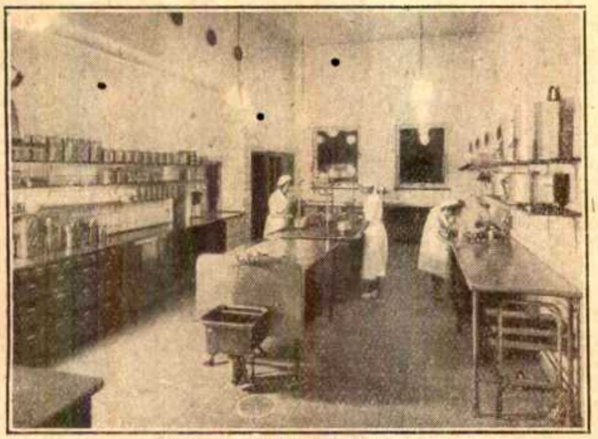

FIG. 4.—A branch kitchen.

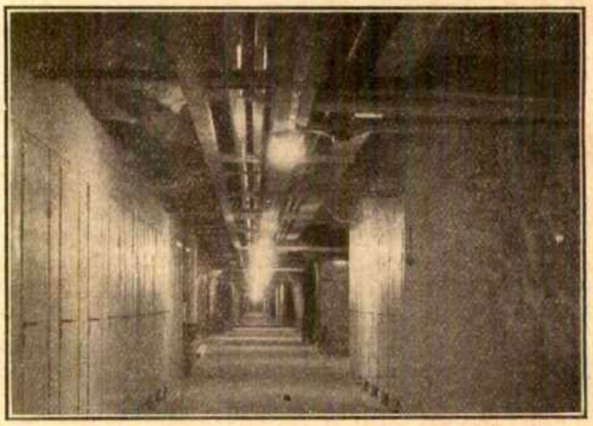

FIG. 5.—The central corridor in the bomb-proof shelter.

Some figures are interesting. The hospital, which is Government-owned, is expected to cost before it is completed 50 million kronor (£3 million), but the price of treatment is very moderate—for an in-patient the equivalent of five shillings a day for the first 14 days, and after that about 3s. 6d., and for a clinic out-patient three shillings a visit. Each of the general and special clinics is under the direction of a chief physician or surgeon with from three to five assistant medical officers, one of whom acts as his deputy. The annual salary of the chief of a clinic is from £700 to £900, but he is free to undertake private practice so far as his regular hospital duties allow. The salary of the assistants is not much less, from £600 to £750, but they are forbidden to practise privately. One of the senior members of the medical staff, besides his ordinary professional work as head of a clinic, is in charge of the administration of the hospital and receives a special fee for this. In order to make the office less onerous he has several administrative officials working immediately under him. He is in fact the part-time medical superintendent of the whole institution.

It is an ironical comment upon the civilization which has constructed probably (with another modern hospital, the Carolinian, to the north of Stockholm, which was opened four years ago) the most commodious and resourceful hospital and public health centre in Europe that beneath the building, 24 feet down in solid rock, there should have been built a gas-proof and bomb-proof underground hospital, where 1,000 patients can be treated for one whole month without communication with the outside world (Fig. 5). This grim reserve hospital comprises 12 wards and two operating theatres, and has its own water and electric supply. Scandinavia sets the lead in many adventures in social progress, but its faith in the political future does not seem to be stimulating. Yet what else could the prudent designers of this new hospital do, with Nazi Germany glaring across the Baltic at a neutral country whose neighbours had been violated?

REGIONAL HOSPITAL PLANNING

The recently issued report of the Medical Services Committee of the Yorkshire Regional Hospitals Council contains much of interest just now when regional planning is a recurrent subject of discussion among those concerned with the future of our hospitals. The committee, which included members of the staffs of voluntary and municipal hospitals in the area, medical officers of health, representatives of the Faculty of Medicine of Leeds University, and nine general practitioners practising within the region, worked through a number of subcommittees (seventeen in all) for the different departments of medicine and surgery and for dentistry. In a preamble the report defines the purpose of regionalism as applied to hospitals to be the provision "of every required form of hospital service for each individual in the region. . . . Hospitals in a region should be linked in such a way that all specialist services will be generally available."

Three main needs of the hospitals in the area are: (1) A big increase in the number of beds, better out-patient accommodation, and improved facilities for diagnosis and treatment. (2) More consultants and specialists. (3) More special services, by extension of existing ones for thoracic surgery, radiotherapy, etc., and by provision of new ones—e.g., for plastic surgery. Hospital care is to be provided at three different types of institution: (1) divisional hospital centres; (2) district hospital centres; and (3) peripheral hospitals. The first of these, the divisional hospital centres, are to be at Leeds, Bradford, and Hull; Leeds, as the university city, being the main one. In addition to their teaching facilities these centres will provide all that is required for such special procedures as thoracic surgery, neurosurgery, plastic surgery, etc. More bed accommodation in divisional hospital centres is to be secured by building in or near towns—where necessary by enlarging existing institutions—and not by building new general hospitals in country districts away from urban amenities.

District hospital centres, of which nine are proposed in some of the biggest cities, are to be staffed by men who are wholly engaged as consultants. Resident in the area will be consultants in medicine, surgery, gynaecology and obstetrics, while there will be visiting consultants in other specialties. Twenty-one peripheral hospitals are suggested (the term peripheral is not used in its geographical sense); these will not have a resident medical officer; patients will be under the immediate control and care of a general practitioner, consultants being called in to advise and sometimes to operate in emergency. In these peripheral hospitals the report sees a solution of the problem of providing treatment as near to the patients' homes and relatives as possible, good nursing for patients not requiring special surgical and medical skill, and last, but by no means least, the contact with hospital work which is so much desired by general practitioners. The committee considers that major surgery should be done in peripheral hospitals where this is needed, but only by men of consultant rank; it goes so far as to suggest that surgery by the G.P. will disappear, but it stipulates that all G.P.s in the area should be on the staff of the peripheral hospital.

On the question of hospital appointments and staffing the committee recognizes the danger of "in-breeding" and at the same time the importance of allowing the ultimate responsibility for an appointment to rest with hospital authorities. But it suggests that the procedure to follow should be that proposed in the White Paper—namely, an expert advisory body, which would put forward a number of suitable candidates from whom the hospital would make its final choice. The system of appointing "full" and "assistant" consultants to the staff should continue, but the committee strongly recommends that each assistant should be given adequate scope (beds, out-patient accommodation, etc.) to enable him to do work that specially interests him and gives him freedom of action.

The utmost co-operation between voluntary and municipal hospitals, such as Leeds with its Joint Hospitals Advisory Committee has had during the past few years, should be the aim throughout the region. There could then be: (*a*) a common visiting staff for all hospitals in a given hospital centre or area; (*b*) a central admission bureau, securing best use of available beds; (*c*) a co-ordinated bed-pool to be used by the common visiting staff; (*d*) a centralized out-patient department; (*e*) an adequate convalescent service, including rehabilitation; (*f*) a co-ordinated ambulance and transport service.

These recommendations are not utopian. Provided the region is large enough they should not be incapable of practical application. As the report concludes: "Planning on such a broad scale and from such a detached viewpoint would not have been possible if the area had been subdivided into smaller regions each with a population of 1/2 to 1 million. . . . The Yorkshire region with its population of 3 to 3½ millions is an ideal size for present hospital area planning."

Correspondence

Reallocation of Medical Man-power

SIR,—May I offer my contribution towards the plea of Service medical officers for an early and fair system of reallocation of medical man-power. Suggestions have already been made that E.M.S. doctors and some of the younger G.P.s who have not served in the armed Forces be called up until at least the age of 35, after the defeat of Germany.

It is quite self-evident that E.M.S. doctors have, in the vast majority of cases, been on the right side of the fence since war started, and it is not right or fair that they should continue to be so after Germany's defeat, and be allowed to drift back into private practice. These E.M.S. medical officers have had every opportunity to keep in touch with professional colleagues and take higher qualifications. They are in touch with affairs at home, and are ready to take the most desirable jobs after the war. They have had no spells of foreign service and for the most part little personal danger in comparison to their Service colleagues. Furthermore, they have had the happiness of being near wives and families, and the chance of a certain amount of home life.

In the interests of the future medical services of the country, it is essential that Service medical officers be given the opportunity for postgraduate study, and that an early release be given to those who have had the serious gap of five years away from clinical practice. A reallocation of medical man-power would meet the problem. Young E.M.S. doctors with up-to-date experience should be transferred to the Forces, and their places in civilian life taken by Service M.O.s of five years' seniority or more, and particularly those over 30 with wives and families. I appeal to the Central Medical War Committee to make a fair and early legislation for the urgent reallocation of medical man-power on these lines.—I am, etc.,

J. L. ADLINGTON,
Surg. Lieut., R.N.V.R.

War Gratuities

SIR,—It is interesting to compare the position of two individuals in relation to the official reward (?) which they will receive from their country for their services. "A" joined the regular service in August, 1939, taking a short-service commission. In August, 1944, he received a gratuity of £1,000. "B" joined the Volunteer Reserve, being a general practitioner, in August, 1938, and was called up for service in August, 1939, giving up his general practice, which largely vanished in his absence. He will receive, supposing he is discharged in August, 1945, something a little more or less than (depending on his rank) £100. It is rather difficult to see that the sacrifice made by "A" is greater than the sacrifice made by "B," and it would be rather difficult to find the reason for such differentiation in the relative values to be put upon their services to their country. In the Service "A" will be senior to "B" and therefore will have got preference in rank and promotion, etc.—I am, etc.,

R. W. DURAND,
Wing Cmdr., R.A.F.V.R.

Towards Agreement

SIR,—In his letter Dr. H. J. Selby complains that public respect and support have not secured for us an adequate or reasonable fee (*Supplement*, Feb. 17, p. 21). This is because the public has not been convinced that the panel fee is inadequate. I therefore repeat that the success of a State medical service will depend on the agreement of a just and adequate fee from the beginning, and we must insist on this now.

He asks whether public respect and support are likely to influence a Government determined to hoist a State medical service on the country with the public forbidden a voice in the matter. The answer is most certainly, Yes, should the Government ever attempt such tactics. He also asks whether they can influence any future Government when the planners have obtained their final objective—the destruction of all personal freedom and liberty. Again the answer is that public respect and support are the only safeguards which could ultimately prevent such an unwholesome state.

Finally, to label the White Paper totalitarian no longer misleads the majority of the community, neither does it worry a very large minority (if indeed it is a minority) of the medical profession. Let us therefore do our best to make the scheme as near perfect as possible so that we may retain our most valuable asset—the respect and support of the community.—I am, etc.,

Stroud HERMAN MOULD.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY MARCH 31 1945

THE NEGOTIATIONS

The Council of the B.M.A. at its meeting on March 21 received the report of the Negotiating Committee. After full discussion the Council decided to make a full report with recommendations to a Special Representative Meeting which will begin at 10 a.m. on Thursday, May 3, and continue until the business is completed. It is expected that the meeting will last until the evening of Friday, May 4. The report of the Council is a confidential document in that it cannot be published, but it will be sent direct to every member of the profession, whether members of the Association or not.

The Council decided to request Divisions to make arrangements for an early meeting or meetings of the profession for the purpose of discussing the report and instructing Representatives.

HEARD AT HEADQUARTERS

The Late President

Obituary tributes in the Association Council are always brief, but Dr. Dain's few words about the late President were exactly what the occasion required. Most of the members of the Council on the day before the special meeting had attended the memorial service at the Abbey, and the chairman remarked that those who had done so must have appreciated from the size and distinction of that assembly what a great figure Lord Dawson was in the life of the nation. He added that over a long term of years Lord Dawson's interest in the progress of medicine and of medical services had been deep and unflagging. Not often, he said, did the successful physician, esteemed for his own work in the clinical field, take the same active interest as Lord Dawson had done in the social and political aspects of medicine. It was not merely because of his name that the Association chose him twice as its President, but because he had a contribution to make of outstanding value in the discussions and decisions of these changing times.

A Hospital Year

The surplus income of voluntary hospitals in 1941, to which I referred in these notes a week or two ago (March 17) is, of course, like many surpluses now accumulating, largely illusory. It is due to the withholding of expenditure on the erection of new buildings and repairs. Of the various sources of hospital income, while subscriptions and donations are well maintained, legacies have fallen considerably during the war. This is, no doubt, a reflection of increased taxation, and also perhaps in part a consequence of the knowledge that a National Health Service is in contemplation, although in 1941 no detailed proposals had been made, and most of those who bequeathed legacies which fell due in that year had presumably made their dispositions much earlier. Apart from its voluminous statistics, the *Hospitals Year Book* (Central Bureau of Hospital Information, 12, Grosvenor Crescent, London, S.W.1) is a directory of both voluntary and municipal and public assistance institutions and of many other services. One useful section gives particulars of something like 500 contributory schemes and Hospital Saturday Funds and of 60 provident schemes for treatment in private wards, about half of them under independent control and half under control of individual hospitals. There is also a lengthy article examining the discussions which the White Paper on a National Health Service has provoked.

Lady Councillor

The first woman member of the B.M.A. Council to be elected by the women members of the Association is Dr. Janet Aitken. Dr. Aitken is an appropriate choice in more than one respect, for her post as senior physician to the Elizabeth Garrett Anderson Hospital furnishes a link with the name of the first woman member of the Association, who was Elizabeth Garrett Anderson herself.

Dr. Garrett Anderson was elected a member by the Metropolitan Counties Branch just over seventy years ago. The circumstances caused a good deal of controversy at the time, and Sir William Jenner threatened to resign in consequence of "lady members being permitted to attend the meetings of the Association." In 1878, after a plebiscite which gave a three to one majority against the inclusion of women, it was resolved that "no female shall be eligible for election as a member of the Association," words which were expunged in 1892, since when women have continued to be elected, and there has been equality between the sexes.

There have been two previous women members of Council—the late Dr. Christine Murrell and Dame Louise McIlroy—but Dr. Aitken is the first to be elected under the new rule which gives the women members of the Association the right to vote for one representative, so that the inclusion of a woman member of the Council is no longer dependent on predominant male suffrage.

An Experiment in Health Centres

I see that a committee appointed to inquire into setting up a medical benefit scheme for all European officials in the public service in the Union of South Africa is recommending a scheme with full cover to be subsidized by the Government on a pound-for-pound basis. One of its recommendations is that a medical or health centre rather than an individual private practitioner should be the unit of the service, and the committee cites the scheme submitted to the Australian Government and the national health service for New Zealand, both of which favour the health centre system.

But South Africa is not precipitate in this matter. On the face of it, in a country such as South Africa, with public servants, like other white population, thinly spread over the territory, a uniform medical service seems impossible of adoption. Therefore the health centre is to begin as an experiment. Only one such centre is to be established—in the city of Pretoria. It is to be adequately equipped and staffed with doctors, nurses, dentists, and health visitors, all on a full-time salaried basis.

Only if this proves a success will similar health centres with any modifications which experience has shown to be desirable be established in other areas. Until the success of the Pretoria experiment has been demonstrated the members of the public service in the Union are to be allowed free choice of doctor. Pretoria has a European population of some 76,000, less than half the European population of Capetown, but it is the administrative capital of the Union, with a large number of officials, and that no doubt has determined the choice.

No Criticism

To those who recall the early history of the campaign against venereal diseases there is something quite remarkable in the statement in a letter which the Minister of Health has issued to all local authorities. He refers to the large posters now on every hoarding, and he says that these have raised no criticism, and that there is evidence that the educational campaign as a whole continues to have the approval of the vast majority of the public.

One can imagine that such posters years ago, admirable as they are, would have shocked certain sections of the public, who would have deprecated the very mention of the name of the disease, and have considered the offer of advice and treatment facilities as making the world safe for vice, this notwithstanding the emphasis on every poster that "clean living is the only safeguard."

This educational publicity is to be intensified during the next twelve months. It is undertaken by the Ministry of Health in collaboration with the Ministry of Information and the Central Council for Health Education.

Service Candidates

At the special meeting of the Council last week the names of as many as 340 candidates serving in H.M. Forces were up for election as members of the B.M.A.—surely a record number.

What is Canvassing?

SIR,—Canvassing by private doctors is still an ethical crime punishable by the G.M.C. Canvassing by public doctors and clinics is rampant, and encouraged by the authorities. Is there one law for public doctors and another for private doctors? Logically, either canvassing by private doctors must be allowed or canvassing by public doctors must be stopped.

As we become State-controlled, totalitarian, National Socialist, or whatever is coming to us, it rather appears that canvassing is likely to become more prevalent. Is it not time that the G.M.C. cleared the air by prohibiting canvassing by public doctors and their servants? This letter may sound rather quarrelsome, but canvassing is taking place everywhere all the time, and extending rapidly.—I am, etc.,

Rotherham. ERIC COLDREY.

A "Black Market" in Medical Practice

SIR,—Dr. Peter Parry (*Supplement*, Feb. 17, p. 25) is right in believing the opposition to this new outburst of totalitarianism to be strong. Practitioners have no redress, for they know that their opinions are asked just a little later than the most recent *fait accompli*. Hence they are in the position of running to catch the train that left yesterday! Moreover, practices need daily and hourly attention to keep them on an even keel; while the brainy ones—who acquiesced in the physical and moral rot of a few years ago of keeping millions idle; who acquiesced and still acquiesce in untold acres of slums and dirt, in neglect of children, the only hope of the future—these have ample leisure to concoct means of shackling a great profession.

It is the humbug of it all that is hard to bear.—I am, etc.,

Twickenham. WILFRID W. PHILLIPS.

H.M. Forces Appointments

ARMY

War Subs. Lieut.-Col. R. Marnham, R.A.M.C., to be a Consultant, and has been granted the local rank of Brig.

ROYAL ARMY MEDICAL CORPS

Lieut.-Col. T. P. Buist, having attained the age for retirement, is retained on the Active List supernumerary to establishment.

Majors R. A. Bennett and W. A. D. Drummond to be Lieut.-Cols.

Capt. O. R. L. L. Plunkett has retired on account of disability, and has been granted the honorary rank of Major.

TERRITORIAL ARMY

ROYAL ARMY MEDICAL CORPS

Lieut. J. V. Shepheard, from Royal Welch Fus., to be Lieut.

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs. Capt. R. C. Forrester has relinquished his commission on account of disability, and has been granted the honorary rank of Major.

To be Lieuts.: B. Barrowman, G. King, J. L. Lanceley, and F. B. Notley.

ROYAL AIR FORCE

ROYAL AIR FORCE VOLUNTEER RESERVE

Fl. Lieut. H. B. Wilson has relinquished his commission on account of medical unfitness for Air Force service, retaining the rank of Squad. Ldr.

Fl. Lieut. M. L. Gaudin has relinquished his commission on appointment to the R.C.A.F.

Flying Officers G. G. Lindsay, T. P. O'Grady, D. O'Keefe, and C. E. Williams to be War Subs. Fl. Lieuts.

M. J. M. Solomons to be Flying Officer (Emergency).

WOMEN'S FORCES

EMPLOYED WITH THE MEDICAL BRANCH OF THE R.A.F.

Fl. Lieut. J. S. McFarlane has resigned her commission.

INDIAN MEDICAL SERVICE

Lieut.-Cols. W. E. R. Dimond, C.I.E., O.B.E., and D. Clyde, C.I.E., to be Cols.

Capt. (Mrs.) G. O. W. Millington, whose resignation of commission was notified in the *London Gazette* of Dec. 22, 1944, has been granted the honorary rank of Capt.

CONSULTANT AND SPECIALIST OPINION

A series of meetings will be held during the next few weeks to provide consultants and specialists in all parts of England and Wales with an opportunity to discuss those aspects of the proposed comprehensive national health service affecting their branch of practice. The meetings will be open to all practitioners of consultant and specialist status, whether engaged exclusively in consultant practice or not, members and non-members of the B.M.A., teachers and non-teachers.

The meetings so far arranged are as follows:

Bristol.—Thursday, March 8, at 2.30 p.m. in the University of Bristol, Small Physics Lecture Room, at Royal Fort. Dr. Birrell will open the discussion.

Nottingham.—Sunday, March 11, at 5 p.m. at 64, St. James Street, Nottingham. Mr. S. A. S. Malkin will open the discussion; Dr. H. Guy Dain, Chairman of Council, B.M.A., will be present. (This meeting is to be preceded by a general meeting of the Branch at 2.45 p.m. on the same day at the Pearson Hall, General Hospital, Nottingham, which Dr. Dain will address and to which all members of the local profession are invited.)

Manchester.—Thursday, March 15, at 4.30 p.m. in the Lay Board Room of the Royal Infirmary, Manchester. Prof. Platt will open the discussion.

Cambridge.—Friday, March 16, at 11.30 a.m. at the Dorothy Café, Sidney Street, Cambridge. Dr. Ff. Roberts will open the discussion.

Birmingham.—Saturday, March 17, at 2.15 p.m. at Nuffield House, Queen Elizabeth Hospital, Birmingham. Dr. Philip Cloake will open the discussion.

Brighton.—Sunday, March 18, at 3 p.m. at the Royal Pavilion, Brighton. Mr. H. J. McCurrich will open the discussion.

Leeds.—Wednesday, March 21, at 3 p.m in the Physiology Lecture Theatre, Medical School, Leeds. Dr. W. MacAdam will open the discussion.

POSTGRADUATE NEWS

The Fellowship of Medicine announces: (1) Week-end course in rheumatism, St. Stephen's Hospital, Sat. and Sun., March 24 and 25. (2) Revision course in anaesthetics, various London hospitals, all day, April 9 to 21. (3) Final F.R.C.S. courses as follows: Clinical demonstrations, Metropolitan Hospital, Weds., March 7, 21, and April 18, 5 p.m.; Demonstrations in the wards, London Homoeopathic Hospital, Weds., March 14, 21, 28, and April 11 and 18, 5.30 p.m.; Clinical demonstrations, St. Mary Islington and Archway Hospitals, Weds., March 21 and 28, Tues., April 3, and Wed., April 11, 2 p.m.; Week-end course in surgery, Hillingdon County Hospital, Sat. and Sun., April 14 and 15, all day; Demonstration of selected cases at London Homoeopathic Hospital, Sat., April 21, 2.30 p.m.

WEEKLY POSTGRADUATE DIARY

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W.—*West End Hospital for Nervous Diseases:* Mon., Tues., Fri., 2.30 p.m., Course in Neurology (suitable for M.R.C.P.). *Radcliffe Infirmary, Oxford:* Daily, Revision course in anaesthetics. *Metropolitan General Hospital:* Wed. afternoon, Final F.R.C.S. surgery demonstration. *Brompton Hospital:* Tues. and Thurs. afternoons, M.R.C.P. course in chest diseases. *North Middlesex County Hospital:* All day Sat. and Sun., March 10 and 11, Week-end course in general medicine.

EDINBURGH POSTGRADUATE LECTURES.—At Edinburgh Royal Infirmary, *Thurs.*, 4.30 p.m., Dr. J. Gillies: Intravenous Anaesthesia.

DIARY OF SOCIETIES AND LECTURES

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.—Lectures on Applied Physiology by Prof. John Beattie: *Mon.*, 2.30 p.m., Prevention of Shock; *Wed.*, 2.30 p.m., Factors concerned in Wound Healing and Repair; *Fri.* 2.30 p.m., Post-operative Pulmonary Complications. Lectures on Anatomy by Prof. A. J. E Cave: *Mon.*, 4 p.m., The Sphincteric and Diaphragmatic Muscles; *Wed.*, 4 p.m., General Anatomy of the Lymphatic System; *Fri.*, 4 p.m. Vasculature of the Intestine.

ROYAL SOCIETY OF MEDICINE.—*Tues.*, 5 p.m. General meeting of Fellows. *Wed.*, 2.30 p.m Section of History of Medicine; 5 p.m., Section of Surgery. *Fri.*, 2.30 p.m., Clinical Section.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, W.—*Wed.*, 3.30 p.m., Lord Forrester: Industry and its Environment—Physical and Social.

ROYAL INSTITUTION, 21, Albemarle Street, W.—*Tues.*, 5.15 p.m., Sir Henry Dale, P.R.S.: Actions of Involuntary Nerves and of Substances which Mimic or Paralyse their Effects. *Fri.*, 5 p.m Prof. David Brunt, F.R.S.: Climate and Human Comfort.

B.M.A.: Branch and Division Meetings to be Held

EXETER DIVISION.—At Princess Elizabeth Orthopaedic Hospital, Exeter, Sat., March 10, 2.45 p.m., Clinical meeting. Lecture-demonstrations on diagnosis, treatment, and after-care of typical cases of peripheral nerve injuries.

NORTH OF ENGLAND BRANCH.—At Royal Victoria Infirmary, Newcastle-upon-Tyne, Thurs., March 8, 2.15 p.m., Clinical demonstration in the Orthopaedic Department by Messrs. C. G. Irwin and J. K. Stanger. 3.45 p.m., Address by Dr. Robert Forbes: Medico-Legal Aspects of Artificial Insemination. Members of H.M. Forces stationed in the area of the Branch are invited.

SHROPSHIRE AND MID-WALES BRANCH.—At Royal Salop Infirmary, Shrewsbury, Tues., March 6, 3.30 p.m., Meeting of Clinical and Pathological Section. Discussion to be opened by Dr. A J Rhodes on Penicillin in Civilian Practice.

BIRTHS, MARRIAGES, & DEATHS

The charge for inserting announcements under this head is 10s. 6d. This amount should be forwarded with the notice, authenticated with the name and address of the sender, and should reach the Advertisement Manager not later than first post Monday morning to ensure insertion in the current issue.

BIRTHS

COUPLAND.—On Feb. 9, 1945, at Treherbert, to Helen (*née* Irons, S.R.N.), wife of H. G. Coupland, M.R.C.S., L.R.C.P., 303, Norbury Avenue, S.W.16, a son.

LISTER.—On Dec. 15, 1944, at King's College Hospital, to Eileen (*née* Trafford), wife of Capt. John Lister, R.A.M.C., B.L.A., a son.

McDONAGH.—On Feb. 20, 1945, at 39, Palmerston Place, Edinburgh, to Debonnaire (*née* Hay), wife of J. Owen McDonagh, M.B., B.S., of Stanley, Perthshire, a daughter.

MURRAY.—On Feb. 13, 1945, at Haywood Private Maternity Hospital, Staffs, to Joyce (*née* Turnbull), wife of Major N. W. N. Murray, R.A.M.C., B.L.A., a daughter.

PAUL.—On Feb. 23, 1945, at Benslow Nursing Home, Hitchin, Herts, to Una (*née* Charlick) wife of Lieut. Bernard G. Paul, R.A.M.C., a daughter—Avis.

DEATHS

DALE.—On Feb. 18, 1945, at "Thornbeck," 17, Mansion House Road, Paisley, Helen Jamieson, elder daughter of the late James and Helen Dale, and beloved sister of Dr. John S. Dale and Mrs A. H. J. D. Thomson.

LEETE.—On Feb. 15, 1945, after a short illness, at The Doctor's House, City Hospital, Cottingham, E. Yorks, Harold Mason Leete, M.D., Medical Superintendent, aged 50 years.

O'DRISCOLL.—On Jan. 29, 1945, at Middlesex Hospital, Jeremiah O'Driscoll, M.D., M.Ch., B.A., late of Hilerea, Co. Cork, aged 42 years. R.I.P.

PRICE.—On Feb. 8, 1945, at the General Hospital, Walsall, Sydney Edgar Price, L.R.C.P., L.R.C.S.Ed., L.R.F.P.S.Glas., of 15, Belvidere Road, Walsall, aged 69 years, dearly beloved husband of Emma Maud, eldest son of the late Dr. Edwin Price, of Dudley Port House, Tipton.

SHARPE.—On Feb. 21, 1945, at Roughlee, Longton, near Preston, Frederick Augustus Sharpe, M.D., B.S., D.P.H., Medical Officer of Health for Preston, beloved husband of Eva Margaret Sharpe

PAY OF RESIDENT MEDICAL OFFICERS

Industrial Court Award in Australia

Medical students in Queensland, Australia, have recently scored a decided victory in a fight for better terms of employment after graduation. This is said to be the first occasion on which students anywhere have united for this purpose. The Queensland Industrial Court has granted an application of the junior resident medical officers of the Brisbane General Hospital for an award governing their salary and conditions. The Court has awarded a salary of £350 a year, a 54-hour week averaged over a period of four weeks, and a maximum shift of 16 hours. This does not concede the full extent of the claim, which was for a salary of £500 a year, but it is a considerable advance upon the £200 which these officers have been receiving, with work extending over an unlimited number of hours a week, and shifts as dictated by the hospital board. Although the case was carried to its conclusion by a group of resident medical officers, it was initiated by a number of students in the University of Queensland Medical Society, who laid down the plan of campaign.

The Court stated that this was the first occasion on which any industrial tribunal had been asked to investigate the pay and working hours of members of the medical profession, but, it added, the applicants were obviously employees within the meaning of the Industrial Acts, and were performing very able and valuable service for their employers and the community, so that there was no reason why the Court should not deal with the application.

The resident medical officers were represented by Dr. F. Schwarz, who referred to the numerous and important duties of R.M.O.s, and the fact that they carried out these duties as responsible agents; the hospital board did not take responsibility for their mistakes. The average age of the plaintiffs, he said, was 25 years, but on their pay it would be economically very difficult for them to contemplate marriage, or to set about buying a practice or undertaking post-graduate study, possibly at an oversea medical school.

On behalf of the hospital board it was contended that the claim was extravagant. The salary had been already increased in 1940 from £140 to £200. The period of residence was always considered an apprenticeship. The newly qualified man came to hospital with a theoretical knowledge only, and it was at the hospital he learned how to apply it in practical work. Although it was admitted there were exceptionally busy periods when long stretches of duty were worked, the R.M.O.s were not required to work more than an average of 54 hours a week.

In making its award of £350 a year and adjusting the working time, the Court took the view that the duties of these R.M.O.s deserved serious consideration. It was true that certain cases were referred to senior men when they were deemed sufficiently important and difficult, but the evidence was that in practice the R.M.O. was required to exercise his own discretion, to treat many cases on his own initiative, and to decide what cases should be referred. It was realized that the period of residence in a public hospital was a valuable experience to a young doctor as a postgraduate course of training; at the same time, these young practitioners were making a valuable contribution to the medical services of the community and deserved greater recognition than their present salary indicated. The Court compared their salary with that of first-year dentists and with medical graduates holding State fellowships, and in that comparison it appeared at a disadvantage. As these R.M.O.s entered hospital as fully qualified doctors with all the duties and responsibilities attached to their position, and were required often to work very long hours, it was anomalous that they should be paid a merely nominal salary for their services.

The Brisbane students' newspaper, *Semper Floreat*, reports the result under the headings: "Medical History Made: Social Justice Triumphs," and comments, "This is a proud day for democracy."

THE FUTURE OF SCOTTISH HOSPITALS

In an address recently delivered to the Royal Philosophical Society of Glasgow Mr. Robert F. Barclay, chairman of the Royal Hospital for Sick Children in that city, criticized the Government's White Paper scheme and pleaded for definite action for the preservation of the voluntary hospitals.

The financial proposals of the White Paper he declared to be extremely unsatisfactory—in fact, impossible. He said that if effect was given to them the power of the voluntary hospitals to pay their way and to raise money for extensions, improvements, and renovations would be at an end. The proposal that in these circumstances voluntary hospitals should rely on payments from local authorities was objectionable on the ground that it would tend to restrict the treatment of patients to hospitals in the region in which they happened to reside; it would make voluntary hospitals territorial instead of being, as at present, national institutions, and it would reduce them to a position of subservience to local authorities, which should not be tolerated.

Alternative to the Government's Proposals

Mr. Barclay went on to submit certain constructive suggestions. He proposed that the Secretary of State for Scotland, exercising his functions through the Department of Health, should be charged with the administration of a new hospital service. For this purpose Scotland should be divided into five regions—four of them based on the university towns, and the fifth on Inverness—and in each region there should be a council consisting of representatives appointed in equal numbers by the voluntary hospitals and the local authorities, together with representatives of the university, the medical profession, and, possibly, the nursing profession. These councils should not be merely the consultative or advisory bodies suggested in the White Paper but should have the duty of preparing schemes for co-ordination and co-operation with the hospital services in the region. The schemes, after receiving the approval of the Secretary of State, who would make any amendments he thought fit, would then be adjusted and administered by these regional councils.

In order to complete the scheme Mr. Barclay proposed a Scottish National Hospital Council to assist and co-ordinate the work of the regional councils; also a Medical Advisory Committee (or committees), national or regional, to advise the Secretary of State, the regional councils, the voluntary hospitals, and the local authorities on all medical matters, especially concerning important appointments. A further principle laid down was that the voluntary hospitals should continue without any territorial restrictions, thereby ensuring a service to sparsely populated areas.

Correspondence

Association of Non-teaching Voluntary Hospitals

SIR,—In March, 1944, I got in touch with all the honorary staffs of those major (non-teaching) voluntary hospitals recognized by the Royal College of Surgeons as places where resident appointments would qualify the holders to become candidates for the F.R.C.S. An inaugural meeting was held in September, 1944, and organizers appointed in each B.H.A. area. Meetings were held in these areas, and a member elected to become a member of the council of the new association.

The association has never sought direct approach to the Government, and it has pledged itself to support the Central Consultant Services (Beveridge) Committee which meets at the Royal College of Physicians. Its function is to safeguard the interests of those consultants and specialists not attached to undergraduate teaching schools. The response has been very gratifying. For administrative convenience and for other reasons which space prevents enlarging upon, admission to membership is by the honorary staff as a whole of one of the following types of hospitals: (1) A (non-teaching) voluntary hospital of 200 beds or over. (2) Any (non-teaching) voluntary hospital recognized by one of the Royal Colleges as a place where resident appointments qualify holders to become candidates for the higher diplomas. (3) Any (non-teaching) voluntary hospital of which the honorary staff *in charge of beds* is 75% engaged in consulting or specialist practice only. (4) Other (non-teaching) voluntary hospitals at the discretion of the council.

Already practically all Types 1 and 2 hospitals have joined. Under 3 there are many special hospitals whose outlook is consultant but who have not yet been in touch with this association. For their benefit the following list of the council may help them to make personal contact with their local representative:—

President, Mr. H. J. McCurrich, 19, Palmeira Avenue, Hove.
Hon. Secretary, Mr. M. P. Reddington, 75, Wimpole Street, London, W.1.
Hon. Treasurer, Mr. K. Heritage, 2, Harley Street, London, W.1.

British Hospital Association Areas:

1. Berks, Bucks, and Oxon. Not yet elected.
2. Bristol and Somerset. Mr. C. E. Kindersley, 18, The Circus, Bath.
3. Cornwall. Dr. C. T. Andrews, Royal Cornwall Infirmary, Truro.
4. Devon. Dr. C. J. Fuller, 6, Barnfield Crescent, Exeter.
5. Eastern Area. Mr. J. M. Ridley Thomas, 3, Christchurch Road, Newmarket Road, Norwich.

SUPPLEMENT TO THE

BRITISH MEDICAL JOURNAL

LONDON SATURDAY MARCH 10 1945

HEARD AT HEADQUARTERS

The Negotiating Committee

The Negotiating Committee or its Administration Subcommittee has now held seven meetings with the Minister of Health. At its first meeting it appointed Dr. Guy Dain as its chairman, Sir Alfred Webb-Johnson vice-chairman, and Dr. Charles Hill secretary. The main subject of the discussion so far has been the administrative structure of a National Health Service, and the views of the profession have been put forward to the Minister and his officials. The Negotiating Committee met at B.M.A. House on March 7 to consider the position now reached on this important section of its task, and, as stated in last week's *Supplement*, the Association's members will report progress to a special meeting of the Council on March 21.

The 100% Issue in America

The "Principles of a Nation-wide Health Program" have been put forward in the United States above the names of twenty-nine sponsors, many of them well-known men and women in American medicine. The report is published by the Committee on Medical Economics, New York. It has many points of interest on this side. The demand there as here is for medical services to be made financially accessible to all, and the method favoured by these sponsors is a national system of contributory health insurance.

It is stated that American families ordinarily spend about 4% of their income on medical services of all kinds (about 3% on doctors and hospitals). Nine-tenths of the American population are declared to need protection against the uneven and unpredictable costs of sickness.

The majority of the twenty-nine consider that limitation to certain income groups is not desirable, but three out of the twenty-nine think that the service should be only for those whose incomes fall below a certain figure, somewhere between £400 and £600. All, apparently, agree that those who want to "purchase" medical care outside any national health system should be free to do so.

[Some account of the medical services of the United States appears on page 36.]

Maternity Fees in Scotland

Our Scottish colleagues have scored a noteworthy success. Once more their native pertinacity has been rewarded. For years the Scottish Committee of the B.M.A. has represented to the Department of Health that the fees paid to doctors under the Maternity Services Act passed eight years ago were inadequate. Not only was the payment meagre, but the differentiation between the insured and the non-insured was perpetuated.

Thus the basic fee was 36s. for the insured woman (this for ante-natal, intra-natal, and post-natal services) and £2 for the non-insured. Even these figures, agreed to in 1938, were an improvement on the original figures of 25s. and 30s. respectively.

As announced in the *Supplement* of Feb. 24 (p. 29) the Department of Health has now agreed to the main proposals of the Scottish Committee, and is asking local authorities to incorporate the revised terms in their schemes. The basic fee for all services rendered by the doctor, whether the patient is an insured person or not, including services to any woman who is removed to hospital after labour begins, is to be £3 3s. If the woman is removed to hospital before the beginning of labour and is confined there, the fee is 25s. There are provisions for dividing the £3 3s. fee between the two practitioners concerned when a woman changes her residence during the relevant period.

A Differentiation Gone

Thus the differentiation between the insured and non-insured pregnant woman disappears from the Scottish maternity arrangements. This differentiation, which the Treasury has seemed loath to abandon, has been one of the unfortunate and irritating features of the service.

There are certain other points in the new terms. The same fees are payable, if ante-natal service has been rendered, should the pregnancy end in abortion or miscarriage. A wartime addition of 10% to mileage payments has also been agreed to. Another satisfactory point to have gained is an official definition of what constitutes labour. Labour is defined as "the period from the onset of the first pain until the final stage, including the repair of the perineum, if such repair is necessary and is done immediately."

Scotland's largest city is outside the service. The Glasgow Division has made representations to the Secretary of State that pressure should be brought on the local authority to come into line.

Inquisitorial

The constantly recurring dilemma of the doctor is illustrated by a letter which one doctor has received from an approved society. He had certified a woman as incapable of work by reason of advanced pregnancy, and the society sent a questionary which it hoped the doctor would be "good enough" to answer—the polite phrase is a sort of cover under which it would be possible to say, should any question arise afterwards, that the information was not demanded but was given by an obliging doctor.

The doctor is asked what in his opinion is the period of pregnancy at the date of the certificate, whether it is an uncomplicated pregnancy and, if not, what other condition is present, and whether the woman is fit for ordinary housework. The insurance doctor is under no obligation to answer such inquiries. If the woman has some disabling condition in addition to pregnancy it would be a breach of confidence to disclose it without her consent, and as for housework, "work" in the terms of N.H.I. certificates is normally understood to be a person's ordinary remunerative employment. But the point is that if the doctor disregards the request of the approved society it may mean that his patient will stand little or no chance of being paid sickness benefit. Many societies decline to pay on a certificate specifying pregnancy alone, but some pay on a certificate of advanced pregnancy.

The doctor in this case took the sensible course of answering the question as to the date of pregnancy, and wrote a letter pointing out that it was enough for him, and should be enough for those who had been in regular receipt of the insured woman's contributions, to know that there was interference with her capacity to earn her living in the way in which she had been accustomed.

Consultant and Specialist Opinion

Meetings are now being arranged in various areas for consultants and specialists to discuss their problems in relation to a National Health Service (*Supplement*, March 3, p. 34). They are open to practitioners of consultant and specialist status, whether members of the B.M.A. or not, and whether engaged exclusively in such practice or not. There are many points in the National Health Service proposals which affect consultants and specialists and which call for discussion. There is also the question of the establishment of a statutory list of consultants and specialists, on the desirability of which there are differences of view. And again, the Goodenough Committee's Report on Medical Schools furnishes further matter for the attention of consultants. Opinion on the future of the general practitioner services has more or less found its channels; that on the future of consultant and specialist services is less clear. The way to canalize it is by discussion.

6. East Midlands. Dr. J. P. W. Jamie, 7, de Montford Street, Leicester.
7. Essex. Dr. S. A. Propert, 47, Lexden Road, Colchester.
8. Gloucester, etc. Mr. O. E. J. McOustra, Hilton Lodge, Lansdowne Road, Cheltenham.
9. Hampshire and Dorset. Dr. C. B. S. Fuller, Royal Hampshire County Hospital, Winchester.
10. Kent. Dr. H. A. Treble, Kent and Canterbury Hospital, Canterbury.
11. London. Mr. A. L. Abel, 48, Harley Street, W.1; Mr. Hamilton Bailey, 149, Harley Street, W.1; Mr. Clifford Morson, 86, Brook Street, W.1.
12. Manchester and District. Not yet elected.
13. Merseyside. Mr. R. J. Martin, Sec. Medical Board, Birkenhead General Hospital, Birkenhead.
14. Middlesex. Mr. S. Garbutt, Harrow Hospital, Roxeth Hill, Harrow.
15. Northamptonshire, Bedfordshire, and Hertfordshire. Mr. A. R. Banham, 11, Billing Road, Northampton.
16. North-Eastern Area. Dr. R. E. Jowett, The Royal Infirmary, Sunderland.
17. Chester. Mr. A. W. Holgate, 24, Curzon Park, Chester.
18. North-Western Area. Dr. F. M. Hilliard, 171, Newton Drive, Blackpool.
19. Sheffield and District. Dr. L. Dougal Callander, Danum House, 6A, South Parade, Doncaster.
20. South Wales and Monmouthshire. Dr. W. V. Howells, 73, Walker Road, Swansea.
21. Surrey. Dr. A. Barnsley, Royal Surrey County Hospital, Guildford.
22. Sussex. Mr. J. H. R. Turton, 26, The Drive, Hove, 3.
23. West Midlands Area. Mr. Frank H. Edwards, 14, St. John's Hill, Shrewsbury.
24. Wiltshire. Mr. H. S. Taylor-Young, 9, New Street, Salisbury.
25. Yorkshire. Mr. Donald Watson, 33, Manor Row, Bradford.

It is hoped that all hospital staffs eligible to join will get in touch with their area representative. The fact that the majority of the members of council, including myself, are also members of the Beveridge Committee, should dispel any baseless rumours that independent action is intended, but we shall undoubtedly seek to influence that committee, and the fact that neither the Royal Colleges nor the B.M.A. elected a single member of the staff of a non-teaching hospital to the Negotiating Committee must considerably lessen its representative character when the number of beds controlled by the non-teaching hospitals is contrasted with those of the teaching hospitals. It is true that the Society of Apothecaries has nominated Dr. Morley of the West Sussex Hospital to be its representative—a choice in which I have every confidence—but the proportion of teaching to non-teaching representatives to deal with a problem that is not academic but concerns the future livelihood of all of us is out of any semblance of proportional representation. Furthermore, the election of this Negotiating Committee bears no resemblance to accepted democratic methods.—I am, etc.,

H. J. McCURRICH,
President, Association of the Major (Non-teaching) Voluntary Hospitals of England and Wales.

Hove.

Medical Demobilization

SIR,—It is to be hoped that the cry of "the exigencies of the Service" will not be accepted unquestioningly by the Central Medical War Committee. From three years' experience in the R.A.F. Medical Service these "exigencies" may well result from the "misemployment" and extravagant distribution of medical officers.

1. Misemployment.—Two-thirds of a station M.O.'s working day is spent in carrying out duties such as inspections of sanitation, cook-houses, doubtful food, and in the signing of innumerable forms. All these things could be done by an N.C.O. of average intelligence after a ten-days course of instruction. Further, non-specialist M.O.s are compelled to send to specialists any case, no matter how simple, requiring an alteration in medical category or in employment. The station M.O. cannot, for example, recommend that the airman, whose condition he has diagnosed as a chronic suppurative otitis media, be made unfit for the Tropics and unfit to be exposed to the noise of aircraft engines in a hangar. The result is three more forms and the waste of a specialist's time, not to mention that of the patient.

2. Distribution of M.O.s.—My own experience is illuminating. In 1942 I was posted to a non-operational flying unit of about 1,500 people. There were three M.O.s, and before I left our numbers increased to five; the newcomers were Polish and Czech M.O.s, both of whom had a working knowledge of English. In 1943 I went to a small R.A.F. H.Q. in a big city. Here two M.O.s had to care for 300 people at the H.Q. and to supervise sanitation at some half-dozen scattered units averaging 100 men at each, all within a radius of 200 miles. To assist in the enormity of the task each out-station had one local C.M.P. "on call," while at H.Q. itself we have three.

Such were my experiences two years ago. The lavish allotting of M.O.s is less obvious to-day. Their misemployment was never more so.—I am, etc.,

ANOTHER R.A.F. M.O.

Specialist Practices

SIR,—There must be hundreds of ophthalmic and ear, nose, and throat surgeons in the Provinces who have bought the goodwill of their practices, many of them through the agency of the advertisements in the *British Medical Journal*. I hope they all realize that the creation of the proposed Regional Hospital Services Councils, with their power to advise on the appointment to the honorary staffs of hospitals, will destroy the goodwill value of their practices. If the work of the Regional Hospital Services Councils will raise the standard of specialist practice then let it be done, but surely our Negotiating Committee should insist that the Government pay full compensation to those specialists who can prove their practices have a goodwill value.—I am, etc.,

Blackburn. J. M. WISHART.

Reallocation of Medical Man-power

SIR,—May I, as one of the E.M.S. doctors referred to by Surg. Lieut. J. L. Adlington (*Supplement*, March 3, p. 33), say how much I agree with the sentiments he expresses regarding the reallocation of medical man-power. Many of us obtained our higher qualifications before the war started and have been volunteers for the armed Forces since the beginning of hostilities, but have been held back by local authorities and other bodies.

Life for us has not been as easy as he makes out. We have had our share of civilian war surgery, and have played our part in the treatment of casualties from Dunkirk, Dieppe, and Normandy. The work and responsibility of the civilian sick have increased with each year of the war. In my own case, working as the only surgeon in a municipal hospital of 600 beds, I operated last year upon over 1,100 cases and was responsible for their pre- and post-operative treatment without the help of an assistant or a house-surgeon. In addition I ran my own surgical out-patient department, where I saw over 700 new cases last year. My duties also include lectures to student nurses, and I have to take my place in rota two or three times a week on night call to examine and treat medical, mental, and chronic sick cases and to give anaesthetics in the maternity department. I have now resigned my appointment and I await with pleasure my call-up to the armed Forces.—I am, etc.,

HAROLD PARK.

Agreements for Purchase of Practices

SIR,—I venture to submit suggestions for reducing the dangers of doctors defaulting in practice purchase agreements.

1. Rigid rates of repayment should not be exacted from a man with a variable income. Repayments of amounts related to the income tax payable and to the rate of income tax would be much fairer.

2. Heavy life insurance premiums should not be paid during the interest-paying period as these prolong that period. Life insurance for the balance of the debt should be sufficient.

3. Practice, house, car, furniture, and instruments should be purchasable under one hire-purchase loan agreement.

4. Such hire purchase by doctors should be financed and insured by a doctors' semi-benevolent society, capable of receiving gifts, legacies, guarantees, and interest-free loans. The name of such a society might well be "The Doctors' Protection Society."—I am, etc.,

Bombay. WILLOUGHBY CLARK.

War Gratuities

SIR,—It is difficult to see how the anomaly mentioned in Wing Cmdr. R. W. Durand's letter (*Supplement*, March 3, p. 33) can be remedied. Raising "B's" gratuity would give non-medical officers and men a legitimate grievance, while if all gratuities were raised to an equivalent level the bill would be considerable. Reducing "A's" gratuity will not help "B," and would be a flagrant breach of contract. Finally both "A" and "B" had an equal chance of getting a short-service commission before the outbreak of war.—I am, etc.,

C. J. ROBARTS,
Surg. Lieut.-Cmdr., R.N.

SIR,—It is surprising that so little comment has appeared in your correspondence columns on the subject of the proposed gratuities offered to medical officers on discharge from the Services. In a sense the word "gratuity" seems a misnomer, since it implies an *ex gratia* payment made in addition to substantial other emoluments. Surely a gratuity should rather be regarded as a compensation for hardship and loss of pension-producing years of civil employment.

MEDICAL SERVICES IN THE UNITED STATES

Medical care in the United States is largely privately supported and privately directed. Apart from the tuberculosis, infectious diseases, and mental health services the Federal Government has provided medical care only for the needy. It is estimated that there are over 8,000 clinics where doctors devote often half of each day to patients unable to pay for their services, while two-thirds of the hospital beds in the country are free beds in public or voluntary hospitals. Recent surveys have shown, however, that adequate medical care is not available in sparsely populated districts and for persons in the lower income groups. Doctors are much more numerous in some States than in others; Massachusetts has almost three times as many doctors per person as Mississippi. Doctors and hospitals are heavily concentrated in urban centres: there are more than 1,000 counties in the U.S. with no general hospital. These surveys have also shown that only persons in the middle and higher income groups can avail themselves fully of private medical and hospital attention. The Committee on the Cost of Medical Care for the American People found in 1932 that families in the higher income groups received three times as much medical attention as the needy.

The result has been that private insurance companies offer cover to thousands of industrial workers against the costs of medical and hospital care, while many business organizations have their own schemes for their employees and their dependants, the cost of which is usually, though not always, shared by employer and employees. Then there are schemes sponsored by State or county medical associations, the largest of which, the Michigan Medical Service, has 500,000 subscribers, but covers costs of surgical treatment only. Members of the "Blue Cross" organization, who number about 12,000,000, receive hospital benefits for a payment of 3 cents a day. In 1937 some 1,500 Government employees in Washington formed the Group Health Association, which provided complete medical care for all its members. A farming community in Oklahoma built a hospital of 85 beds and to-day 1,600 families each pay 25 dollars (£5) a year for complete medical and hospital treatment. In all about 20,000,000 people in the U.S. are covered by these and other schemes of voluntary sickness insurance.

A Medical and Hospital Insurance Bill

In June, 1943, Senators Wagner and Murray and Representative Dingell introduced a bill into Congress which aimed at extending the existing Social Security Law to include a Government system of medical and hospital insurance. This met strong opposition and has not become law; it is still under discussion. Under it each worker and his dependants would be entitled to the services of a physician whom he could choose from among those who had voluntarily agreed to enter the scheme. Each person would be entitled on his doctor's advice to specialist, consultant, and laboratory and related services, including *x*-ray investigation, special appliances, eye-glasses, etc., and necessary hospital care, the latter being limited to a maximum of 30 days in any year, although it might be extended to 90 days if the insurance fund can support it. Doctors would be free to enter or remain outside the scheme, and to accept or reject patients. They would be paid by: (*a*) fees, (*b*) capitation payment, (*c*) salary, whole- or part-time, or (*d*) a combination of these. Every hospital would be eligible to participate. Employed persons would contribute 6% of their wages or salary and employers a corresponding amount. In the case of employees of States or municipalities the contribution from each would be 3½% of wages. A higher rate of contribution is suggested for people in business on their own account, but wages or earnings over £600 a year would not be considered in computing these deductions.

The United States Public Health Service would be responsible for the administration of the professional and technical aspects of the scheme under the Surgeon-General, finance being the province of the Social Security Board. Rules and regulations would be issued by the Surgeon-General in consultation with the Social Security departments; he would enter into contracts with doctors and hospitals and set up appeal organizations. There would be an advisory council to the Surgeon-General, known as the National Advisory Medical and Hospital Council. The chairman would be the Surgeon-General, who would appoint the 16 members from panels of names submitted by professional and other organizations concerned with medical services and education. Each member would hold office for four years and would be paid $25 a day while attending meetings plus travelling expenses. This council would advise on all professional and hospital standards, on methods of payment, grants-in-aid of education and research, the establishment of special committees, etc. As our contemporary the *Canadian Medical Association Journal* puts it: "Perhaps the most significant point in this plan is the very great power placed in the hands of the Surgeon-General. Neither in Canada nor in Great Britain is it proposed to give such authority to any one man."

What the A.M.A. Thinks

Strong opposition to Government activity in the medical field has come from the American Medical Association and the National Physicians Committee, the latter a committee of prominent doctors organized to promote the extension of medical care by private rather than Government action. Dr. Morris Fishbein has said that the Wagner-Murray-Dingell Bill is "political medicine," that it would eventually mean Government control of all medical practice, and that the American Medical Association is working on its own programme for a "better distribution of medical services." At the end of 1943 the American Medical Association published a "Statement of General Policies" in which, after expressing the view that it is "not in the public interest that the removal of economic barriers to medical service should be utilized as a subterfuge to overturn the whole order of medical practice," it makes the following statement on health insurance: "The Association approves voluntary prepayment medical service under the control of State and county medical societies in accordance with the principles adopted by the House of Delegates in 1938. The medical profession has always been strongly opposed to compulsory health insurance, because: (1) it does not reach the unemployed class; (2) it results in a bureaucratic control of medicine and interposes a third party between the physician and the patient; (3) it results in mass medicine which is neither art nor science; (4) it is inordinately expensive; and (5) regulations, red tape, and interference render good medical care impossible."

While recognizing the big cost involved, the supporters of the Bill say that the additional services are socially necessary and that the cost would be spread more evenly. Among its most vigorous defenders are the American Federation of Labour, the Congress of Industrial Organizations, and the Committee of Physicians for the Improvement of Medical Care, a group of doctors organized to support a Government health insurance programme. Public opinion on the subject is divided. A survey indicated that 42% of those familiar with the Bill are opposed to it and 32% in favour.

GENERAL MEDICAL COUNCIL

DISCIPLINARY CASES

An extra session of the General Medical Council, principally to deal with penal business postponed from the session of November last, was opened on Feb. 27, Sir Herbert Lightfoot Eason presiding.

Prof. Henry Cohen, a member nominated by the Privy Council, and Prof. W. J. Tulloch, representative of the University of St. Andrews, were introduced and took their seats.

Charges relating to Certification

The first case considered was that of Madhavrao Narayan Agascar, registered as of Mexborough, Yorkshire, L.M.S.Bombay, who was summoned on the charge of having given on various dates in 1943 and 1944 a number of untrue, misleading, and improper certificates concerning employees of an undertaking engaged in essential work. Eleven certificates relating to six individuals were mentioned in the charge. The complainants were the Manvers Main Collieries Ltd., who were represented by Mr. J. B. Herbert, counsel; the respondent attended and was accompanied by Mr. A. Pereira, counsel.

Mr. Herbert said that Manvers Collieries operated a number of workings near Mexborough, employing some 4,000 men. Dr. Agascar had carried on for a long time a large industrial practice in Mexborough as assistant to Dr. Bhatia. Some of the certificates in question were given for the purposes of the administration of the Essential Works Order. The employer in certain scheduled undertakings was bound to pay a guaranteed wage to every man in the undertaking, and if it happened that on a particular day there was no work available for a man, he was still entitled to receive payment for that day provided he was ready and willing to work for the remainder of the week. If there was satisfactory evidence of sickness or disability on these other days he was still entitled to payment, but if no such evidence could be given, payment was not made. Mr. Herbert was not in a position to call any of the workmen to say that they went to Dr. Agascar when they were not ill and got certificates; he was bound to rely on surrounding circumstances which made it a very remarkable thing that these certificates should have been issued.

On Sept. 9, 1943, three certificates were given for three men that they were unable to follow their employment because of influenza. These men were members of a

In peacetime the short-service medical officer receives a substantial gratuity on completion of his service, presumably to bring him on to an equal footing with regular officers of the Services, who are pensioned on retirement. At the end of the present war, however, medical officers, volunteers or otherwise, are offered a gratuity entirely out of proportion to this peacetime amount. The effect of this is that non-regular officers are penalized by comparison with regular officers, who have accumulated years towards their pensions during the war. Moreover, these gratuities are very much less than those given after the last war, and it is interesting to note that the total figure quoted as the cost to the nation of all gratuities is very much less than in 1918, although many more individuals have served in the Forces and for a longer time.

It is unnecessary to touch upon the financial hardships necessarily and for the most part uncomplainingly borne by medical officers on account of their service, and it seems only reasonable that a gratuity given on its completion should be substantial enough to be a really useful aid in professional rehabilitation, and enough to compensate them for the loss of years during which they might have been qualifying for a pension or saving against the years to come.—I am, etc.,

WING COMMANDER.

The Earl of Harewood, who presided at the annual meeting of the Royal Baths Hospital, Harrogate, on March 10, said that a campaign started just before the war to put the hospital on a first-class basis had aimed at £70,000, and rather more than half of that was raised in the first year of the appeal. A plan to carry out the whole of the improvements desired would need consideration in the light of the Government's White Paper on hospitals and health services. Lord Harewood went on to recall that the Royal Baths Hospital had initiated a research department jointly with Leeds University, which still had money to its credit to revive that scheme after the war. Research into the causes and cure of rheumatism must be one of the most important of objects, and the Government ought to give great encouragement to this if it took the work of hospitals seriously. Proceedings in Parliament, and legislation in particular, should be watched to see that hospitals retained their liberty of initiative in research work. "None of the adventures in research work since the war," Lord Harewood continued, "and there have been many, would have been effective if hampered by bureaucratic ordinances, and it is the same in research into rheumatic diseases. I hope you will use such influence as you have to let the research worker use his own brain unhampered by restrictions which red tape and bureaucracy have been apt to put on." Mr. Herbert Crowther, who was re-elected chairman of the board of management, said it was impossible to think of the national health services without the treatment of rheumatic diseases in specialized hospitals. The board was anxious that Harrogate should become the regional centre for the treatment of rheumatism in the north-east of England, and all the hospital's facilities would be placed before the Government on any agreed scheme. With the co-operation of Leeds University and Leeds Medical School, and with some increase in the medical staff, the Royal Baths Hospital was ready to accept full responsibility under the national health services.

SPECIAL REPRESENTATIVE MEETING

Notice is hereby given that on the requisition of the Council a Special Representative Meeting of the British Medical Association will be held in the Great Hall, B.M.A. House, London, W.C.1, on Thursday, May 3, at 10 a.m., continuing until the business is completed. The meeting is expected to last until the evening of Friday, May 4. The business of the meeting is to consider a report from the Council on the negotiations which have been proceeding with the Minister of Health and to determine the Association's policy on the issues raised.

By order of the Chairman of the Representative Body.

CHARLES HILL,
Secretary.

B.M.A. House, Tavistock Square,
London, W.C.1.
March 31, 1945.

CONSULTANT AND SPECIALIST OPINION

A further meeting open to consultants and specialists (see *Supplement,* March 3, p. 34) has been arranged as follows:

Exeter.—Wednesday, April 11, at 3.30 p.m., in the Board Room of the Royal Devon and Exeter Hospital. Dr. C. J. Fuller will open the discussion.

H.M. Forces Appointments

ARMY

Major A. L. Sheppard, I.M.S., retired pay, has been restored to the rank of Lieut.-Col. on ceasing to be re-employed.

ROYAL ARMY MEDICAL CORPS

Lieut.-Col. M. B. King, M.C., having attained the age for retirement, is retained on the Active List (supernumerary).

Short Service Commission.—War Subs. Capt. A. C. S. Hobson, M.C., from Emergency Commission, to be Lieut., and to be Capt.

TERRITORIAL ARMY

ROYAL ARMY MEDICAL CORPS

Col. R. E. Bickerton, D.S.O., T.D., has relinquished the appointment of Hon. Col., R.A.M.C. Units, the London Division, on completion of tenure.

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs. Capts. C. B. Armitt, I. A. Tumarkin, and W. O'Brien have relinquished their commissions on account of disability, and have been granted the honorary rank of Major.

War Subs. Capts. J. Cantlie, B. Oppenheim, E. P. Scott, and G. R. Sedleigh-Denfield have relinquished their commissions on account of disability, and have been granted the honorary rank of Capt.

War Subs. Capt. D. W. Montgomery has relinquished his commission on account of disability, and has been granted the honorary rank of Capt. (Substituted for the notification in *Supplement* to the *London Gazette* dated Feb. 6.)

To be Lieuts.: I. Grebler and E. H. R. Smithard.

WOMEN'S FORCES

EMPLOYED WITH THE R.A.M.C.

War Subs. Capt. (Mrs.) E. J. Parry has relinquished her commission.

(Mrs.) Inez M. Y. M. Petrie and (Miss) Hope Trant, M.B.E. (Emergency Appointments), to be Relative Lieuts.

ROYAL AIR FORCE

ROYAL AIR FORCE VOLUNTEER RESERVE

Fl. Lieut. L. G. Maclachlan has relinquished his commission on account of medical unfitness for Air Force service.

WOMEN'S FORCES

EMPLOYED WITH THE MEDICAL BRANCH OF THE R.A.F.

Fl. Lieut. B. B. Lennon has resigned her commission.

Constance L. Simpson to be Flying Officer (Emergency).

COLONIAL MEDICAL SERVICE

The following appointments have been announced: G. D. Arthur, M.R.C.S., Medical Officer, Falklanc Islands; V. L. Billington, Medical Officer, Nigeria S. Forrest, M.B., Assistant Director of Medica Services, Tanganyika; G. Kinneard, O.B.E., M.D. Director of Medical Services, Fiji; L. A. P. Slinger M.B., Senior Medical Officer, St. Lucia; G. W Green, M.D., Medical Officer, Nigeria; S. Bodissian M.D., Medical Officer, Grade 1, Palestine.

MEDICAL WAR RELIEF FUND

SIXTY-SIXTH LIST

Amount previously acknowledged £55,541 7s. 5d *and* £100 3½% *Conversion Stock and* £40 3% *Defence Bonds.*

Individual Subscriptions

£50.—Mr. G. H. Steele, Guildford (3rd donation)

£25.—Dr. F. E. Montague, Fiji.

£20 15s. 11d.—Dr. B. de F. Boyce, British Columbia (3rd donation).

£10 10s.—Anonymous, London.

£10.—Dr. H. F. Joynt, Beckenham.

£5.—Dr. G. Stoddart, London (2nd donation).

£3 3s.—Major A. A. McNeight, Bulawayo (2n donation).

£2 2s.—Capt. N. Bickford, R.A.M.C. (15th donation); Dr. Dora E. L. Bunting, Southampton (5t donation); Lieut.-Col. A. L. Craddock, I.M.S.

£1 1s.—Dr. R. Murray Barrow, Stone, Staffs (3r donation).

£25.—Honorary Surgeons of Manchester Roya Eye Hospital (amount already sent, £61 5s.).

£6 6s.—Doctors in East Herts Division—per Dr J. S. Ross (amount already sent, £341 9s. 1d.).

£3 3s.—Scottish Eastern Association of Medica Women's Federation (amount already sent, £4 4s.)

£2 5s. 6d.—Doctors of the Hoylake and Wes Kirby Cottage Hospital (amount already sent £19 6s. 6d.).

Local Medical and Panel Committees

£5 5s.—Montgomeryshire (4th donation).

Total—£55,715 2s. 10d. *and* £100 3½% *Conversio Stock and* £40 3% *Defence Bonds.*

Sums for Books for Prisoners of War

Amount previously acknowledged £216 14s. 6d

Cheques, payable to the Medical War Relie Fund, should be sent to the Hon. Treasurer o the Fund, British Medical Association Hous Tavistock Square, London, W.C.1.

POSTGRADUATE NEWS

The Fellowship of Medicine announces: (1) R vision course in anaesthetics, all day, April 9 to 2 lectures and demonstrations at various London ho pitals. (2) Final F.R.C.S. week-end course in su gery, all day, Sat. and Sun., April 14 and 15, Hillingdon County Hospital. (3) Final F.R.C. demonstration of specially selected cases, Sat., Ap 21, 2.30 p.m., at London Homoeopathic Hospital.

WEEKLY POSTGRADUATE DIARY

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W. *Archway Hospital:* Tues., 2 p.m., Final F.R.C. demonstration.

DIARY OF SOCIETIES AND LECTURE

ROYAL SOCIETY OF MEDICINE.—*Wed.,* 2.30 p.m Section of History of Medicine; 5 p.m., Sectic of Surgery. *Thurs.,* 5 p.m., Section of Neurolog *Fri.,* 2.30 p.m., Section of Anaesthetics.

BIRTHS, MARRIAGES, & DEATH

The charge for an insertion under this head 10s 6d. *for* 18 *words or less. Extra words* 3s. 6 *for each six or less. Payment should be forward with the notice, authenticated by the name a permanent address of the sender, and should rea the Advertisement Manager not later than first po Monday morning.*

BIRTH

ULYATT.—On March 19, 1945, at Shardeloes, Ame sham, Buckinghamshire, to Dr. Frances Margar Ulyatt (*née* Douglas) and Flying Officer Kenne Ulyatt, R.A.F.V.R., a son—Charles Kenneth.

MARRIAGE

ROLLASON—ROWBOTHAM.—On March 3, 1945, St. Andrew's Church, Banwell, Fl. Lieut. Willia Norman Rollason, R.A.F.V.R., Holly Ha Worcs., to Margaret Rowbotham, of Banwe Somerset.

DEATH

WEBSTER.—Killed on active service on Feb. 20, 194 Fl. Lieut. Ralph Webster, R.A.F., dearly lov only son of Lieut.-Col. and Mrs. W. J. Webst Kasauli, Punjab.

team of eight in a particular seam. A fall occurred in the seam and it was intimated that they would have to work somewhere else, whereupon all these eight men reported sick and did not turn up at the colliery until two days later, by which time it was possible for work on the old seam to be resumed. Three of these men presented the certificates which figured in the charge. The circumstance that they all fell ill on the same day and recovered on the same day seemed suspicious, but the extraordinary thing was that the events were repeated almost exactly six months later, when three other men were similarly certified all on the same day to be unable to follow their employment because, respectively, of rheumatism, synovitis, and influenza.

In another case a man was certified as having had an injury to his left hand. This man was ordered by the management on Feb. 12 to undertake a night shift, when he was normally on day shift, and he did not turn up. On Feb. 24 he was interviewed by the Pit Production Committee as to the cause of his absence; he did not produce any certificate, but on the following day he turned up with a certificate by Dr. Agascar, bearing the date Feb. 13. The number of this certificate was F.1586, but the company had in its possession a certificate issued by Dr. Agascar to another person dated Feb. 24 which was numbered F.1588, and it was suggested therefore that Dr. Agascar must have issued the challenged certificate on or about the 24th and have dated it back to the 13th. Another man was away from his work on several days in January and February and was sued for damages by his employers in respect of his absenteeism. He thereupon produced N.H.I. intermediate certificates dated respectively Jan. 20 and 27 and Feb. 3, but the numbers of these certificates were consecutive—namely, E.646671–2–3. Counsel submitted that this man must have obtained all three certificates from Dr. Agascar on the same date, although on each certificate he had declared, "I have examined you on the undermentioned date," thus covering three weeks of his absenteeism. Evidence was given by the manager of the collieries and other officials concerning procedure on certificates.

Mr. Pereira submitted that there was no case to answer. No counter-evidence had been given as to the health of the men concerned at certified dates.

The Council, after deliberating in private, decided that there was a case to answer.

Mr. Pereira then said that in the circumstances he would take the responsibility of asking Dr. Agascar not to go into the witness box. No medical man should be put in peril on such evidence as had been produced. Here were certificates by a qualified medical man that these workmen were suffering from certain illness or disability on given dates, and no evidence, medical or other, as to the health of these men had been called to challenge them. There were any number of possibilities to account legitimately for the circumstances stated to be suspicious. It would have been quite feasible to have made independent inquiries as to where these men were and what they were doing during their absence from work, but no such steps had been taken by the management of the collieries. As to the fact that certificates on widely separated dates bore consecutive numbers, this might be due to the fact that more than one book of certificates was in use at the same time.

A number of testimonials were put in on behalf of Dr. Agascar.

After a short private deliberation the Council found that the facts alleged against Dr. Agascar had not been proved to its satisfaction.

In view of this decision Mr. Herbert withdrew a charge against Dr. Sukhdev Pershad Bhatia, registered as of Mexborough, who had been summoned on a complaint by the Manvers Collieries based on similar allegations to those brought forward in the case of Dr. Agascar.

Unlawful Procurement of Dangerous Drugs

The Council considered the case of Francis Christopher Toner, registered as of Galway, who appeared in answer to a charge that he had been convicted of offences under the Dangerous Drugs Act.

Mr. Winterbotham, the Council's solicitor, stated that the offences fell into four groups. In February, 1936, Dr. Toner was convicted at Clerkenwell police court of failing to enter in a register particulars of various purchases of drugs. He was fined and his authorization to obtain drugs was withdrawn by the Home Secretary. In January, 1943, at Wealdstone petty sessions, Dr. Toner was convicted on four charges that, not being duly authorized, he had unlawfully procured for himself quantities of dangerous drugs, and he was sentenced to four concurrent terms of six months' imprisonment. In June, 1944, at North London police court, he was convicted on four charges of unlawfully obtaining morphine sulphate tablets, and was sentenced to four concurrent terms of six months' imprisonment. Shortly before the date of these last convictions Dr. Toner had become friendly with a State-registered nurse employed by the L.C.C., and while visiting her at the hospital persuaded her to obtain morphine tablets for him from a drug cupboard on the promise to return them next day. He did return certain tablets on the following day, but they were not morphine sulphate. His last conviction was at Lincoln in February, 1945. Here there were four charges of unlawfully procuring tincture of opium diluted. He was at that time engaged as locumtenent at a dispensary at Lincoln, and during that period he stole 144 morphine suppositories from the locked drug cupboard. This offence was taken into consideration, and he was committed to prison for twelve months without hard labour, which sentence he was still serving.

Dr. Toner had written to the Council expressing his deep regret and stating that the offences had never involved any patient. In his professional capacity he had not used any of the drugs in question. He added that he felt sure that as a result of the imprisonment he was serving he would be completely cured of the drug habit. A letter from the medical officer to Lincoln prison was read in which he gave a good account of Dr. Toner's condition. Dr. Toner added that it was entirely incorrect that the tablets which he returned to the L.C.C. hospital were not of morphine sulphate, similar to what he had taken the day before. He could prove this if necessary.

The Council found that the facts had been proved, and directed the Registrar to erase the name of Dr. Toner from the *Medical Register*.

The Council next considered the case of David Davidson Watson, registered as of Colquhoun Street, Stirling, who appeared on the charge that he had been convicted on Sept. 14, 1944, at the Sheriff Court at Stirling, of procuring for himself drugs or preparations to which Part III of the Dangerous Drugs Act, 1920, applied, and of procuring for other persons by means of prescriptions like drugs or preparations. He had been fined £50 or three months' imprisonment.

Mr. Winterbotham said that Dr. Watson, after his authorization had been withdrawn, had issued prescriptions for morphine and cocaine on numerous occasions; eighty-nine prescriptions for morphine and twenty-six for cocaine were in question. The usual prescription was for morphine sulphate 4 gr. solution in water, and Dr. Watson, when charged with the offences, explained that in his view this solution did not come within the provisions of the Dangerous Drugs Act. The fact was, said Mr. Winterbotham, that the Act of 1920, Part III, sect. 8 (1), applied to "morphine, cocaine . . . and any preparation, admixture, extract, or other substance containing not less than one-fifth per cent. of morphine or one-tenth per cent. of cocaine, ecgonine, or diamorphine. For the purpose of the foregoing provision the percentage in the case of morphine shall be calculated as in respect of anhydrous morphine." These prescriptions would barely fall within the terms of the original Act, but by the Act of 1932 a new section was substituted for sect. 8 (1), which made the Act apply to "any solution or dilution of morphine or cocaine or their salts in an inert substance, whether liquid or solid, containing any proportion of morphine or cocaine. . . ." The alteration of the Act provided that any solution of morphine or cocaine in an inert substance was a dangerous drug. Dr. Watson had twice previously been before the Council, the first time in 1936 on a conviction of driving a motor-car while under the influence of drink, and on the second occasion in 1938, arising out of a conviction of manslaughter and driving a motor-car while under the influence of drink. On the second occasion his name was ordered to be erased, but it was subsequently restored.

Dr. Watson, on his own behalf, said that he had believed that a preparation containing only one-tenth per cent. of morphine did not come under the Dangerous Drugs Act, and he spoke of the difficulties in practice which arose out of the withdrawal of his authorization by the Home Secretary. He submitted a letter by Dr. A. J. Shedden of Stirling, stating that Dr. Watson had been his assistant since 1942, and he had found him honest, industrious, and painstaking, and well received by his patients. Dr. Watson wished to give up general practice and specialize in mental diseases, in which he had been greatly interested, and he should do well.

The Council found the conviction proved. The President said that this was not the first time Dr. Watson had appeared before the Council, and from the Council's point of view his record was not a very satisfactory one. In order to give him an opportunity of reconsidering his behaviour in these matters the Council had decided to postpone judgment for two years.

Driving Car under Influence of Drink

The Council considered the case of Alexander Lawrie, registered as of Accrington, who appeared on the charge that he had been convicted on two occasions, both in August, 1944, one of driving a motor-car while under the influence of drink, and the other of being under the influence of drink to such an extent as to be incapable of having proper control of a motor-car; and also the case of Christopher Whitehead, registered as of Greystone, Co. Wicklow, who appeared on the charge that he had been convicted in May, 1944, of driving a motor-car while under the influence of drink.

In both cases the convictions were proved, but judgment was postponed for two years.

Prof. R. J. Brocklehurst was appointed by the Council a member of the Dental Board.

The Council completed its session in two days.

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY APRIL 7 1945

HEARD AT HEADQUARTERS

"Confidential"

The best means of ensuring publicity is, t appears, to make every endeavour to keep a thing quiet. If you want somehing shouted from the house-tops you must whisper it in the street below. The rouble is that in the process of transmission the story is liable to undergo changes, to be exaggerated here and diminished there, so that in the end it s almost unrecognizable. That is a reflection prompted by the accounts in some, not all, of the newspapers on the new White Paper "proposals." Actually there are no new proposals; there are certain possible changes on which the bodies negotiating with the Government the Negotiating Committee for the medical profession is not the only one; here are others concerned for the hospitals and the local authorities) are seeking the views of their constituents. There is nothing sinister about the fact hat the document which forms the basis of this consideration is marked "not for publication"; it was only a question of following, at the wish of the Government, a certain constitutional procedure which governs such matters before they are laid on the table of the House of Commons. To talk of "victories" for this or that section is beside the point; this is not a military engagement but a topographical exploration—almost literally topographical since it has to do with areas and egions and central and local administration. It was agreed that this province of administration should be the first to be studied, and only upon a result acceptable o the profession in this respect being reached would the negotiations go further.

Without any love for red tape or departmental circumlocution, one can understand the disinclination of the Government to have it go forth that crystallized proposals have been made, when all that is in question is tentative nvestigations to discover what body of assent might be forthcoming if certain changes were made.

The 100% Issue

The Representative Body at its special meeting at the beginning of May will be asked to make up its mind on the 100% ssue. Hitherto, quite properly, it has reserved its opinion until the negotiations which it authorized had proceeded a cerain distance and it was possible to discern more clearly the shape of things to come. On this question it can be said with definiteness that there has been no negotiation with the Government. But there comes a time when a decision, hitherto properly deferred, must be taken. t would be foolish if the profession waited until the Government's proposals, with many details agreed, were submitted to Parliament, and then dug its feet in and refused service on a major ground of principle.

One question which the Representative Meeting will have to face is whether it is willing for terms and conditions for a 100% service to be negotiated, subject to the introduction of firm safeguards, or, on the contrary, whether it is prepared to show how a complete service, including all facilities, can be provided in some satisfactory way with a certain proportion of the population outside.

The National Eye Service

The draft scheme for a National Eye Service (which proposes that a medical specialist shall be responsible for every patient, but that he shall be allowed to use the technical skill of selected opticians in refraction work) was taken a stage further at a meeting of the Ophthalmic Group Committee of the B.M.A. the other day, and now it goes to the Council with a recommendation for adoption. The scheme has been discussed at eight regional meetings in various parts of the country, and the conclusions reached were patiently considered by the Group Committee line by line and section by section, and some of them embodied in the document. The first of these, on a proposal from Leeds, was to add to the preamble of the scheme a statement that the scheme is based on the assumption that ophthalmology will continue to be an integral and co-equal part of the general plan for the future hospital services of the country. That being the case, to meet the problem of mass ophthalmic work considerable extension of present facilities will be necessary. Hospital departments will have to be enlarged, satellite clinics created, and present clinics serving local needs maintained. Many of the other changes were only slight adjustments of wording, but the scheme ought to be, on paper, as perfect as a scheme can be, in view of the careful revision.

Not a Parallel

We have had a sight of the second report of the so-called Beveridge committee of the sight-testing opticians. In putting forward a claim for "optical practitioners" in the National Health Service it institutes a parallel between the sight-testing optician and the dentist. The dentist, it says, without a medical qualification and working without medical supervision, not only diagnoses disease conditions but also carries out treatment within his sphere. Surely this comparison goes too far. Everyone knows the exacting and prolonged training of the dentist, which parallels medical training very closely, and the stringent examination before the dental student is admitted to a practice which is even more exclusive than medicine (for any unqualified practice in dentistry is a breach of law). As for the educational curriculum of the optician, there has been, so far as we know, little change since 1927, when a Departmental Committee in its majority report stated: "We feel obliged to say that we are not satisfied that there is any training for opticians sufficiently thorough to avoid the danger which is involved in the possession of a little medical learning." The report went on to say that the majority were satisfied "that none of the teaching provides anything in the way, not merely of general medical training, but of specialist medical training pertaining to the eye which is comparable to the training required of a medical practitioner"—or, let us now add, of a dental practitioner. This is not to say, of course, that the technical training for opticians at the best schools may not be excellent, only that the part of it which deals with pathological conditions of the eye is quite inadequate, and must be so if it is not associated with a regular medical training.

The Askwith Agreement

The B.M.A. Council agreed, without discussion, that the prescribed notice of one year should be given on April 1 to terminate the Askwith agreement. The Askwith agreement relates to the salaries of whole-time public health medical officers. The Society of Medical Officers of Health, with which the Association has always acted since the Askwith memorandum was drawn up sixteen years ago, requested that the Association should give the year's notice to the local authorities associations concerned, as it is making proposals which will presently be put forward concerning salaries and gradings. A further consideration is that if the Spens Committee on Remuneration establishes that there is a large body of public health medical officers in the £500–£700 scale (and the great majority of whole-time officers are in that category) it might be inferred, in the absence of proposals for modification, that there is no dissatisfaction with the existing pay, and wrong conclusions might be drawn.

The Late President

Among the messages of sympathy received at B.M.A. Headquarters on the death of the President, Lord Dawson of Penn, have been a cable from the Victorian Branch sent by the President, Dr. John Dale, of Melbourne, and a telegram of condolence from the President and Council of the Southern Branch, sent by the honorary secretary, Dr. John Clayre.

Correspondence

A Warning Debate in House of Commons

SIR,—The debate in the House of Commons on teachers' salaries (Feb. 20) offers, I submit, material for reflection for the medical profession. It became apparent in the course of the debate that the scale of salaries for teachers had been arranged by a committee operating in secret session and consisting of (1) representatives of the teachers and (2) representatives of local authorities. It became abundantly evident during the debate that the effect of the proposed scales must inevitably be to discourage better-qualified teachers from taking appointments in the national schools which are to result from the provisions of the Education Act. Confronted with this development it was explained by the Minister and by the spokesman in the House for the Burnham Committee that the decision was the responsibility not of the teachers, who opposed it and were outvoted by the local authorities forming part of the committee. This statement was supported by quotations purporting to be extracts from the minutes of the committee, which, it was pointed out in the debate, are not open to examination by the House.

The Burnham Committee award received the official support of the Labour Party, and the front-bench spokesman for that Party revealed a curious but significant attitude in his argument that the resources of the nation are like a honey-pot surrounded by flies, and that it is the duty of Government to see that the contents of the honey-pot are equitably distributed among those wishing to partake of it. Incidentally and quite irrelevantly the doctors were stigmatized as a section claiming an undue share! The almost unanimous resistance of the medical profession to its future control by local authorities will, I hope and believe, be materially strengthened by the incidents of this debate.—I am, etc.,

House of Commons. E. GRAHAM-LITTLE.

Evidence of Incapacity

SIR,—In the *Supplement* of Feb. 24 (p. 27), "Heard at Headquarters," your contributor makes two statements which are open to question. (1) He refers, I assume him to mean, to the patient's own doctor as neutral. I doubt if general practitioners who only hear the patient's own story can ever be quite impartial; they must be, if ever so slightly, pro patient, and rightly so. But the patient, and particularly the doubtful customer, regards him as very definitely pro patient and takes immediate offence if his word is doubted. (2) He also quotes the testimony of a member of the General Practice Committee that 99% of work-people in such cases are trustworthy. This shows a delightful faith in the integrity of his patients, but is not confirmed by my own observations as a general practitioner or as a part-time works doctor; nor do I think it likely to be endorsed generally throughout the country. I agree that the percentage is a small one, but the important fact is that this small percentage cause a vast amount of unnecessary work to both employers of labour and the medical profession generally, and I am not convinced that the present method of referring doubtful cases to independent medical referees has been of much help.

This problem of certification is an urgent one; it is clearly aggravated in wartime, but it is a serious barrier to successful negotiations for a National Health Service. Fitness or unfitness for work is all too frequently one of the most difficult decisions that a doctor has to make, and he must in many cases be guided by his patient's opinion. This fact involves the good faith between doctor and patient which is an integral part of the true doctor–patient relationship. The Chairman of Council rightly emphasizes that there must be no interference in a future National Health Service with this relationship, but I am sure he must realize fully that the problem of certification does in certain quarters cast a cloud and creates a desire to exercise some form of control over this relationship which would not be acceptable to the profession.

It is my view that this problem of certification is our problem and only we ourselves can solve it. The method adopted in the National Health Insurance of referring patients to Regional Medical Officers appointed by the Ministry of Health, who had no further information or knowledge of the patient than the original medical certifier, was most unsatisfactory to all concerned. This method has been continued in the solving of industrial medical problems, with like unsatisfactory results. It is not the purpose of this letter to indicate alternative methods, but I respectfully suggest that this period of negotiation is a most suitable time for the Council of the B.M.A. to consider fully the difficulties of certification in general practice, and, at an opportune time, offer a solution of a problem which must be giving the Minister of Health some anxious moments.—I am, etc.,

Birmingham. R. C. L. BURGES.

BRITISH MEDICAL ASSOCIATION

Formation of Burton-on-Trent Division

Notice is hereby given by the Council of the Association to all concerned that it has formed a Burton-on-Trent Division of the Association, the area to be conterminous with the County Borough of Burton-on-Trent; Tutbury Rural District; Swadlincote Urban District, the new Division to come into existence as from the date of this notice, and to form part of the Staffordshire Branch.

CHARLES HILL,
March 11, 1945. *Secretary.*

POSTGRADUATE NEWS

The Fellowship of Medicine announces: (1) Week-end course in rheumatism at St. Stephen's Hospital, all day, Sat. and Sun., March 24 and 25; (2) Revision course in anaesthetics at various London hospitals, all day, April 9 to 21; (3) Final F.R.C.S. demonstrations and courses as follows: Clinical demonstrations at Metropolitan Hospital, March 21 and April 18, 5 p.m.. Clinical demonstrations at St. Mary Islington and Archway Hospitals, Weds., March 21 and 28, Tues., April 3, and Wed., April 11, 2 p.m. Week-end course in surgery at Hillingdon County Hospital, all day, Sat. and Sun., April 14 and 15. Demonstration of selected cases at London Homoeopathic Hospital, Sat., April 21, 2.30 p.m.

WEEKLY POSTGRADUATE DIARY

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W.—*West End Hospital for Nervous Diseases:* Mon., Tues., Fri., 2.30 p.m., Course in neurology (suitable M.R.C.P.). *Radcliffe Infirmary:* Daily, Revision courses in anaesthetics. *London Homoeopathic Hospital:* Wed., 5.30 p.m., Final F.R.C.S. surgery demonstrations.

DIARY OF SOCIETIES AND LECTURES

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.—Oliver-Sharpey Lectures by Dr. B. H. C. Matthews: *Tues.*, 4 p.m., Effects of High Altitude on Man; *Thurs.*, 4 p.m., Effects of Mechanical Stresses on Man.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.—Lectures on Applied Physiology by Prof. John Beattie: *Mon.*, 2.30 p.m., Physiological Problems in Head Injuries; *Wed.*, 2.30 p.m., Physiology of the Autonomic Nervous System; *Fri.*, 2.30 p.m. Recent Advances in the Physiology of Anaesthesia. Lectures on Anatomy by Prof. A. J. E. Cave: *Mon.*, 4 p.m., the Cerebrospinal Fluid; *Wed.*, 4 p.m., Tonsillar Masses of the Alimentary Canal; *Fri.*, 4 p.m., Anatomy of the Pancreas.

ROYAL SOCIETY OF MEDICINE.—*Tues.*, 2.30 p.m., Section of Psychiatry; 5 p.m., Section of Experimental Medicine and Therapeutics. *Wed.*, 3.30 p.m., Section of Proctology; 4 p.m., Section of Physical Medicine. *Thurs.*, 5 p.m., Section of Dermatology. *Fri.*, 5 p.m., Section of Obstetrics and Gynaecology; 6 p.m., Section of Radiology.

BIOCHEMICAL SOCIETY.—At Middlesex Hospital Medical School, W., *Sat.* (March 17), 2 p.m., Annual general meeting.

BRITISH INSTITUTE OF RADIOLOGY, 32, Welbeck Street, W.—*Thurs.*, 8 p.m., Mr. L. Dudley: Stereoscopic Photography and Radiography.

CHADWICK TRUST.—At London School of Hygiene, Keppel Street, W.C., *Tues.*, 2.30 p.m., Mr. Albert Parker: Atmospheric Pollution.

FACULTY OF RADIOLOGISTS: DIAGNOSIS SECTION.—At Royal College of Surgeons of England, Lincoln's Inn Fields, W.C., *Fri.*, 2.30 p.m., Discussion: Non-malignant Conditions of the Oesophagus. Openers, Drs. A. S. Johnstone and R. A. Kemp Harper.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.—*Mon.*, 5 p.m., Discussion: Modern Methods of Treatment in Psychiatry. To be introduced by Dr. E. B. Strauss, Dr. L. C. Cook, and Mr. Wylie McKissock. A film will be shown by Dr. Eliot Slater and Dr. William Sargant demonstrating the technique of convulsion therapy.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, W.—*Wed.*, 3.30 p.m., Mr. V. Zachary Cope: Surgery in the Life of To-day.

ROYAL INSTITUTION, 21, Albemarle Street, W.—*Tues.*, 5.15 p.m., Sir Henry Dale, P.R.S.: Adrenaline and Acetylcholine. Adrenergic and Cholinergic Nerves. *Fri.*, 5 p.m., Mr. J. Z. Young: The Structure, Degeneration, and Repair of Nerve Fibres.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.—*Thurs.*, 3 p.m., Laboratory Meeting at R.A.M. College, Millbank, S.W.1.

B.M.A.: Branch and Division Meetings to be Held

NORTH OF ENGLAND BRANCH.—At Royal Victoria Infirmary, Newcastle-upon-Tyne, Thurs., March 15, 7.15 p.m., Clinical demonstration in the out-patient department by Dr. D. S. Sutherland and Mr. W. Watts; 8.45 p.m., Address by Dr. Raymond Greene: Mechanism of Endocrine Disorder. Members of H.M. Forces stationed in the area of the Branch are invited.

BIRTHS, MARRIAGES, & DEATHS

The charge for an insertion under this head is 10s. 6d. *for* 18 *words or less. Extra words* 3s. 6d. *for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.*

BIRTHS

DON.—On Feb. 26, 1945, at St. Mary's Nursing Home, Nottingham, to Eileen Mary (*née* Foord), wife of Dr. Thomas A. Don, a sister for Fiona.

JACKSON.—On Feb. 27, 1945, at the Maternity Home, Scunthorpe, Lincs, to Joan (*née* Broadgate), wife of Major Harry Jackson, R.A.M.C., a sister for John.

ROYSTON.—On Feb. 20, 1945, at Edinburgh, to the wife of Major G. Riddell Royston, R.A.M.C., a son.

STANBURY.—On Jan. 18, 1945, at Astoria Nursing Home, Colwyn Bay, to Helen (*née* Jackson) and Capt. S. W. Stanbury, R.A.M.C. (S.E.A.C.), a daughter.

MARRIAGE

JENNER—IMPEY.—On Feb. 26, 1945, at Sutton Coldfield, S. M. Jenner, Surg. Lieut.-Cmdr., R.N.V.R., to Margaret E. Impey.

DEATHS

McCRACKEN.—On Feb. 22, 1945, at South View, Melrose, late of Newcastle-upon-Tyne, James Smith McCracken, M.D.Ed., in his 83rd year, beloved husband of Mary Jane Mills.

RICHMOND.—On Feb. 26, 1945, at Bryn Hafod, Trefriw, Caernarvonshire, Dr. B. A. Richmond, aged 75 years.

NATIONAL HEALTH SERVICE IN SOUTH AFRICA

RECOMMENDATIONS OF GOVERNMENT COMMISSION

The National Health Services Commission, which was set up by the Government of South Africa towards the end of 1943, has lately reported, and a summary of its recommendations is before us. Some account of the origin of the Commission and of the evidence tendered by the Federal Council of the Medical Association of South Africa (B.M.A.) was given in the *Supplements* of Jan. 1 and 22, 1944.

The Commission recommends the institution of a full range of free personal health services as a "citizen right" for all, the service to be nationally controlled and directed by a Minister of Health responsible to Parliament. It is considered that the Minister should be advised by a National Health Council composed of representatives of the taxpayers, of voluntary organizations interested in health, and of professional and technical interests in the service. This council would concern itself with general policy, while the day-to-day administration would be carried out by a National Health Board of three or five members.

The country would be divided into about twenty regions, and the executive work decentralized so far as possible in the regional organizations, and decentralized again into health centres, of which a total of about 400 throughout the country is contemplated. As advisory bodies there would be democratically constituted councils at both the regional and health centre levels. Other proposals are for a National Health Congress, presumably to meet yearly, to provide opportunities for the staff of the health service to express their views on technical and scientific matters and on service conditions, and for a Health Service Personnel Commission to deal with appointments to the service and other relevant matters. The latter would consist of three members, two of them chosen for their ability to appraise qualifications, and appointed by the Governor-General in Council from a list of names submitted by the National Health Congress, and the third appointed for his knowledge of public service administration and routine.

The Health Centre: South African Version

The 400 health centres would represent about one to every 25,000 of the population. Each centre would be staffed by a number of general practitioners, dentists, and auxiliary personnel, such as health visitors and nurses, all working together as a team. The public would have free choice of doctor from among the staff of the centre, and the doctor so chosen would be primarily responsible for the health of the family. It is suggested that the health centres might undertake periodical medical examinations of the members of the community, also health education. The patient who had to enter hospital would be normally under the care of the centre doctor, but specialists attached to the national service would be available for consultation.

The Commission further recommends that all hospitals should be nationally controlled and completely integrated with extra-institutional and pre- and post-hospital services. Several categories of hospitals are contemplated: university hospitals attached to medical schools, special hospitals, "super-regional" and regional, and general practitioner hospitals. Maternity hospitals would be provided in the larger towns, either as separate institutions or as departments of regional hospitals. Private hospitals would remain until other arrangements can be made to satisfy the demand for free hospital care, and these would be financially assisted, supervised, and inspected by the national health authority. Orthopaedic and tuberculosis hospitals are also contemplated.

It is intended to stress the preventive aspects of public health. Local authorities are to be assisted in the discharge of their non-personal public health duties, and the National Health Service would exercise powers of coercion in case of necessity.

Effect on Private Medical Practice

Private practice is not banned under these recommendations, but if a citizen does not avail himself of the National Health Service he will not be exempt from payment of national health taxation. His position will be the same as that of the parent who, in a country in which free education is provided by the State, sends his children to a private school. After much detail about the financial aspects of the proposals the Commission sets out the following suggested salary scales:

Doctors and dentists (Scale A)[1]	£900-£40-£1,500
,, ,, (Scale B) ..	£1,200-£50-£2,000
Hygiene officers	£400-£25-£800
Pharmacists	£600
Nurses (sisters)	£450-£25-£600

No scales are suggested for specialists, as it is considered that when the scheme is operating specialists would serve their training in the service and would not necessarily command higher emoluments than other medical men in charge of highly important work.

The grand total of more than twenty millions for health services represents an increase of about 50% over the present expenditure. The service is to be financed partly by a contribution from the general revenue, but to a much larger extent by a special health tax. It is said that there is a feeling throughout the country that the service should not be thought to be a charity, and that everyone should contribute, even if only a small amount. Therefore it is proposed that a national health tax be levied on all income groups.

A further recommendation is that a transition committee be set up during the reorganization period. New legislation of a far-reaching character will be necessary. A National Health Act to replace the present Public Health Act will be required to make clear that the State is assuming responsibility for the provision of personal health services for all sections of the people.

Two members of the Commission put forward a minority report. They disagree with the majority in so far as it is contemplated that provincial administrations should play no part in the personal health aspect of the new service, and they are also opposed to the severance of personal from non-personal health service. They consider that in the National Health Service there should be a unified direction in policy, but that the administration and execution of both personal and non-personal service should be in the hands of the four Provinces. The majority propose that the Provinces should surrender to the new Nationa Health Service the control and financia responsibility for all the personal healt services hitherto maintained by them.

In a later article we propose to examin how far the proposals of the Commissio are in accord with the views expresse on behalf of the profession in Sout Africa.

NEGOTIATING A MEDICAL SERVIC

This was the title of an address give by Dr. H. Guy Dain, Chairman o Council of the B.M.A., at a meetin of Nottinghamshire doctors and member of the Committee of the Registered Britis Hospitals Associations at the Genera Hospital, Nottingham, on March 1 Mr. S. A. S. Malkin presiding. Dr. Dai began with a review of the events whic led to the present negotiations. He sai the Government's passive attitude to an official change in medical affairs was galvanized into an active one by Sir Willia Beveridge's report, particularly the latter Assumption B. Discussions between th then Minister of Health, Mr. Ernes Brown, and representatives of the profession failed to achieve any result. Th White Paper on a National Health Service, sponsored by Mr. Willink, opene the next phase. This had been considere by both the Council of the B.M.A. an the Annual Representative Meeting, an their suggested modifications were constructive attempt to implement th entirely admirable preamble of th White Paper. Negotiations so far ha been confined to attempts to reac agreement on the principles which th profession felt should underline th administrative machinery of a healt service.

Dr. Dain then made the followin points: (1) The medical members o the Central Advisory Body should b selected from those nominated by th medical profession. (2) Governmen advisory bodies were not usually give the right to publish their findings, bu such a right was essential for efficien work by the Central Advisory Body. Th Negotiating Committee had taken a fir stand on this issue, and had made th profession's attitude plain. (3) The direction of doctors to the areas in whic they should work was unnecessary. Th Government already had the power t provide for any area in which there wer not enough doctors. (4) So far as h (Dr. Dain) could judge, a unified servic under the Minister of Health coverin all medical work for which the State wa responsible was impracticable, as th various Government Departments refuse to relinquish control of the service the had developed. (5) The problem c regional planning with the universit teaching school as the centre for eac hospital area was being considere (6) Under the new Education Act provision was made for ensuring that the should be adequate professional representation on the appropriate committee The same procedure should hold f committees, both local and central, s up to carry out the health service (7) The position of voluntary hospita was receiving priority attention fro the Negotiating Committee. It w essential that they should retain the voluntary managements and have acce to funds necessary for upkeep an extension.

Finally Dr. Dain reported that he ha asked the Minister of Health for t

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[1] It is not stated in the summary what different duties or status scales A and B imply.

SUPPLEMENT TO THE

BRITISH MEDICAL JOURNAL

LONDON SATURDAY MARCH 17 1945

HEARD AT HEADQUARTERS

A B.L.A. Group

A suggestion for a B.M.A. group or groups of doctors serving with the Forces overseas was very warmly welcomed at a recent meeting of the Association's Organization Committee. Whether the war in Europe is over soon or late, many members of the Association will be in Western Europe and in other fields for some time to come, and the longer they are there the greater need will they feel for such contact as the group system has been found to afford, both for exchange of ideas among themselves and for linking up with the Association at home.

A recommendation is going to the Council that such a group or groups be approved, not only, as was at first suggested, for the R.A.M.C. in Western Europe, but for all the Services. The War Office sees no departmental objection. Indeed, it is stated to be the Government's desire that doctors serving in the Forces over-seas should have an opportunity—as they have had already—of learning what is proposed for the reorganization of civilian health services and of voicing their opinions through the ordinary professional channels. It was laid down even before the White Paper appeared that such discussions did not contravene King's Regulations and that they might be held, subject, of course, to the exigencies of the Service and on the clear understanding that they are to be in off-duty hours, and that the Service channels of communication are not to be used for promoting meetings, or for transmitting opinions of individuals or groups.

Disputed Certificates

A charge was brought against a general practitioner at the February session of the G.M.C. which concerned an interesting point in certification. It was complained by an industrial firm that the doctor had issued false or misleading certificates to certain men in its employment to justify their absence from work, and that in fact he had not seen the men on the dates mentioned in certain of the certificates. No evidence was brought forward concerning the health or conduct or whereabouts of the men during the periods in question, and what was principally relied upon was the suspicious circumstance—as it was described—that three certificates issued to a man in successive weeks bore consecutive serial numbers. It was urged that it was impossible to suppose that in a busy industrial practice no certificates had been issued to other people in the intervening periods. Thus it was inferred that the practitioner had given all three certificates on the same occasion and had antedated two of them. In another instance the certificate bearing a particular date was next or next but one in number to a certificate issued to some-one-else, and in no way challenged, a fortnight later.

The legal representative of the doctor claimed that no charge could be sustained on such evidence, because obviously a doctor might have more than one book of certificates in use at the same time and have used only one book for a particular case. There was other similarly oblique evidence, but the Council dismissed the complaint. Its reasons, of course, were not stated, but it does appear that no charge can be sustained on such evidence as the serial numbers of certificates, and that more direct evidence must be forthcoming if it is contended that a person was not ill or incapacitated when the doctor certified that he was.

International Relations

Readers may recall a meeting of foreign doctors at B.M.A. House last November, a sort of farewell—a little premature in some cases—to members of the profession in Allied countries who would shortly be returning to their native lands to deal with the terrible aftermath of war. Arising out of that is a proposal to have an International Relations Committee in the B.M.A. to help bring together the various medical organizations, particularly in European countries, interested in medico-political and medico-sociological work.

For some years before the war the Association took an active and encouraging part in the work of the Association Internationale des Médecins. For several reasons—no blame attaching to those who organized it, but rather to those who held aloof—the International Association, although it had many good discussions, never became a very effective body. As in all international gatherings, the language difficulty was one stumbling-block, though doctors of different countries probably understand each other's languages better than people in most other callings.

The medical profession in the new Europe which is slowly and painfully emerging will need help in facing more acute problems even than those which confront us in this country, and the B.M.A., with its unexcelled experience of organization in the medical field at home and over-seas, should be able to play a useful part. An International Relations Committee will offer the means of doing so.

A Going Concern

Of all statisticians those who have to do with voluntary hospitals must be the most unfortunate. Here it is the beginning of 1945 and the *Hospitals Year Book* recently to hand can deal only with the figures for 1941. This is not the fault at all of the compilers; it is due to the fact that hospitals are late in sending in their reports, or do not send them in at all, or do not follow the simple requirements for uniform returns. Thus even for 1941 the figures for only 742 out of the 1,112 voluntary hospitals are available.

But those 742 voluntary hospitals in 1941 treated more new patients in their wards than the entire population of Birmingham and more new out-patients than the populations of the counties of London and Middlesex together. They were more than solvent, too, having received something over 19 millions and spent just over 1·7 millions.

What will be the position five years after the inception of a National Health Service? Apparently we shall not exactly know until five years after that, unless in the meantime hospitals act like other business institutions and send in proper returns. The work done by voluntary hospitals ought to be published abroad, not merely surmised, and this cannot be done when details are not available for three or four years, and even then relate only to three-quarters of the hospitals.

The B.M.A. Council

It was surprising, looking up some old B.M.A. records, to find that in the middle of the last century the B.M.A. Council consisted of over 300 members. The Association was endowed at its birth with a Council of 70, and at every one of its annual places of meeting it gathered fresh members of Council, until within twenty years the Council had become a monster. It was not, of course, a real executive. The Association was actually governed during those early years by members living in or near its native city of Worcester, with Sir Charles Hastings at its head.

The Council now consists of 66 members—or 67, when the recently elected woman member presently takes her seat. By a nice adjustment of methods of election, geographical and general, it manages both to secure new blood and to retain aldermanic experience. Apart from the *ex-officio* members and the representatives of special services, there are three portals of entry—election by the Branches, by grouped representatives, and by the representatives as a body.

Suggestions have been made for alteration, but I believe it will be found that the committee which is considering Association machinery will not recommend any change in the general system of Council elections or in the numbers which come to the Council by each of the methods of election.

Membership

The membership of the B.M.A. continues to rise. If the increase of the last twelve months is maintained then during the next twelve the number of members will be well over 50,000.

Government's decision on the sale of practices in the future. He said this was an urgent matter requiring an early reply. If it was not to be allowed, then the question of compensation for loss of capital value would have to be opened at once. If it was decided to make no alteration in the present position, then the sooner this was known the better, so that men about to retire would know they still had a saleable article and would not be penalized by the present uncertainty.

Correspondence

Medical Demobilization

SIR,—"A Medical Officer, R.A.F." certainly had a bad attack of "liver" when he wrote his letter (*Supplement*, March 17, p. 41), and hiding behind his anonymity he could not have been more unjust than he was to many of his colleagues who are also "doing their bit," albeit not in uniform, or to the Local Medical War Committees, who, being faced with a most difficult task, have carried it out in a way that can only be admired.

Who are all these doctors "who are deliberately avoiding service in the Forces"? And how do they coerce the L.M.W.C.? No doubt I come into this category of "those beneath contempt," being one of the youngest doctors remaining in civil practice here, so may I ask for your indulgence most humbly to explain how this happened. And it wasn't so very clever.

Having volunteered for "Service anywhere" in the B.M.A. scheme in 1938 I found that my partner, having joined the Territorials, was called up before war was declared, and I was left to look after his practice as well as my own. Of course I could have rushed to volunteer in the excitement prevailing, but I was advised by older and quite honourable doctors to wait until I was called up. Since then my name has been before the L.M.W.C. several times, and I fully expected to go on the first occasion, but now, after 5½ years, I am still in doubt as to when this may be. During those ½ years I have lived a "comparative eacetime existence," it appears: truly do we live and learn. "Blitzes" and black-out are not worth mentioning, nor is working a mere 13–14 hours a day for months on end without off-duty or leave, but with only a very doubtful summer holiday of one or two weeks if lucky; nd what do C.D. and H.G. mean? As or work itself, to manage two or three practices is easy, it seems, especially when we have the multitude of wartime forms nd certificates to cope with!

I do not pretend that our conditions an be compared with those of doctors on *real* active service, but from what friends have told me I am convinced that the civilian G.P. does very much more work than his Service counterpart, and if a Medical Officer, R.A.F." and I do hange places, it will be he who will have the shock. In the meantime, perhaps he will learn that he is in a profession which is accustomed to using judgment and discretion before making a diagnosis, and is not accustomed to inviting the public to view its linen being washed. I have ften regretted that I was not called up at the beginning of the war, but I am not ashamed of having tried to do my bit at home, neither am I diffident about signing my name.—I am, etc.,

Bristol. W. H. HAYES.

SIR,—Like Wing Cmdr. Durand I have no personal direct interest in this question, being beyond the age and engaged in specialist practice, but I would like to put forward one or two suggestions.

Of the statement by the Central Medical War Committee (March 17, p. 40) I would say, "Soft words butter no parsnips," and it is nonsense to say that medical officers can be released in the same way as the general Forces. On the age factor surely 50% or more would come in the final category for release. It would be fairer to state that a definite plan was in existence and to give some details. It would also be a comfort to all parties if the committee would state definitely that it has a complete list of men in the E.M.S. and elsewhere ready to take the place of men released from the Services. I would also suggest that when active hostilities against Germany are over the grading of many men who are now graded as unfit might be revised in the light of altered circumstances.

As to the age limit of 35 for calling up, I think this should be reconsidered unless all men over this age are automatically released from the Services. A limit of 40 or 45 would be much fairer. Although I am, unfortunately, above even this age limit, I would be prepared to change jobs with a man in the Services for a spell, while he freshens himself up on my busy hospital O.P. department and does his best with my private patients.

Finally may I put in a strong plea that the C.M.W.C. should take a much firmer stand with the Service chiefs in the matter of supply of and demand for medical officers. There is no room for waste of time such as one hears of, and the civil needs are very great. Only during the past week I have had at least half a dozen patients say to me: "I really can't call in my doctor; he is too busy," and this when they are obviously very ill. As to this whip-up of B1 men, every hospital in the country is short-handed at present, so the yield won't be very great until some of the Service men can replace them.—I am, etc.,

"M.O., 1914–18."

SIR,—While the statement by the Central Medical War Committee on medical demobilization (*Supplement*, March 17, p. 407) is encouraging, I was recently informed at a high level that no demobilization will take place in the R.N. until after the Japanese war. One still wonders how the Services will interpret the phrase "military necessity."—I am, etc.,

SURG. LIEUT., R.N.V.R.

Free Medical Treatment for Schoolchildren

SIR,—It is a recognized principle in any democratic country that, when negotiations are proceeding, no change shall be made in existing conditions. Under the new Education Act coming into force on April 1 free medical service is, we read, to be provided by local education committees, the services being for all minor ailments, diseases of the ear, nose, and throat, diseases of the eye, orthopaedic and dental treatment, speech therapy, and the treatment of rheumatism.

If this is not an incentive to "blacklegging" by one branch of the profession without agreement with any other then what is it? One notes that of course *domiciliary* treatment is outside the scheme. One says "of course," for what Government servant, medical or otherwise, would work outside office and school hours! That privilege is left for the general practitioner, who, besides shouldering the bulk of the hard work of the medical services, has to stand by and see his living being insidiously filched from him at the very moment when his representatives are supposed to be negotiating with the Ministry of Health over the terms of the very services that are being put into operation by another Ministry.

Is there any end to what we can put up with?—I am, etc.,

Highgate, N.6. W. LEES TEMPLETON.

⁂ The Secretary of the B.M.A. states: Strong representations on Section 48 (3) were made to the Minister of Education (then the President of the Board of Education) while the Education Bill was before Parliament. Representations on the official level have been made since the Act was passed. We are now awaiting a reply from the Minister to another request to receive a further deputation from the Association on Section 48 (3).

Medical Certification: A Plan of Control

SIR,—Mr. Willink has denied that it was ever the intention of the Government to control medical certification. Your columns have given conclusive evidence to the contrary, arousing distrust and antagonism in the medical profession.

General practitioners know that psychological factors in illness now constitute one of their greatest problems and are liable to become an even greater menace to the financial side of health insurance and to the welfare of the nation as a whole. I venture to suggest that had Mr. Willink stuck to the contention that medical certification must be controlled and asked our help, there would have been more confidence in him and all he stands for than is found at present. In my opinion co-operation between Government and medical profession would be improved by the adoption of such a scheme as the following: it is certainly a description of the help I have wanted for several years.

When the element of doubt as to the fitness for work is present, the G.P. should at once send the patient to the local hospital. Here a complete investigation is done within a week and the report at once sent back to the G.P. Should there then be a difference of opinion between patient and doctor as to fitness for work, the patient should be referred to a Regional Medical Officer, who must be of high academic qualifications, of proved clinical ability, and, vitally important, one in whose judgment the G.P. has every confidence. His decision would be accepted.

This scheme calls for greatly increased hospital and specialist facilities, but we have urged this for many years. The G.P. would be satisfied, since not only the group under discusison but all his patients would have early investigation. The desired control of certification would be obtained under conditions leaving no room for adverse criticism by any party. Lastly, the patient, who incidentally has to have his psychological troubles

MEDICAL DEMOBILIZATION

Recent correspondence in these columns and inquiries received from doctors both at home and on service over-seas seem to show some misunderstanding of the arrangements for the release of medical officers from the Forces and the recruitment of civilian doctors after the end of the European war. On the one hand there is anxiety lest the release plan for doctors should place them in a less favourable position than other members of the Forces. On the other hand there is a demand that medical officers should be specially favoured by the institution of an exchange between Service and civilian doctors before the general reallocation scheme comes into operation. The truth is that the plan of release for medical officers is the plan of release for the Forces as a whole, and it is not proposed that doctors should receive either more or less than just treatment in accordance with the provisions of the Government's White Paper.

A rumour that the plan for release on the basis of age and length of war service is not intended to apply to R.A.M.C. officers serving in the Far East was contradicted by the Secretary of State for War in a recent statement in the House of Commons. What is true is that some members of the Forces, including some medical officers, may have to be retained because of military necessity after they have become entitled to release according to the age–service formula. The Central Medical War Committee has considered the probability that the medical requirements of the Forces for the war against Japan will necessitate the retention of a disproportionate number of medical officers unless special measures are taken to obtain new medical recruits as substitutes for officers due for release. With this probability in mind, the committee has recommended to the Government that recruitment of doctors after the end of the war in Europe should continue up to an age limit in the region of 35—ten years higher than the probable limit of age for recruitment generally.

Writing in the *Supplement* of Feb. 10, an anonymous Squadron Leader suggests that the magnitude of the exchange of doctors between the Services and civilian life will depend on the recruitment efforts of the Central Medical War Committee. While the rate of release must be determined by the Government, it is true that, as has been indicated above, exceptional measures for the recruitment of doctors are likely to be necessary to make the prescribed rate of release practicable so far as medical officers are concerned. Serving officers may rest assured that the Central Medical War Committee will do everything in its power to facilitate, by the provision of new recruits, the release of medical officers in their turn in accordance with the reallocation scheme. At the present time the committee is doing its utmost to recruit every available practitioner, and, in particular, is making a determined effort to increase the yield of recruits from B1 officers in hospitals. After the end of the European war many doctors whose retention in civilian medical work is now deemed necessary will become available for recruitment in exchange for officers released. When that time comes the committee will spare no effort to make possible the return from the Forces of all medical officers entitled to release under the Government's plan.

NEW CHARING CROSS HOSPITAL CENTRE

CO-OPERATION BETWEEN VOLUNTARY AND PUBLIC SERVICES

Charing Cross Hospital is contemplating building a 1,000-bed hospital at Northwick Park in the Harrow area of Middlesex. A site of 20 acres, part of a golf-course estate which has been purchased by the Middlesex County Council, is considered suitable from the point of view of space, aspect, accessibility, and quietness. The headquarters will remain at Charing Cross, ten miles distant, to deal with casualty, out-patient, and emergency cases.

In a memorandum containing proposals which have been approved in broad principle by the Public Health Committee of the Middlesex County Council, Mr. Philip Inman, chairman of the hospital, says that the new buildings would include a medical school with an annual entry of 100 students and a total strength of 400, clinical and preclinical, a students' hostel, a nurses' home to accommodate 400, a training school for probationers, a pathological institute, and an administrative block. There will be a large maternity unit of 100 beds, with associated antenatal and infant welfare centres. It is also considered possible that some special hospitals may wish to amalgamate with the Charing Cross centre.

Beds for the Chronic Sick

One innovation proposed is to set aside 100 beds for the chronic sick, a type of patient hitherto not admitted to the majority of teaching hospitals, but one which the newly qualified doctor quickly discovers. Again, although Charing Cross as a teaching hospital must ensure a suitable variety of teaching material, it is proposed to set aside a specified number of beds for local needs, to be used, if this is the wish of the county authority, to provide a complete hospital service for the inhabitants of a definite area of the county. The hospital would admit all cases from this area without selection if they needed in-patient treatment, except cases of infectious disease and mental cases. It is recognized that the fever hospital, the mental hospital, and the public health services can best be studied under the guidance of the local authority, and much social medicine may be taught under the same auspices. Another field for co-operation between the hospital and the county council may be the provision of clinics for tuberculosis and venereal diseases.

Reciprocal Arrangements with County Authority

If these proposals pass successfully through the stage of detailed consideration, they may well inaugurate a new era in the relationship between a big local authority and a great voluntary hospital. Such linkage as there has been hitherto has had a limited and specialized scope. Here something altogether broader seems to be contemplated.

" It should be possible " (says Mr. Inman) " for reciprocal arrangements to be made for consultations, teaching facilities, demonstrations, and lectures, etc., which would bring far-reaching benefit to all concerned. In this connexion the medical school would welcome an arrangement whereby undergraduate students were seconded to a county hospital for a period of, say, three or six months in the course of their three years' clinical training. During the period they would have opportunity of being instructed by the Council's medical staff upon types of cases not frequently encountered in the wards of voluntary hospitals, and would also learn something of the social and health services developed in the county."

The Middlesex County Council administers eight general hospitals, the largest of which are West Middlesex at Isleworth, with 1,570 beds, North Middlesex at Edmonton, with 1,452, Hillingdon County Hospital at Uxbridge, with 883, Central Middlesex at Willesden, with 874, and Chase Farm Hospital at Enfield, with 925. The Public Health Committee of the council considers that the Charing Cross memorandum " envisages a degree of co-operation between voluntary and public services which has never before been achieved, and it is felt that the present opportunity is therefore to be welcomed." In principle the proposals have been approved, subject to further deliberation and consideration of the various details at a later date.

AMERICAN MEDICINE

Since going to press last week with the short account of medical services in the United States (*Supplement*, March 10, p. 36) our attention has been drawn to an article in a recent issue of the American periodical *Fortune* on the future of that country's medical services. While the article goes over much of the ground covered in the *Supplement* last week, it is interesting for its comment on the attitude of the medical profession generally to medical reform, for its criticisms of the Wagner Bill, and its suggestions for a compromise plan.

The author believes that the medical profession in America can no longer deny the urgency of reforms which will bring a complete medical service within the reach of every member of the community, and that it cannot in its own interest stand aloof from the proposals now being discussed. " The responsibility of the doctors takes the form of a dilemma that they must face: if they do not themselves aggressively foster and encourage considerable reform in medical economics, they are likely to find themselves swept into something that will seem revolutionary by comparison."

He discounts some of the arguments of the American Medical Association opposing the Wagner Bill—i.e., that it would destroy free choice of doctor and upset the doctor–patient relationship and encourage a bureaucratic control of medical practice—and finds other disadvantages in the Bill. The promised services could not be provided everywhere because in many places there are not enough doctors and hospitals. It would not encourage preventive medicine. It would tend to force doctors into the scheme by economic pressure. It provides for too little participation by doctors and insured persons in the administration of the scheme. It has too little regard for the traditions of the profession. It fails to define the place of voluntary activities. The article suggests that, instead of attempting the detailed management of such a complicated national service, the central authority should rather provide grants-in-aid to the individual States and establish national standards.

A Suggested Scheme

The author is in favour of steering a middle course between *laissez faire* and adjusted by the G.P., could be assured that he has had a scrupulously fair deal.

By greatly improving the former R.M.O. system and by avoiding the present dictatorial attitude of Government Departments such a scheme would do much to ensure the good will of the medical profession, and help to persuade them that the health of the nation and not the absolute control of the doctors is the object of the White Paper.—I am, etc.,

Hove. Frank Portas.

An "Ideal" Case

Sir,—What a good thing we haven't a flag! About the only thing people can say is that we haven't hauled it down. We hear of the £420 limit for N.H.I. over the wireless; we read of a free medical service for schools in the daily paper. Surely the time has come to admit that the Government ignore gentlemen and mannerly conduct and pay attention solely to "thuggery." This is an ideal case on which to make a firm stand. The existing school M.O.s are going to have more work, but doubtless no more pay, and certainly no prospect of early relief. They can back up we free men with nothing but advantage to themselves, and say "No" to Mr. Butler or whatever unmannerly Minister is responsible.

Such action must be backed by the B.M.A., for otherwise, after a few Government actions such as this, having no source of private income left, it will be State Medical Service, or starve, or emigrate, if—and a large if—one can get an exit permit.—I am, etc.,

Stamford. A. H. Gregson.

Wartime Appointments to Public Health Posts

Sir,—Permanent appointments are still being made in various health departments of doctors who have either evaded military service or who have been classed as unfit for service. Surely a man who comes under either of these categories is not a suitable person to hold a permanent post. I suggest that drastic action should be taken by the B.M.A. to ensure that all permanent posts should be kept for ex-Service men.—I am, etc.,

Ex-Service M.O.

War Gratuities

Sir,—We wish whole-heartedly to associate ourselves with Wing Cmdr. R. W. Durand's most timely and pertinent letter (*Supplement*, March 3, p. 33). An equally anomalous position is patently obvious when comparison is made between the deferred pay—call it gratuity or pension as you will—of a regular medical officer and a Volunteer Reserve medical officer. The former has preference in rank and seniority which must be accepted. On completion of twenty-one years' service, irrespective of ability, he will have attained the rank of Wing Commander by time promotion alone. On retirement on full pension in this rank he receives £543 per annum. This pension represents a capital sum of at least £11,000 when computed at present rates of interest on trustee stock, or an increase in annual remuneration of over £1,000, allowing for present taxation. The Volunteer Reserve medical officer, having seen his practice largely vanish, has no such pension to look forward to; in many cases he has difficulty in supporting commitments from civil life, and yet is to be fobbed off with approximately £100.

In our opinion the gratuities to be paid to Volunteer Reserve medical officers are nothing more than an added insult to an already long-suffering profession.—We are, etc.,

R. J. Rutherford,
Squad. Ldr., R.A.F.V.R.

J. R. Hindmarsh,
Squad. Ldr., R.A.F.V.R.

BRITISH MEDICAL ASSOCIATION

Election of Members of Council

Notice is hereby given that nominations of candidates for election as members of Council, 1945-6, (*a*) by the following Branches; (*b*) by Public Health Service members; and (*c*) by women members, must be forwarded in writing so as to reach me not later than Saturday, May 12, 1945.

Twenty-two Members by Branches in Great Britain and Northern Ireland

	No. of Members of Council to be elected by Group
Group A.—North of England	1
Group B.—East Yorks: Yorkshire ..	1
Group C.—Isle of Man: Lancashire and Cheshire	2
Group D.—Derbyshire: Leicestershire and Rutland: Lincolnshire: Nottinghamshire	1
Group E.—Bedfordshire: Cambridge and Huntingdon: Essex: Hertfordshire: Norfolk: Northamptonshire: Suffolk ..	1
Group F.—Berks. Bucks, and Oxford: Birmingham: Staffordshire ..	1
Group G.—North Wales: Shropshire and Mid-Wales	1
Group H.—South Wales and Monmouthshire	1
Group I.—Metropolitan Counties	4
Group J.—Bath, Bristol, and Somerset: Gloucestershire: Worcestershire and Herefordshire ..	1
Group K.—Dorset and West Hants: South-Western: Wiltshire ..	1
Group L.—Southern: Surrey	1
Group M.—Kent: Sussex	1
Group N.—Aberdeen: Dundee: Northern Counties of Scotland: Perth	1
Group O.—Edinburgh: Fife	1
Group P.—Glasgow and West of Scotland (Glasgow Division)	1
Group Q.—Border Counties: Glasgow and West of Scotland (Five County Divisions): Stirling ..	1
Group R.—Northern Ireland	1

Public Health Service Members

Two members of Council are nominated and elected by members of the Association employed in the Public Health Service as defined in By-law 1 (3). Candidates must be members of the Public Health Service as so defined.

One Woman Member

One woman member of Council is nominated and elected by women members of the Association.

The nominations must be on the prescribed forms, copies of which can be obtained on application to me. A notice will be published by the Council in the *British Medical Journal Supplement* on June 9, 1945, of the candidates nominated. Where contests occur voting papers will be issued on June 9, 1945, containing the names of all duly nominated candidates, from the Head Office, British Medical Association, Tavistock Square, London, W.C.1, to each member in the Group, or to the Public Health Service members, or to women members. A notice will be published by the Council in the *Supplement* of June 30, 1945, giving the results of the elections where there have been contests.

Charles Hill,
Secretary.

CONSULTANT AND SPECIALIST OPINION

An important open meeting of consultants and specialists in the London area, called under the auspices of the Royal Colleges and the British Medical Association, wil be held at B.M.A. House, Tavistock Square, London, W.C.1, Sir Alfred Webb-Johnson presiding, on Monday April 9, at 5 p.m. The object of the meeting is to discuss issues arising from the Government's proposals for a National Health Service and from the Goodenough report.

The discussion will be opened by Lord Moran, P.R.C.P., Mr. Eardley L Holland, P.R.C.O.G., and Dr. Geoffrey Bourne. This meeting is intended for consultants attached to hospitals *north* of the Thames.

A similar meeting will be held at the Royal College of Physicians, Pall Mal East, S.W.1, on Friday, April 6, at 5 p.m. for practitioners attached to hospitals *south* of the Thames. Lord Moran will preside, and the speakers will include Sir Alfred Webb-Johnson, P.R.C.S. Mr. Eardley L. Holland, P.R.C.O.G., and Dr. Maurice Campbell.

WEEKLY POSTGRADUATE DIARY

Fellowship of Medicine, 1, Wimpole Street, W.—*Royal Cancer Hospital*: Daily, Revision course in anaesthetics. *St. Mary Islington Hospital*: Wed. 2 p.m., Final F.R.C.S. demonstration. *Metropolitan Hospital*: Wed., 5 p.m., Final F.R.C.S demonstration. *Hillingdon County Hospital* Sat. and Sun., April 14 and 15, all day, Fina F.R.C.S. week-end course in surgery.

DIARY OF SOCIETIES AND LECTURES

Royal Society of Medicine.—*Tues.*, 5 p.m. Section of Psychiatry. *Fri.*, 2.30 p.m., Section o Ophthalmology. *Sat.* (April 14), 2 p.m., Sectio of Physical Medicine.

Chadwick Trust.—At Royal Sanitary Institute, 9 Buckingham Palace Road, S.W., *Tues.*, 2.30 p.m Mr. A. Trystan Edwards: Sunlight and Sanitatio in Relation to the Planning of Building.

B.M.A.: Diary of Central Meetings

May

2 Wed. **Special Council Meeting, 10 a.m.**
3 Thurs. **Special Representative Meeting, 10 a.m**

B.M.A.: Branch and Division Meetings to be Held

Isle of Wight Division.—(1) At Parkhurs Institution, Wednesday, April 11. 3 p.m., Films t be shown: (*a*) Gas-Air Analgesia in Midwifery (*b*) Closed-circuit Anaesthesia; (*c*) The Productio and Distribution of Medical Gases. (2) At Unit Hall, Newport, Sunday, April 15, 3 p.m., Meeting Agenda: Discussion of the Report of Council o the Association on the Negotiations with th Government on the Proposed National Healt Service, etc.

Westminster and Holborn Division.—At Westminster City Hall, Charing Cross Road, W.C Friday, April 6, 4.30 p.m., Annual meeting followed by meeting of all practitioners in the are of the Division to elect members of the Local Medical War Committee.

BIRTHS, MARRIAGES, & DEATHS

The charge for an insertion under this head i 10s 6d. for 18 words or less. Extra words 3s. 6 for each six or less. Payment should be forwarde with the notice, authenticated by the name an permanent address of the sender, and should reac the Advertisement Manager not later than first pos Monday morning.

BIRTHS

Burke.—On March 26, 1945, at Hyndland Nursin Home, to Sarah (*née* Hunter), wife of Dr. Irvin W. Burke, M.B., Ch.B., D.P.H., 39, Winto Drive, Glasgow, W.2, a daughter—both well.

Craig.—On Feb. 16, 1945, at Johnstone Hous Belfast, to Molly, wife of Major D. H. Craig R.A.M.C., a son.

DEATH

Reid.—On March 14, 1945, in a nursing hom Alexander Reid, M.B., Ch.B., B.Sc., of Dean House, Deane, Bolton.

State medicine by developing group schemes on a voluntary basis. He believes that if enough doctors and hospitals became available a reorganized medical system could be founded on voluntary co-operative action by employers, employees, municipalities, and other groups. Employed persons, and perhaps their dependants, would be provided for by voluntary group insurance schemes at their places of work, while the medical care of the unemployed and self-employed could be subsidized, if necessary, by the Government. This compromise plan is not worked out in any detail. It is only suggested that the freedom of medical practice must be preserved, that undue competition among doctors must be eliminated, and that the personal relationship between doctor and patient must be safeguarded. The participation of laymen in the management of voluntary schemes is not regarded as an obstacle, for, it is said, doctors have already accepted the lay management of hospitals while maintaining their control of medical matters. Two desiderata are proposed as essential prerequisites for the success of any voluntary compromise scheme. The country must be prosperous, with reasonably full employment, so that the majority of the people are able to pay their own contributions without Government help. Secondly, all the parties concerned—the Government, both central and local, the public, employers, and the medical profession—must exhibit "a degree of social inventiveness and a determination hitherto unknown."

Finally, the writer asks whether the doctors will tolerate a change. He believes the likelihood is increasing, especially since the conviction of the American Medical Association under the Anti-Trust Act in 1943. Local medical societies are sponsoring voluntary medical schemes which the A.M.A. formerly condemned, and it is likely that doctors returning from the Forces will be more in favour of progressive changes. Nevertheless, it is regarded as problematical whether the flow of opinion towards voluntary reform will be fast enough or sufficiently effective "to deflect the solution of the medical-care problem from the channels of federal legislation."

Correspondence

Medical Demobilization

SIR,—A great deal has appeared in your columns about the above, but in every case so far there has been an individual approach, for the writer of the letter has always stated his own case. You may think it appropriate, therefore, that a letter should appear from someone who is not going to be affected, who is not going to lose, and who has a definite job to go back to. The Council of the London and Counties Medical Protection Society has kindly kept my post as secretary open for me during the period of the war when I have been serving with the Forces. It has made up my pay to the salary which I received before the war. I have, therefore, not lost by my service, except that I have lost the increments in remuneration that I would have received had I remained with the Society during the period which I have served.

As I see it, it is desirable that there should be an exchange of practitioners from civilian employment to the Services and vice versa—except in the case of those who intend to make the Services their career—for the following reasons: With very few exceptions the practitioner in the Services loses experience which is valuable to him in civilian life and which, therefore, is valuable to the nation as represented by the general public. This applies throughout the Services, and to specialists as well as to ordinary medical officers. Therefore, in the interests of the nation, medical officers from the Services should be released after a period to maintain experience of civil practice. On the other side, the C.M.P. may state that he has been overworked in many respects, and overwork, we know, leads to staleness. Therefore, from his point of view, it is desirable that he should have a change of employment. There are, of course, many other factors which have already been stated very fully by your various correspondents: the question of being able to live at home or near home; the question of being comparatively free from regulations. But, surely, most important is the question of the maximum number of doctors being in an optimum state of efficiency for the practice which they will be required to follow in the service of the public, as well as in their own interests.—I am, etc.,

RICHARD DURAND,
Wing. Cmdr.

SIR,—After qualifying in 1940 and spending a year as a house-physician, I joined the Royal Air Force in 1941; thus, so far, I have served for some four years, two of which have been spent overseas. It is considered that the following observations are worthy of note.

1. A large number of doctors have volunteered or been conscripted into the armed Forces.

2. A large number of doctors have not volunteered and not been conscripted into the armed Forces. This group can again be divided into: (*a*) those who are too old for service; (*b*) those who are physically unfit for service; (*c*) those who are eligible for service in the armed Forces, but have for one reason or another managed to evade serving in the armed Forces.

3. A large number of Service medical officers are intensely interested in medicine (in the broadest sense of the word), but, apart from the lucky few, have been unable to obtain any real experience in medicine since joining the Services, and this through no fault of their own.

4. While not minimizing the importance of the work that those doctors in group 2 (*c*) have done, they are obtaining a vast amount of clinical experience, they are not separated from their wives or families (in the majority of cases), they are living a comparative peacetime existence, and, last but not least, they are making a considerable amount of money.

5. It is respectfully suggested that after serving for a certain period, say four to five years, a Service medical officer should be given the opportunity to return to civil life and his place be taken by one of those doctors in group 2 (*c*) (and newly qualified men) who are doing such vital work that they cannot be spared to join one of the armed Forces.

6. It is also respectfully suggested that the observation in para. 5 be seriously considered by the competent medical authority and action be taken forthwith.

7. It is impossible to put in writing what the Service medical officers think about those doctors who are deliberately avoiding service in the Forces. The general public should be made conversant with the facts, and public opinion might help the case for the Service medical officers.

8. Medical officers in the E.M.S. are, in the majority of cases, *not* in the Services.—I am, etc.,

A MEDICAL OFFICER, R.A.F.

SIR,—I should be grateful for the opportunity of saying how very strongly nearly all Service medical officers support the views of "Squadron Leader G" (*Supplement*, Feb. 10, p. 21).

My position is very similar to his, except that I am some years older and have served for a rather longer period. I am at present over-seas. I should like to make it clear that the opinions I express are, as I believe, very generally held in the R.A.F. I have not sufficient knowledge of the feelings of doctors in the other two Services to express any views on theirs.

In one respect I fear that "Squadron Leader G" is too optimistic. The Government's promises on release according to age group were, of course, dependent on the "exigencies of the Service," and recent semi-official pronouncements on this point leave one still with the ugly suspicion that doctors will not, in fact, be released with their groups in very many cases. It is undoubtedly this uncertainty as to the future and the possibility of further professionally fruitless years to be spent in occupied Germany or in the Far East which is the basic cause of a great deal of the uneasiness that exists.

I entirely agree that a period of some five years' service with the Forces has done those of us who are not employed in a specialist capacity enormous harm professionally. I read in the *American Journal of Surgery* that many hundreds of doctors serving with the American Forces have already been given long refresher courses in hospitals. One wonders why we have not been given similar opportunities. Most of us would not claim that we have been too busy to spare the time.

Under present conditions, five years' service as a station medical officer in the R.A.F. is almost tantamount to professional suicide in so far as post-war civilian practice is concerned. The failure of the Central Medical War Committee to start any system of exchange as between Service and civilian doctors is causing great bitterness, and, rightly or wrongly, is attributed by Service doctors to one or other of two main factors: (1) The natural reluctance of the Local Medical War Committees to drive their unwilling colleagues into the Services. (2) The equally natural reluctance of the Service members of the Central Medical War Committee to take on civilians, who will have to be trained in that mysterious, and largely imaginary, bogy, "Service procedure." May I, after five years' experience, assure these gentlemen that any doctor of average intelligence can learn all he needs to know of "Service procedure" inside a couple of weeks.

"Squadron Leader G" is quite right. Once Germany has been defeated those of us who have done our share, or even more, in the Services will indeed feel deep resentment if we are required to continue in the Services while younger fit men are allowed to remain in civil practice, with all its attendant advantages

SUPPLEMENT TO THE

BRITISH MEDICAL JOURNAL

LONDON SATURDAY APRIL 14 1945

HEARD AT HEADQUARTERS

The 100% Issue and Grant-in-aid Provision

How would grant-in-aid provision facilitate private practice within a 100% cheme? This question has been put to he B.M.A. after the circulation of the Council's recommendations to the Special Representative Meeting. It is not difficult to answer. There are people who, rightly or wrongly, prefer to provide medical care for themselves and their families in heir own way, at their own expense, despite State provision. These people are not only the well-to-do; they are found in all classes of the community. Those in the wealthier classes will be able, if they prefer, to obtain their medical service privately without financial help. Those in the less-well-off groups should be able to give expression no less freely to their desire to obtain their medical service privately. Generally speaking, this will be possible only if, having intimated their intention not to use the service, either in part or in whole, they receive a cash grant—a cash return for their compulsory insurance premium—to aid them to obtain private service. For example, many a working man, when his wife is ill and in need of hospital attention, will desire for her private care in a private room or block. A good case can be made out for enabling that man to obtain a grant-in-aid or refund to help him meet the costs he incurs. The Government recognizes the ight of the individual to use or not to use the service. Having accepted this principle, the Government, it is widely argued, hould make it possible for classes other than the rich to exercise this right by giving them a grant-in-aid for the purpose.

Portrait of Dr. G. C. Anderson

A portrait of the late Dr. G. C. Anderson, in academic robe, has been added to the collection at Tavistock Square. The painter is Mr. Cyril Roberts, who has been for many years prominently connected with the Royal Society of British Artists. Unfortunately, no painting was made of Dr. Anderson during life, with the result that the painter has had to depend upon photographic ecords. This is always an unsatisfactory xpedient, not only because the painter has to work without the mobile features of the living man in front of his easel, but also because he is denied that opportunity for personal knowledge of his subject which is afforded by a series of sittings. If, therefore, the portrait lacks just the final touch of likeness it is in no way the fault of the painter, and those who were not in intimate association with Dr. Anderson may be unaware of the absent "something" which the painter would have added if he had been able to depict his subject during life. But he has produced a fine portrait, conveying the distinction which was natural to Dr. Anderson, and it will hang on the walls of Committee Room "A" at B.M.A. House, where Dr. Anderson was so often at the right hand of the chair.

Local Health Committees

It seems likely that when the new health committees of local authorities are formed and charged with certain duties under the National Health Service Act provision will be made on the lines of the Education Act, 1944, for the inclusion of non-elected members. It is laid down that the Education Committee of a local education authority must include persons of experience in education and acquainted with the educational conditions prevailing in the area, the only proviso being that at least a majority of the members of the committee shall be members of the authority. In somewhat the same way provision would be made for the inclusion on health committees of doctors and other persons of experience in the health services of the area, who would help in the administration of local authority hospitals and any other local government parts of the health plan.

Such an arrangement would mean that the expert and professional voice would be heard at a very important level in the service, and doctors and others would not be required to contest local elections in order to bring their knowledge and experience where it can be most usefully employed in public affairs. Presumably the names of the people to be co-opted on to health committees would be put forward by local medical advisory committees, the establishment of which in county and county borough areas is to be encouraged administratively by the Minister of Health.

Taxation for Health in U.S.

From an American publication which has recently come to us we learn how large a part of the health services of the United States are financed out of general taxation. In the period before the war the annual taxation for health purposes amounted to three-quarters of a billion dollars (the American billion, of course), or about £150,000,000. This sum is said to represent very nearly one-third of the total expenditure on all medical and hospital services in the States. It includes a complete preventive and curative service for the (pre-war) armed Forces; hospital and other medical care for State pensioners and dependent persons; specialized care, largely in institutions, for patients with mental disorder, tuberculosis, and a few other diseases; and, finally, preventive services for the public health.

Under the Beveridge scheme in Britain the estimated annual expenditure on health and rehabilitation services is £170,000,000. On Sir William Beveridge's total security budget almost exactly one-half of the expenditure would be met out of taxation and rates if the scheme were immediately in force; and about three-fifths after it had been running for twenty years.

The Flying Doctor

One of the members of Parliament who went with the recent Parliamentary delegation to Australia, Mr. Spencer Summers, in an address to the Royal Empire Society the other day, described his interest on arriving at Alice Springs, which is in the central southern portion of the Northern Territory and virtually in the middle of the continent, to find the headquarters of the "flying doctor" service. Entering a house, he discovered a wireless operator at that moment conversing with a man 150 miles away somewhere in the Macdonnell Ranges. The owner of the distant voice was suffering from a severe attack of sciatica, and asked if there was any chance of getting a doctor. He was told to come on the air again in three-quarters of an hour "and we will have the doctor for you." When he came on again he described his symptoms and was given advice.

Mr. Summers said that if the case is such that this distant treatment is inadequate an aeroplane and pilot are immediately at the doctor's service, and he sets off to the faraway habitation, and if necessary brings the patient back in the same plane to hospital.

What is the B.M.A.?

One letter received at Headquarters recently stated that the writer had been speaking to many general practitioners, and they were all of opinion that general practitioners should have or form a union, for, he said, "the problems of the general practitioner are numerous, and we do not know to what organization we must appeal to assist us." Well, the majority of the 50,000 members of the British Medical Association are general practitioners. A General Practice Committee is one of the principal and busiest standing committees of the Association. An Insurance Acts Committee under B.M.A. auspices has been doing first-rate work during the past thirty years for general practitioners in insurance practice, and there is a staff at Headquarters daily giving assistance in an immense variety of problems touching general practitioners individually and collectively. It is true that the B.M.A. includes members of all the other branches of medicine, but that only makes its value to its general practitioner members all the greater.

of a normal home life and reasonable chance of professional advancement.—I am, etc.,

"Squadron Leader H."

*** The statement on medical demobilization by the Central Medical War Committee which appears on page 40 will clear up some misunderstandings on this subject, and should reassure "Squadron Leader H" and other correspondents who have written similarly.—Ed., *B.M.J.*

War Gratuities

Sir,—I wish to draw the attention of both the B.M.A. and serving volunteer officers of the R.A.M.C. (of 1939 vintage) to the following points in relation to the treatment it is proposed to mete out to us when our service terminates.

Most of us are now in our sixth year of service and have performed various degrees of onerous duty at home and over-seas, all of which were accepted in the spirit of voluntary duty. The publication of the proposed rate of gratuities has come as rather a shock to me and, no doubt, to all others concerned. Here I am speaking for the class of R.A.M.C. officers who were over 30 years of age on voluntary enlistment in 1939, and are therefore excluded by A.C.I. 1814/43 from obtaining and thence benefiting by the grant of a short-service commission through "age," although this said "age" has never excluded and does not now exclude us from full participation in field units on active operations. In addition some of us are not as physically fit as we once were, yet here we are faced with a future outlook of further service (unstated in amount so far), nearing 40, with families, and neither set employment nor even homes to return to when released.

I claim very strongly that we are being arbitrarily treated and that the least service the B.M.A. can perform for us is at once to petition the War Office in order that all R.A.M.C. officers with over five years' war service become eligible forthwith for the grant of a short-service commission to date from the time of voluntary enlistment. With the attendant financial benefits it would at least ensure that on demobilization we would be given a real chance of rehabilitation in civilian life without enduring a long period of financial and mental stress. I yield to no one in stating that our services have been of no less value than those of the younger volunteer or those of the grudging conscript.

I invite letters from others similarly placed in order that action may be taken by the B.M.A. without further delay to right what appears to myself to be a flagrant passing-over and arbitrary dismissal of services rendered.—I am, etc.,

"Captain, R.A.M.C."

Sir,—Doubtless by the time this reaches you your *Journal* will have received many other communications on the subject of war gratuities, but I would crave space for a few words from one who is serving in Burma with the "Forgotten Army."

In return for our services as medical officers for the best five or six years of our lives a grateful Government is offering officers of my rank (and captains in the case of the R.A.M.C.) the sum of £20 per annum; in other words, the equivalent of 15 days' pay per year. Is this sum seriously the offer of the Government to enable us to build up our practices after an absence of half a decade? How unfairly does the position of the emergency commissioned M.O., who abandons his practice to serve his country, compare with the short-service commission M.O., who, with no pecuniary loss to himself (indeed, usually the contrary), joins the Service probably only a few months earlier than his colleague, and, at the end of his five years, receives £1,000.

Let those of my colleagues who have had the good fortune to remain at home during this holocaust accept this action by the Government as a sign of the treatment the medical profession may receive if they get this State Medical Service for which so many of them seem to be clamouring.—I am, etc.,

F. M. Fox,
Fl. Lieut., R.A.F.V.R.

H.M. Forces Appointments

ROYAL NAVY

Surg. Lieut.-Cmdr. C. P. Collins, D.S.C., to be Surg. Cmdr.

Royal Naval Volunteer Reserve

Acting Surg. Lieut.-Cmdrs. R. L. Kennedy, O.B.E., M. C. Hood, W. L. Kerr, and J. E. M. Ayoub to be Surg. Lieut.-Cmdrs.

ARMY

War Subs. Capt. (now War Subs. Major) W. I. Daggett, R.A.M.C., and War Subs. Major R. Platt, R.A.M.C., to be Consultants, and have been granted the local rank of Brig.

Cols. W. K. Morrison, D.S.O., and E. Percival, D.S.O., M.C., late R.A.M.C., having completed four years in the rank, are retained on the Active List supernumerary.

Lieut.-Cols. J. B. Fotheringham and K. A. M. Tomory, O.B.E., from R.A.M.C., to be Cols.

ROYAL ARMY MEDICAL CORPS

Lieut.-Cols. A. J. Bado and D. Crellin, M.C., having attained the age for retirement, are retained on the Active List supernumerary.

Major (War Subs. Lieut.-Col.) J. N. Atkinson to be Lieut.-Col.

Majors J. G. E. Vachell and J. T. Smyth to be Lieut.-Cols.

War Subs. Major J. L. Gordon, O.B.E., to be Major.

Capt. H. N. Perkins to be Major.

Short Service Commissions.—Lieuts. (War Subs. Capts.) G. J. L. Davies, J. W. Spence, and L. F. Q. Maclaine, from Emergency Commissions, to be Lieuts., and to be Capts.

REGULAR ARMY RESERVE OF OFFICERS

Royal Army Medical Corps

War Subs. Major P. H. Wells has ceased to belong to the Reserve of Officers on account of disability, and has been granted the honorary rank of Lieut.-Col.

Capts. J. N. Heales and C. D. Evans, from Supplementary Reserve of Officers, to be Capts.

TERRITORIAL ARMY

Lieut.-Col. J. McC. Smellie, O.B.E., R.A.M.C., to be a Consultant, and has been granted the local rank of Brig.

Royal Army Medical Corps

War Subs. Capt. O. K. G. Guyer has relinquished his commission on account of disability, and has been granted the honorary rank of Major.

2nd Lieut. I. C. Peebles, from R.A., T.A., to be Lieut.

TERRITORIAL ARMY RESERVE OF OFFICERS

Royal Army Medical Corps

Major F. B. Mackenzie, D.S.O., M.C., T.D., has been granted the honorary rank of Lieut.-Col. on ceasing to be employed.

LAND FORCES: EMERGENCY COMMISSIONS

Royal Army Medical Corps

War Subs. Capts. J. L. Hunter and J. Harkness have relinquished their commissions on account of disability, and have been granted the honorary rank of Major.

War Subs. Capts. C. Moore, T. O'Sullivan, A. S. M. King, G. T. Newton, L. A. Murray, J. H. Gifford, N. Budge, T. G. Tressider, G. Haddick, and J. Essex have relinquished their commissions on account of disability, and have been granted the honorary rank of Capt.

To be Lieuts.: D. Eglin, H. J. Whiteley, H. N. Green, L. Bernstock, P. O'F. Boyle, W. S. Davis, H. W. Forshaw, M. Footerman, H. K. B. Geiser, A. Goldberger, E. T. Harrison, R. M. Harrison, C. A. Hopkins, J. G. P. Jones, W. P. F. Kearney, M. H. Kerby, E. R. Lecutier, J. A. Leitch, W. E. S. Marshall, A. S. Nethercott, C. R. Oyler, I. Taylor, J. G. Warbrick, J. S. Watson, P. Pinkerton, R. M. Dowdeswell, W. Hood-Dye, J. M. Liston, E. Sorabjee, D. G. Snell, J. R. C. Spicer, P. H. Stone, R. H. Wiseman, B. A. Coghlan, W. A. S. Lamborn, O.B.E., C. H. Phillips, K. C. P. Thomson, E. G. Gibbins, I. W. Beaton, J. McP. Campbell, J. Pugh.

WOMEN'S FORCES

Employed with the R.A.M.C.

War Subs. Capt. (Mrs.) E. G. Gray has resigned her commission.

War Subs. Capts. (Mrs.) L. M. O'Connell and H. M. Schofield have relinquished their commissions.

The following M.O.s have been granted commissions in the rank of Lieut.: Lorna Cooke, Margaret L. Cox, Ruth M. Cyrlas-Williams, Muriel J. W. Dobbin, Jean Edmonds, Margaret A. M. Howard, Margaret E. Lowry, Joyce B. Mole, Joan V. Muller-Rowland, Edith R. Munro, Lois E. N. Turner, Ethel J. Higgitt.

POSTGRADUATE NEWS

The Fellowship of Medicine announces: (1) Revision course in anaesthetics, all day, April 9 to 21, lectures and demonstrations at various London hospitals. (2) Week-end courses in surgery (suitable Final F.R.C.S.) at Hillingdon County Hospital, all day, Sat. and Sun., April 14 and 15. (3) Final F.R.C.S. demonstration of cases, Sat., April 21, 2.30 p.m., at London Homoeopathic Hospital.

WEEKLY POSTGRADUATE DIARY

Fellowship of Medicine, 1, Wimpole Street, W.—*West End Hospital for Nervous Diseases:* Mon., Tues., and Fri., 2.30 p.m., Course in neurology (suitable M.R.C.P.). *Metropolitan Hospital:* Wed., 5 p.m., Final F.R.C.S. demonstration. *London Homoeopathic Hospital:* Wed., 5.30 p.m., Final F.R.C.S. surgery demonstration. *St. Mary Islington Hospital:* Wed., 2.30 p.m., Final F.R.C.S. course. *St. Stephen's Hospital:* all day, Sat. and Sun., March 24 and 25, week-end course in rheumatism.

DIARY OF SOCIETIES AND LECTURES

Royal Society of Medicine.—*Tues.,* 4.30 p.m., Section of Pathology. *Thurs.,* 5 p.m., Section of Urology. *Fri.,* 4 p.m., Section of Disease in Children; 3 p.m., Section of Epidemiology and State Medicine.

Royal Institute of Public Health and Hygiene, 28, Portland Place, W.—*Wed.,* 3.30 p.m., Dr. Janet Aitken: Rheumatism in Children.

Royal Institution, 21, Albemarle Street, W.—*Tues.,* 5.15 p.m., Sir Henry Dale, P.R.S.: Cholinergic Action in Nerve Ganglia, Motor Nerve Endings, and Electric Organs.

B.M.A.: Branch and Division Meetings to be Held

North of England Branch.—At Royal Victoria Infirmary, Newcastle-upon-Tyne, Thurs., March 22, 7.15 p.m., Anaesthetic demonstration in the out-patient department by Drs. H. H. Markham, W. J. Phillips, E. W. Osselton, P. Ayre, Winifred M. Houston, Joan Miller, and M. Goldston; 8.45 p.m., Address by Dr. J. T. Ingram: Seborrhoeic Problem. Members of H.M. Forces stationed in the area of the Branch are invited.

BIRTHS, MARRIAGES, & DEATHS

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MARRIAGES

Boon—Millar.—On March 3, 1945, at St. Ninian's Church, Golders Green, Capt. Frank W. Boon, R.A.M.C., to Judith Jessica Millar.

Thompson—Bäckstedt.—On Feb. 7, 1945, at Brussels, John Thompson (Capt., R.A.M.C.), of Edenfield, Manchester, to Doreen M. Bäckstedt (Sister, Q.A.I.M.N.S./R.), of Flamstead End, Herts

Among the speaking engagements in the next few weeks of the Secretary of the B.M.A. are the Rauceby R.A.F. Medical Society on March 15, Birmingham Rotary Club on March 19, Manchester Luncheon Club and annual meeting of St. Mary's Hospitals, Manchester, on March 28, Rugby School on April 4, public meeting and Division meeting at Exeter on April 19, and a public meeting at Coventry on April 25.

THE CHARTERED SOCIETY OF PHYSIOTHERAPY

On May 1, 1944, the Chartered Society of Physiotherapy notified the Board of Registration of Medical Auxiliaries by letter that it had "resolved that the Chartered Society resign its membership of the Board of Registration of Medical Auxiliaries," to take effect as from Dec. 31, 1944. No reason was given.

It is not known exactly when the Chartered Society of Physiotherapy took the first steps which ended in its resignation from the Board, but the beginning seems to have been the decision of the Board to send a deputation to the Ministry of Health to discuss the position of medical auxiliaries in the proposed National Health Service. The Board asked each constituent body to prepare a statement for inclusion in a comprehensive memorandum to be submitted to the Ministry, and the Chartered Society appointed its vice-chairman as a member of the committee charged to prepare the memorandum. The Chartered Society did not, however, submit its views and declined to send a representative to the Conference held at the Ministry on May 11, 1944.

On May 31 the Board decided to ask the Society to receive a deputation from the Board to discuss the matter. A conference was finally held on July 26. The Chartered Society's representatives had, however, been instructed by their Council to hear the views of the Board's representatives but not to enter into commitments. After a report of the meeting had been submitted to the Council of the Society, it again notified the Board of its wish no longer to remain as a recognized qualifying body. The Board therefore submitted the following memorandum to the Council of the British Medical Association:

> The Board of Registration of Medical Auxiliaries desires to remind the Council that the formation of the Board was determined by the policy of the Association through its Council and the Representative Body, and considers that the question emphasized in this document is one of grave import. The Chartered Society of Physiotherapy have resigned from the Board of Registration of Medical Auxiliaries. This resignation will take effect from Jan. 1, 1945. The Council of the Board considers that this action of the Chartered Society of Physiotherapy, taken without any poll of their members, and without previous notice to the Board, jeopardizes the safeguards which the British Medical Association and the co-operating bodies had provided for the public by the institution of the Board. So long as the Chartered Society of Physiotherapy remained a member of the Board the medical profession and the public had the following guarantees in reference to physiotherapists on the Register: (*a*) that the governing body of the Register was a body independent of the teaching schools and examining bodies (cf. the General Medical Council); (*b*) that the governing body was so constituted that it always had a majority of qualified medical practitioners on its Council (a safeguard against abuses); (*c*) that it had the right of inspection of schools and of examinations; (*d*) that those registered had been through an adequate course of training; (*e*) that they had undertaken to carry out treatments only on the recommendation of a registered medical practitioner.
>
> With the defection of the Chartered Society of Physiotherapy the following consequences arise: (1) The Chartered Society of Physiotherapy become their own training, examining, and registering body. (2) Those on their register will be under a council which has a large majority of technicians as distinct from medical men. (3) At any time the members and/or Council can annul the condition, now existing among their rules, that physiotherapists must treat patients only under a doctor's direction and control. The effect of this action would be that physiotherapists would be in a position similar to osteopaths. (4) Future members of the Society will not therefore be able to register with the Board, as, under the constitution of the Register, every person admitted must be a member of a recognized qualifying body. (5) Those remaining on the Register will have no representation on the Council of the Board.
>
> Since the British Medical Association was largely responsible for the creation of the Auxiliaries Register, the Board desires to inform the Council of the Association of the above facts and would appreciate definite guidance. The Board is of opinion: (i) That immediate action is required to safeguard those physiotherapists who wish to remain loyal to the principles of a separate registering body under a medical aegis. (ii) That it might be desirable to ask the Society of Apothecaries of London to revive the biophysical assistants examinations and diploma under a name more in keeping with the recent developments in rehabilitation. With this end in view it is suggested that a conference of representatives of the Board with the British Medical Association be called to approach the Society of Apothecaries. (iii) That the Council of the B.M.A. should consider whether the action of the Chartered Society of Physiotherapy renders it desirable to promote legislation for the State Registration of all those employed in medical auxiliary work.

This was considered on Nov. 8, 1944, when the Council passed the following resolution: That the Council regrets that the Chartered Society of Physiotherapy should have thought it necessary to withdraw from the Board of Registration of Medical Auxiliaries and expresses the hope that on reconsideration the Chartered Society will reverse its decision—bearing in mind the public and professional issues involved. A copy of this resolution was forwarded by the B.M.A. to the Chartered Society and the Ministry of Health. The Chief Medical Officer of the Ministry then invited the Chartered Society, the Board, and the British Medical Association to a conference, at which the Society reaffirmed its wish to separate and have its own register "on the lines of the Register of Nurses."

The Board of Registration of Medical Auxiliaries circularized all registered physiotherapists on Feb. 13, setting forth the present position and asking them not to withdraw their names from the Register. Out of 8,500 approximately 2,000 members withdrew from the Register, but more than 200 have subsequently cancelled their notice of withdrawal.

HOMOEOPATHIC MEDICINE

Petition for Formation of a Group

The following petition for the formation of a Group of Homoeopathy within the British Medical Association has been addressed to the Council.

We, the undersigned members of the British Medical Association engaged in the study and practice of homoeopathy, beg hereby to make petition that a Group of Homoeopathy be established within the British Medical Association.

The number of members who practise this specialty in any one Division of the Association is too small adequately to present their problems. We are of opinion that the formation of a group of those limited in their practice to homoeopathic medicine would be an advantage not only to the specialty but to the Association.

Such a group would deal with the conditions affecting the work of practitioners in this specialty.

In our view membership of the group should be confined to those members of the Association who are engaged predominantly in the practice of homoeopathic medicine and who sign a declaration to that effect.

Mabel S. Ainslie, Glasgow, D. W. J. Andrews, Cheltenham, Madeline Archibald, Rawtenstall.

Helena F. Banks, London, Margery G. Blackie, London, D. M. Borland, London, W. E. Boyd, Glasgow, W. Briggs, Glasgow, T. D. Theodore Brocklehurst, Bexhill-on-Sea, B. C. Broomhall, Salisbury, H. D. Brown, London.

M. W. Cantor, London, Elizabeth Casson, Clevedon, R. M. le H. Cooper, London, Lilian M. Croskery, Tunbridge Wells, A. T. Crouchar, St. Tudy, A. T. Cunningham, London.

M. Dyer, London.

C. Y. Eccles, London, J. S. Ellis, Bath.

H. B. Foster, Tonbridge.

W. S. Ghai, Dagenham, T. M. Gibson, Devizes, A. D. Glasgow, Newtownards, T. P. Grant, Glasgow, V. Green, London, Sylvia S. Gunn, Glasgow.

P. Hall-Smith, London, J. Hamilton, Galston, M. H. R. Hatfield, Poole, J. B. Hendry, Glasgow, R. H. K. Hope, Petersfield.

F. B. Julian, Liverpool.

A. Kellner, London, J. F. Kerr, Birmingham, A. Khastgir, Manchester.

G. Laurence, Chippenham, T. E. Lawson, Worcester, E. K. Ledermann, London, N. M. Lees, Dundee.

B. D. Malhotra, Leeds, W. McAlpine, Glasgow, S. D. McAusland, Liverpool, R. G. McIntyre, Manchester, W. R. McCrae, London, N. MacKillop, Glasgow, W. A. L. Marriott, Norwich, G. R. Mitchell, St. Annes-on-Sea, Agnes Moncrieff, London.

Grace H. Newell, Harrow, B. C. Nicholson, Bristol.

R. Parker, Leeds, Elizabeth M. J. Paterson, Glasgow, J. Paterson, Glasgow, H. H. Patrick, Glasgow, W. H. L. Patrick, Glasgow, W. S. Patrick, Bexhill-on-Sea, D. Joyce Peake, Alperton, Kathleen G. Priestman, London.

P. G. Quinton, London.

B. G. Reynolds, Scarborough, J. M. Rishworth, London, G. G. Robertson, Glasgow, W. W. Rorke, London, A. C. G. Ross, Glasgow, T. D. Ross, Glasgow.

A. P. Saint, Leamington Spa, L. G. Scoular, London, P. H. Sharp, London, R. K. Shearer, Glasgow, C. H. Spencer, Ashton-under-Lyne, T. G. Stonham, Worthing, J. A. H. Sykes, S. Croydon.

A. Taylor-Smith, London, W. L. Templeton, London, M. D. Thakore, Doncaster, H. W. Thomas, Bromley, J. F. G. Turner, Camberley.

T. A. N. Watson, Guildford, T. T. B. Watson, London, Sir John Weir, London, P. M. C. Wilmot, Plymouth, A. Justina A. Wilson, London, A. W. Wilson, London, G. L. Wilson, Glasgow, H. Fergie Woods, London, H. D'A. Wright, Capetown.

A circular to local education authorities on their duties under Section 48 (3) of the Education Act, 1944, which came into force on April 1, while admitting that for the duration of the war, and probably for longer, development of the school medical service will be restricted by the shortage of doctors, dentists, and nurses, suggests measures that can be adopted in the meantime. Existing schemes should be improved so that all the normal facilities of the school medical service—such as treatment of minor ailments, diseases of the ear, nose, and throat, and defective hearing, diseases of the eye and defective vision, and also orthopaedic and dental treatment, child guidance, speech therapy, and the treatment of rheumatism—are readily available for all pupils who need them, at no cost to the parent. The school clinics which have not hitherto provided these services should now do so, arrangements being made with consultants—e.g. aurists, ophthalmic surgeons, dermatologists, and specialists in children's diseases. Hospital treatment should be provided where necessary. Local education authorities may also extend their arrangements with hospitals for the treatment of other conditions (except tuberculosis and infectious diseases, for which they already have statutory functions). Every effort should be made to improve the medical service for children attending schools in rural areas, perhaps by arrangements with local general practitioners for the treatment of pupils referred to them by their medical officers or nurses. Such treatment might be given in the schools or other suitable places or in the doctor's own surgery. Payment for the treatment should be agreed between the authority and the doctor on a suitable basis. The circular ends with the reminder that these suggestions are of an interim nature and without prejudice to any decision which may be reached on a national health service

SUPPLEMENT TO THE
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HEARD AT HEADQUARTERS

The Negotiating Committee

Two months of really hard work has been put in by the Negotiating Committee. Between January 12 and March 13 four meetings of the full committee have been held, as well as five meetings of a special subcommittee which was set up to discuss the details of the administrative structure of the proposed National Health Service. The energy of the negotiators on the side of the profession has been matched on the side of the Ministry. At eight of the total of nine meetings representatives of the Ministry of Health and the Department of Health for Scotland have been present, and on six occasions the Minister himself and on five the Secretary of State for Scotland have attended.

The first part of the Negotiating Committee's work has been concerned with the administrative side of the service, and the representations made have been based upon the views of the Representative Body and of other constituent members of the committee.

A special meeting of the Council of the B.M.A. was called for last Wednesday to consider a report from the committee bearing especially upon certain suggestions for an alternative structure for both central and local administration.

The Remuneration Committee

The Spens Committee on Remuneration is getting down to its task. It has already held its first meeting and decided on its working plan, and the expectation is that it will report in the early autumn, about six months from now.

The B.M.A. committee which is preparing evidence for the Spens Committee on general practitioners' remuneration is setting about its task in a workmanlike way. Its first business, though not the whole of its business, is statistical inquiry, and here it is being assisted by an expert statistician. It is seeking, first of all, for a solid foundation of fact concerning the remuneration general practitioners received in what can be called normal times. For this purpose as a first step it is obtaining information (which, of course, is being treated in the strictest confidence) of the actual incomes of doctors of various ages and in all types and conditions of practice before the war. It has sent inquiries to 5,000 general practitioners, including a number now in the Services. These men and women have not been specially selected, they have been chosen at random, the size of the sample in relation to the whole number concerned being large enough to prevent such random selection giving a freak result.

To the possible criticism that the sample might not give the true facts of the case because the average would be adversely affected by the inclusion of practices in depressed areas where fees were abnormally low, or in sparsely populated districts where expenses were unduly high, the reply is that it is not the dead average which is sought, but a range including the higher as well as the lower income groups, so that the estimate of what a doctor *ought* to earn can be based on what he *could* earn under different and varied conditions. The care taken over the whole of this part of the inquiry makes it unlikely that there will be any serious challenge on statistical grounds.

At the same time, statistics cannot tell the whole story. It is not enough to deal with the normal financial expectations of practices in the past. A range of incomes has to be recommended which will maintain the social and economic status of general medical practice in relation to the emoluments of other professions, the place of the doctor in the community, and the circumstances, so far as they can be forecast, after the war.

A Broad Case

On a "bread and butter" issue of the kind with which the Spens Committee is dealing it is natural that some doctors should wish to put forward their own views and experiences which they may consider exceptional and should be anxious lest a particular angle be overlooked. But the Spens Committee, if its task is not to be unduly prolonged and complicated, must rely mainly on evidence presented to it by representative bodies. Therefore those who have useful suggestions to make will be likely to further them best by sending them direct to the B.M.A., where they will be considered by the committee which is planning the evidence, and in so far as they have value and have not already been covered by what the committee has done or proposes to do they will be given due weight in its representations.

It is worth while to add that the members of the Evidence Committee are all men engaged in general practice and representative of different types of areas, and it is unlikely that any important factor has been omitted from their considerations. The committee is anxious—and the same, of course, may be said of the Spens Committee itself—not to lose sight of anything that is relevant, but it is anxious also not to overload its consideration with extraneous matters.

The Askwith Agreement

Although the Spens report will deal with general practice, it is bound to have its repercussions in other branches of the profession, notably in the public health service. Those who speak for public health medical officers are considering the termination of the Askwith agreement, which concerns the salaries of whole-time men and women. The agreement was made in 1929 as the result of a conference, under the chairmanship of Lord Askwith, between the associations of local authorities and the B.M.A. It was an agreement for five years, and thereafter renewable from year to year. To bring it to an end one year's notice has to be given by any of the subscribing bodies.

Medical Auxiliaries

It is now twelve years since the B.M.A. co-operated in the construction of the *National Register of Auxiliary Medical Services,* but perhaps not everybody realizes what the word "auxiliary" covers. There has lately been issued from the offices of the Board of Registration of Medical Auxiliaries at B.M.A. House a pamphlet saying exactly who these auxiliaries are, the numbers in each specialty, the methods of training and qualification, and how their services can be best utilized in a National Health Service.

Each group has its recognized qualifying body. The radiographers who belong to a society number 1,850. The chiropodists belong to five recognized bodies, presently, it is hoped, to be merged into one, and number about 3,000. The speech therapists, who have their college, and the orthoptists, who have their board, are few in number, about 200 of each. The dietitians, who have an association, number 345, and it is said that the demand for their services is at present greater than the supply. Another group is that for dispensing opticians, whose numbers are not stated, but who have their qualifying association. Absentees from the list are, unfortunately, the physiotherapists—the Chartered Society of Physiotherapy, which was one of the founder members of the Board, having withdrawn its membership.

It is useful to have this information in such handy form. The Board of Registration is not a statutory body, but it is the only one to represent these services collectively, and it fulfils a function which should be helpful to the Ministry of Health.

The Education Act

The shortage of medical man-power is making it extraordinarily difficult to provide for the extension of medical services under the new Education Act. The proposals in sect. 48 (3) of the Act are intended to secure that comprehensive facilities for free medical treatment, other than domiciliary treatment, are available for all pupils in attendance at school. These proposals mean an increase in the medical staffs of local education authorities at a time when the medical resources of the country are strained to the utmost. Nor is it a shortage of doctors only—though that is the principal difficulty—but a shortage of nursing staff, domestic staff, and of hospital accommodation in view of the continued occupation of beds by the E.M.S.

Representations have been made to Mr. Butler on the subject. It has been objected in official quarters that it would place the Minister in an embarrassing position if he had to inform the House of Commons that because of the medical man-power situation he could not advise local authorities to carry out their duties, and that an amending Act would be necessary to delay the coming into operation of the section. But the Ministerial difficulty is surely no matter for shame. It is due to the prolongation of the war.

Correspondence

Medical Demobilization

SIR,—I have followed with interest the correspondence which has appeared in your columns during the last few months about medical demobilization. I have also been amused by the tones of shrill and righteous indignation in which some letters have been couched. Do certain serving doctors think that they are alone in suffering hardship in this war? They have only to look among the ranks of serving lawyers, bankers, etc., to find cases which appear far harder, not to mention the immense number of small shopkeepers and business men who have lost all.

Why should the doctors' burden be regarded as specially grievous? We at least are given commissions on joining, a job we know about, and a higher rate of pay than the average, and, with a modicum of good sense, can find Service life devoid of neither interest nor pleasantness. Furthermore, I deplore the attitude of "Medical Officer, R.A.F." (March 17, p. 41) and others in regarding civilian doctors of military age as evading service. The great majority work heart-breaking hours, take no holidays, and would give a great deal to be able to join one of the Services. These insinuations are unjustified as well as undignified, and the sooner they cease to appear the better. I think that "Medical Officer, R.A.F." and his friends are a very small minority, and, like most minorities with an imaginary grievance, rather vociferous. I am in my sixth year of service and have twice been over-seas—Europe and the Far East—so have had the opportunity to discuss medical call-up and demobilization with many other doctors, and I have seldom heard the opinions of "Medical Officer, R.A.F." put forward, and often have I heard a partner or friend left in "Civvy Street" to carry on spoken of with compunction amounting to anxiety on account of the tremendous burden of work he has been left to cope with. I would like to suggest that it would be in the interests of the public as well as to our own advantage if some really good refresher courses on full pay (for our wives and children must live) were arranged for medical officers who wish to avail themselves of them before demobilization. Failing this, most of us will not be able to afford a postgraduate course or house job.—I am, etc.,

PAUL HARRIS,
Capt., R.A.M.C.

Medical Demobilization and the E.M.S.

SIR,—There has been an abundance of correspondence of late from members of the armed Forces, some of whom write with considerable rancour, which is directed in a large part against the members of the E.M.S. The former appear to imagine that the E.M.S. is staffed by large numbers of fit young men who are "hiding" therein in an effort to evade military service, who earn large salaries, and collect numerous postgraduate qualifications. This is nothing more or less than a travesty of the facts, and a malicious injustice to the intelligence of the Central Medical War Committee and the Department of Health.

Have the writers stopped to consider the following facts? The E.M.S. is staffed (or understaffed) largely by men who are unfit for military service or have been rejected from the Forces on this account, by women whenever possible, and by foreign refugees. To those who suggest an exchange between the E.M.S. and the Forces I would reply that first they should consider seriously whether such is at all practicable from the point of view of numbers. The few fit men in the E.M.S. would permit of the release of but a small fraction of those wishing to leave the Services before hostilities cease.

One would imagine from the correspondence that it was extremely easy to walk out of the E.M.S. and into the Services at will. This is anything but the case, and it is, in fact, no easier to leave the E.M.S. when one becomes tired of it than it is to leave the Forces. Can a man walk out of a munition works, to which he has been directed, into the Army, and another come out of the Army to take his place because the latter feels like a change?

With regard to the pay, this is, generally speaking, lower in all cases in the E.M.S. than in the Services, and there are no family allowances, etc. As regards postgraduate qualifications, I am under the impression from reading the results of graduations that the greater proportion are obtained by members of the Forces who have the time to spare for study. Admittedly the E.M.S. permits of what is called "home life" to a limited degree, but this is also true of a large number of members of the Forces who are stationed in this country and who have never been posted abroad. From the point of view of numbers available for the purposes of an exchange, it would seem that there are more of the latter available for this than could be obtained from the E.M.S. It would seem also that some form of liaison between the three Services where all are stationed in one area would free a number of men for fuller employment elsewhere. Medical man-power is not being wasted in the E.M.S. Is this true of the Services?—I am, etc.,

"EMBEE."

General Practitioners in Country Areas

SIR,—There is reason to believe that the Central Medical War Committee does not appreciate the position of the general practitioner service in the small country towns and rural areas throughout the Provinces. Nearly six years of war have taken a heavy toll of the civilian doctors, partly through natural causes, but largely the result of overwork. There have been no recruits whatever. A very large proportion of those left to carry on are just thoroughly tired men. Many are suffering from physical infirmities which call for retirement. They carry on because they must. There is simply no one to replace them. They can neither sell their practices nor give them away. A national patriotism compels many to stick it till Germany is beaten.

And what will the C.M.W.C. do then? Either they are aware that the shortage of general practitioners is acute, not to say alarming, or they are not. If they have this knowledge it is to be presumed that they have made comprehensive plans to meet the emergency directly the European war is over. If they are not alive to the gravity of the situation they would be wise to inform themselves by inviting representative doctors—with no axe to grind—to appear before them as witnesses.—I am, etc.,

Bath. C. EDE.

This Latest Intrusion

SIR,—I have waited for some protest to be made against the provision in the Education Act for free medical treatment, other than domiciliary, for all pupils in attendance at schools. Not even the voice of the B.M.A. has been raised in protest against this further intrusion upon general practice, although, I understand, the Association was not consulted before the section was introduced. One is tempted to ask who is to be responsible for non-domiciliary treatment of these children between Friday afternoons and Monday mornings and on Bank Holidays and other occasions when school medical officers retire to the privacy of their homes.

Antenatal care is now largely taken out of our hands as general practitioners; the care of the child up to school age is in the hands of infant welfare centres and health visitors, whose advice is often counter to that of the doctor actually attending the child at the time. It is almost impossible, in this country at all events, to get a school child's tonsils and adenoids removed after the age of 5 if the school medical officer disagrees, although we, who see the child through its attacks of tonsillitis, cervical adenitis, and otitis, feel it is essential. Diphtheria immunization in certain instances in this county has been handed over to health visitors, and with the new Education Act one is left wondering if it is really necessary to introduce State medicine, which appears to be already a fact.—I am, etc.,

R. A. MCCABE.

Higham Ferrers, Northants.

A Doctor Decides

SIR,—My colleagues may be interested in my decisions. My medical career includes 20 years spent in general practice in Halifax. The interests of the public and the interests of my colleagues in the Public Health Service (this is often overlooked) depend upon a strong independent profession. Independence in the long run is only possible if this includes financial independence, and the latter disappears the moment one's total remuneration comes from one source. This explains the paradox that while N.H.I. has, on the whole, been a good thing for public and profession, its 100% extension would not be a good thing, as it would mean a profession not independent but wage-slave in type.

I am willing to consider entering any State medical scheme provided I can earn at least, say, £350 from the practice of my profession outside any such scheme. Should a scheme put forward by any Government not offer financial independence I shall endeavour to carry on outside the scheme.

If I am unable to earn a living under these conditions I shall have to terminate a life-long enthusiasm. I may have to become a wage-earner in some other calling, but I won't become a medical one, and I shall have the satisfaction of having done my small part to save our grand profession from the stranglehold of the python of bureaucracy.—I am, etc.,

WILLIAM CRAIG.

The Terms

SIR,—Sir Ernest Graham-Little's letter (*Supplement*, March 10, p. 38) is a timely reminder to those supporters of the State Medical Service who appear to think that the doctors will be able to fix their own terms of service and remuneration. Let

"MAJOR OPERATIONS, 160"

BY

C. E. S. FLEMMING, M.R.C.S.

At a meeting of subscribers to a small hospital a member, reading the annual report, remarked, "Major operations, 160; how blood-thirsty these surgeons are getting!" A medical subscriber countered: "No, it is the committee that are blood-thirsty; they believe that the more major operations that are performed the greater will be the reputation of the hospital and the more the subscriptions."

This idea—that major operations are an index of the efficiency of a hospital—is probably at the back of the minds of the committees of many hospitals, especially the smaller ones, which adopt this custom. It does not apparently matter what the definition of a "major operation" is, nor how many there are; the point is, that this is the standard adopted. In one large hospital a detailed account is given of all the surgery, and there is no direct evidence in the report that there even exists a medical department. The other day I asked the matron of a small hospital how they were getting on. She replied: "Oh, splendidly; we do a lot of big surgery here." Of course the prime interest of the committees is the welfare of the patients, but this outlook on surgery is natural because the results of surgery are generally more immediately manifest, more dramatic, than are those of medical treatment. The effect of this is an appreciation of the work on the surgical at the expense of that on the medical side.

No one with any knowledge of hospital work will for a moment wish to detract from this tribute to surgeons, whose skill, untiring devotion, and success can never be too highly esteemed, but, unfortunately, there follows an unintended but consequent lack of due regard for the work in the medical wards, aggravated by a want of better, fuller knowledge of what is done there. The public does not realize that the nominal separation of medicine and surgery is only artificial, that the two are interdependent, that the great surgeon is physician too. It has been said that surgery is the handmaid of medicine and gets all the smiles, but if that is true it implies that medicine is mistress and largely controls as well as requires the work of the surgeon. The physician tries to obviate the need for operation, and by early diagnosis and treatment often succeeds; where he does he should have credit for accomplishing something better, though, to the layman, less obvious, than operation. Strategy may be more important than battle.

It may be said that failure in medicine is negative: just failure and nothing more. The demand on the surgeon is greater; failure is positive; a badly set fractured ankle becomes a lifelong limping advertisement of failure. Better appreciation of what medicine can do today should bring a corresponding verdict on its failure. In that delightful book *Confessio Medici*, Stephen Paget writes that the work done in twenty years by a surgeon in charge of forty hospital beds will have saved 72,000 years of other people's lives. This somewhat fantastic deduction might with equal if not better reason be applied to-day to a physician.

There is much in medical treatment that is as striking as the best that is done in surgery, and would be as manifest to the public if it could be shown in a film of the life of the patient, which, without medical science, would have ended in misery or death instead of enjoyable years. What more striking than photographs of a myxoedematous patient taken before and after treatment by thyroid; what more dramatic than the recovery under treatment by insulin from the distressing weakness and threatened death of a diabetic patient; or the saving by liver extract from the otherwise inevitable end of pernicious anaemia? Countless years of dreadful disease have been prevented by salvarsan, and what more remarkable to-day than the results of treatment, in all departments, by the various sulphonamides and by penicillin? In another category is the prevention of years of invalidism in patients with heart disease if they are treated as Mackenzie taught.

The result of this marked appreciation of surgery is a desire in district hospitals for the development of their surgical work, and, consequently, a demand for the help of members of the surgical staff of the central hospital—help that is as valuable as it is welcome. But this means that the beds in district hospitals are, in an increasing proportion, occupied by surgical cases, and are thus diverted from their original purpose of providing accommodation where local general practitioners, with the help the hospital gives, could look after their own patients as efficiently as could the central hospital. The patients would receive that attention, observation, rest, dieting, as well as medical treatment, which are essential for success. It is only with such help that a doctor can in many cases efficiently carry out treatment. Here, too, he would be able more easily to overcome the "barbed wire entanglement" of the bottle of medicine. The help and advice of other specialists as well as surgeons from the central hospital would increase the value of the work done, and in the annual reports all this might with advantage be acknowledged with due emphasis. It has often been stated that there is an opportunity in district hospitals to specialize in surgery; why not in other branches of practice? This would be greatly to the benefit of the residents in the neighbourhood.

This "requisitioning" of surgical experts by small hospitals, with all the visiting that this means, will surely be one of the urgent matters to be considered in discussions on the future of hospital services. It must impose a heavy strain on the surgical man-power of a central hospital area. The surgeons themselves will be the last to complain, but their work is hard—frequent visits, long journeys, urgent calls, often great fatigue, at times even unto death—all given freely. This system of performing operations in a district or cottage hospital which could, without detriment to the patient, be equally well done at the central hospital involves a waste of valuable and much-wanted skill and energy.

Other questions arise, such as the number of beds that are in fact provided and maintained by the districts for the central hospital, the cost of which should be credited to the districts concerned, and these should be taken into account by those undertaking the proposed reorganization of our hospital system.

Correspondence

Time for a Change

Sir,—Passing through Rome I attended the R.A.M.C. surgical congress—the most electric one to which I have ever been. In contrast with the mental stagnation that seemed to me to have settled on us in London it was alive with thought and youthful experience. But, alive as these young men were, there is another side to the picture. They have children, they have wives, some have as yet no children. They yearn for home and see there in mental picture their contemporaries. These young men abroad allow everything for what those at home have suffered by bomb and dreariness, but the latter have seen their wives, they have begotten children, they have played with their babes as they grew up, be it only at times and in lodgings; while these Service men here have had but a camp kit in a whitewashed room or in a tent in a boiling sun or on a cold hillside. They feel that it is time for a change over, at any rate for a while. Surely, Sir, this should be possible. If it cannot be arranged locally it should be generally. If one hospital at home has no men away on active service who are to be trusted to care for civilian sick, there must be men from elsewhere who could be drafted to it and given a period of duty at home, while those thus released could go away and see if they could rise to the state of mental morale that I saw in these young men in Rome.

At the end of the congress there was a meeting which discussed this matter. I did not feel I was entitled to attend—I was not one of them—but I know from talking to many from hospitals all over the country that they feel this strongly. Major-General Mitchiner made a statesmanlike appeal that there must be no split or rivalry among the young men—and women—of our profession, between those of the fighting Services and those of the E.M.S., between those who have gone away and those who have been kept at home. In loyalty to this appeal the men here will not express their views publicly or take concerted action to gain what they think their due. But it may be well for a senior to express the view that Mitchiner's aim may best be gained by some such change between the two whereby each may have belonged to both and know the difficulties of each.—I am etc.,

Palermo. T. B. Layton.

A Faculty of Ophthalmologists

Sir,—I write to support the plea fo unity among ophthalmologists in Dr C. R. Duncan Leeds's letter (*Journa* March 3, p. 311). I agree with him whe he points out the undemocratic nature o the council of the new Faculty. It i desirable and even necessary that ophthalmologists should have the benefit of guidance by senior men, but one fails to se why a 15 to 6 majority should be necessary on the council, and must produc fears that wishes of the juniors will no be adequately considered. The constitution of the Faculty provides that an member or associate has the right t bring up for discussion subjects withi the province of the Faculty at annua general meetings, but even if passed b a majority there is no guarantee th they will not be vetoed by the counci

The B.M.A. Ophthalmic Group i democratically elected, but of the 1 us see what we have been offered so far in exchange for our freedom. Salary £450 to start with, rising to £700 about the age of 40, and a maximum of £1,000. These are the figures budgeted for in the White Paper and can be easily arrived at by a few simple calculations. Compensation for practices, purely nominal, a little addition to the pension at 65—such was what our Secretary told us was the Government's offer that went back in the discard.

When one considers the absence of guts displayed by the doctors so far in facing up to the Minister, I suppose these terms are as much as one could expect. Only one action will bring the Government to its senses and that is preparation for organized resistance. A teacher recently told me it does not matter much what original terms are given the doctors; once roped into a State Medical Service the Government can always apply cuts on economy or other grounds. If the doctors object the propaganda machine will be put into action as it is at present to discredit them.—I am, etc.,

London, S.E.1. W. B. PEMBERTON.

H.M. Forces Appointments

ROYAL ARMY MEDICAL CORPS

The notification regarding Lieut.-Col. M. B. King, M.C., in a *Supplement* to the *London Gazette* dated March 16 is cancelled.

Major R. V. Franklin to be Lieut.-Col.

Short Service Commission.—Lieut. (War Subs. Capt.) T. B. Harrison, from R.A.M.C. (Emergency Commission) has been granted a short service commission in the rank of Lieut., and to be Capt.

REGULAR ARMY RESERVE OF OFFICERS

ROYAL ARMY MEDICAL CORPS

Major T. J. Hallinan, O.B.E., having attained the age limit of liability to recall, has ceased to belong to the Reserve of Officers.

SUPPLEMENTARY RESERVE OF OFFICERS: ROYAL ARMY MEDICAL CORPS

War Subs. Capt. D. N. Parry has retired on account of disability, and has been granted the honorary rank of Major.

TERRITORIAL ARMY

ROYAL ARMY MEDICAL CORPS

Col. (Temp. Major-Gen.) P. H. Mitchiner, C.B., C.B.E., T.D., K.H.S., to be Hon. Col., R.A.M.C. Units, the London Division.

War Subs. Major H. K. Ashworth to be a Consultant, and has been granted the local rank of Brig.

War Subs. Capts. G. U. Gregson and J. R. O'Neill have relinquished their commissions on account of disability, and have been granted the honorary rank of Major.

War Subs. Capt. P. F. Evans has relinquished his commission on account of disability, and has been granted the honorary rank of Capt.

The following supernumerary for service with Edinburgh University Senior Training Corps (Medical Unit) have resigned their commissions: War Subs. Major I. Aird and Lieuts. J. B. Borthwick, S. A. Smith, and A. E. Ritchie.

Lieut. J. S. Young, M.C., supernumerary for service with Aberdeen University Senior Training Corps (Medical Unit), has resigned his commission.

WOMEN'S FORCES

EMPLOYED WITH THE R.A.M.C.

Lieut. (Miss) M. Sidgwick has relinquished her commission.

The following M.O.s have been granted commissions in the rank of Lieut.: Margaret R. Connolly, Helen D. Laws, Pauline M. Philpot, Constance A. C. Ross, Adeline H. Thompson, Patricia E. Q. Walsh, and Elsie J. Whittaker.

INDIAN MEDICAL SERVICE

Major-Gens. R. H. Candy, C.I.E., and J. S. S. Martin have retired.

Lieut.-Cols. A. H. Shaikh, C.I.E., and J. B. Vaidya have retired.

Major E. G. Montgomery to be Lieut.-Col.

Capt. S. W. Allinson to be Major.

EMERGENCY COMMISSIONS

Major A. D. Dyson has relinquished his commission on account of ill-health, and has been granted the honorary rank of Major.

Capts. S. F. Seelig, W. M. Niblock, T. P. Mulcahy, P. A. Hubbard, and F. E. McLaughlin to be Majors.

Capt. G. Henderson has resigned his commission and has been granted the honorary rank of Capt.

BRITISH MEDICAL ASSOCIATION

Branch and Division Meetings to be Held

BRISTOL DIVISION.—At Physics Lecture Theatre, Royal Fort, Bristol, Thursday, April 19, 8.30 p.m. Dr. F. C. Collingwood: Empire Air Routes through Africa to India.

EAST SOMERSET DIVISION.—At Small Hall, Wells, Sunday, April 15, 2.30 p.m., Annual general meeting. 3 p.m., Meeting of all medical men in the area of the Division for Discussion of Report of Council on Negotiating Committee.

EXETER DIVISION.—Dr. Charles Hill will give an address on "The Proposed National Health Service" before a special meeting of the Division at the Museum, Queen Street, Exeter, on Thursday, April 19, at 3.15 p.m., and again at 6.30 p.m. before a public meeting in the Civic Hall. At Royal Devon and Exeter Hospital, Sunday, April 22, 3 p.m., Discussion on Negotiation Report of B.M.A. Council and instructions to representatives.

KENSINGTON DIVISION.—At Kensington Town Hall, W., Friday, April 13, 8.30 p.m., Agenda: Discussion on the Negotiation Report of the B.M.A. Council. All medical men in the area of the Division are invited.

SHROPSHIRE AND MID-WALES BRANCH.—At Royal Salop Infirmary, Shrewsbury, Sunday, April 15, 3 p.m., Special general meeting. Agenda: Consideration of Report of Council on Negotiating Committee and Instruction of Representative to Special Representative Meeting. All medical men in the area of the Branch are invited.

SOUTHAMPTON DIVISION.—At Free Eye Hospital, Southampton, Sat., April 14, 2.30 p.m. Agenda: To consider Report of Council on the Negotiating Committee. Members of H.M. Forces stationed in the area of the Division are invited.

WILLESDEN DIVISION.—At Willesden General Hospital, Sunday, April 15, 10.30 a.m. Agenda: Consideration of Report of Council on Negotiating Committee and Instruction of Representative to Special Representative Meeting. All medical men in the area of the Division are invited.

Meetings of Branches and Divisions

GUILDFORD DIVISION

At a special meeting of the Guildford Division held on Feb. 18 the following resolution was passed:

"That this Division, having considered the report from its Representatives to the Annual Representative Meeting, requests that the Agenda Committee of the Representative Meetings be instructed to confer with Representatives of Divisions submitting similar motions or amendments in order to facilitate the co-ordination of the meetings' work."

⁂ The Chairman of the Representative Body comments as follows:

"With reference to the proposal of the Guildford Division, while I, personally, should welcome anything which would 'facilitate the co-ordination of the work of the A.R.M.,' I feel bound to point out, as chairman of the Agenda Committee, that this proposal is highly, if not quite, unpractical.

'Motions' under the most recent standing orders are received up to fourteen days before the meeting. It takes time to collect and arrange and type these motions, and they are laid before the Agenda Committee about twelve to ten days before the meeting. They have to be in the hands of the printer not later than thirty-six hours thereafter to allow of their being sent to Divisions seven days before the meeting. Printing takes time. 'To confer with Representatives submitting similar motions' would mean a meeting with these Representatives which would have to be called at hours', not days', notice; and there is no time even for this. To attempt to confer by post would be quite impracticable.

As regards 'amendments' the position would be worse. These can be handed to the chairman up to the time they are proposed, and obviously the Agenda Committee cannot confer with Representatives on these during the Representative Meeting. The Agenda Committee arranged the order of motions and amendments for the last A.R.M. with the sole concern of facilitating the co-ordination of the work of the meeting, and Guildford Division will, I trust, accept my assurance that this will continue so long, at least, as I am chairman."

CONSULTANT AND SPECIALIST OPINION

A further meeting open to consultants and specialists (see *Supplement*, March 3, p. 34) has been arranged as follows:

Liverpool.—Wednesday, April 18, at 4.30 p.m. at the Liverpool Medical Institution, Mount Pleasant. Mr. J. T. Morrison will open the discussion.

POSTGRADUATE NEWS

A series of special postgraduate lectures has been arranged, under the auspices of the Honyman Gillespie Trust, to be held at the West Medical Theatre, Royal Infirmary, Edinburgh, on Thursdays, at 4.30 p.m., as follows: April 19, Mr. I. S. Smillie, "The Problem of the Stiff Knee-joint in Fracture of the Femur"; May 3, Prof. T. Ferguson, "Employment and Health"; May 24, Dr. C. E. Van Rooyen, "Infective Hepatitis"; June 7, Dr. A. S. Johnstone, "Dysphagia due to Causes other than Malignant Disease"; June 14, Mr. W. Quarry Wood, "Treatment of Duodenal Ulcer"; June 21, Dr. C. Kelman Robertson, "Post-operative Pulmonary Complications." The lectures are open to all graduates and senior students.

WEEKLY POSTGRADUATE DIARY

EDINBURGH POSTGRADUATE LECTURES.—At Edinburgh Royal Infirmary, *Thurs.*, 4.30 p.m., Mr. I. S. Smillie: The Problem of the Stiff Knee-joint in Fracture of the Femur.

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W.—*Royal Cancer Hospital:* Daily, Revision course in anaesthetics. *London Homoeopathic Hospital:* Sat., April 21, Final F.R.C.S. demonstration of specially selected cases.

DIARY OF SOCIETIES AND LECTURES

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.—*Tues.* and *Thurs.*, 4.30 p.m., Lumleian Lectures by Dr. Henry MacCormac: Prospect and Retrospect.

ROYAL SOCIETY OF MEDICINE.—*Tues.*, 5 p.m., General Meeting of Fellows. *Wed.*, 2.15 p.m., Section of Comparative Medicine. *Thurs.*, 5 p.m., Section of Dermatology. *Fri.*, 6.30 p.m., Section of Radiology.

BIRTHS, MARRIAGES, & DEATHS

The charge for an insertion under this head is 10s. 6d. *for* 18 *words or less. Extra words* 3s. 6d. *for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.*

BIRTHS

BARER.—On April 3, 1945, to Gwenda (*née* Briggs) and Capt. Robert Barer, R.A.M.C., B.L.A., a son—Robin Geoffrey.

DANIEL.—On March 28, 1945, at Oxford, to Sarah, wife of Dr. Peter M. Daniel, a daughter.

HATFIELD.—On March 29, 1945, at Ongar House, Ongar, Essex, to Dr. Sylvia Hatfield (*née* Herford) and Dr. F. E. S. Hatfield, a brother (Edward) for Jess and Margaret.

ROBINSON.—On March 29, 1945, at St. Mary's Services Hospital, Adlington Hall, Cheshire, to Mona (*née* Crebbin), S.R.N., and Fl. Lieut. Max W. Robinson, R.A.F.V.R., a son—Peter Jeremy. Both well.

WILLIAMS.—On March 27, 1945, at Q.V.N.I., Wolverhampton, to Marjorie (*née* Ridgers), wife of Squad. Ldr. Bryan Williams, M.R.C.O.G., F.R.C.S.E., a son.

MARRIAGES

GILMORE—ROWLEY.—On April 10, 1945, at Walsall, Terence J. Gilmore, L.R.C.P., M.R.C.S., to Kathleen M. Rowley, B.A.

PICKLES—WOODALL.—On March 17, 1945, at East Wittering, Sussex, Fl. Lieut. A. Nelson Pickles, R.A.F.V.R., to Pauline B. Woodall, V.A.D.

SIMMONS—HUTTON.—On April 5, 1945, at St. Osmund's Church, Salisbury, Dr. A. B. Simmons of Andover to Mrs. Mary Hutton (*née* Radford) of Salisbury.

DEATHS

ALLAN.—On Feb. 4, 1945, at 5, Montacute Gardens, Tunbridge Wells, Alexander Smith Allan, M.B., Ch.B., D.T.M., V.D., Esquire of St John, Major (retired) H.M.I.A.F., late of Calcutta, dearly loved husband of Olive Beale. Cremation was at Charing, Kent, Feb. 8. Burial at Newmilns, Ayrshire, Feb. 21.

MARTIN.—On April 1, 1945, William Beare Martin, M.R.C.S., L.R.C.P., D.P.H., of Old Colwyn, late Tuberculosis Officer, Kent County Council.

O'KANE.—On March 20, 1945, at Mansard House, Watling St. Road, Fulwood, John Patrick O'Kane, M.B., B.Ch., B.A.O., beloved husband of Mildred (*née* Kilroe).

members of the committee only 13 are elected by the group members; the others are not primarily interested in ophthalmology, and before recommendations of the committee can become effective they must be ratified by the B.M.A. Council and the Annual Representative Meeting—two bodies not primarily interested in ophthalmology. (The 1938 Annual Representative Meeting vetoed a recommendation which had the unanimous backing of Group Committees and the B.M.A. Council.)

The Association of British Ophthalmologists, to which none of these objections applies, has 250 members in England, Scotland, and Wales, and has been responsible for most of the changes of benefit to ophthalmologists since its foundation in 1937.—I am, etc.,

London, W.1. PATRICK I. TIERNEY.

SIR,—Ophthalmologists are agreed as to the need for a united body to represent the profession in all its aspects. At present the Ophthalmic Group Committee of the B.M.A., the Council of British Ophthalmologists, and the Association of British Ophthalmologists all profess to be interested in medico-political affairs. It was hoped that the recent negotiations between representatives of the C.B.O. and the A.B.O. would produce the desired body, and general regret will be felt at the apparent failure.

The A.B.O. has not yet decided on its attitude to the proposed Faculty published by the C.B.O., but as a member of its negotiating committee I cannot but fear that this Faculty, instead of uniting the profession, will intensify distrust and make more difficult that unity which is so essential to-day. The circumstances in which this Faculty has been registered, the obvious lack of consideration of detail, and the haste with which it is being foisted on the profession give rise to much uneasiness.

Of the many additional objections which will be raised three may be mentioned: (1) A Faculty is not the proper body to deal with medico-political affairs. A Faculty is generally regarded as an academic body, as witness the recent Faculties of Radiology and Homoeopathy. (2) The proposed Faculty makes no provision for part-time ophthalmologists; the united body that is required not only should deal with ophthalmology in all its aspects but should cater for every section of the profession. (3) The democratic character of the proposed Faculty is in doubt. "The Council shall call an annual general meeting of the Faculty to receive and discuss its reports." Alongside this it is only fair to place a recent decision of the C.B.O.—namely: "Decisions or recommendations of any mass meeting of members or associates should be considered by the council but should not necessarily be acted upon nor implemented."

These difficulties are not insurmountable and I do not despair of the formation of a body acceptable to all parties. To secure this end I write to suggest that another effort be made by calling together representatives, say, four in number, from each of the three bodies—the O.G.C., the C.B.O., and the A.B.O.—and that under an independent chairman they tackle the problem afresh. Meantime the present proposals for a Faculty should be held in abeyance.—I am, etc.,

Glasgow. J. N. TENNENT.

Health Centres and General Practice

SIR,—Dr. A. Garvie's statistical exertions (*Supplement*, Jan. 6, p. 1) seemed hardly necessary to prove that the urge to seek treatment for minor illness varied inversely with the distance to be travelled. Still, no exception can be taken to a scientific approach, providing, however, that the reasoning is valid and no violence is done to facts. In making his main point Dr. Garvie is led to the conclusion that "the segregation of doctors in clinical health centres would reduce the number of patients *they had been in the habit* of seeing and restrict the opportunity of any of them who wished to make a clinical study of aetiology" (my italics). The implication is that doctors had "been in the habit" of distributing themselves evenly over the area drained by the health centre and that segregation would be an entirely new factor introduced by the health centre in local medical practice, causing "increased" inconvenience to patients. The facts are surely far otherwise. In thickly populated areas (which are likely to be the sites of election for health centres) surgeries are invariably found clustered together in close proximity and even contiguity, so that several practice areas not only overlap but often are identical. Even in townships with fewer doctors the majority are likely to be found similarly congregated at the town's centre. In these circumstances there will surely be no question of health centres "*increasing* the average inconvenience to patients."

Scattering doctors "as widely as ever they can be" would, of course, overcome Dr. Garvie's difficulty, though it has yet to be proved that individual practice offers better opportunities for useful statistical research than group practice; but it would be interesting to hear Dr. Garvie's proposals for ensuring this even distribution (not merely regional, but local, and even parochial) without some measure of regulation, seeing that the "free" system enjoyed to-day has failed to achieve this.

As to the importance of statistical validity in minor illness, a sense of proportion must surely be preserved. No system devised by men is ever likely to incorporate every conceivable desideratum (requirements, in any case, change with every generation), and the loss sustained by the deprivation of this particular advantage (it has never really been possessed in the form imagined by Dr. Garvie) must be set against the acquisition of other advantages, perhaps more substantial, that health centres are likely to provide.

In the matter of giving "maximum opportunity to develop some clinical knowledge of aetiology, the development of which is based, first, on a gift of friendship, and, secondly, on an analysis of the date of the sequence of events in many, many lives" (Feb. 17, p. 25) it is at least doubtful whether health centres will afford worse opportunities than the conditions of many, many surgeries of to-day!

Finally, Dr. Garvie's objections would seem to hold against *any* form of segregation, whether in health centres, grouped private practice, or clustered individual surgeries. Why turn his scientific, impersonal argument into special pleading by singling out health centres?—I am, etc.

London, N.W.10. L. PHILLIPS.

DOCTORS' CARS

The B.M.A. has been concerned for some time with the difficulties experienced by doctors in obtaining spare parts for their cars or replacing worn-out vehicles. Without doubt the position is serious. Many cars are being kept on the road long after they would have been relegated to the scrap-heap. They are costly to run and a source of constant anxiety. Doctors are returning from the Services, and new cars will be essential if they are to re-establish themselves in their practices. Used cars are often difficult to obtain; high prices are demanded, and usually no guarantee of reliability can be given. Discussions have taken place with the Ministry of War Transport, and the following is a brief statement of the present position:

REPAIRS

The Minister of War Transport considers it is impracticable to give priority for spare parts and repair facilities to any one category of civilian motorists. Provision is made, however, to ensure that essential vehicles are immobilized as little as possible. A doctor who cannot obtain spare parts from his usual supplier should place an order direct with the manufacturer or his accredited agent, but if no promise of reasonable delivery can be given the doctor should apply to the Regional Maintenance and Certifying Officer of the Ministry of War Transport, c/o the Regional Transport Commissioner, giving full particulars of the parts required and the efforts that have been made to obtain them. The Regional Maintenance and Certifying Officer will then either indicate how the worn parts can be reconditioned for further use, or, if this is impracticable, certify to the Minister of Supply and the vehicle factory the urgent need for the new parts. It will be found that their assistance will materially shorten delays in car repair. Applications to this officer should be sent to the following addresses:

Northern: 41–45, Grey Street, Newcastle-upon-Tyne, 1.
North-Eastern: 44, The Headrow, Leeds, 1.
North Midland: Grosvenor House, Friar Lane, Nottingham.
Eastern: Sussex House, Robson Street, Cambridge.
Metropolitan: Romney House, Tufton Street, London, S.W.1.
Southern: Chiltern Court, St. Peter's Avenue, Caversham, Reading.
South-Western: Beacon House, Queen's Road, Bristol, 8.
Wales: Graham Buildings, Newport Road, Cardiff.
Midland: York House, Great Charles Street, Birmingham.
North-Western: Arkwright House, Parsonage Gardens, Manchester, 3.
South-Eastern: Mount Ephraim House, Mount Ephraim, Tunbridge Wells.

NEW CARS

No new cars are being produced at present for civilian users. The Ministry has given assurance that as soon as new cars are available the B.M.A. will be informed, and a notice will then be published in the *British Medical Journal* stating how priority may be secured. In the meantime, doctors should not be misled by statements to the effect that new cars can be supplied within a short time if a special permit is obtained.

RECONDITIONED CARS

A limited number of cars which are surplus to Service requirements are avail-

SUPPLEMENT TO THE
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LONDON SATURDAY APRIL 21 1945

HEARD AT HEADQUARTERS

A Matter of Wording

If a comprehensive National Health Service comes about, attention ought to be paid from the very beginning to cerain secondary, but still very important, questions of terminology. Much harm was done by the term "panel patient" in connexion with National Health Inurance. It was rarely used by responible people, and it was, of course, inaccurate, for there never was a "panel" of patients.

In some quarters, in anticipation of he new service, the terms "public patient" and "private patient" are now being used. That, if perpetuated, would uggest a most unfortunate discrimination, and again an inaccurate one, for whether the service is 100% or 90% all patients will be private patients. The appellation "public" suggests something less individual and personal than the doctor's art demands. The terms "free patient" and "paying patient" would be worse still, because all patients will pay. The patients treated within the service will be paying as taxpayers or contributors, or both, the only difference being that they will be paying ollectively instead of individually. Dr. I. B. Morgan, M.P., who is a member of the Council of the B.M.A., made the same point at the recent meeting of Counil, when he said that neither the Government nor organized labour would permit such a discrimination. All patients will be private patients, all will be paying patients.

The Handbook

A valued epitome of the work of the B.M.A. has failed to make its appearance since the war. This is the *Annual Handook,* the last issue of which was in 1938–9. It was intended primarily for the use of Honorary Secretaries and ther workers for the Association, and t contained a large and compact body f information on the constitution and rocedure of the Association and the decisions of the Representative Body.

It is intended to revive the *Handbook* at the earliest opportunity. The first sue will call for something miraculous in the way of condensation, to cover the ap of the last six or seven years. For the moment staff difficulties and paper hortage preclude the immediate preparaon of a new edition, but it is hoped hat it may soon be possible to issue in an up-to-date form that section which consisted of a directory, including the ames and addresses of Honorary Secretaries and the membership of central ommittees.

Psychiatric Services

The report now ready for publication on the future organization of the psychiatric services has had an interesting history. Two years ago the Psychological Medicine Group of the B.M.A. prepared a report on the future of psychiatry, which contained much interesting and valuable material, though there was criticism on the ground that it was not sufficiently complete, and especially that it omitted reference to the part played in psychiatric treatment by the general practitioner.

Eventually it was referred to three standing committees of the B.M.A., and as a result a joint conference was set up on the subject. Meanwhile the Royal Medico-Psychological Association had prepared a concise series of recommendations on much the same lines, and these with the original Group report were taken by the joint conference as the basis for a revised version of the memorandum on the future of psychiatry. Later there was a conference between representatives of the Group Committee, the Royal Medico-Psychological Association, and the Royal College of Physicians—which also had had a committee considering the subject. To this conference the document which had been approved already by the earlier joint conference was submitted and a few amendments were incorporated.

The final report is the production of the Group Committee, the committee of the Royal College, and the R.M.P.A. One feature of this comprehensive document is the emphasis on the close connexion between psychiatry and other branches of medicine, beginning with the general practitioner, who is generally the first to see patients suffering from mental illness.

For and Against

The 100% issue came up time and again at the two open meetings of consultants and specialists called recently by the B.M.A. and the Royal Colleges. One speaker argued that if the 100% principle was accepted there would be no private practice, because people would naturally go to the "State" doctors and get their money's worth, "State" doctors being just as good as "private" doctors. He did not accept the analogy with education. The education provided free by the State was not on the same level as the education which the parent purchased privately for his children, whereas no such distinction could hold good in medicine, where there could be only one level—the best possible service for the patient.

As against this another surgeon put forward the argument that if the 100% went through there would be an almost irresistible temptation to make the "private" service better than the "State" service, so that the only way to ensure that they were equally good was to make the hospital service not available to 100%.

Ex Officio

A criticism voiced more than once at the consultants' and specialists' meetings was that it would be a misfortune to have the Presidents of the Royal Colleges *ex officio* members of any Central Health Services Council to advise the Minister, the reason being that it would determine the election to those great offices on political grounds, whereas academic and personal considerations should govern such elections. The best politician, it was said, would be certain to be chosen, possibly to the detriment of the office.

As an onlooker it seemed to me that there might be something in the argument. On the other hand, there, present in person, were the Presidents of the Colleges, both of them, like their immediate predecessors, remarkable for political acumen.

The Ministry of National Insurance

Just when the complaint is made that the health functions of the Government are spread over so many different Departments, the setting up of a Ministry of National Insurance might be expected to create yet another diversion. From a letter sent to insurance committees by the Minister of Health, however, it appears that although certain of his functions have been transferred to the Minister of National Insurance, these do not touch the administration of medical benefit or the constitution and functions of insurance committees. They relate to the administration of cash benefits of deposit contributors. Accordingly, no amendments are necessary in the regulations governing medical benefit, and insurance committees will continue to be associated with the Minister of Health and not with the Minister of National Insurance.

Regional Medical Service Partially Restored

The insurance regional medical service in England and Wales is to be restored on a restricted scale at an early date. There cannot, however, be the same volume of references as there was before the war. It is suggested in an official circular that the number of references by an approved society each month should not in general exceed 50% of those made monthly during 1938, and for the time being it will not be possible to deal with references relating solely to a woman's function to carry out unaided the ordinary daily work of a house, nor with references on Form R.M.4. A list of towns where it will be possible to hold sessions will shortly be issued; it will not include some of the towns in the more sparsely populated districts where sessions were formerly held.

The number of regional medical officers before the war was 32, and of deputies, 30.

able. These, after being reconditioned, may be obtained by those whose claims for priority are accepted, through a dealer at prices which are not unreasonable compared with those prevailing in the used-car market. These reconditioned cars are subject to a three-months guarantee. A form of application for a permit to obtain one of these cars should be sent to the Ministry of War Transport at 2, Fitzmaurice Place, Berkeley Square, London, W.1. The application should be accompanied by full particulars, including condition of the car at present in use, its age and total mileage, steps already taken to replace it, and evidence that the use of a car is essential if an adequate service is to be given to patients.

The Ministry is willing to give a high degree of priority to doctors, but as the demand is likely to be very much greater than the supply permits can only be granted where the applicant has established a strong case. Every care will be taken to discriminate fairly between rival claims.

H.M. Forces Appointments

ARMY

Col. (Temp. Major-Gen.) H. C. D. Rankin, C.I.E., O.B.E., V.H.S., late R.A.M.C., having completed four years in the rank of Col., is retained on the Active List (supernumerary).

Col. R. A. Hepple, O.B.E., M.C., late R.A.M.C., having attained the age limit for retirement, is retained on the Active List (supernumerary).

Lieut.-Cols. A. R. Ross and H. C. Godding, M.C., from R.A.M.C., to be Cols.

War Subs. Lieut.-Col. (local Brig.) R. Lees has relinquished the local rank of Brig.

War Subs. Major (now War Subs. Lieut.-Col.) R. M. B. MacKenna, R.A.M.C., to be a Consultant, and has been granted the local rank of Brig.

ROYAL ARMY MEDICAL CORPS

Major (War Subs. Lieut.-Col.) G. Anderton to be Lieut.-Col.

Major R. J. G. Hyde to be Lieut.-Col.

Short Service Commission.—Lieut. (War Subs. Capt.) M. G. Jackson-Smyth, from Emergency Commission, to be Lieut., and to be Capt.

REGULAR ARMY RESERVE OF OFFICERS

Major-Gen. H. C. R. Hine, C.B., D.S.O., Cols. F. R. Coppinger, O.B.E., J. A. Renshaw, and G. F. Dawson, M.C., late R.A.M.C., having attained the age limit of liability to recall, have ceased to belong to the Reserve of Officers.

Col. W. L. E. Fretz, late R.A.M.C., having exceeded the age limit of liability to recall, has ceased to belong to the Reserve of Officers.

ROYAL ARMY MEDICAL CORPS

Lieut.-Col. E. F. W. MacKenzie, O.B.E., M.C., Majors A. P. Draper, M.C., and A. G. G. Thompson, and Capt. W. P. Mulligan, O.B.E., having attained the age limit of liability to recall, have ceased to belong to the Reserve of Officers.

Majors J. H. Pendered, M.C., and N. T. Whitehead, M.C., having exceeded the age limit of liability to recall, have ceased to belong to the Reserve of Officers.

Major C. K. G. Dick, M.C., has relinquished his commission on account of disability.

Capt. (Brevet Major) A. K. Forbes, M.C., has relinquished his commission on acount of disability, and has been granted the honorary rank of Major.

TERRITORIAL ARMY

ROYAL ARMY MEDICAL CORPS

War Subs. Major R. K. Debenham, O.B.E., to be a Consultant, and has been granted the local rank of Brig.

TERRITORIAL ARMY RESERVE OF OFFICERS

ROYAL ARMY MEDICAL CORPS

War Subs. Capt. D. L. Greig has ceased to belong to the Reserve of Officers on account of disability, and has been granted the honorary rank of Major.

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs. Capts. I. S. Stewart and L. Brill have relinquished their commissions on account of disability and have been granted the honorary rank of Major.

War Subs. Capts. A. D. Chisholm, J. J. Geary, and J. Kelly have relinquished their commissions on account of disability and have been granted the honorary rank of Capt.

War Subs. Capt. J. S. McGillivray has resigned his commission.

Lieut. R. Sepson has relinquished his commission on account of disability, and has been granted the honorary rank of Lieut.

To be Lieuts.: S. H. Moore, T. F. Anderson, O.B.E., J. F. Q. Conolly, A. D. J. B. Williams, O.B.E., C. E. Roberts, W. A. Glynn, A. S. Murdison.

WOMEN'S FORCES

EMPLOYED WITH THE R.A.M.C.

Relative War Subs. Capts. (Mrs.) C. M. B. Large and (Miss) M. H. E. Long, Emergency Appointments, have relinquished their appointments.

ROYAL AIR FORCE

Air Vice-Mshl. (Temp.) A. F. Rook, O.B.E., K.H.P., has been granted the rank of War Subs. Air Cdre.

The following have been transferred to the R.A.F.O., and called up for Air Force service: Squad. Ldr. R. H. Winfield, Fl. Lieuts. (Temp. Squad. Ldrs.) H. M. Carson, J. M. Clark, J. Crawford, J. D. Jones, C. G. G. Mackay, C. W. S. Morris, H. S. Samuel, F. Summers, R. J. A. Morris, and H. J. Trenchard.

RESERVE OF AIR FORCE OFFICERS

Squad. Ldr. (Temp.) R. F. Courtin has been granted the rank of War Subs. Squad Ldr.

ROYAL AIR FORCE VOLUNTEER RESERVE

Gp. Capts. (Acting Air Vice-Mshls.) C. P. Symonds, C.B., and G. L. Keynes have been granted the rank of War Subs. Air Cdre.

Wing Cmdrs. (Temp.) G. L. M. McElligott, D. H. Brinton, F. W. Roques, R. R. Trail, M.C., T. K. Lyle, and J. F. Bromley have been granted the rank of War Subs. Wing Cmdrs.

Fl. Lieut. (Temp. Squad. Ldr.) H. F. Squire has resigned his commission, retaining the rank of Squad. Ldr.

Fl. Lieut. (Temp. Squad. Ldr.) S. F. Robertson has relinquished his commission on appointment to R.C.A.F.

Fl. Lieut. L. H. Moss has relinquished his commission on account of medical unfitness for Air Force service, retaining his rank.

R. M. Calman to be Fl. Lieut. (Emergency).

Flying Officers M. B. Devas, A. C. C. Davey, J. F. Doherty, L. Goldring, E. G. Grice, R. Halliday, H. W. H. Kennard, D. L. Lisham, T. P. Morley, D. F. Murphy, J. G. Pegg, A. J. H. Rains, H. M. Robinson, B. Cruickshank, W. L. Esler, R. J. T. Gardiner, J. G. Gibson, A. M. I. Gill, J. R. Handforth, R. Summers, I. R. Waters, C. Wood, C. E. R. Wood, and D. G. H. Stone to be War Subs. Fl. Lieuts.

To be Flying Officers (Emergency): B. E. Andrews, J. W. Cowie, K. H. Freeman, F. M. Graham, C. L. Holden, R. A. Hudson, H. P. B. Whitty.

B.M.A. LIBRARY

The following books were added to the library during November and December, 1944:

Berliner, M. L.: Biomicroscopy of the Eye. Vol. 1. 1944.

Boddie, G. F.: Diagnostic Methods in Veterinary Medicine. 1944.

Bossard, J. H. S., and Boll, E. S.: Family Situations. 1943.

Dickson, F. D., and Diveley, R. L.: Functional Disorders of Foot. Second edition. 1944.

Drew, J.: Human Reproduction and Venereal Disease. 1944.

Fulton, J. F.: Physiology of the Nervous System. Second edition. 1943.

Gantt, W. H.: Experimental Basis for Neurotic Behavior. 1944.

Graves, B.: Rational Medicine. 1944.

Handbook of the Royal Naval Sick Berth Staff. 1944.

Hobart, F., and Melton, J.: Concise Pharmacology and Therapeutics. Second edition. 1944.

Lawton, G. (Editor): New Goals for Old Age. 1943.

Layard, J.: Lady of the Hare. 1944.

Levy, H.: National Health Insurance. 1944.

May, C. H., and Worth, C.: Manual of Diseases of the Eye. Ninth edition. 1944.

Minnitt, R. J., and Gillies, J.: Textbook of Anaesthetics. Sixth edition. 1944.

Muller, G. L.: Clinical Significance of Blood in Tuberculosis. 1943.

Murrell, W.: What to do in Cases of Poisoning. Fifteenth edition. Edited by H. G. Broadbridge. 1944.

Newman, Sir George: English Social Services. 1941.

Oakes, L.: A Pocket Medical Dictionary. Sixth edition. 1943.

Pullen, R. L. (Editor): Medical Diagnosis. 1944.

Pye's Surgical Handicraft. Edited by Hamilton Bailey. Fourteenth edition. 1944.

Sargant, W., and Slater, E.: Introduction to Physical Methods of Treatment in Psychiatry. 1944.

Smith, S. J.: Principles of Organic Chemistry. 1944.

Strecker, E. A.: Fundamentals of Psychiatry. 1944.

Taylor, G. W., and Nathanson, I. T.: Lymph Node Metastases. 1942.

Whillis, J.: Elementary Anatomy and Physiology Second edition. 1944.

White, P. D.: Heart Disease. Third edition. 1944.

Wolff, E.: Pathology of the Eye. Second edition. 1944.

CONSULTANT AND SPECIALIST OPINION

Further meetings open to consultants and specialists (see *Supplement*, March 3, p. 34) have been arranged as follows:

Southampton.—Saturday, March 24, at 2.30 p.m., at the Royal South Hants Hospital. Dr. R. H. Balfour Barrow will open the discussion.

Newcastle-upon-Tyne.—Thursday, April 5, at 3.45 p.m. for 4 p.m. at the Royal Victoria Infirmary. Mr. John Gilmour will open the discussion.

Sheffield.—Saturday, April 7, at 2 p.m. in the Medical Library, University of Sheffield. Mr. R. St. L. Brockman will open the discussion.

Oxford.—Wednesday, April 11, at 3 p.m. at the Nuffield Research Institute, Woodstock Road. Mr. D. A. Abernethy will open the discussion.

Cardiff.—Thursday, April 12, at 2 p.m. in the Surgical Unit Lecture Room, Royal Infirmary. Prof. G. I. Strachan will open the discussion. This meeting will be followed by a B.M.A. Regional C. and S. Group meeting in the Medical Staff Room, Royal Infirmary.

POSTGRADUATE NEWS

The Fellowship of Medicine announces: (1) Revision course in anaesthetics, all day, April 9 to 21, lectures and demonstrations at various London hospitals. (2) Final F.R.C.S. week-end course in surgery, all day, Sat. and Sun., April 14 and 15, at Hillingdon County Hospital. (3) Final F.R.C.S. demonstration of specially selected cases, Sat., April 21, 2.30 p.m., at London Homoeopathic Hospital.

WEEKLY POSTGRADUATE DIARY

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W.—*West End Hospital for Nervous Diseases:* Mon. and Tues., 2.30 p.m., Course in neurology (suitable for M.R.C.P.). *London Homoeopathic Hospital:* Wed., 5.30 p.m., Final F.R.C.S. surgery demonstration. *St. Mary Islington Hospital:* Wed., 2.30 p.m., Final F.R.C.S. course.

DIARY OF SOCIETIES AND LECTURES

ROYAL SOCIETY OF MEDICINE.—*Mon.*, 4.30 p.m., Section of Odontology.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, W.—*Wed.*, 3.30 p.m., Mr. F. W. Pratt: Some Obstructive Abdominal Conditions in Infancy.

B.M.A.: Branch and Division Meetings to be Held

NORTHERN IRELAND BRANCH.—Joint meeting with Ulster Medical Society at Whitla Medical Institute, College Square North, Belfast, Thursday, March 29, 8.30 p.m. Lecture by Dr. H. E. Magee: Some Aspects of Nutrition in Wartime.

BIRTHS, MARRIAGES, & DEATHS

The charge for an insertion under this head is 10s 6d. *for* 18 *words or less Extra words* 3s. 6d *for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.*

BIRTH

FLETCHER.—On March 6, 1945, at the Park Nursing Home, Clarmont Terrace, Glasgow, to Muriel (*née* Frew, M.B., Ch.B.), wife of Capt. A. F. Fletcher, R.A.M.C., L.D.S., L.R.C.S., L.R.C.P., a son—Andrew James Francys.

MARRIAGE

ALMOND—FORSTER.—On March 6, 1945, at Frimley, Major John M. C. Almond, R.A.M.C. (B.L.A.), to Joy F. Forster, 3rd officer, W.R.N.S.

DEATH

LAMPLOUGH.—On March 4, 1945, at Bredon, Alverstoke, Hants, Wharran Henry Lamplough, M.D., aged 66 years.

MEDICAL TREATMENT OF SCHOOL-CHILDREN

Letter to the Minister of Education

The following is the text of a letter, dated April 12, which has been sent by the B.M.A. to the Minister of Education (Mr. R. A. Butler) following the latter's refusal to see a deputation from the B.M.A. on the operation of Section 48 (3) of the Education Act, 1944:

DEAR SIR,—The Association regrets that your many appointments make it difficult for you to receive a deputation from the Association. It was desired to place before you certain important considerations.

Under Section 48 (3) of the Education Act, 1944, there is imposed upon local education authorities the duty of making arrangements to secure the provision of free medical treatment for the school population. At present this section of the community is receiving its medical care from a number of agencies, including the voluntary hospitals, private practice, and the school medical service. To the extent to which medical care additional to that now available is intended, there arises the problem of additional medical, nursing, and other personnel. The plain fact is that additional doctors are not available. Over one-third of the medical profession is serving in His Majesty's Forces, and the Central Medical War Committee is experiencing grave difficulty in satisfying even the minimum needs of the Services without causing a serious deterioration in the medical facilities available for the civilian population. It is absolutely impossible at the present time to extend existing facilities without reducing recruitment to the medical services of the armed Forces below a level consistent with Service efficiency. The Association urges the Minister to recognize this fact and to take any necessary steps, legislative or other, to remove from local education authorities the legal obligation which they cannot, under the present circumstances, satisfy.

It is recognized that in your circular to local education authorities you have advised a slow start. Even so, by advising that in urban areas the form of development should be an elaboration of school clinic and allied services, you are suggesting a procedure which, even where it does not involve additional personnel, is open to the criticism that it may prejudice the initiation and development of a comprehensive medical service. It is clear from the discussions now proceeding between your colleague, the Minister of Health, and the medical profession that the treatment provision for children under a comprehensive scheme will not be based upon a school clinic service. To advise development on these lines now may obstruct future development on lines acceptable to your colleague and to the medical profession. Had your circular advocated the utilization in all kinds of area of the services of general practitioners and others in the accepted way this criticism would not be valid, though there would still remain the insuperable difficulty of the shortage of medical personnel. Neither this nor any other extension of medical services, however desirable, can be made at the present time in view of the unprecedented depletion in the ranks of the medical profession. For this reason the Association would urge upon you, in order that local authorities may not continue to have imposed upon them duties they cannot carry out, and in order that the public shall not be promised something which is unattainable at the present time, to take steps to reconcile the legal position with the hard facts.—Yours faithfully,

(Signed) CHARLES HILL,
Secretary.

LONDON CONSULTANTS AND THE GOVERNMENT PROPOSALS

TWO OPEN MEETINGS

Two open meetings of consultants and specialists in the London area, called by the B.M.A. and the Royal Colleges jointly, were held on April 6 and 9, the first, mainly for those attached to hospitals south of the Thames, at the Royal College of Physicians, and the second, for those attached to hospitals north of the Thames, in the Hastings Hall of B.M.A. House, which was crowded to capacity. Lord Moran presided on the first occasion and Sir Alfred Webb-Johnson on the second. The object of the meetings was to discuss the issues arising from the Government's proposals for a National Health Service. For reasons that have been explained, the principal memorandum on which discussion was based was one which, for the present, by the desire of the Minister of Health, must not be published, although it has been circulated to all members of the profession; therefore much that was said at the meetings must be omitted, and only the general tenor of the discussions can be given.

The first seven speakers in the following account spoke at both meetings, making substantially the same points, and to avoid repetition the reports of the two meetings have been merged into one.

Powers for Regional Councils

Lord MORAN urged that it was very important that any Central Health Services Council which was set up should have real powers; it should not be a reproduction of many old advisory bodies with purely negative functions. Even more important was it that power should be given to Regional Councils—expert bodies—which would have to deal with local authorities. A committee, 93 in number, representative of the Royal Colleges, the B.M.A., the teaching hospitals, and the universities, had unanimously urged that such Regional Councils should be real planning bodies, with advisory power over finance—much in the same way as the King's Fund—and a controlling influence in all consultant matters. The crux of the whole problem was the medical profession's fear of interference by local authorities in clinical work. If the regions were based on university centres, and the planning was done from the centres in such a manner as to afford consultants a voice in the arrangements, they would not be at the mercy of local bodies. So far as negotiations had proceeded, his view was that any substantial concessions had been gained in the field of general practice, not in that of consultant and specialist practice. Nothing would be more harmful than lack of union between general practitioners and consultants.

Sir ALFRED WEBB-JOHNSON concurred in Lord Moran's view concerning the need for investing the Regional Councils with real powers. He explained in what respects, in his view, the Negotiating Committee had and had not achieved its ends. Among the matters which he hoped would still be pressed on the Government were the separation of the medical service from general social insurance, the introduction of the service by stages (the development of the hospital system coming first), and the bringing together of all health services under the Ministry of Health.

Dr. GEOFFREY BOURNE said that it seemed to be assumed that the L.C.C. would be the authority in London fo the purpose of the service. This was body with an inordinate appetite an inadequate powers of digestion. Wh should the consulting service be enveloped in such a "cyst," presently n doubt to become calcified? In an L.C.C committee report on the White Pape presented to and approved by the paren body last October, it was stated: "W feel that no right of nomination o appointment by professional or othe bodies to membership of any appropriate committee of the council charge with the administration of the schem would be acceptable to the council." I other words, they did not trust the doctors; they wanted the politicians to ru medicine in London.

Beginning at the Top

Mr. EARDLEY HOLLAND pointed ou that the Ministry had made no attemp to put its own house in order. Th success of the service would depend o perfect planning, which included planning at the top. The Minister should b responsible for all civilian medical an health services. He added that the profession was inclined to underrate its ow power. It was a very powerful profe sion, and so long as the people realize that it had their interests at heart the would never let it down. If the profession adhered to the 100% comprehensiv principle it would retain the good will o the people, and with that good will the need fear nothing. He regretted a ce tain lack of publicity for the profession case and the tone of some press com ment, and said how glad he was to se that Dr. Hill in the *Times* of April 9 ha countered a recent leading article in th journal.

Dr. MAURICE CAMPBELL said that th profession would be almost unanimo in desiring that a scheme should procee by evolution from what had been esta lished in the past. He hoped that th membership of the Central Health Se vices Council would not be determine by Ministerial nomination, even thoug after appropriate consultations. Was likely that any Minister would reappoi a man who had criticized him? seemed to him that the powers of th Minister were absolute. He might hav all sorts of advisers, but he was at libert to accept, reject, or deal with their a vice in any way he chose, and not on so but to appoint the advisers. A ce tain type of doctor appointed by th Minister might be a more dangero bureaucrat than a layman.

Mr. W. E. TANNER thought that if th scheme of basing the regions on th university centres were brought int operation the L.C.C. would have to fa into line. He urged the production of co-ordinated scheme bringing in th municipal and the voluntary hospital teaching and non-teaching, with a vie to benefiting the public and helping th general practitioner.

Why Secrecy? Why Hurry?

Mr. LAWRENCE ABEL asked the reas for the secrecy in which the discussio were enveloped and the hurry with whic the Special Representative Meeting ha been summoned. The explanation w given that the hurry was due to th approach of a general election. In oth words, the profession was being used a pawn in some Government schem The Negotiating Committee had bee asked to consider a number of resol tions by the Annual Representati

Meeting last December, but no consideration of them had been embodied in the report which had been circulated, and which, in fact, was not a report of the Negotiating Committee at all but a Ministerial document. The Representative Body wanted a scheme built up from the existing scheme of National Health Insurance, not based on the nationalization of medicine or any new and revolutionary principle. Evolution should take place first of all by the plan of the N.H.I. to cover total sickness, and afterwards by the inclusion of dependants and others of like economic status, and if that was done the 100% issue would solve itself. He did not want a position to arise in London similar to that in Berlin, where, before the war, there were 4,000 specialists and 3,000 general practitioners. That came about because of the nationalization—or nazification—of medicine. He believed that this country had the best general practitioners in the world; he did not want them to become merely "male nurses filling up forms" or to take up radiology or skin diseases or some other subject in order to be "bits of specialists." As for the London area, Mr. Abel wanted to see London and the adjoining counties divided into four or six regions. The L.C.C. should not be the "gauleiter" of London. He also deprecated a suggestion that the Presidents of the Royal Colleges should be *ex officio* members of the Central Health Services Council. In the Colleges the Presidents should be elected on their personal and academic qualifications, not because they were good politicians, and it would be as politicians they would be elected if this arrangement came about.

Dr. CHARLES HILL explained that the proposals now under consideration were uch as the Minister would be willing to put before his colleagues as soon as he new whether they commended themselves to the profession. It was not by the wish of the Association that publication of the document was withheld, but the technical position was that the Minister was sounding the profession before e put his proposals to his colleagues in he Government.

Five Points of Insistence

Sir JAMES WALTON thought that there was danger of the London hospitals oming entirely under the control of the .C.C. Was it likely that the L.C.C., aving developed a system of its own, ould hand over the control to certain epartments of the voluntary hospitals? He had talked with the secretaries of arious hospitals and could affirm that y members of voluntary hospitals committees would be entirely in line with edical staffs in their fight for the freedom of hospitals as against county council control. Five points should be insisted upon: (1) That the Central Health rvices Council should provide the inister with the expert view on questions of policy, a power not to be deleted to standing committees with indendent access; (2) direct election to the ouncil, not nomination by the Minister;) Regional Councils to have executive wers; (4) voluntary hospitals in Lonn not to be under a local body; and) the Central Council to have power publication of its reports.

Dr. GERALD SLOT pointed out that a rge number of consultants were enged by the L.C.C. on a sessional basis. r his own part he had not experienced the difficulties in municipal service of ich others had spoken. Taken by and large, the L.C.C. had not been a bad employer of medical labour. It had done a great deal to enlarge its hospitals and improve its services, and it would probably have no difficulty in recruiting from returning consultants an adequate number for its purpose. The existence of a large number of consultants in the Services must be borne in mind; many of these men had lost their practices and connexions and were without private means, and they would be prepared to earn their living in the service of local authorities until they had again built up their practices.

Mr. V. E. NEGUS said that if a region was to have any value or meaning there must be co-ordination of services within it, otherwise each area within the region would go to work on its own. It seemed illogical that London should be a single region; it would consist of an urban population without rural districts. The better plan would be to have at least four regions covering London and surrounding counties, each embracing a certain rural area. Mr. E. G. SLESINGER also urged that the power of planning should not be left at the lower level. He agreed with other speakers in saying that before they assented to an administrative structure they should know what the new service would be like. Mr. MCADAM ECCLES suggested the drawing up of certain basic statements which could be put to candidates of all colours at the approaching general election. Other participants in the discussion were Mr. FRANK LAW, Mr. F. G. LOUGHNANE, Mr. WATSON-JONES, Dr. NOAH PINES, and several more.

Solid Achievements

Mr. H. S. SOUTTAR said that the Negotiating Committee had been too modest. There was some danger of underestimating what it had achieved. He had been concerned for the last five years in the discussions on these questions, and had watched the gradual development of the scheme. One important concession which the committee had extracted from the Minister was a promise that whatever scheme was brought forward there would be no interference whatever with complete freedom for private practice. How to implement that was another matter, but the promise was there in the plainest terms. Concerning the 100% issue, he thought it impossible to escape it, if only for this reason: that the whole community would have to pay for the service, the cost of which would be borne mainly by taxation, so that it would be impossible to exclude any taxpayer who wished to avail himself of it. The proposals now before the profession, if carried out with good will on both sides, offered a great future for medicine in this country, and he had enough confidence in the good will of Parliament and the common sense of the medical profession to believe that they would prove successful.

Sir ALFRED WEBB-JOHNSON, in closing the second meeting, over which he had presided, remarked that he thought they were getting near to an administrative structure which would be acceptable to the profession. To insist that the Minister in seeking advice should accept advisers who were chosen for him was open to objection from the other side, particularly when, with the same voice, the profession proclaimed that everybody in the country must have free choice of doctor!

POSTGRADUATE TRAINING FOR SERVICE M.O.s

A scheme of postgraduate training for medical officers released from the Forces is announced by the Ministry of Health and the Department of Health for Scotland. An outline of the plan, issued by the Departments concerned, is printed below. The Service Departments are making the scheme known to serving medical officers. Some editorial comment will be found in the *Journal* (p. 562).

NEED FOR REFRESHER COURSES

The Government recognizes that many medical officers who joined the armed Forces during the war were unable to complete the postgraduate training usually received before entering civilian practice, and that others have had their normal professional experience interrupted or curtailed in certain important respects over a period of years. It is clearly most important that every possible opportunity should be given to medical officers when they are released from the Forces to continue their training, or to bring up to date their professional knowledge, in those branches of medicine required in civilian practice. Accordingly, after consultation between the Ministry of Health, the Department of Health for Scotland, the universities, and other interested bodies, arrangements are being made—of which it is hoped that officers on release will avail themselves to the greatest possible extent—for the provision of further training or refresher facilities.

Classes of Officers Concerned

The following are the classes of officers concerned:

1. Those who joined the Forces within a year or so of obtaining a medical qualification, including those who joined the Forces after obtaining a diploma and would normally have proceeded to take a university medical degree, but were prevented by their recruitment from doing so.
2. Those who had become established in general practice before they joined the Forces.
3. Those who were training for a specialist career when they joined the Forces or are accepted as suitable for such training on release.

The Scheme in Outline

Class 1 will be offered resident salaried posts for up to six months at teaching hospitals or other hospitals approved by the universities, where they will have access to suitable clinical material and work under the guidance of senior members of the visiting staffs. Alternative arrangements may be adopted by certain universities in Scotland. For Class 2 refresher courses will be arranged at hospitals approved by the universities. For Class 3 there will be posts of the "registrar" type in teaching and other hospitals approved by the universities where they can continue their specialist training.

Procedure

A medical officer in any of the above classes should, on his release, apply personally or in writing to his university or medical school, or to the university nearest to where he is living, or to a central office to be set up by the University of London which will act not only for all the London medical schools but also as a clearing house for England and Wales. There will also be an associated Scottish clearing house set up c/o The Dean of the Faculty of Medicine, The University, Edinburgh. At each university a committee for postgraduate medical education is being formed, with a dean or director, to assist officers on release from the Forces, and their addresses and that of the central offices in London and Edinburgh will be published in the medical press or can be obtained from the Ministry of Health, Whitehall, London, S.W.1, or Department of Health for Scotland, St. Andrew's House, Edinburgh.

The Class 1 applicant will then be considered for a suitable hospital post, and, if there is no post vacant at a suitable hospital within the normal establishment, the creation of a post additional to the establishment will be considered. Those who qualified on a diploma and now wish to proceed to a university medical degree will be placed so far as possible at teaching hospitals.

For Class 2 a refresher course will be arranged by the university at a suitable hospital where sufficient clinical material and suitable staff are available for instruction and demonstration. These courses may be either concentrated into a period of 2 weeks, or spread over a period of about 3 months on, say, 2 afternoons a week. They would be available at any time within a year of the practitioner's release.

The requirements of Class 3 will be met partly within existing vacancies, and partly by the creation of new posts which will be set up in accordance with the recommendations of the Goodenough Committee.

Finance of the Scheme

The posts available to Class 1 will mainly be junior "B1" posts at the rate of £350 per annum, plus board and lodging or £100 in lieu. In the case of those with family commitments, assistance under the "Further Education and Training Scheme" may also be available. An officer not holding a salaried hospital post—e.g., an officer studying for a qualification such as the D.P.H.—would usually be eligible for such assistance. The refresher courses for Class 2 would be free of cost, and travelling and subsistence expenses, together with the expense of paying a locumtenent where necessary, would be repayable up to a specified maximum. The posts available for Class 3 would usually be senior "B1" posts at the rate of £550 a year plus board and lodging or £100 in lieu.

Further details will be available on inquiry in due course.

DOMICILIARY NURSING IN LONDON

The thirtieth annual meeting of the Central Council for District Nursing in London, a body which includes more than eighty affiliated associations, held its annual meeting in London recently, when Sir William Collins, who has guided its affairs ever since its formation, was re-elected president, and Sir Stanley Woodwark and Miss Zoe Puxley vice-presidents. In addition to its ordinary work the Council undertakes public assistance nursing for the London County Council, and during the five quarters with which the annual report dealt the nurses paid 180,212 general nursing visits to L.C.C. patients, as well as 128,831 visits for insulin administration.

The reference in the Government's White Paper to a full home nursing service as one of the improvements to be brought about, so that all who need nursing attention in their own homes may be able to obtain it without charge, has been the subject during the year of conference between the Central Council and other nursing bodies and the Ministry of Health. The Central Council has pointed out that if, as the White Paper states, the responsibility for this complete nursing service is to be exercised by the individual county and county borough councils, the scope of which would go beyond the facilities at present available, there would be an obligation to make use of the existing voluntary organizations as much as possible. It was confirmed at the conference with the Ministry of Health that there would be such an obligation upon the local authorities and that the voluntary service organizations would receive in return a grant from public funds.

Correspondence

100% Service

SIR,—It is regrettable that in their recommendations on the 100% service the B.M.A. Council stands out for the rights of the patient to obtain medical attention for a fee from another doctor on certain occasions. Under the National Health Service every citizen is of right entitled to free medical attention. To let the patient go privately to another doctor will reintroduce a dangerous differentiation between public and private cases, which will be detrimental to both doctor and patient. The public will retain the impression that money can buy better service, and the doctor will be tempted to give more attention and time to these private patients than to his "public" ones. Two standards of medicine, public and private, may thus undermine the strength of the new service and the confidence of the people.

In my view, unless the National Health Service is 100%, with complete abolition of all private fees, there can be no great advance in the medical service. The doctor should always give of his best to every citizen, rich or poor, and should scorn to accept the rich man's bribe. Only if there are no private patients will the public be sure that there is really one service for all.

The patient must be free to change his doctor if he is dissatisfied with him, and he must be free to demand a second opinion, but he must not be allowed to waste money on private consultations. The doctors must be deterred from exploiting such ignorant folly. It is rightly a condition of service in most public health jobs that the doctor accepts no fees from any patient, however wealthy he may be. This principle should be applied throughout the National Health Service—the best for all and all for the best.—I am, etc.,

WILLIAM D. GRAY,
Asst. T.M.O., Durham County Council.

A Fundamental Point

SIR,—Although I pay a tribute to the great work of our negotiators and the efforts they are making to obtain the best service possible, there is one fundamental difficulty, which, if it is not possible of solution, renders their work quite useless. Are there any safeguards to prevent another Minister or another Government altering our conditions of service or our pay in any way they choose without our consent? We have had it before. The continual wrangles with the Government over the capitation fee, the bringing of "the £420s" into the panel without even any notice, show us clearly what a Government is capable of, and there are plenty of other examples. We can never put our trust in future Governments or Ministers, however much we may feel that the present administrators are endeavouring to give us a fai deal.

Unless our negotiators can give u some guarantee that the conditions o service and pay will not be altered in th future without our consent—and personally I do not see how they can because the present administration wil say it cannot bind any future administration—I am sure our right course is t refuse altogether to have anything to d with a Government medical service, however good it may appear, and to give thi as our reason. If the whole professio would come to realize this fundamenta point, the Government would have t drop the scheme as it could not work i without our co-operation.—I am, etc.,

Acocks Green. L. LEIGH HADLEY.

Medical Demobilization

SIR,—Judging by the letters on thi problem which you have published recently from medical officers in th Services, the feature which gives the most concern is the allegedly large number of fit young men who have dodge the Services and are busily engage acquiring higher degrees and valuab experience in E.M.S. and other hospital I have difficulty in reaching a reasone opinion on this matter in the absence accurate information. One must suppo that the information on which the officers in the Services base their complaint must be largely of the hearsa variety, and, especially in the case those who write from over-seas, canno in the nature of things, be either accura or up to date.

To clarify the matter and in justice all concerned could we not have a official statement from the Centr Medical War Committee? As the Secr tary of a Local Medical War Committ which has had the unenviable task selecting men for call-up I feel that t profession as a whole is entitled to kno how many men under 35 years of a have had more than two years in hospit appointments following qualification, a of these how many are physically fit f the Services.—I am, etc.,

Stirling. W. LESLIE CUTHBERT.

Demobilization and the E.M.S.

SIR,—You recently published a let on this subject from Major T. Armstrong and Major S. A. Maddoc (Dec. 30, 1944, p. 869), serving ove seas, in which they pointed out th objections to the proposal that, when time eventually comes for release fr the R.A.M.C., civil service in the E.M should count as military service those who first served in the E.M.S. a were then posted to the Services. N that it appears possible that the war Europe will terminate before the w against Japan, officers of the R.A.M. serving over-seas are beset with apprehension that they will not be leased when the war in Europe is ov and that they will be retained for service abroad in Europe or elsewhere. The members of the E.M.S., on the other hand, who have remained at home throughout the war, and who have had the opportunity for postgraduate study, will be available for the many appointments which will probably be filled soon after the hostilities in Europe have ceased. It cannot be denied that the young men who have spent their time in the E.M.S. have had great personal and professional advantages as regards medical work, domestic amenities, and home comforts, over their self-sacrificing brethren who have served in the Forces over-seas—each with only his conscience to console him. Further it would now appear only fair that these young men in the E.M.S., who for so long have "sat pretty," should go over-seas and release the Service officers, thus enabling them to return and obtain the benefit of postgraduate work in England.

Quotations from letters I have received on the subject from R.A.M.C. officers abroad will serve to illustrate their point of view. The first is from a physician who was in France before Dunkirk, and has subsequently served in Africa and Italy. He writes: "There appears to be very little understanding amongst the E.M.S. authorities of the feelings of M.O.s over-seas. I must admit that after 5½ years in the R.A.M.C., the prospect of another 2 or more, spent, say, in India or Burma, fills me with despondency." The second, who was about to specialize at the outbreak of war, writes: "We have been told by the War Office that we are unlikely to be released soon after the European war ends as there is considerable opposition to the calling up of men from the E.M.S. A further term of 5 years in the Army is a gloomy prospect for us, and an even gloomier prospect for our future as doctors. It seems to me that E.M.S. men of the right age will have to come in, or we shall be in the Army for life!"

In all conscience their protest seems well grounded, and as lovers of justice we must be astonished at their moderation.—I am, etc.,

London, W.1. G. E. Beaumont.

Time for a Change

Sir,—Mr. T. B. Layton's letter (*Supplement*, March 24, p. 44) is disturbing, for it suggests that resentment against their colleagues in the E.M.S. is widespread among Service M.O.s. I believe that I speak for the majority of full-time members of the E.M.S. when I declare that we have always been anxious to bear our responsibilities to the full. The relative requirements of the various theatres of operations are known only to those who direct our medical services, and I think that since 1939 they have been kept aware of our desire to serve where we are most needed.

Unfair distinctions are unfortunately an inevitable accompaniment of war, and we in the E.M.S. fully realize that in many ways we have been more fortunate than our colleagues who have been posted over-seas. It is only right, therefore, that it should be stated plainly that we are ready to play our part in any exchange system which may be devised. Obvious difficulties will have to be faced; I need mention only one. Civilians and returning Service sick must be cared for and; needless to say, most hospitals are short staffed. The three emergency hospitals to which I am attached deal exclusively with military patients, but to learn the administrative details of my post would take a Service M.O. at least three months; it has taken me five years to acquire a sound knowledge of my job. Similarly it would take me several months to learn to pull my full weight in the Forces. My post cannot be relinquished until a successor has been trained; his cannot be left until I have been trained. When, and if, a solution can be found I trust that the other Services will discover that after all the spirit of the E.M.S. is not unwilling. —I am, etc.,

Lichfield, Staffs. Clifford G. Parsons.

Calling a Halt

Sir,—The correspondence columns of the *Supplement* seem to be rapidly degenerating into an outlet for "grouses," often characterized more by ill temper than regard for accuracy, and Dr. W. H. Hayes (April 7, p. 53) has done good service by making a protest. Nothing but ill feeling can be promoted by a correspondent who, in successive paragraphs, implies without offering a scrap of evidence: (*a*) that there is an appreciable number of doctors "who are deliberately avoiding service in the Forces"; and (*b*) that "medical officers in the E.M.S. are, in the majority of cases, *not* in the Services." Has "A Medical Officer, R.A.F." (March 17, p. 41) nothing better to do with his time than to produce this sort of innuendo?

Then Dr. W. Lees Templeton (April 7, p. 53) brings out the old jibe, usually offered to us public health doctors, that no Government servant, "medical or otherwise, would work outside office or school hours"! During recent years I have had a good deal to do with "Government medical servants," and although I have fiercely disagreed with them on more than one occasion I have yet to find one that did *not* work outside so-called office hours.

"Ex-Service M.O." (April 7, p. 54) makes the remarkable assertion that a man who has been classed as unfit for Service "is not a suitable person to hold a permanent post." He must have a very untidy mind or have already forgotten that in the Services a medical officer is required to be fit enough to undergo all or any of the training and exertion under fighting conditions required of the ordinary fighting man. There are many doctors "unfit for general service" who are perfectly capable of doing public health work, and doing it well.

No, Sir, this bickering gets us nowhere. There are sufficient attacks being made upon the credit and independence of the profession without our enemies receiving assistance from within our ranks.—I am, etc.,

Lewes. Frank Langford.

Salaries of Whole-time Medical Officers

Sir,—The Rushcliffe scheme has now been in operation for two years. In spite of several letters to the *Journal* the B.M.A. appears to have done little. At my hospital the matron gets more than the deputy superintendent (M.A., M.B., Ch.B., M.R.C.P., D.P.M.). The state of the other medical officers, all specialists with a D.P.M. and several with higher qualifications, I leave to your imagination. This is, of course, characteristic of the political governing body, which does not expect many votes from medical men. The result, it should be unnecessary to point out, obviously the gross deterioration of the service and a mess which will have to be cleared up when suitable control is established, if ever.—I am, etc.,

Thomas Lindsay,
Member of the Psychological Medicine Group Committee.
St. Lawrence's Hospital, Caterham.

⁂ The Secretary of the B.M.A. states: "The Association has given to the appropriate bodies, as from April 1, 1945, the prescribed period of one year's notice to terminate the Askwith Agreement on March 31, 1946."

Medical Witnesses

Sir,—In your issue of Feb. 24 (p. 27) under the heading "Medical Witnesses" reference was made to the inadequacy of fees. I should like to add my experience of "waste of time" at the Central Criminal Court only a week or two ago.

I was subpoenaed to attend there to give medical evidence for the defence in a case of criminal assault, the session commencing on Feb. 27, the actual day to be notified to me later. On Feb. 28, shortly after 9 a.m., I was warned to attend at 11 a.m. as my case was first on the list. I duly appeared in court to find the jury already sworn in, and my case apparently about to start, when suddenly the procedure was altered, and undefended cases were taken—the jury being now unnecessary. After 1½ hours the jury were dismissed until the afternoon, and I was told I would not be required until then. I appeared again at 2.5 p.m. and waited about until 3.15 p.m., when I found that my case would not be heard until Friday at 11 a.m. I again appeared in court on Friday and experienced the same delays as on Wednesday, until, at 3.15 p.m., I was informed that, the charge having been altered, my evidence would not be required.

This case was defended under the Poor Persons Act, the maximum fee for a medical witness being 1½ guineas. I applied for a further fee for the second day's attendance, but this was not allowed. I leave you to imagine the havoc all this caused in my practice as regards appointments, visits, and surgeries—all for 1½ guineas. I have no partner or assistant.—I am, etc.,

L. T. Simson.

BRITISH MEDICAL ASSOCIATION

Meetings of Branches and Divisions

North of England Branch

SCIENTIFIC MISCELLANY

A course of scientific meetings, arranged jointly by the North of England Branch of the B.M.A. and the Newcastle and Northern Counties Medical Society, was held in Newcastle-upon-Tyne in October and November, 1944.

In an address on peptic ulcer at the first meeting Prof. C. F. W. Illingworth discussed the marked increase in perforation of peptic ulcer in the past few years. This increase did not coincide with the extensive bombing of the "blitz" period; his own view was that the major factors responsible were worry, fear, and overwork, particularly the latter. He gave statistics showing that peptic ulcer was least frequent in the months of August, September, and October—the holiday season and the period immediately after the usual annual holiday. The commonest day of the week for the incidence of perforation was Saturday and the commonest hour of the day between 5 and 6 p.m. Incidence of perforation was low on Sunday and Monday—i.e., immediately after the week-end break. Occupational incidence was not as marked as was generally believed, though irregular hours and hasty meals were responsible to some extent. Discussing the results of medical and surgical treatment he showed that there was little or no difference between the two. Peptic ulcer, though perhaps not more frequent, was certainly more fatal in the lower social classes, and he attributed this to the less adequate arrangements for rest, general care, diet, and care in the home.

Surgery in the Forward Areas

Major John Swinney chose for his subject at the second meeting "Assault in the Mediterranean with a Surgical Team." He briefly outlined his journeys through Sicily and Italy with the invading troops, and described the setting up of a surgical unit in a farmhouse near the shore of Sicily. The latter included an account of how this surgical unit went to work, its modifications for surgical purposes, and some of the cases treated there in the early stages of the invasion. The chief problems in the forward area were: (1) Treatment of shock. (2) Prevention of death from haemorrhage. (3) Prevention of sepsis. He emphasized the value of wet and dry plasma and of stored blood being available in the forward areas. As regards sepsis, the position in Sicily and Italy was different from that in the desert, and gas gangrene was more prevalent and was one of the major problems. He stressed the need for a more formal excision of wounds; excision of the skin should always be minimal. He condemned primary wound suture. Reviewing the lessons learnt in the treatment of soft-tissue wounds by the application of plaster and the value of Tobruk plaster and its various modifications, he pointed out that these plasters were designed as temporary measures to allow easier evacuation of the patient to base, and were not designed for the permanent correction of any bony deformity. Major Swinney did not think the time was ripe for a positive assessment of the value of penicillin.

At the third meeting Dr. C. E. Kellett gave an address on "Descartes and the 'Man Machine'." Sir Edmund Spriggs chose "The Colon" as his subject at the fourth meeting, and devoted the greater part of it to considering the three symptoms: flatulence, constipation, and the presence of blood in the stool. Flatulence was, he added, the commonest complaint of people with abdominal trouble, and the term covered eructation of wind, the passage of flatus, bowel distension or a feeling of distension, and borborygmi. Many patients who had no bowel delay complained of constipation, but only those suffering from demonstrable bowel delay required treatment. To detect blood in the stool the motions should be examined daily.

Peptic Ulcer: A Danish View

Dr. Gunnar Alsted at the fifth meeting said his remarks on the diagnosis and treatment of peptic ulcer represented his personal conclusions after intensive investigation over a period of ten years and the general views of the Danish School. Peptic ulcer was looked upon as a group of diseases—the ulcer group—which included ulcer of the body of the stomach, the juxta-pyloric ulcer, the duodenal ulcer, and gastro-jejunitis. Only in the case of juxta-pyloric ulcer could a reliable diagnosis be made on clinical examination. The principles of treatment in the uncomplicated ulcer were to protect the stomach from the mechanical irritation of food by giving a purée diet—from which minced meat was not excluded—to order rest in bed, to forbid smoking, and to give magnesium trisilicate or hydroxide. Histidine had not proved so helpful as had been hoped. Surgical treatment was reserved chiefly for cases relapsing at least three times under adequate medical treatment, and perforated ulcer cases.

At the last meeting Dr. W. F. Harvey spoke on the diagnosis and description of cancer. His remarks were based upon a study of 1,943 tumours investigated personally. He described the collection, preservation, and preparation of specimens for biopsy, and the classification and description of the individual slides. He considered the adoption of the simple terminations, -blastoma, -cytoma, and -oma, to denote carcinoma and sarcoma, the simple counterparts of these tumours and tumour growth respectively, would obviate much confusion and simplify classification. The description should take the form of a report of scientific and clinical value giving differential diagnosis and negation when necessary. It should also incorporate a personal deductive approach to the verdict, and information regarding sepsis, rate of growth, and radiosensitivity when relevant. Carefully recorded and classified statistics were of great value in trial of alternative methods of treatment.

Each lecture was preceded by clinical demonstrations which were given by Dr. T. H. Boon, Dr. Wm. Hunter, Mr. John Brumwell, Mr. C. F. Rowbotham, Mr. J. S. Arkle, Mr. A. MacRae, Mr. J. Gilmour, Dr. S. Whately Davidson, Dr. C. N. Armstrong, Dr. A. G. Ogilvie, Mr. T. A. Hindmarsh, Prof. F. J. Nattrass, and Mr. H. Harvey Evers.

Branch and Division Meetings to be Held

Macclesfield and East Cheshire Division.—At West Park Hospital, Sunday, April 22, 11.30 a.m., Annual meeting of Division; 12 noon, Annual meeting of practitioners to elect Local Medical War Committee.

Shropshire and Mid-Wales Branch.—At Royal Salop Infirmary, Shrewsbury, Tuesday, May 1, 3.30 p.m., B.M.A. Lecture by Dr. Frank S. Airey: "Skin Diseases in General Practice." A cordial invitation to attend is extended to all doctors in the area

H.M. Forces Appointments

ARMY

Col. W. E. Tyndall, C.B.E., M.C., late R.A.M.C., has been granted the local rank of Major-Gen.

ROYAL ARMY MEDICAL CORPS

Lieut.-Cols. G. D. Yates and L. M. Rowlette, D.S.O., M.C., having attained the age for retirement, are retained on the Active List (supernumerary).

Majors (War Subs. Lieut.-Cols.) P. F. Palmer and D. Bluett, O.B.E., to be Lieut.-Cols.

Short Service Commissions.—Lieuts. (War Subs. Capts.) F. G. Neild and N. J. Y. Simpson, from Emergency Commissions, to be Lieuts., and to be Capts.

REGULAR ARMY RESERVE OF OFFICERS

Col (Hon. Brig.) J. S. McCombe, D.S.O., late R.A.M.C., having attained the age limit of liability to recall, has ceased to belong to the Reserve of Officers.

LAND FORCES: EMERGENCY COMMISSIONS

Royal Army Medical Corps

War Subs. Major W. B. Swete-Evans has relinquished his commission, and has been granted the honorary rank of Lieut.-Col.

Major R. S. Townsend, M.C., late Col., I.M.S. (ret.), has relinquished his commission on account of disability, and has been restored to the rank of Col., I.M.S. (ret.), on ceasing to be employed.

War Subs. Capt. M. J. Hilton has relinquished his commission on account of disability, and has been granted the honorary rank of Major. (Substituted for the notification in a *Supplement* to the *London Gazette*, dated Feb. 13.)

War Subs. Capt. I. Pugh has relinquished his commission on appointment to the S.A.M.C.

War Subs. Capts. I. Margolin, H. Gremson, A. I. Clein, G. L. Hermitte, and J. Newcombe have relinquished their commissions on account of disability, and have been granted the honorary rank of Capt.

War Subs. Capt. B. A. Coghlan has relinquished his commission, and has been granted the honorary rank of Capt.

Lieuts. P. H. Stone, J. R. C. Spicer, W. A. S. Lamborn, O.B.E., and E. G. Gibbins have relinquished their commissions and have been granted the honorary rank of Lieut.

Lieut. E. Sorabjee has resigned his commission and has been granted the honorary rank of Lieut.

Lieut. C. H. Philips has resigned his commission.

The following Lieuts. have relinquished their commissions: R. M. Dowdeswell, J. M. Liston, R. H. Wiseman, and D. G. Snell.

To be Lieuts.: G. J. Roberts, M. D. Froud, E. J. G. Wallace, J. K. Meiring, J. O. S. Anderson, J. A. Chestnutt, W. R. Cole, P. J. Collard, E. R. Corbett, P. J. W. Corser, W. C. Crawford, J. A. Eadie, P. M. Edis, E. Gancz, M. G. Gould, R. J. A. Heron, F. W. Hill, G. R. F. Hilson, H. B. Jacobs, A. V. Lillywhite, V. D. Logue, G. M. McEwan, D. R. Mackintosh, H. G. Middleton, L. P. A. Newborne, J. D. O'Flynn, D. V. Pleasant, D. Ranger, J. F. Rees, H. H. Robinson, P. M. Rooze, L. W. Russell, H. W. Stark, N. J. Townsley, W. V. Wadsworth, C. E. M. Wenyon, E. C. B. White, G. F. Bramley, W. R. Ashby, M. Bates, H. McC. Carson, D. G. Conacher, E. H. Couper, F. R. Curtis, A. S. Davidson, A. W. Edrdge, R. W. Fynn, S. P. Higham, A. Hill, M. R. Hunt, P. H. Jones, J. H. Kitson, I. B. Lawrence, T. J. Laszlo, A. Levin, G. M. Ligertwood, H. MacC. MacIntyre, J. W. McAllan, A. McPherson, H. C. Milligan, T. S. Moore, C. P. Moxon, E. E. P. Murray, R. C. Nimmo-Smith, R. E. P. Nutten, J. S. Oldham, R. S. Powell, J. F. Riley, R. T. Ritchie, J G Robson, J. Roberts, C. F. Rolland, G. A. H. Sandilands, J. H. S. Scott, I. McG. R. Scroggie, R. A. Y. Stewart, J. Tudor, J. Vaughn, G. A. S. Wallace, F. C. Williams, I. W. Winchester, and W. T. C. Wilson.

ROYAL AIR FORCE

Wing Cmdr. R. J. Aherne, M.C., has reverted to the Retired List, resuming the rank of Gp. Capt.

Wing Cmdr. (Temp.) J. F. Sandow, O.B.E., has been granted the rank of War Subs. Wing Cmdr.

Fl. Lieuts. (Temp. Wing Cmdrs.) A. S. Amsden and H. D. Conway to be Squad. Ldrs.

Fl. Lieut. (Temp. Squad. Ldr.) E. H. Lamb has been transferred to the R.A.F.O., and called up for Air Force service.

H. A. N. Hamersley has been granted a short service commission in the rank of Flying Officer, and seconded to the Royal Hampshire County Hospital.

Auxiliary Air Force

Fl. Lieut. R. G. Smith has relinquished his commission on account of medical unfitness for Air Force service, retaining the rank of Squad. Ldr.

Reserve of Air Force Officers

Squad. Ldr. (Temp.) G. A. Baker has been granted the rank of War Subs. Squad. Ldr.

Royal Air Force Volunteer Reserve

Fl. Lieut. E. E. Bowen has relinquished his commission on account of medical unfitness for Air Force service, retaining his rank.

W. T. Kenny to be Fl. Lieut. (Emergency).

Flying Officers T. L. Adamson, W. J. Bell, E. R. Bickerstaffe, G. R. Davys, H. T. Foot, J. H. Friend, D. V. Foster, N. Gillman, C. C. B. Guest, R. R. Hamilton, A. G. Hesling, G. Irvine-Robertson, J. C. Johnson, A. T. Macqueen, D. J. L. Macwatt, J. A. Morton, W. D. Munro, D. A. Stickland, and D. E. C. Whittome to be War Subs. Fl. Lieuts.

To be Flying Officers (Emergency): F. Batley, J. H. E. Bergin, J. W. Gibb J. A. Harrington, E H. Humphrey, P. R. N. Kerr, D. S. Smith, J. M. Whaites, P. Abbey, P. D. Bryant, S. C. Frazer, J. M. Herd, I. S. Hodgson-Jones, E. V. Hope, J. L. Insley, D. M. M. Jones, W. G. McEwen, R. Maggs, S. Rae, A. J. E. Rowe, A. Scott, R. Spielsinger, D. A. Tait, R. Whitelaw, and H. K. L. Young.

DIARY OF SOCIETIES AND LECTURES

Royal Society of Medicine.—*Mon.*, 4.30 p.m., Section of Odontology. *Tues.*, 4.30 p.m., Section of Medicine. *Thurs.*, 5 p.m., Section of Urology. Fri., 3 p m., Section of Epidemiology and State Medicine; 4.30 p.m., Section of Disease in Children.

Medical Society of London, 11, Chandos Street, W.—*Mon.*, 5 p.m., Discussion: Deferment of Senescence (Prophygeria). To be introduced by Mr. W. Sampson Handley.

Royal Institution, 21, Albemarle Street, W.—*Fri.*, 5 p.m., Prof. P. A. Buxton, F.R.S.: Natural History of Scrub Typhus.

BIRTHS, MARRIAGES, & DEATHS

The charge for an insertion under this head is 10s. 6d. *for* 18 *words or less. Extra words* 3s. 6d. *for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.*

BIRTHS

Baxendine.—On March 26, 1945, at Elsie Inglis Memorial Hospital, to Peggy (*née* Houston), wife of Surg. Lieut. R. R. Baxendine, R.N.V.R. (Bombay), a son—Michael Richard.

Macfie.—On April 7, 1945, at the Winfield Nursing Home, Wokingham, Berks, to Thelma, wife of W. G. T. Macfie, M.B., Ch.B.—a daughter.

DEATH

Birdwood.—On April 14, 1945, very suddenly, at Walmer, Kent, Gordon Travers Birdwood, M.A., M.D. (Cantab.), B.Ch., D.P.H., Lieut.-Col., I.M.S. (ret.), aged 78.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY APRIL 28 1945

THE RIGHT OF APPEAL

BY
D. HARCOURT KITCHIN
Barrister-at-Law

This memorandum concerns the hypothetical right of a medical practitioner serving in a future "comprehensive" national health service to appeal to the High Court from any decision of the Minister of Health by which he may be aggrieved. This particular right of appeal must, however, for its better assessment and discussion, be surveyed against the right of appeal by other classes of persons against decisions of Government Departments or of similar bodies to whom Parliament has entrusted the power to make judicial or quasi-judicial decisions. Behind this wider question is the ever-changing balance of forces which we call the Constitution.

The Constitution

Medical men will agree that the student of the human body should not fix his attention unduly upon dissected portions of a cadaver, but should form as true an imaginative picture as possible of a normal living human being. Man performs his day-to-day functions and develops throughout his life by a ceaseless, complicated, ever-changing relationship of all his parts. So also the life of the body politic continually changes and develops, as now some, now others, of its organs gain preponderance. Three of these major political organs—the Legislature, the Executive, and the Judiciary—are especially important for the present inquiry.

In the fundamental scheme of our Constitution the Legislature makes the law, the Executive administers it, and the Judiciary interprets and enforces it. To put the matter in another way, our Constitution rests on the sovereignty of Parliament and the Rule of Law. Theoretically Parliament, consisting chiefly of the elected representatives of the people, can make any law; no man may be punished except for a definite breach of law proved in court; and every man is subject to the court's jurisdiction.

That is the present state of the constitutional relationship between Legislature, Executive, and Judiciary. These three authorities have not, however, sharply defined limits; there is and must be a considerable overlap. The pattern continually changes. Not historically long ago the King and his officers exercised arbitrary power over the lives, liberties, and property of his subjects. The pattern developed to curb his power; now it is becoming modified in another way, through an inexorable change that is taking place in the whole life of the country. This change is rapidly giving the Ministries, through the Cabinet, greater power as against Parliament, and also (through the form of the statutes which Parliament itself passes) greater power over the liberties of us citizens, with less control by the courts.

Judicial Powers of Ministries

No one has described this development more clearly than Prof. A. V. Dicey (1915). During the last eighty years, and notably since the beginning of this century, the nation as represented in Parliament has, he observes, undertaken to perform a large number of duties with which no English Government had formerly any concern whatever. When the Government shoulders new duties it must inevitably acquire more authority. This extension of its authority almost implies, and in fact has promoted, the transference to Departments of the Central Government of judicial or quasi-judicial functions.

Obviously it is highly convenient, he continues, when a Government Department is dealing with a matter in which large numbers of persons are interested, to leave it the power to decide more or less judicial questions. In other words, jurisdiction is almost inevitably given to a Department of Government, or to officials very closely connected with it.

The objections, he points out, are obvious. Such transference of authority from the courts saps the foundations of the Rule of Law. On the other hand, the servants of the Crown, if they are to manage business which was formerly carried on by each private citizen in his own interest, need that freedom of action which a private citizen necessarily possesses in the management of his own concerns. How, Dicey asks, could any trade prosper in the hands of a man who could not dismiss a clerk until he had obtained conclusive evidence of the clerk's fraud or misconduct, or if he could consider only what lawyers call the "best" evidence?

When jurisdiction is transferred by statute from a court to a Government Department, an observer may hold either of two opposite opinions. The one is that the Department should be obliged to conform to the rules of judicial procedure. The other is that this very transfer of jurisdiction from a court to a Department is *prima facie* evidence that Parliament intended the Department to exercise that jurisdiction in accordance, not with the rules which govern judicial procedure, but with the rules which govern the fair transaction of business by the Department. Much may be said in favour of each view, but the House of Lords, in the very important case of *Local Government Board* v. *Arlidge*, (1914) 1 K.B. 160, took the second view, which Dicey regards as in harmony with the legislative opinion that was already dominant in 1915, and which has certainly lost none of its strength in the last thirty years.

Their Lordships said that when a statute confers upon a Government Department judicial or quasi-judicial jurisdiction, and does not lay down any rule how this jurisdiction is to be exercised, the Department is not bound to adopt the rules of procedure which prevail in English courts. It must, however, act in the spirit of judicial fairness and equity. Dicey gives the opinion (which to-day may be regarded as a little optimistic!) that the English courts will probably always, in one form or another, find means of correcting any injustice in the exercise of judicial or quasi-judicial authority by a Government Department. Of course, if a statute did state how the jurisdiction was to be exercised, the rules in Arlidge's case would not apply. Statutes, however, very rarely, if ever, do so.

The Donoughmore Committee

This tendency of Parliament to give Government Departments judicial powers excluding the jurisdiction of the courts was already well established at the end of Victoria's reign. All the features of modern Acts of Parliament which Lord Hewart (1929) so strongly condemned were common practice a generation before his book appeared. Little was heard of them, however, until the first world war brought an immense expansion in legislation by Government Departments and in the powers of Ministers; and even so a whole decade passed since the Armistice before *The New Despotism* appeared, and, a few weeks earlier in 1929, the Lord Chancellor appointed a committee to consider Ministers' powers of legislation and judicial decision, and to suggest safeguards "to secure the constitutional principles of the sovereignty of Parliament and the supremacy of the Law." The committee, under the Earl of Donoughmore, consisted of some of the ablest Parliamentarians, lawyers, and civil servants of the day. It took evidence from every conceivable source that could possibly assist it; and its report (1932), together with the two bulky companion volumes of memoranda and evidence, completely exhausts the subject as that appeared thirteen years ago. Its findings on delegated legislation (Ministers' rule-making powers) are outside the scope of this inquiry, though not, it is submitted, outside the scope of the B.M.A. and the Negotiating Committee. Its findings on judicial or quasi-judicial decision by Ministers call for very keen attention whenever the form and powers of the new departmental tribunals are being discussed.

The Donoughmore Committee did not doubt that in the exercise of the judicial and quasi-judicial powers by Ministers justice was as a rule substantially done. Nevertheless, it said, justice is not enough; what the people want is security for justice, and the only security for justice is law, publicly administered.

Lord Hewart had used very emphatic language about this need. He had observed (*The New Despotism*, p. 48) that the Departments rarely published any reports of their proceedings or reasons for their decisions. As the proceedings, if any, were always held in secret, even interested parties could not learn what had happened or what the Department was likely to do in a future case. Neither of the parties concerned could believe he had had justice, and the policy was fatal to any confidence in the good faith of the tribunal.

The Donoughmore Committee regarded the whole of *The New Despotism* as a warning against real dangers, but saw no ground for public fear if the right precautions were taken; nor did it find in all the evidence which it had heard any reflection on the sense of justice of the Civil Service.

Independent Special Tribunals

Certain special tribunals are appointed by Ministers of the Crown or on their recommendation, but are nevertheless quite independent of the Minister who appoints them, and act as regular courts of law with a special jurisdiction. An example is the Railway and Canal Commission, composed of a judge and two commissioners. The Chief Registrar of Friendly Societies is a barrister appointed by the Treasury who arbitrates in disputes and investigates the affairs of societies; as Industrial Insurance Commissioner he also deals with industrial disputes. The Special Commissioners of Income Tax are appointed by the Treasury to settle income tax. Although they are all civil servants, their impartiality is unquestioned and they have the complete confidence of the public. The Board of Referees for income-tax questions, also appointed by the Treasury, consists of specially qualified business and professional men with a King's Counsel for chairman. Appeals lie from the decisions of all these tribunals to the High Court.

Departmental Tribunals

Many other tribunals are created by statute to work within a Department for the express purpose of determining questions which ought to be treated judicially. Under the Unemployment Insurance Act, 1934, a person claiming benefit applies to the insurance officer; claims which he will not allow go to the Court of Referees (representing employers and insured contributors), and appeals from this court go to an umpire appointed by the King. Under the War Pensions Act, 1921, a dissatisfied person appeals to a Pension Appeals Tribunal appointed by the Lord Chancellor, the decision of which is final. The current emergency legislation gives an appeal from pensions appeal tribunals to the Minister, whose decision is final. Under the Widows', Orphans' and Old Age Contributory Pensions Act, 1925, a person dissatisfied by a decision of the Minister may appeal to a referee chosen from a panel of lawyers appointed by the National Health Insurance Joint Committee. No officer of the Department may be a member, and the decision of the referee is final, except that he may state a case for the court on a point of law.

When the Minister determines whether a given employment comes under the N.H.I. Acts, a member of his legal staff hears the case, the Minister gives his decision, and an appeal on a point of law lies to a judge of the High Court. If a question arises whether a given school is necessary or not, the Board of Education may appoint a person or persons to hold a public inquiry; the report is available to any local education authority or person interested, but there is no appeal from the Board's decision.

Judicial and Quasi-judicial Decisions

The committee defined and distinguished between judicial and quasi-judicial decisions. A true *judicial decision*, it said, presupposes an existing dispute between two or more parties, and requires four things: (1) The presentation of their case by the parties. (2) The ascertainment of the facts by evidence adduced by the parties, often assisted by argument. (3) Legal argument (if law is in question). (4) A formal decision, finding the facts and applying to them the law of the land.

A *quasi-judicial decision* similarly presupposes the dispute and requires the presentation of the case and the ascertainment of the facts. It does not, however, involve legal argument, nor does it include a final judgment. This is replaced by administrative action. Where a Minister has absolute discretion to take action if certain facts are proved, his ultimate decision is *quasi-judicial*, because it is governed, not by a statutory direction to him to apply the law of the land to the facts and act accordingly, but by a statutory permission to use his discretion after he has ascertained the facts, and to be guided by public policy.

Purely *judicial decisions* are not often entrusted to Ministers by statute. An example, however, is found in the National Health Insurance Act, 1936, which obliges the Minister to determine whether persons in any given class of employment are insurable under the Act. If a hearing is necessary, the Minister appoints one of the barristers or solicitors of the Ministry to hear the persons interested and report. Public notice is given, and counsel may appear. The Minister's decision is declared to the parties by memorandum, but he is not expressly obliged to give reasons. An aggrieved party may appeal, on a question of *law* only, to a judge of the High Court selected by the Lord Chancellor; the Minister may appear and be heard.

An example of a *quasi-judicial decision*, on the other hand, may be found in the provision of the Housing and Town Planning Acts that the medical officer of health of a district must give to the medical officer of health of the county any information which he is able to give, and which the county M.O.H. may reasonably require for the purpose of his prescribed duties. Any dispute between two medical officers is referred to the Minister, whose decision is final and binding. The Minister must give both officers a chance to present their case; he must find out the facts by means of evidence brought by the parties; but then he must decide whether the requirements of the county M.O.H. are reasonable. For this decision he must consider medical policy in local administration: he must decide what is best to do, and do it.

Natural Justice

The Donoughmore Committee agreed that even in a quasi-judicial decision the Minister ought not to depart from or offend "natural justice." This concept is not bounded by any definite rules recognized and enforced by courts of law, but the committee had no doubt that all tribunals and persons who give judicial or quasi-judicial decisions ought to obey certain canons of judicial conduct which are implicit in the Rule of Law. These are:

1. A man may not be judge in his own cause.
2. Each party must be heard (though not necessarily orally), and must know in advance the case he has to meet.
3. A party is entitled to know the reason for the decision.

The committee was inclined to add a fourth canon, though it admitted that its validity had been denied by some judges: that where an inspector holds a public inquiry, his report should be available to the parties.

Constitutional Rights of Appeal

Theoretically, even if an Act of Parliament makes the Minister's decision final and gives an aggrieved person no right of appeal to the High Court, he may nevertheless appeal successfully if he can show that the Minister, in reaching his decision, exceeded his powers, or offended against the rules of natural justice, or had no evidence on which he could find as he did. In practice this remedy has little value. The aggrieved person applies to the King's Bench Divisional Court to grant him one of the prerogative writs—certiorari, mandamus, or prohibition. The process is far too cumbersome and expensive for most litigants; its success is very uncertain; and the reticence of Departments concerning their proceedings often makes proof difficult or impossible. Nevertheless, its existence doubtless has a steadying effect upon departmental officers.

Far more significant from a practical point of view is the opportunity which an aggrieved person has of persuading his Member of Parliament to draw public attention to his grievance by asking a question in the House of Commons, or a Peer to raise it in the House of Lords by a motion for papers. This action generally ensures at least that the responsible Minister shall properly investigate the complaint; and the ever-present possibility of a question is a healthy deterrent to civil servants against arbitrary and unjust decisions. Nevertheless it is obviously not an adequate substitute for a complete review by a court of law.

Disciplinary Action—Judicial or Quasi-judicial?

The question obviously arises here whether the decision of the Minister on an appeal to him by or against a medical practitioner under the N.H.I. Acts is judicial or quasi-judicial. Clearly it is in form quasi-judicial, for, though it involves the presentation of their case by both parties to the tribunal, and the ascertainment of fact by means of evidence adduced by them, and even though the president of the appellate tribunal is a lawyer, yet the Minister has absolute and final discretion to dispose of the appeal. The law of the land concerns him hardly at all; and however anxious he may be to approach the matter judicially, questions of departmental policy must often closely concern him. In deciding a similar appeal under a new "comprehensive" service they will doubtless concern him more constantly and closely still.

The position of insurance practitioners in relation to Ministerial decisions seems to be unique. The Statute Book does not seem to contain another instance of the employment under contract of many members of one profession, with disciplinary machinery whereby they may be deprived in certain circumstances of some of their agreed remuneration. Without doubt similar machinery, or machinery having a similar purpose, will form part of the Act establishing the new National Health Service. A decision, under either the existing N.H.I. Acts or the new Act, resulting in the imposition of a fine on an insurance practitioner or his ejection from the service seems to have little, if any, really administrative element in it, and to be indistinguishable from judicial proceedings in which no point of law or question of policy is involved, and the result of which is to establish whether the terms of a contract have been broken or a criminal offence has been committed.

Members of the B.M.A. may think that such decisions are essentially judicial and ought so to be treated under any new legislation. Doubtless their present quasi-judicial treatment is the real cause of discontent and of the demand for an appeal.

Appeals by Insurance Practitioners

The machinery for hearing and determining complaints against insurance practitioners under the N.H.I. Acts is set up, not by the Acts, but by regulations made by the Minister under them. Complaints are heard by the local medical service subcommittee; appeals by doctors are heard by a board of three, one of whom is medical. If the Minister punishes a doctor who has not yet appealed, the doctor may appeal to a tribunal consisting of officers of the Department and a doctor from the Advisory Panel of the Insurance Acts Committee of the B.M.A. Charges of negligence must be referred to the Minister's Advisory Committee, which consists of three medical officers of the Ministry and three members chosen from the I.A.C. panel. If a local committee recommends that a doctor's name shall be removed from the medical list, the Minister must appoint a committee of inquiry consisting of a lawyer and two doctors, one of whom is on the I.A.C. panel; this committee's report is referred to the Advisory Committee. Beyond the Minister there is no appeal to the High Court.

Future Disciplinary Machinery

The Association must in due course consider the form of the disciplinary machinery in the projected National Health Service, and whether the Negotiating Committee should press for a right of appeal to the High Court, or even for an initial hearing of complaints before a judge.

On the other hand, the present fact-finding machinery is so constituted as to be strictly impartial and to give ample representation to the medical profession. The procedure seems to be strictly judicial in its form. The Negotiating Committee would not easily maintain that an ordinary court of law was better equipped to find the facts in an inquiry of this class, which involves so many questions of medical practice and insurance procedure. Nor would a case for an appeal to the High Court on questions of fact be much easier to establish. High Court judges have never shown any great inclination to review the findings of fact of a properly constituted tribunal which has acted in accordance with natural justice. The Donoughmore Committee was satisfied that no appeal to a court of law from a departmental tribunal should as a rule be allowed on any question of fact.

On the other hand, Parliament has recently tended, when establishing new domestic tribunals within a profession which has been granted State recognition, to give an aggrieved person a right of appeal to the High Court on both law and fact. Dentists, nurses, midwives, architects, solicitors, pharmacists, and others can all move the High Court to review in detail adverse decisions of their domestic tribunals. The medical profession is probably unique in not possessing this appeal from the General Medical Council. No general demand is expressed by doctors for such an appeal, and I should be very surprised to learn that the G.M.C. itself thought an appeal necessary, or would support the insertion of one in the next Medical Act.

An appeal on fact from the decision of the Minister on an insurance complaint may, however, be considered more necessary. Unlike a penal erasure by the G.M.C., removal from the N.H.I. *Medical List* is an absolute prohibition of practice, and is not imposed by a purely domestic tribunal. The Association may think, however, that the proposal for an appeal to the High Court on fact would not be likely to find acceptance either by the Minister or by Parliament, and that the interests of insurance practitioners under a future scheme would be better safeguarded in other ways. In the exceptional case where an appeal on fact may be allowed, it should, in the opinion of the Donoughmore Committee, go to an appeal tribunal constituted by the Lord Chancellor and consisting of three persons, one of whom should be legally qualified and preside.

In demanding an appeal from a judicial decision of the Minister or a tribunal on a point of *law*, the medical profession would have the support of the Donoughmore Committee, which saw no justification for sheltering Ministers or their tribunals from the courts of law where their jurisdiction involved judicial decisions. Such immunity, it said, is contrary to the constitutional principle underlying the Rule of Law. Moreover, the new scheme is likely to produce a good many doubtful points of law in its early years. The committee felt strongly that a uniform and simple procedure should be established for all such appeals. In general, it advised that the time within which appeals might be brought should be strictly limited; that they should be determined in a summary manner; that the appeal should be to a single judge of the High Court, perhaps a particular judge appointed for cases of the kind; and that the decision of the High Court should be final, though it might give leave to appeal further on a legal question of unusual importance.

Safeguards under the New Act

The report of the Donoughmore Committee suggests a number of safeguards against the abuse of Ministerial discretion which might perhaps be applied to the new service. In advocating them the Association could pray in aid the great authority of the report. On the other hand, during the thirteen years, five of them war years, which have passed since the report was published, the shadow of the Executive has grown great and that of the courts has sensibly declined.

The operation of the new service is likely to raise many questions of law as well as of practice, and the statute should therefore provide for an appeal by an aggrieved doctor to the High Court at least on questions of law, doubtless by the familiar procedure of "case stated." A simplified form of procedure by which the High Court could be moved to interfere if the Minister exceeded his powers or infringed the rules of natural justice would be highly desirable, but such a reform is outside the scope of this legislation.

One aspect of "natural justice" may, however, be considered more closely. The Donoughmore Committee, in pointing out that a man should not be a judge in his own cause, expressed the strong opinion that bias from strong and sincere conviction as to public policy may be a more serious disqualification than pecuniary interest. Hence, whenever the Minister's Department would naturally desire that the decision should go one way rather than another, the Minister should be regarded as having an interest in the cause. In such a case Parliament ought to provide that the question should be decided, not by the Minister, but by an independent tribunal.

Possibly the Minister and his advisory tribunals have no particular interest to-day in the outcome of any appeal by an N.H.I. doctor. In the new National Health Service, however, novel motives may become dominant. The cost of the new service will probably be a constant and serious source of anxiety to those responsible for administering it. If a policy of strict economy should be forced on the Ministry, then its officials will have a strong interest in the outcome of every complaint against a doctor for ordering unnecessary treatment. It is not fantastic to fear that disciplinary action against doctors whose zeal involves extra expense may become linked with the policy of the Department. The possibility of such a bias may justify the creation of a disciplinary tribunal independent of the Department, with an appeal perhaps to an umpire, perhaps to a special appellate body, perhaps to a judge of a High Court, rather than to the Minister.

The committee recommended that where certain judicial issues arising out of the administrative work of a Department are not suitable for decision by the ordinary courts, and there is no exceptional reason for giving them for the Minister to decide, Parliament should provide for their reference to an independent tribunal outside the Department. If many cases of the same kind are likely to arise, it might be better to constitute a permanent special tribunal. The tribunal's decisions should be independent of the Minister, but the committee saw no reason why the Minister should not appoint it.

Reasons for a Decision

The Donoughmore Committee were quite clear in their minds that in natural justice a party is entitled to know the reason for even a quasi-judicial decision, even when that decision is final and there is no appeal. When an appeal is possible, the case is even stronger, for it is contrary to natural justice that the silence of the Minister or tribunal should deprive a disappointed party of the possibility of succeeding in an appeal. Moreover, from the angle of broad political expediency the committee saw a real advantage in communicating the ground of a decision to the parties concerned and, if of general interest, to the public.

Where the question at issue is simply whether the doctor committed or did not commit certain offences, and where the only reason for the Minister's decision is that he believes the evidence of the complainant and disbelieves that of the doctor, the need for a statement of the reason for his decision may not be very great. The General Medical Council never gives the reasons for its finding of guilty or not guilty, and no member of the profession, so far as I know, has ever suggested that it should. Where, however, the amount of a fine is in issue, and especially if proceedings under the new Act raise novel points, the respondent practitioner may in justice be entitled to a reason. The Negotiating Committee could therefore make a fair case for requesting that the statute should require the Minister, at the request of an aggrieved person, to give reasons for his decision.

The fullest information compatible with the public interest should be given, in the form of a reasoned document available to the parties, stating the findings of fact and the determination of any points of law. The Donoughmore Committee also commended the practice of publishing leading cases for general guidance; but such a practice could hardly be enjoined by statute, for it is one over which the Minister would have to be given complete discretion.

Reports on Public Inquiries

The Donoughmore Committee summarized the arguments for and against the publication of reports submitted to the Minister by inspectors who have held public local inquiries—e.g., into the merits of a projected scheme or the working of an approved one. This question is probably outside the scope of this memorandum, but it is bound to come into prominence sooner or later, because very many schemes will be made under the new Act and many quasi-judicial decisions affecting doctors and voluntary hospitals will be given after inspectors have reported. I therefore venture to call attention to this matter in passing.

Points from the 1944 A.R.M. Agenda

In conclusion, one or two points in the Notices of Motion for the A.R.M. Agenda, 1944, perhaps call for comment. In No. 202, Gateshead suggests an appeal to the General Medical Council or some similarly constituted body. Perhaps if Gateshead had considered rather more closely how the G.M.C. is really constituted, it would have found that assembly less attractive as an appellate tribunal. The chief aim underlying the constitution of the G.M.C. is to provide representation for each of the licensing bodies. A tribunal consisting of 39 senior medical men, most of them distinguished chiefly by academic attainment, is not outstandingly well suited to determine appeals by doctors against decisions of a departmental tribunal. Nor does its constitution invite imitation when a new appellate tribunal is being formed.

On Motion No. 204 it is hard to see how a national health service could possibly be instituted unless it added something to the doctor's common-law rights and duties. After all, the State must be a party to the contract, and can only become one by virtue of a statute imposed on the common law.

Summary

The exercise by the Minister of Health of judicial or quasi-judicial powers is an inevitable product of modern methods of government. In doing so he need not conform to the methods of the courts, though he must act in fairness and equity. In practice he does so act. His decisions in medical disciplinary cases are, however, in form, quasi-judicial and administrative, and this fact is probably the root cause of the discontent which expresses itself in the demand for an appeal to the High Court.

Such an appeal is already available by prerogative writ on the general ground that the Minister has exceeded his powers or offended against natural justice, but procedure is cumbrous, expensive, and uncertain, and its scope is narrowly limited. The remedy of a question in either House of Parliament should not be undervalued.

The Negotiating Committee might hope to persuade the Government representatives to agree to an appeal to the High Court from the Minister's decisions on points of law. Such a right might be valuable in the early years of the novel and complicated scheme that is projected. The committee would have far less hope of obtaining an appeal on fact. Lawyers, administrators, and legislators are fairly generally agreed that, particularly where the issues are technical and domestic, a special tribunal is far better able to ascertain fact than is the appellate court. The Donoughmore Committee advised against allowing such appeals, even against purely judicial decisions.

On the other hand, in hearing an appeal against adverse decisions by the domestic tribunals of the dental, nursing, solicitors', and other professions, the High Court will review the findings of fact, and there is some ground for regarding the disciplinary tribunals in a national medical scheme as domestic tribunals—the more so as, almost or quite alone in the whole range of Ministerial tribunals, they will hear charges akin to crime, breach of contract, or tort, and impose penalties akin to fine. On balance, the Association may think that its legitimate aims could be better pursued by pressing for the creation of independent special tribunals to hear appeals, or even complaints at first instance. The statute should oblige the Minister to give full reasons for his decisions, and his Department should cultivate the practice of publishing leading cases as a guide to its policy and requirements.

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A NATIONAL HEALTH SERVICE

UNIFICATION OF ADMINISTRATION

BY

GEORGE F. BUCHAN, M.D., F.R.C.P., D.P.H.

1. The medical profession has asked that the Minister of Health should be responsible for all the civilian health and medical functions of central government, including those now the functions of other Ministers. The reason for this request is that there is no one Ministry which serves as a link between the Government and local authorities, and still less any Ministry which links up the health and medical work of the several Government Departments.

2. Let it be said at once that the Ministry of Health is probably the Ministry to which most of the correspondence of local authorities goes, but the latter are also in direct communication with the Ministries of Education, Reconstruction, Labour and National Service, Home Security, Works, Fuel and Power, Town and Country Planning, Supply, Agriculture and Fisheries, Food, and will be no doubt in the future with the new Ministry of Social Insurance.

3. So far as health is concerned the Ministry of Health, the Ministry of Education, the Home Office (most of whose functions have been handed over to the Ministry of Labour and National Service), the Ministry of Fuel and Power, and the Ministry of Supply have each a separate health service, and it may be that the Ministry of National Insurance will in its turn set up its own medical staff.

4. There is little, if any, correlation between these various medical staffs, except that the Chief Medical Officer of the Ministry of Health is also the Chief Medical Officer of the Board of Education; but he serves two masters—namely, the Minister of Health and the Minister of Education. This differs from the local arrangement where the medical officer of health is the school medical officer, because in this case the medical officer of health serves only one master—namely, the local authority, which is also the local education authority.

5. The medical profession is well aware that water supplies and housing, with which the Ministry of Health deals, have their health aspects, and indeed the profession has strongly advocated the importance of environmental conditions in any national health service, but it considers that a central Government Department dealing with health should confine itself to these health aspects and not concern itself with the building of houses, which would appear to be a more suitable job for the Ministry of Works or some such Ministry. In any case, whatever additional functions the Ministry of Health may see fit to take unto itself, the medical profession is agreed that all the medical and health functions of the various Government Departments should be brought within one central Health Ministry.

6. In putting forward this request the medical profession realizes the essential unity of medicine and that health cannot be dealt with in separate compartments—at the home, in the school, in the factory, in the office, or on land or at sea. It is alive to the fact that many circumstances must be taken into account in the maintenance of well-being, and that knowledge acquired in connexion with one group may be found of exceeding value in the elucidation of problems arising in another. The White Paper itself makes a somewhat similar statement. It states on page 6: "The first-line care of health for everyone requires a personal doctor or a family doctor, a general medical practitioner available for consultation on all problems of health and sickness," and again on pages 7 and 8:

> "Many services are also rendered by local authorities and others in special clinics and similar organizations, designed for particular groups of the population or for particular kinds of ailment or medical care. These are, for the most part, thoroughly good in themselves, and they are used with advantage by a great many people in a great many districts. But, owing to the way in which they have grown up piecemeal at different stages of history and under different statutory powers, they are usually conducted as quite separate and independent services. There is no sufficient link either between these services themselves or between them and general medical practice and the hospitals.
>
> In short, general medical practice, consultant and specialist opinion, hospital treatment, clinic services for particular purposes, home nursing, midwifery *and all other*

> *branches of health care* [my italics] need to be related to one another and treated as many aspects of the care of one person's health. That means that there has to be somewhere a new responsibility to relate them if a service for health is to be given in future which will be not only comprehensive and reliable but also easy to obtain. . . . These are some of the chief deficiencies in the present arrangements which, in the view of the Government, a comprehensive health service should seek to make good."

On page 37 of the White Paper the first sentence in the last paragraph reads:

> "The aim of the service will be to provide every person, or better still every family, with a personal or family practitioner who will be able to become familiar with the circumstances of those in his care—in the home and at work."

7. Other statements in the White Paper, however, confuse this matter. The last sentence of the first paragraph on page 10, under the appropriate title "Some Misconceptions about the Meaning of 'Comprehensive,'" reads:

> "There are many specialized and separate forms of undertaking—such as the supervision of industrial conditions—which may affect health and which may require the medical expert as much as they require the engineering or the legal or any other expert, but which cannot, simply for that reason, be regarded as necessarily part of the personal health service."

The second paragraph on the same page goes on to suggest that the doctor who is responsible for the care and health of the individual has only to take into account the home as it affects health. The White Paper—again page 10—also states that "very similar considerations" apply to the school medical service, and apparently regards the family doctor as not concerned with the school life of the child, but merely as providing such forms of treatment as may be needed by the children.

8. This confusion of thought in the White Paper is made the more bewildering by the first sentence of the last paragraph on page 10, which states:

> "The proper continuance of environmental and preventive services in school and industry may well be coupled with the habit of using for those services doctors who are also engaged in the personal health service—so that there is a continuous blending of experience in both kinds of work."

9. In the report of the Social and Preventive Medicine Committee on Industrial Medicine, issued by the Royal College of Physicians of London, the position is clearly stated in the following paragraph appearing at the top of page 15:

> "The reasons which led the committee to adopt these views* on organization are briefly as follows: (i) the health of the individual at home and at work cannot rationally be separated; (ii) it would be impossible to secure efficient rehabilitation unless there were the closest link between the two services; (iii) the development of the national health service on sound lines requires direct access to the wealth of knowledge accruing from observations of health in industry; and (iv) the new industrial health service must spread its influence far and wide into work which is much more closely associated with home and family than the factory."

10. In Appendix A (p. 66) relating to industrial medical services the White Paper states that the works doctors under the Factory Acts, the medical service of the Ministry of Supply, and the medical staff of the Ministry of Fuel and Power give a certain amount of useful personal medical advice to the employee on the spot. It will therefore be seen that in the White Paper the Government recognizes, in both theory and practice, that the various health services cannot well be separated, and this is the advice also tendered by the medical profession. So far as I am aware no good reasons have been given against the acceptance of the proposal. It is a reform which could be operated by administrative action almost at once, and the rejection of professional advice at this stage, without adequate reasons, is not too happy an augury for the future.

11. The great mass of the medical profession is resolved that this unification of all health and medical services is fundamental to the establishment of a comprehensive health service, and, moreover, is essential if doctors within the service are to be able to study all possible causes of personal ill-health, and so to work for the improvement of national health. In all these circumstances it is sincerely to be hoped that the Negotiating Committee will be able to secure acceptance of this proposal by the Government, for it is in the interest of the public that the medical profession should have the best opportunities to serve.

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* ("The industrial health service should be an integral part of the proposed national health service and should be administered centrally by the Ministry of Health.")

HEARD AT HEADQUARTERS

The New Education Act

It was unfortunate that the Minister of Education, when asked to receive a deputation from the B.M.A. concerning the school medical service under the new Education Act, found himself, owing to his many appointments, unable to do so. But on receiving the Secretary's letter, published last week (April 21, p. 60), he has now found it possible to receive a deputation.

Sir John Boyd Orr, M.P.

The return of Sir John Boyd Orr to Parliament as one of the members for the Scottish Universities is a very satisfactory event. Sir John is a conspicuous addition to the comparatively few members of the House of Commons who can speak authoritatively on scientific subjects. His work in the field of nutritional research as director of the Rowett Institute and as lecturer at Aberdeen University has gained him widespread renown. Lately Sir John has become chairman of the B.M.A. Committee which is working out a charter for health—in other words, preparing a statement of the present provisions and future needs concerning housing, nutrition, and like matters. The report of that committee when it appears will signify the strong feeling of the profession that the solution of health needs is not to be found in more doctoring, but in adequate nutrition and housing in particular, as well as in the provision or social security generally. The Association was fortunate in inducing Sir John Orr to lead the work of that committee, and in Parliament he will find a new sphere of usefulness.

South African Parallel

The medical profession in South Africa is facing a situation not unlike that which confronts their colleagues in this country over the White Paper. A National Health Services Commission which was set up by the Government has lately reported, and apparently its recommendations have proved very satisfactory to the profession. One recommendation specially welcome is the provision that at all levels, right up from the local health centres, through the regional bodies, to a National Health Council, which is concerned with national policy, there should be adequate representation of the profession. There are independent advisory bodies at all stages. One feature of the South African proposals is the setting up of a National Health Congress, presumably to be held annually or as occasion requires, in which all those working in the new health services will be able to come together and express their views on professional, technical, and scientific matters, and on service conditions.

Speech Therapists

One of the smaller of the recognized qualifying bodies under the scheme for the registration of medical auxiliaries—namely, the College of Speech Therapists—recently held in London its first conference, and what it lacked in numbers—for there are only some 200 qualified speech therapists in practice—it made up in enthusiasm and expectation. It was addressed by Mr. Zachary Cope, president of the Board of Registration of Medical Auxiliaries, who commented on the fact that at present there is no professor or lecturer in speech therapy at any university, that many major education authorities do not as yet recognize the subject, and that only a relatively few hospitals have a speech therapist attached to them. A doubling of numbers of speech therapists was called for. Mr. Cope spoke of the great appreciation felt for the work of medical auxiliaries, not only by the medical profession but also by the Ministry of Health—an appreciation which has been growing during the last fifty years, and especially during the last ten, since the Board of Registration was founded.

Doctors and Population

The report of the National Health Survey in Canada is an elaborate document—a sort of census of medical production. Only one point can be dealt with here—the number of doctors in Canada to the population. For the whole of Canada, in 1943, there was one active civilian physician for every 1,261 inhabitants. The best-doctored province (so far as numbers go) is Ontario, with one physician to 1,068 population, and at the other extreme is New Brunswick, with one to 2,136.

The term "physician," of course, includes every type of medical practice. If we take general practitioners only we find that of the 8,614 physicians who were in active civilian practice in Canada in 1943, the general practitioners accounted for 5,894, or 68.4%. The number of general practitioners in proportion to the population for the Dominion as a whole was one to 1,843, and once again Ontario was first with one to 1,520, and New Brunswick last with one to 2,877.

Comparisons are not only odious but misleading. Roughly, however, it may be said that in England and Wales in 1943 the ratio of general practitioners to population was one to 2,786; about the same as New Brunswick's; and even before the war the figure was nothing like that of Ontario; it was one to 2,184.

Protest in Verse

Poetry does not often intrude itself into the discussions of the Public Health Committee of the B.M.A., but one of its members at the last meeting, in declaring his antagonism to a certain proposal, asked permission to voice his protest in eight lines of verse, and then did so. The matter before the meeting was a memorandum by the Royal College of Physicians, the B.M.A. Group of Practitioners of Psychological Medicine, and the Royal Medico-Psychological Association on the future of psychiatric services. While the memorandum was regarded as an excellent piece of work, exception was taken to one recommendation—namely, that as an important prophylactic measure there should be systematic psychological examinations of every school-child, these examinations to be primarily the function of the educational psychologist.

One member said that this was not the right approach, and that all children ought to be regarded as normal until it appeared—as would happen ordinarily upon the representations of the teacher—that a given child was abnormal. The member who dropped into verse on the subject quoted the lines of Francis Brett Young, beginning:

> " Is there no doctor, then, for the sick soul,
> Only too many sedulous to trace
> The springs of decadence in a dying race?"

The verse goes on to speak of " charlatans whose prurient fingers probe beneath the veil of consciousness." It was a little reminiscent of the old days, sixteen years ago, on the B.M.A. Committee on Psycho-analysis, when weird revelations were made by some of those who gave evidence.

Diseases cost Sweden and her six and a half million inhabitants about 600,000,000 kronor (£35,300,000) a year in direct expenditure alone, and the indirect expenses through losses in working hours and productive capacity are estimated at 1,000 million kronor (£58,800,000). These figures are given in a recent survey in the *Swedish Medical Journal*, based on investigations carried out by Dr. Sven Rydenfelt of Lund University. The dates refer to 1940 and 1941, the last years for which complete statistics are available. Out of the 600 million kronor about 400 millions are budgetary expenditure on the part of the State in the form of costs for public health and the care of the sick, subsidies to sick benefit funds, invalidity relief, etc. About 200 millions may be regarded as social-economic expenditure disbursed by the citizens—e.g., for dental and medical treatment, medicine, payments to sick benefit funds, etc. The figure for losses in productive capacity—i.e., 1,000 million kronor—has been arrived at by calculating 400,000 lost working years and an annual income of 2,500 kronor. This must be regarded as a minimum, the survey points out, and the losses are probably still higher. It may be mentioned in this connexion that the Swedish Government has in recent years appropriated considerably increased sums for public health and the care of the sick with a view to rendering more effective the fight against disease. A nation-wide health campaign under the slogan " A Healthier People " has also been started this spring, in which some s will teach the Swedish people by d demonstrations the principles of lth.

Correspondence

100%

SIR,—I have consistently opposed insurance for personal medical attendance being made compulsory for the whole population because I believe that this will endanger the freedom of the medical profession and the continuance of independent practice. It is a fundamental right of a free people that they should be able to obtain independent professional advice and help. This can only remain available if the professions retain their freedom, and independent practice continues. Independent practice is a large factor in ensuring the freedom of a profession, for it makes certain that a number of practitioners remain at liberty to state their views freely and publicly and without regard to departmental approval or disapproval. They also remain free to give independent advice without regard to any other considerations than the patient's interests.

If insurance for personal medical attendance were made compulsory only for the present insured classes and their dependants, while others were given the option to insure instead of only the option not to use the service, the continuance of independent practice would be assured. It would also be known how many persons wished to be included in the scheme. This would simplify the problem of deciding on the remuneration of insurance practitioners, with fairness on the one side to the insurance fund and the Exchequer and on the other side to the doctors and contributors. It is surely more reasonable to allow those outside the present insured categories the option of insuring than to give them the option of not claiming benefit, and making independent arrangements when needing medical attention.

Insurance for personal medical attendance is different from all other measures of social insurance and cannot be compared with institutional treatment, disability and unemployment pay, children's allowances, maternity benefit, old age pensions, burial allowances, or other social benefits. Social insurance contributions must necessarily differ for different categories of the community, and it is consistent with such variations for insurance for a general practitioner service not to be compulsory for all.

It should always be borne in mind that ultimately it will be for members of the medical profession to decide whether they are willing to enter into contracts carrying the liability to attend any member of the community on a capitation basis whatever his financial position. It has still to be ascertained whether the number of doctors prepared to enter into such contracts will be sufficient to enable the Government to provide a universal service for which they at present propose to levy contributions.

Another danger of making insurance for personal medical attendance universal in its application is that it may eventually steer us towards a whole-time salaried service. The original scheme of the Ministry of Health was such a whole-time service, and, in the course of a human generation, it would have destroyed the freedom of the profession and converted it into a public service. That scheme was rejected by the profession and was discarded, but the same result may be achieved by other means, and there are signs of such tendencies in the plans outlined in the White Paper. It is not surprising, therefore, that there is uneasiness lest this is still the goal aimed at. That uneasiness is increased when Socialists make it perfectly plain that it is definitely their objective.

Another important point is to link the general practitioner service with the insurance contributions. The hospital services should be maintained out of rates, taxes, and voluntary contributions and be open to all. The general practitioner service, which would be open to contributors, should be maintained almost entirely out of insurance contributions. Thus the doctor–patient relationship would not be disturbed and voluntary contributions to hospitals would not be discouraged by every insured person being told that he had already contributed directly to their maintenance.—I am, etc.,

London, W.1. ALFRED WEBB-JOHNSON.

Public Pronouncements

SIR,—At a meeting of the Socialist Medical Association, held at the Caxton Hall on March 15, Dr. Somerville Hastings is reported to have said: "To extend the 'panel,' as is proposed, means the continuance of two sorts of patients —the private, who enters by the front door and is seen at once, and public, which comes in at the back and has to wait long periods—and two sorts of treatment as well" (*Yorkshire Post*, April 16).

I should like to ask on what grounds Dr. Hastings makes this statement, which shows such a deplorably low opinion of his professional colleagues. After many years in practice I have no knowledge, except isolated instances, of the practices mentioned, and I believe the body of panel doctors to be honourable men who are anxious to serve their patients and would never descend to such methods.

Dr. Somerville Hastings is president of the Socialist Medical Association and his speech will be widely read. It is unfortunate, likely to mislead the public, and to unfairly discredit the panel service.

My attention was recently arrested by a speech of another high officer of the Socialist Medical Association—Dr. Stark Murray, vice-president. Speaking at a public debate in Sheffield he is reported to have said: "The politicians in the B.M.A. wanted the Advisory Council to be elected by the doctors because they wished to use it as a political weapon" (*Sheffield Telegraph*, Jan. 29).

I gathered, in listening to Dr. Stark Murray's speech, that he himself is no mean politician, and probably is a better judge of that class than I, but again is it not deplorable that doctors in prominent positions should hold such a low opinion of their professional brethren? Dr. Murray's statement was made in replying to the debate, when no further comment could be made.

Men of scientific training have a special responsibility in maintaining a high standard of controversy, which is possible even in political warfare.—I am, etc.,

Sheffield. HENRY BROWN.

Medical Demobilization

SIR,—We should be grateful for information whether demobilization of medical personnel is to march in step with demobilization of the executive branches. This would appear on the surface not to be the case, as medical officers of the earliest demobilization groups are still being sent out to this command. Should any such selective demobilization be under consideration, as is most strongly suggested on this evidence, then the so-called demobilization scheme would be a mockery and give rise to much discontent.

While it is appreciated that the Services will not wish to lose their more senior and more experienced reserve medical officers, there appears to be no reason why a system of mutual exchange with E.M.S. personnel of a similar professional standing should not be put into operation.

It may be argued by the Services on behalf of the retention of senior M.O.s that the introduction of new personnel at this stage of the war would be detrimental to the efficiency of the Service. This argument obviously can hold no water professionally. It is equally obvious to most of us that Service routine is far less of a mystery than it is sometimes claimed to be, and it can be picked up quite quickly.

With the defeat of Germany in the not too distant future, we feel that, like us, the attention of many long-service M.O.s is being drawn to the suggested scheme of demobilization by groups. We consider that it is high time a definite announcement was made to serving M.O.s about the likelihood or otherwise of a return to civilian life, on a par with the return of other members of the Forces. A statement that one's chances of demobilization will depend upon "the exigencies of the Service" is, we consider, a vague, utterly ill-defined term, and is redolent of one of those all too common bits of Service jargon which are completely meaningless.

We feel certain that no serving M.O. will be satisfied with this equivocal answer; and the advent of high-priority M.O.s on this station suggests that the medical personnel of the Services are not to be represented on the age and length of service scheme for demobilization.—We are, etc.,

S.E.A.C. "TWO NAVAL DOCTORS."

Homoeopathic Medicine Group

SIR,—What a really charming thought it is that the homoeopaths should have their own Group for the better discussion of their—"specialty" I think was the word. Tolerance is everything, and scientific medicine should not be so narrow-minded as to exclude those who live by faith alone. But must it remain there? Cannot the osteopaths have a group, too, and the chiropractors, if any happen to be members of the B.M.A.? And there must be a few modest naturopaths here and there, too shy to ask themselves. Will no one speak for them?—I am, etc.,

Ashtead, Surrey. W. EDWARDS.

War Gratuities

SIR,—Many of your correspondents deplore at length the proposed financial awards to officers of the R.A.M.C. on demobilization and compare their lot unfavourably with that of civilian medical practitioners. They speak also of the "professional suicide" of their lives as serving officers. I should like to point out that, at any rate in the case of those who joined the Army in 1939, ours was a voluntary enlistment. If some doctors preferred to forgo, or were otherwise debarred from, enjoying the privilege of serving their country, the loss is theirs and ours the greater honour. That should suffice for most people.

With regard to the phrase "professional suicide," I would like to point out that I have been successively a regimental M.O., a prisoner of war, and general duty officer in a hospital, and at no time have I found that my duties if rightly carried out were other than such as would provide a range of variety and interest sufficient for any reasonable person. Almost all members of the Forces with the exception of medical and dental officers are completely divorced from their civilian occupations or are liable so to be. To us alone is granted the amazing good fortune of continuing our own work while serving in the armed Forces of the Crown, and, in addition, of being paid more than combatant officers of the same rank whose lives are infinitely more hazardous and strenuous than our own.

Surely these facts indicate that we should be humbly grateful for our good fortune rather than that we should complain and ask for greater blessings.—I am, etc.,

CHARLES ILIFFE,
Capt., R.A.M.C.

Wartime Appointments to Public Health Posts

SIR,—Some doctors may have managed to evade service, but there are very few in the public health service who have not come under the vigilant eye of the L.M.W.C. "Ex-Service M.O." (April 7, p. 54) overlooks the fact that it is very difficult to get any male medical officers for junior posts in this service, and most of these positions are now held by women, who are, indeed, more suitable for antenatal and maternity and child welfare work.

At the beginning of the war there were a certain number of men between the ages of 35 and 45 who had some slight disability which made them unfit for the Services. Perhaps these men had spent a large part of their lives in public health work and had managed to gain a senior position as deputy M.O.H. Not being 100% fit for the Services they worked in departments which were grossly understaffed or staffed by alien doctors in a greater or lesser degree. When the war ends they will be 41 to 51, and unless they get promotion during the war no local authority will employ them as medical officers of health at this age. Their position will be far from enviable, having devoted their lives to public service, to know that it has been all in vain to achieve the highest position.

Those men who were in posts when they volunteered or were called up rightly have those posts reserved for them. But what about the senior posts? The men entering the public health service after the war will find plenty of junior posts when the aliens return to their own country, but "Ex-Service M.O.," from the tone of his letter, seems to decry anyone who is not 100% fit and cannot join the Forces getting a permanent position. Most men now appointed to M.O.H. posts are relieving others in the Services, but of necessity there must be some permanent appointments.

Again "Ex-Service M.O." forgets the war duties thrown on the medical profession in local government and civil defence work: mass immunization, etc.; often called on to work through the "blitz," tunnelling under debris to inject morphine, night after night—such has often fallen to the lot of the public health doctor, who next day carries on his normal routine. Many "civilian" doctors have done as good a job for their country as some in the Services, and there are very few who would not rather be in uniform. While I fully agree that in some cases young men may have been appointed by local authorities to permanent posts, it should be borne in mind that such appointments are under the supervision of the Ministry of Health, whose sanction is needed, and in many cases appointments have been "squashed" by higher authority.

I am all for the ex-Service man's "rights," but he should view matters with a broad outlook and remember that his older colleague who gets one of the few permanent appointments is often also an ex-Service man of 1914–18.—I am, etc.,

London, E.C. EX-DEPUTY M.O.H.

Service Medicine as a Career

SIR,—Having followed the correspondence on medical demobilization and rehabilitation I am tempted to put in a word or two about those medical officers who would like to make the Service their career. While it cannot be denied that the majority of doctors who have served for several years have lost much clinical acumen, I must disagree with the assertion that "Service procedure" can be learned inside a couple of weeks. The duties of the Service medical officer, including, in the case of the R.A.F., the care and supervision of flying personnel, entail considerable specialized knowledge and experience. In my opinion "Service procedure" is a life-study, and to replace Service medical officers on any scale, despite the clinical experience of their successors, would hardly contribute to the existing Service medical standards.

At the same time, those of us who desire to remain in the Service have an equal need for the opportunity of further studies, particularly those who came in straight from university or an initial hospital appointment. The problem this must present to the Service medical authorities is fully realized, but I feel that many medical officers would prefer to continue using their Service experience to advantage were they given the prospect of postgraduate study before they, and the war, were much older.—I am, etc.,

E. HOPE LAMB,
Squad. Ldr., R.A.F.O.

Hospital Appointments and Serving Medical Men

SIR,—The University of Durham have recently indicated that they were prepared to appoint a professor of surgery, but would make no appointment until they were satisfied that persons serving overseas would have had a full opportunity of applying, and that the person appointed would not be required to take up his duties until such time as he was released from the Forces. The University of Manchester have also made a similar proposal regarding the professorship of medicine. On the other hand, I understand the University of London intends to fill the chair of psychiatry immediately —a proposal against which there has been a most justifiable outcry.

During the past few years while serving in the Forces I have been greatly struck and distressed by the very large number of brilliant young medical men, the majority of whom are married and have families, who have no assured position to which to return when hostilities cease.

My object in writing this letter is to suggest that a committee, analogous to the Central Medical War Committee, which by and large has done such good work, should be formed for the purpose of assisting to fill the numerous vacancies that will occur in the near future: there having been no appointments to the majority of the staffs of the voluntary hospitals since 1939. This committee could be constituted and act in various ways. My idea is that it should be formed mainly of serving medical men who are already on the staff of voluntary hospitals. These men know both the capabilities of the applicants and the requirements of the hospitals. The teaching hospitals, as such, would have no direct representation on the committee, as it could obtain any additional information the members might require from the various deans with whom the committee would be in close contact.

All voluntary non-teaching hospitals and the teaching hospitals who do not wish to select their staff necessarily from their old students would be asked to participate in the scheme, and to state how many vacancies would exist at the end of 1945. A list of these vacancies would be compiled and applications invited from serving medical men (a proportion of vacancies could be reserved for those in the E.M.S.), who would be asked to select three or four posts in order of preference. This committee would examine the applications and forward to the various hospitals a short list from which they could select the candidate whom they thought most suitable.

This scheme, if carried out, would have two main functions. It would give serving medical men, who have sacrificed so much, a feeling of security and an assurance that they were not forgotten, and it would also be an alternative to the idea of full-time State medicine, to which at present a large number are attracted for the sole reason that there appears to be nothing else. I feel that it is only those who are at present serving who realize how uncertain the future appears to those who have had almost six years of war and are now approaching middle age.—I am, etc.,

ARTHUR L. MCCURRY,
Hon. Ophthalmic Surgeon, Leicester Royal Infirmary.

Use of Mydriatics by Sight-testing Opticians

SIR,—I understand there is an agitation by the sight-testing opticians to obtain the right to use drugs in the refraction of the eyes. I am rather puzzled at this. Who has the power to give any layman, however skilful and clever, the right to do something which is in the province of the medical man? Surely only an Act of Parliament or an Order based on an Act and made by a responsible Minister can give that right. If no such Act be necessary and someone has the power to hand out this right, possibly after some form of examination, where is this going to end? Will it be the use of sedatives next, such as the barbiturates, or perhaps local analgesics? It is only the first step which counts; the rest is easy. The medical profession is open to anyone who will expend time and money and has the brains to enter it without trying the back door.—I am, etc.,

London. FRANCIS E. PRESTON.

Medical Man-power

SIR,—One is led to presume that the nation's call on doctors is not by any means yet over. Is the Regional Medical Officer part of the nation's call? I was surprised to receive an intimation from the local insurance committee that this inquisition was to start again towards the end of April.

Who can benefit by this? The answer can only be the approved societies, at whose behest the Ministry have no doubt decided to revive this useless branch. This is a reminder of the power of these societies and a foretaste of things to be expected from the "Minister," held up by many of our profession as a kind of infallible, omnipotent deity.

Has the Central Medical War Committee decided there are now enough medical men to be spared for this? Have they, in fact, been consulted at all?—I am, etc.,

Dudley. A. W. WESTON.

BRITISH MEDICAL ASSOCIATION

Change of Title of Kensington Division

Notice is hereby given to all concerned that the Council has changed the name of the Kensington Division to "Kensington and Hammersmith Division," the change to take effect from the date of publication of this notice.

CHARLES HILL,
Secretary.

Branch and Division Meetings to be Held

SHROPSHIRE AND MID-WALES BRANCH.—At Royal Salop Infirmary, Tues., May 1, 3.30 p.m., B.M.A. Lecture by Dr. Frank S. Airey: Skin Diseases in General Practice.

H.M. Forces Appointments

ROYAL ARMY MEDICAL CORPS

Major J. F. W. Meenan has retired on retired pay, on account of disability, and has been granted the honorary rank of Lieut.-Col.

Short Service Commission.—Lieut. (War Subs. Capt.) J. P. Scrivener, from Emergency Commission, to be Lieut., and to be Capt.

SUPPLEMENTARY RESERVE OF OFFICERS: ROYAL ARMY MEDICAL CORPS

War Subs. Major (now War Subs. Lieut.-Col.) B. E. Schlesinger, to be a Consultant, and has been granted the local rank of Brig.

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs. Major H. M. Moran has relinquished his commission, and has been granted the honorary rank of Lieut.-Col.

War Subs. Capt. H. H. Watts has relinquished his commission on account of disability, and has been granted the honorary rank of Capt.

Lieut. V. P. McAllister has relinquished his commission, and has been granted the honorary rank of Lieut.

WOMEN'S FORCES

EMPLOYED WITH THE R.A.M.C.

War Subs. Capt. (Mrs.) M. Bradley has relinquished her commission.

The following M.O.s have been granted commissions in the rank of Lieut.: Laura J. Babst, Katharine N. Bentley, Elizabeth F. Cullis, Minnie K. Herring, Isobel M. Kerr, Margaret P. Laxton, Pearl A. I. Macleod, Alys P. Nelson, Lisbeth A. Redlich, Gwenllian E. Rees, Margaret S. Stevenson, Ambrosine B. Vaughan, and Inez M. Y. Petrie.

ROYAL AIR FORCE

AUXILIARY AIR FORCE RESERVE OF OFFICERS

Wing Cmdr. (Temp.) A. C. Fraser to be War Subs. Squad. Ldr.

ROYAL AIR FORCE VOLUNTEER RESERVE

Wing Cmdrs. (Temp.) G. A. Jamieson and D. F. E. Nash to be War Subs. Squad Ldrs.

Fl. Lieut. A. Craig has relinquished his commission on account of medical unfitness for Air Force service, retaining his rank.

Fl. Lieut. N. F. Murphy has resigned his commission retaining his rank.

Flying Officers K. T. Acton, M. Mendick, S. C. Rexford-Welch, R. J. C. Southern, and R. W. Watson to be War Subs. Fl. Lieuts.

WOMEN'S FORCES

EMPLOYED WITH THE MEDICAL BRANCH OF THE R.A.F.

Squad. Ldr. P. M. Fraser has resigned her commission.

MEDICAL WAR RELIEF FUND

SIXTY-SEVENTH LIST

Amount previously acknowledged £55,715 2s. 10d. *and* £100 3½% *Conversion Stock and* £40 3% *Defence Bonds.*

Individual Subscriptions

£10 10s.—Dr. A. L. Bastable, Harrogate (2nd donation).
£5 5s.—Miss McArthur, London (2nd donation).
£4 5s.—Dr. K. Lindenbaum, London.
£2 2s.—Surg. Lieut.-Cmdr. S. G. Hamilton, R.N.V.R.; Dr. W. E. Moody, London (4th donation); Dr. A. G. F. McArthur, London (3rd donation).
£124.—Hon. Medical Staff, Stratford-on-Avon General Hospital.

Local Medical and Panel Committees

£50.—Herefordshire (2nd donation).
£44 11s. 6d.—Newcastle-upon-Tyne (15th donation).
£43 9s. 10d.—Ayr County (17th donation).
£32 15s. 11d.—Midlothian (17th donation).
£20 8s. 4d.—Dunbarton (17th donation).
£19 4s. 11d.—East Lothian (16th donation).

Total—£56,675 19s. 4d. *and* £100 3½% *Conversion Stock and* £40 3% *Defence Bonds.*

Sums for Books for Prisoners of War

Amount previously acknowledged £216 14s. 6d.

Cheques, payable to the Medical War Relief Fund, should be sent to the Hon. Treasurer of the Fund, British Medical Association House, Tavistock Square, London, W.C.1.

POSTGRADUATE NEWS

A series of lectures on ophthalmology began in the Department of Ophthalmology of the University of Glasgow on April 25, and will be continued on Wednesdays at 8 p.m. until May 30. Details of the remaining lectures will be published in the Diary Column of the *Supplement* week by week. A discussion follows each address, and the meetings are open to all medical practitioners and senior students interested in ophthalmology.

WEEKLY POSTGRADUATE DIARY

EDINBURGH POSTGRADUATE LECTURES.—At Edinburgh Royal Infirmary, *Thurs.*, 4.30 p.m., Prof. T. Ferguson: Employment and Health.

GLASGOW UNIVERSITY: DEPARTMENT OF OPHTHALMOLOGY.—*Wed.*, 8 p.m., Dr. G. H. Bell: Vision and Sound in Cinematography.

DIARY OF SOCIETIES AND LECTURES

ROYAL SOCIETY OF MEDICINE.—*Tues.*, 5 p.m., General Meeting of Fellows; 5 p.m., Section of Orthopaedics. *Wed.*, 2.30 p.m., Section of History of Medicine; 4 p.m., Section of Surgery. *Fri.*, 10.30 a.m., Section of Otology; 2.30 p.m., Section of Anaesthetics; 2.30 p.m., Section of Laryngology.

BIRTHS, MARRIAGES, & DEATHS

The charge for an insertion under this head is 10s. 6d. *for* 18 *words or less. Extra words* 3s. 6d. *for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.*

BIRTHS

FAWKES.—On Easter Sunday, April 1, 1945, at Families Hospital, Secunderabad, India, to Hilary (*née* Holton), wife of Capt. M. A. Fawkes, I.M.S., a son—John Edward.

HAGGIE.—On April 15, 1945, at Stamfordham, Northumberland, to Capt. and Mrs. Haggie, a son.

HUTTER.—On March 3, 1945, to Mary (*née* Squiggles), wife of Surg. Lieut. Duncan Hutter, R.N.V.R., a son—Christopher Duncan.

MORSE.—On April 14, 1945, at Twyford Nursing Home, Bognor, to Hilda and Dr. P. W. Morse, a son.

TANNER.—On April 8, 1945, at Hammersmith Hospital, to Evelyn Winifred (*née* Glennie) and Norman Tanner, a son.

DEATH

CHAPMAN.—On March 16, 1945, suddenly, at Winnipeg, Manitoba, Theonie Rennée Chapman, M.B., B.S., B.Sc., sister of Cedric Burrell, Crofton, Twyford, Winchester, Hants.

SUPPLEMENT TO THE

BRITISH MEDICAL JOURNAL

LONDON SATURDAY MAY 5 1945

HEARD AT HEADQUARTERS

A Deputation to Mr. Butler

Since the letter from the B.M.A. to the Minister of Education was published in the *Supplement* a fortnight ago Mr. Butler has reconsidered his decision and has agreed to receive a deputation on the much-debated question of the school medical service under the new Education Act. The overriding consideration which the deputation will urge upon him arises, of course, from the unprecedented shortage of doctors, which makes it impossible to meet to the full the requirements under the new Act.

The shortage is indeed recognized in Circular 29 which the Ministry addressed to local education authorities a few weeks ago. The latter were, in effect, told to "go slow" in this matter. The position, however, appears to be that certain education authorities, quite properly and legally from their point of view, are ignoring the advice to go slow, and will try by setting up clinics, etc., to meet at once the full demands of section 48 (3). What the Association is anxious to do is to ensure that advantage is not taken of the present situation to change the face of medical practice in advance of the Government's declared intention to introduce a comprehensive health service as part of its reconstruction policy.

If the Minister is unwilling to introduce amending legislation postponing these provisions of the Act—and the unwillingness of any Minister to do so when an Act is less than a year old is understandable—the deputation will point out that any development should recognize the shortage of doctors and should be a matter, in each area concerned, for consultation with the local general practitioners. Though the service cannot function completely, there is every reason for integrating general practitioners into the school medical service even in the interim stage.

The General Practice Committee of the B.M.A. held a special meeting last week, when almost the only business was consideration of this matter.

Medical Man-power

Not even the most prejudiced person, presumably, will accuse the Association of raising a fictitious issue in the shortage of medical man-power, which affects so many matters of medical concern to-day. This shortage stares everybody in the face. What is more, it is likely to continue for many months to come. It is said that no general demobilization of doctors can be expected in the near future, that the Services will still exact their full quota, and that for as many as doff their uniform there must be an equal number who put it on. The war in Asia will call for reinforcements, perhaps, before the war in Europe is ended, and in Europe the occupation armies will need full medical service. Then there are other tasks—U.N.R.R.A., for example, and, at home, a multitude of new duties relating to resettlement and rehabilitation. The shortage of doctors and the pressure upon them are no myth, and the same thing applies to nurses and other auxiliary services. It will be one of the outstanding features of the situation for a very long time.

Approximations

Complaints have been received from members of the B.M.A. of the inadequate fees paid to civilian medical practitioners for occasional attendance on Service personnel and Italian prisoners of war. At its last meeting but one the General Practice Committee resolved to open up discussions with the War Office and other Service Departments on the subject. It suggested an increase of fees to 5s. for attendance at the surgery, 7s. 6d. a visit if not more than two miles away, 15s. for a night visit, and mileage at 1s. a mile (one direction only). The War Office reply, which was communicated to the committee last week, goes about half the distance. It thinks 33⅓% increase on pre-war fees will meet the case—4s. for surgery attendance, 6s. for day visit, 9d. a mile, and for a night visit the wholly inadequate fee of 8s. It has been decided to send a deputation to discuss the matter.

Doctors' Cars

Doctors' cars get worn out sooner than most, and replacement is now difficult. Recently some representatives of the B.M.A had a frank talk about this at the Ministry of Transport. No new cars are being issued at present for civilians, but the Ministry gave an assurance that as soon as new cars are available the Association will be informed of the steps necessary to obtain priority in delivery. At the same time there are a certain number of cars which are surplus to Service requirements, and after being reconditioned may be available for those who can establish prior claims, and at prices not unreasonable compared with those in the used-car market. The demand for these cars will certainly be greater than the supply, but the Ministry promised to give a high degree of priority to doctors.

Equal Pay

The B.M.A. committee on equal pay, under the chairmanship of Prof. Picken, performed a very useful service in preparing a memorandum of evidence for the Royal Commission. The task was not difficult, because the policy of the Association in this matter has been clearly laid down; but the committee put the matter succinctly on the ground of national policy that there should be full equality between medical men and women in pay, terms of service, and opportunity for work. As regards married women doctors holding appointments, where in some cases the demands of home and children may introduce difficulties, it was suggested that the question was an individual one, to be considered in each case by the officer concerned and her employers, not a question to be settled by the old rigid rule of compulsory retirement on marriage.

One other point has arisen more lately. Some time ago the Medical Women's Federation drew attention to the difference in the cost-of-living bonus based on the Civil Service scale for men and for women doctors in L.C.C. appointments. The bonus is now 23s. a week for men and 18s. 6d. for women on salaries up to £1,500. The Council of the B.M.A. felt that this raised wider issues, beyond the sphere of professional activities, and that it could take no effective action. Further protests have since been made against the sex difference, and it has been pointed out that in so far as the cost-of-living bonus is a form of remuneration—and the bonus is not given for services rendered, but to meet the increase in cost of living—the Association is bound by its declared policy against sex differentiation. The Committee on Equal Pay draws attention to the anomaly, but it realizes that the Commission, to which its memorandum is addressed, is not primarily concerned with this matter.

SOME COMMENTS ON THE REPORT OF THE GOODENOUGH COMMITTEE ON MEDICAL SCHOOLS

BY

H. J. McCURRICH, M.S., F.R.C.S.

The medical members of the Goodenough Committee were, with one exception, teachers, the exception being the Principal Medical Officer to the Ministry of Health. One would expect, therefore, a certain bias in favour of the present arrangements and an extension of them. In the report of this committee a good deal of lip service is paid to the training of students to become general practitioners. It is stated that a general practitioner should "be competent to diagnose and treat all simple disorders, including milder forms of mental ill-health, etc. . . ." (para. 5, p. 40).

Now, does the present training fit him to do so? It is hard to see what justification can be found for the hours that students stand in serried ranks watching such operations as partial gastrectomy, thyroidectomy, abdomino-perineal excision, Fothergill's repair operation, etc. Instruction in this detail is not given by a competent instructor in such an operation as circumcision, nor in the treatment of conditions like sprained ankle, tennis-elbow, painful feet, warts, etc.

The financial success of "foot clinics" and manipulations of various types must be taken as a measure of the failure of the medical profession. I remember talking to a fellow member of a lawn-tennis club who told me that he had had his tennis-elbow cured by a bone-setter. I asked him why he did not consult his doctor. He said: "What would have been the use? He would only have put iodine on it." Knowing the doctor, I dare say he was right. Many patients whose doctors have failed to treat some more or less trivial but very disabling lesion have found relief from the unofficial practitioner. I don't want to exaggerate this, but equally it is futile to deny it.

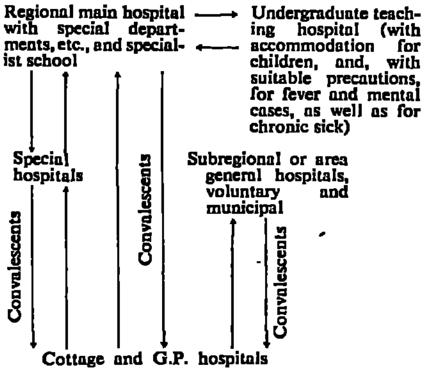
What experience of mental disease does the average medical student get? The visit to the asylum in my day was looked upon as a picnic, and "anyway they were never asked about it in the final." The same is largely true of children's diseases, skin diseases, and fevers.

Whether this is due to specialization of the staff with many special departments making it impossible for the students to work in each, or to jealousy of these special departments by the general physicians and surgeons, who retain students in the general wards as long as they did before special departments were created, is a matter of opinion. This jealousy and reluctance to part with work are often carried to curious lengths. I remember a senior surgeon in a teaching hospital who, while accepting responsibility for treating fractures, never looked at the cases, but left them to his house-surgeon, who, presumably, learnt from a previous house-surgeon; yet this same senior surgeon opposed the formation of a fracture clinic. Whatever may be the reason the students' work in such special departments as those for children's diseases, psychiatry, orthopaedics, E.N.T., is limited as a rule to a few out-patient sessions.

Obstetrics, which should form an important part of general practice, is passing, in the case of the poor, into the hands of midwives, and, in the case of the rich, into the hands of specialists. I am not referring to complicated but to normal confinements. In part this is due to inadequate experience before entering practice.

Scope and Duties of Teaching Hospitals

I feel that the failure to produce the best possible G.P.s is the result of a muddled outlook and conception of the duties and scope of a teaching hospital. At present it claims to be: (1) an institution for the training of undergraduates; (2) the pinnacle of the hospital system with the best exponents of the most difficult techniques; (3) a place of training for postgraduates. Are these functions compatible with each other or contradictory? I believe they are contradictory. Assume for a moment that I am correct. An entirely new conception of the hospital problem will be required. The teaching hospital will be a special hospital, and will be on a side-track or bracket of the hospital system. I would suggest the following scheme:


Regional main hospital with special departments, etc., and specialist school
Undergraduate teaching hospital (with accommodation for children, and, with suitable precautions, for fever and mental cases, as well as for chronic sick)
Special hospitals
Convalescents
Convalescents
Subregional or area general hospitals, voluntary and municipal
Convalescents
Cottage and G.P. hospitals

I admit that this is a novel idea and will therefore be viewed with suspicion, but consider the possibility of this scheme being adopted. In the regional main hospital: (1) technique will not be hampered by clumsy and inexperienced assistants; (2) specialization need not be determined by the needs of students but only by the welfare of the patients; (3) team experiments in specialization and technique will be possible; (4) there will be no harm in clinicians interested in a special condition collecting a series of cases. Thus a cardiologist will be able to fill his beds with heart cases, and not be compelled to take in a variety of others in which he takes little interest and for which no one consults him in private practice, just to provide general clinical material (though possibly not instruction) for students. In such a hospital the postgraduate anxious to specialize will find his opportunity.

In the teaching hospital it will be possible to deal with the common conditions, but payment of the staff will have to be on an entirely different basis, because they will be training undergraduates to treat the cases and not impressing future customers with their skill or wisdom! At present clinicians seek election to the staffs of teaching hospitals because it leads to a good consulting practice through the prestige it confers and the contact that is made with the future doctor. For these benefits the holder of the appointment must give up a certain amount of time, more or less unremunerated, to teaching. Some pay this price more readily than others. Some like teaching, but others are apt to place their private practice first, to be irregular in their attendance at the teaching hospitals, to cancel classes, and to take little trouble with the students.

Multiple Appointments

It has been suggested that in any scheme of liaison with the non-teaching hospitals "specialists and consultants on the staffs of teaching hospitals . . . will not as a rule be able to undertake regular duties in non-teaching hospitals" (p. 15 (2)). The question of multiple appointments is just touched upon in this report (para. 45, p. 75), but it has already given cause for anxiety to those interested in medical education. There has been an increasing tendency in the last 50 years for clinicians on the staffs of teaching hospitals to acquire appointments in cottage or suburban hospitals as well. Why has this tendency arisen, and how does it affect the teaching hospital? It has arisen because, with the growth of these hospitals and the private beds usually attached to them, much of the private work in the area, especially the small- or medium-fee cases which form the backbone of any practice, is done at those hospitals. In return for his unpaid hospital work the consultant is given more or less a monopoly of the private work of that hospital and the area for which it caters.

How does this affect the teaching hospital? Complaints have been made that clinicians on the teaching hospital who hold appointments on suburban hospitals are apt to give the latter priority. If a doctor, who may be a good client, wants the services of the consultant urgently at the cottage hospital, the consultant is compelled to go there, and get a deputy to do his work at the teaching hospital. If he does not, the cottage hospital might have to appoint a second consultant and he would lose his monopoly. In some cases serious complaint has been made that the holders of teaching appointments are gravely neglecting their duties at the teaching hospital for these reasons.

A further cause for seeking additional appointments is the lack of a suitable population around the teaching hospital or in the area mainly supplied by it to provide private practice. The reason for this is either, as in the case of Central London, the population has left the area or the hospital has moved to a poorer district where its gratuitous service is more needed but the possibility of building up a consulting practice is diminished. The growth of provincial hospitals and consulting areas further diminishes the scope of the private practice of the teachers.

The problem, therefore, is really economic. So far as I know, in no other profession is teaching carried on in this way. In other professions students are not taught in the hope that they will become future clients; teaching is a profession in itself and the remuneration of the teacher is for teaching. This would probably mean that the "stars" of the profession would not teach. One does not go to the Albert Hall to hear a recital by a professor of music. In engineering, such projects as the Forth Bridge or Sydney Bridge were not designed by a member of the staff of an engineering school. The same applies to law, though in both engineering and law there are modifications due to the apprenticeship system.

Would the withdrawal of the best performers from undergraduate teaching really diminish the value of the teaching? I believe that far from doing this it would enable teachers, appointed and paid for teaching without ulterior motives, to pay particular attention to those who are to become G.P.s, to inculcate principles, and to stress the details of such treatment as a G.P. should be able to give, rather than to use valuable time in teaching the details of proceedings the student will not himself undertake.

A school founded on these lines should produce good G.P.s, and this should in every case be the first objective of the medical student. The suggestion in the Goodenough report that Oxford should cater specially for students who can be expected to become "teachers, investigators, and consultants rather than general practitioners" (para. 14, p. 23) is a most pernicious one. Is it possible for the student at the outset of his career to say for himself if he is likely to fall within these categories? Or would it be possible for anyone else to predict it for him? Can one say in medicine that ev[illegible] is born a consultant or G.P.?

That such a step is approved by the Goodenough Committee is deplorable, and seems to reflect a very narrow outlook. At present G.P.s are trained entirely by consultants who, as a rule, have never been in general practice. This tends to put general practice in the position of being a calling for those unable or unfitted to become consultants, and the Oxford suggestion crystallizes this outlook.

No doubt recent tendencies and State medicine tend to limit the doctoring by the G.P. while increasing his clerical and "sorting" duties. The limitation is part of a cycle. He is in many cases, as in the Army, limited to doing almost nothing, because what he did, he did so badly;—he did it badly—e.g., the injection of varicose veins, haemorrhoids, etc.—because he was taught by those who were not interested in such things, and he either never learnt or learnt from juniors who were not competent to carry out these procedures.

General practice has possibilities of being the most interesting branch of the profession, and if students were properly taught to become G.P.s it would no longer be looked upon, as it appears to be from this report, as the rubbish dump for those who fail to become consultants or specialists. The possibility of the more experienced and able G.P.s acting as consultants to juniors, or the reintroduction of some form of apprenticeship, should be borne in mind.

If the undergraduate schools were remodelled with these aims in view it would be desirable to appoint a number of general practitioners to the staffs of teaching hospitals. Such undergraduate hospitals would, in addition, cater for G.P.s requiring postgraduate refresher courses. Postgraduate instruction for specialist and consulting practice would be given elsewhere. Here the "main hospital" in my scheme would be the natural centre, together with special hospitals. The candidate for specialization would have already a wide general training upon which to build up his specialty. In fact many believe that a year or two as a general practitioner before starting specialism would be all to the good. On the other hand, time is a factor, and either a specialist would have to be supported financially during his training or the subsequent pay would have to be such that it would justify his having lived for so long on his own means, or, as many have done in the past, lived from hand to mouth by "deviling," coaching, etc., until he made good. The remuneration of consultants under a national scheme has not been discussed, but, judging by past and present Government payments, it seems unlikely that it will be enough to entice a man to spend, say, ten years in unpaid, or almost unpaid, hard work to attain it.

These, then, are some of the reasons for believing that undergraduate teaching should have a special place, and should be regarded as a career and not as a side-line to consulting practice. And if this view is accepted the training of specialists and consultants should be conducted elsewhere after graduation. There seems no justification for the view that specialists should be trained to be so from matriculation days.

HEALTH POWERS OF LOCAL AUTHORITIES

ENVIRONMENTAL AND PERSONAL SERVICES

The possibility of changes in local government following upon a National Health Service Act, together with transfers and enlargements of functions of local bodies, and adjustments of area boundaries for all or for certain health purposes, makes it useful to set out briefly the present health powers of local authorities. Such powers derive from a number of Acts of Parliament, dating back for a hundred years. Systematic sanitary legislation began with the Public Health Act, 1848, which was inspired by Chadwick. The principal Act until recently was that of 1875, now repealed and re-enacted in the Act of 1936. Public health services may be roughly classified into environmental and individual, the former presenting the first and most obvious field. Only in this century has there been any large invasion of the domain of personal health. The major local authorities are now owners and administrators of large hospitals, not only, as was formerly the case, institutions for the sick poor, for mental disorder, and for infectious illness, but general hospitals for every type of case.

The prevention and treatment of disease is distributed among various types of local authorities—public health, education, and public assistance committees, which are committees of the elected authority, and, on a different basis, insurance committees administering the National Health Insurance Act. The environmental services of local authorities make a lengthy list. They include the inspection and abatement of nuisances, not forgetting smoke and atmospheric pollution; drainage, sewerage, and sewage treatment; street cleansing and refuse disposal; regulation and inspection of common lodging houses and of a large number of workshops and workplaces; the provision of open spaces; inspection under the Housing Acts; slum clearance schemes; investigations into the particular sanitary circumstances of hospitals, schools, institutions, and other premises; the cleansing of verminous persons, premises, and articles; and a periodical review of the sufficiency and wholesomeness of the water supply (80% of the water undertakings of the country are in the hands of local authorities).

Under the Food and Drugs Act, 1938, the responsible local authorities are the county and county borough councils and the councils of boroughs and urban districts with populations of over 40,000, while authorities with populations down to 20,000 may apply to the Minister to become, or remain, food and drug authorities. The powers of local authorities in the matter of food protection are extensive; they cover every article used in the composition and preparation of food, and the control of slaughterhouses and of premises used for the manufacture and sale of certain specified foodstuffs. An Act of 1944 transferred to the Ministry of Agriculture the function of health authorities concerning the conditions under which milk is produced on the farm.

The housing powers of local authorities include the provision of working-class houses, control over the dimensions of inhabited rooms, and the provision of sanitary conveniences. Councils are required to arrange for surveys of their areas to ascertain any houses which may be unfit for human habitation, or any in which there is overcrowding according to the standard laid down.

Control of Infectious Diseases

The powers of local authorities in respect of infectious diseases originated with the old boards of guardians, whose powers passed to the present local authorities under the Local Government Act, 1929. A number of diseases have to be notified to local authorities, and it is within their power, with the Minister of Health's approval, to make local additions to the list. Every medical officer of health has to furnish each week to the Registrar-General a return of all cases of infectious disease notified in his district. The measures which a local authority may adopt in order to control the spread of epidemic disease are isolation of the infected person, search for the source of infection, observation of contacts, disinfection, and, in appropriate cases, vaccination. Infant vaccination against smallpox is compulsory, but during the last forty years there has been little or no effort to compel the observance of the Vaccination Acts.

Most local authorities, acting under the Public Health Act, 1875, or the Isolation Hospitals Act, 1893, have provided hospital accommodation for cases of infectious disease. Treatment in such hospitals is provided by councils of boroughs and of urban and rural districts, but not usually by county councils. Under the Local Government Act, 1929, county councils were given the function of drawing up local schemes for adequate isolation accommodation, but the carrying out of such schemes generally remains with the district authorities. Of the 1,500 local authorities in England and Wales with powers to provide for the hospital treatment of infectious diseases, about 800 have combined for this purpose into 160 joint boards. The London County Council has 16 hospitals for infectious diseases, together with a unit for post-encephalitis lethargica, and a receiving station for smallpox patients, also a hospital for ophthalmia and another for contagious diseases of the skin.

An important part of the preventive work of local authorities is the publication of advice and also lectures on health and disease. The campaign for diphtheria immunization is an example.

In 1921 Parliament imposed a general duty on county and county borough councils to arrange for the treatment of tuberculosis. This is one of several instances in which local authorities act in co-operation with voluntary bodies. The authorities provide dispensaries, which are receiving-houses, where patients are examined, advised, and treated at home, or are drafted into sanatoria and other institutions. The authorities have an interest also in after-care, village settlements, and tuberculosis colonies. Thirty-three tuberculosis dispensaries are maintained by the Metropolitan borough councils. The pivot of the system is the tuberculosis officer.

The venereal diseases service of local authorities dates from the last war. It is the responsibility of county and county borough councils to provide the necessary clinics and centres and to arrange for hospital beds and hostels. Another field for local authority intervention in public health was afforded by the Cancer Act, 1939, whereby local authorities were charged with seeing that facilities for the diagnosis and treatment of cancer were available. The war has prevented the scheme from materializing except for certain interim arrangements.

Maternity and Child Welfare

Service under the Maternity and Child Welfare Act, 1918, is provided by local authorities, including the urban and rural district councils. Membership of the authorities' committees which supervise this service is open to others besides councillors, and at least two of the members must be women. The provision includes ante-natal and post-natal care and welfare centres. In the case of women who have their confinements at home a midwifery service is established under the Midwives Acts. The local supervisory authorities under these Acts are the county, county borough, and urban and rural district councils, who supervise the services of independent midwives and see that domiciliary facilities are available in the area. An important task of county and county borough councils is the registration and inspection of maternity homes, a requirement extended by a subsequent Act to nursing homes in general.

Under the new Education Act it is the duty of every local education authority to provide for the medical inspection of pupils in attendance at any school, and the parents of any pupil may be required to submit him for such examination, and free medical treatment. The authorities must make provision for blind, deaf, defective, and epileptic children. (The mention of the blind reminds us of the obligation on the local authority to make such arrangements as it thinks desirable for assisting in the prevention of blindness and for the treatment of persons suffering from disease of or injury to the eyes.)

A Hospital Authority

As already stated, since 1930 county and county borough councils have made general provision for ordinary hospital cases, not merely for the chronic sick, the incurable, and the senile, which was the legacy left to them in the old Poor Law infirmaries. Many of the former infirmaries have been converted to this new use. Just before the war there were 70,000 beds in 140 general hospitals maintained by local authorities under public health powers and nearly 60,000 more in 400 hospitals administered under the Poor Law. It is not the statutory duty of local authorities to see that there is hospital provision for the whole population in their area, but in effect the larger local authorities have exercised their powers to provide hospitals in such a way that, together with the voluntary hospitals, the most urgent needs for hospital accommodation are met. A consultant and specialist service is provided in connexion with these hospitals, also a pathological service. The L.C.C. maintains a number of pathological laboratories for groups of its hospitals, as well as a central histological laboratory, two antitoxin establishments, and three chemical laboratories, with another pathological laboratory for its mental hospital service.

Ambulance services, which as a rule started in order to deal with street accidents, are now organized by local authorities for the removal not only of the injured but of the sick and for maternity cases. Yet another service derived from the old days of Poor Law relief is the provision of medical attendance and medicines for those who cannot afford to pay for a doctor. It is carried out by district medical officers, mostly part-time. Nursing attendance in certain cases may also be provided, and for this purpose a council may enter into a financial arrangement with voluntary nursing associations. The authorities have limited powers to employ nurses for domiciliary nursing of patients suffering from infectious diseases or expectant or nursing mothers or children under 5.

Finally, what was once a separate service but is now regarded as an integral part of the public health services of a local authority, the provision of care and treatment under the Lunacy and Mental Treatment Acts, falls upon the councils of counties, of county boroughs, and of a few non-county boroughs. The powers concerning certified patients are obligatory and concerning voluntary patients permissive. They are exercised through visiting committees, and in London and certain other counties local Acts have brought these visiting committees into line with the normal committees of the local authorities.

The care of mental defectives under the Mental Deficiency Acts is the responsibility of county and county borough councils, which are required to appoint a committee for this purpose. They provide institutional care for those who need it, and care within the community for defectives who are placed under guardianship or supervision. In these two fields of mental disorder and mental deficiency joint action by neighbouring authorities is not infrequent.

There are still other aspects of local authority intervention in public health on which we have not touched. One is infant life protection, another the provision of baths and wash-houses, a third the special health provisions relating to particular sections of the community, such as hop-pickers, van-dwellers, people working on canal barges, and so forth. The subject is very far-reaching and detailed. The reader who would like to pursue it may be referred to J. J. Clarke's *The Local Government of the United Kingdom* (London: Pitman, 1939), a volume of close upon 1,000 pages.

MEDICAL STAFF COMMITTEES

The following note on medical staff committees in Middlesex County Council hospitals has been received from Dr. J. B. Cooke, Medical Director, West Middlesex County Hospital, Isleworth.

In view of recent correspondence in the medical press relating to medical staff committees in county and municipal hospitals, it seems opportune to describe the way in which these committees function in the hospitals under the control of the Middlesex County Council, and to outline some of the results achieved during the two years they have existed.

The idea was not new, for at more than one of the council's hospitals unofficial consultations between the medical director and the senior members of the staff had been customary for years. The innovation was the official recognition by the county council of a medical staff committee as an integral part of the administrative machinery of each of the hospitals under its control. The medical director is expected by the county council to consult the medical staff committee on matters concerning the development of the hospital, changes of policy, and appointments of medical staff, in order to enlist its co-operation in dealing with matters affecting the welfare of the patients and staff. All members of the medical staff committee are made aware of the many problems and difficulties of an administrative nature which constantly arise in a hospital, and all are expected to accept their share in solving them.

In each hospital the medical staff committee consists of all the full-time permanent members of the senior medical staff, together with one or more representatives of the junior staff, who are elected by their colleagues. In addition, visiting specialists may be invited to attend when matters concerning their own departments are being considered. In this way the size of the committee is kept within reasonable limits, and specialists are represented. Slight variation in the personnel of these committees is permitted because conditions are not the same in all hospitals, and it is thought desirable that each hospital should maintain its own individuality. Each committee elects its own chairman, who is not necessarily the medical director.

A member of the medical staff committee in each hospital has the right to attend meetings of the Committee of Management in order to represent the medical staff and, if necessary, to state their views. The medical staff committee receives in advance a copy of the agenda and all relevant reports before the meeting of the Committee of Management. In addition, when an assistant in any department is to be appointed, the senior physician, surgeon, or obstetrician concerned accompanies the medical director to the Committee of Management to advise in the selection and appointment of the candidate.

The following list gives some idea of the number and variety of subjects submitted by various medical staff committees for consideration by the county council:

Food.—A comprehensive scheme for purchasing, handling, cooking, and distributing food in a county hospital, envisaging the complete removal of responsibility for catering and cooking from the steward and the matron and the appointment of a catering supervisor together with an adequate staff of dietitians, cooks, and kitchen workers.

Post-war Staffing.—A scheme for staffing county general hospitals and for undergraduate and postgraduate instruction.

Post-war Reconstruction.—Detailed examination in consultation with the architect of post-war plans for rebuilding and extension of the hospital.

Health of Nursing Staff.—Prolonged discussions between representatives of the various hospitals upon the health of the nursing staff, resulting in a co-ordinated scheme for periodical medical examination of nurses.

There were also discussions with almoners resulting in better co-operation; on cross infection in the hospital; on the efficacy of disinfectants used; and on certain deficiencies in the working of the out-patient department with suggestions for improvement.

The function of the medical staff committee is primarily advisory, and an effort is made to arrive at a constructive conclusion in every instance. It is realized that even though the recommendations may not be accepted they at least receive due consideration. It can be claimed, as a result of two years' experience, that the scheme is a success. Much valuable work has been done by the medical staff committees in the Middlesex County Hospital service, and, moreover, the system is popular because it gives to the senior medical staff a voice in the direction of policy of the hospital in which so much of their working lives is spent.

The principle of consultation with professional colleagues is also adopted by the county medical officer, who holds meetings of the medical directors and of representatives from the various medical staff committees before submitting far-reaching proposals to the county council.

Correspondence

Postgraduate Training for Service M.O.s

SIR,—The suggested provisions for postgraduate training for doctors leaving the Forces are not unrelated to the proposed medical service. If the Minister of Health really considers that a refresher course of two weeks is sufficient for a doctor returning from years in the Services or five guineas (the sum suggested) sufficient to pay for a locumtenent, he is sadly out of touch with the realities and finance of general practice. If, however, these restrictions are due to Treasury control the financial outlook for the new service is bleak indeed.

If properly planned and executed these refresher courses would give an opportunity of raising the standards of a whole generation of medical practitioners to an entirely new level, and no pains or expense should be spared to seize a chance which can never recur. No equivalent expenditure is likely to be so fruitful in improving medical practice and doing as much as medicine can do to improve the health of the population. These proposals are a real test of the intentions of the Minister and the Government.—I am, etc.,

Winsford. W. N. LEAK.

A Fundamental Point

SIR,—Dr. Leigh Hadley (April 21, p. 62) has drawn attention to what he describes as a fundamental point in the consideration of this proposed National Health Service. By so doing he has, even at this late stage in the "great betrayal of the medical profession," done a timely service in the fight for our freedom. There can be little doubt that the majority of us will agree with him in paying "tribute to the great work of our negotiators and the efforts they are making to obtain the best service possible." He should have added the qualifying phrase "under the circumstances." He would also, perhaps, have expressed the matter better had he substituted "terms" for "service."

The report on the negotiations by the Council which we have had before us, but for which no reasonable time has been given for proper consideration, appears on the first reading of the "Alternative Structure" proposals to be on the whole satisfactory. At first blush it would seem to support the view expressed by some sections of the Press, perhaps somewhat prematurely and manifestly to the considerable annoyance and embarrassment of the Minister of Health, that the profession had won something in the nature of a resounding victory. We have, however, without delay been authoritatively informed that this is a complete misapprehension. The "Alternative Structure" is purely in the nature of tentative suggestions which the Minister might possibly consider and even recommend some part of them if he were in a benevolent mood. That and nothing more. Moreover, on a more careful analysis of the details of the "Alternative Structure" it becomes increasingly obvious that even if they were accepted *in toto* they are so framed that there is no kind of guarantee that any of them would materialize in practice. The points apparently gained are, in the main, the right of the profession to "advise" and the obligation of the Minister to "consult." As Dr. Leigh Hadley asks, what guarantee have we that the present Ministry, let alone any subsequent Ministry, will accept advice or be under any obligation to adopt the conclusions of consultations? The whole history of our dealings with the Government in matters relating to National Health Insurance proves that no kind of reliance can be placed in any Ministry or Government undertaking.

The persistent simple-mindedness of the profession in their naive acceptance of the bona fides of Government officials is nothing short of amazing. I have attended all the important regional meetings since the White Paper first came under consideration, and it has been and remains an amazing phenomenon that the consideration of *the fundamental issue* has never been seriously undertaken. The time has been taken up in groping through the fog of administrative detail on the assumption from first to last that the profession had already accepted a Government medical service as inevitable. When the full history of this "great betrayal" comes to be written, this will prove to have been the fundamental tragedy of the whole sorry business. Dr. Leigh Hadley has stated the truth, the whole truth, and nothing but the truth when he says that our right course is to refuse altogether to have anything to do with a Government medical service, however good it may be made to appear. Do we want control? Do we want our profession sold into bondage? The answer to this fundamental question has never yet been given voice. Every conceivable subterfuge has been used to prevent the giving of a straight answer to a straight question. —I am, etc.,

Oxford. J. FRANKLAND WEST.

100% Service

SIR,—Dr. W. D. Gray (*Supplement*, April 21, p. 62) is of opinion that the British citizen "*must not be allowed to waste money on private consultations*"; and that "doctors must be deterred from exploiting such ignorant folly." Should I be mistaken in regarding this as "control" *in excelsis*? What measures would he take to abrogate a citizen's right to spend his money how he likes? Would he advocate removal from the *Register* of the names of all practitioners who refuse to take service under the Act? There are many who think—with some justification—that the heyday of the unregistered practitioner and the quack will begin when the National Health Service Act goes on the Statute Book.—I am, etc.,

Brookwood. H. M. STANLEY TURNER.

Alien in Principle

SIR,—It is abundantly clear that the purchase and sale of medical practices need never be legally prohibited, since even the possibility of the introduction of a State medical service has considerable reduced the numbers of purchasers, and also reduced the price they will pay. If a 100% State medical service were introduced very little time would elapse before the numbers of purchasers and the price they offered would both be reduced to *nil*. Thus the Government need pay no compensation whatever for the lost capital value of a practice, because it would still be legally permissible to sell the practice, though in fact it would be impossible to do so.

The vast majority of doctors I have met in the Services do not wish to be employed by the State for the rest of their lives. After eleven months in general practice and four years and eight months in the R.A.F. during the war, it is my conviction that the spread of State control to embrace all doctors and all patients would be catastrophic for both parties, and would destroy the doctor-patient relationship as we once knew it and hope some day to know it again—a relationship of mutual confidence, not marred by suspicion aroused from conflicting loyalty to a third party: the impersonal yet all-powerful, State.

Let those who prefer a controlled career enter the existing public health service or take permanent commissions in the armed Forces. But surely the shackles of complete State control need never be fastened upon us all if we take the only action the Government would be likely to understand while yet there is time—namely, discontinue negotiations for a State medical service along the lines of the White Paper. This course of action is recommended by Dr. Leigh Hadley (*Supplement*, April 21, p. 62) for another reason. While endorsing his remarks, these further reasons are submitted for discontinuing the negotiations along present lines, in the sincere hope that the prolonged and bitter struggle against foreign totalitarianism will not be proved futile by the setting up in Britain of a State medical service, so alien in principle from the freedom for which we are fighting.—I am, etc.,

J. MAXWELL JONES,
Squad. Ldr., R.A.F.V.R.

Medical Demobilization

SIR,—Now that the European war seems to be drawing rapidly to a close, we feel that it is opportune for us to bring up the question of demobilization of medical officers. Having joined the Service after a certain amount of experience in civilian hospitals, our sum total of experience cannot compare with those more fortunate medical men who have held posts in the E.M.S. or other reserved establishments during these long years. We feel very strongly indeed, and believe our view to be shared by the majority of our temporary Service colleagues, that the time has come when some reallocation of medical manpower can take place which would enable those of us who have served for a considerable length of time in the armed Forces to gain some experience of civilian work and fill in the gaps in our knowledge.

Although we get our *Journal* rather late out here, and it is difficult to follow medical politics, we have gathered that it is proposed to release civilian doctors from a liability to service after the European war is over, and the gross unfairness of such a move has been apparent to us all. Surely after the long separation from their families and unsettled domestic life medical men in the Service should have first priority in demobilization, and, if necessary, their places could be filled by those who have been reserved.

We consider that an exchange scheme between civilian and Service medical officers should be instituted immediately, whereby civilian hospitals and organizations would be unable to retain medical officers on the plea that they could not be spared. This applies particularly to the more senior appointments, where the tendency to regard an experienced man as irreplaceable is greater than with junior posts. If it is then found that doctors can be spared from the E.M.S. and other civilian organizations those who have had longest service in the armed Forces can be demobilized first, and, while waiting for demobilization, will have an opportunity for study with clinical material which is unrestricted by age group and by the effective filter of the National Service Medical Boards.

An additional point is that those of us who were not established in a permanent practice or on the staff of a hospital at home are not likely to have their release from the Service requested by the Local Medical War Committees, to whom they are unknown, and their prospects of return to hospital or other appointments are, therefore, to say the least, gloomy. In short, we feel that those who volunteered for service in the early days of the war may soon be subjected to grossly unfair treatment if the civilian doctors are demobilized without first of all relieving those in the Services, and, in view of the trend of the war, we consider this to be a matter of the utmost urgency.
—We are, etc.,

G. H. B. ROBERTS. J. CALNAN.
C. M. MILLER. D. W. BRACEY.
W. M. PHILIP. F. G. MAXWELL
J. CRAWFORD. SMITH.

S.E.A. Air Forces.

FROM THE PRESS CUTTINGS

"If large numbers of people view with grave misgivings and even with dismay the threatened progressive extension of State control over all departments of life in this country, it is because this means inevitably the entrusting of what can become arbitrary and almost unrestricted power to pullulating swarms of State officials whose actions the ordinary citizen will find himself powerless to resist because he will be up against an entrenched vested interest."—The Rev. L. B. Ashby in the *Daily Telegraph.*

"And now they [the schools] are suddenly entrusted with the whole medical treatment of children. What facilities have they for that? None whatsoever; no hospitals, no nurses, no doctors, no diagnostic clinics. . . . The school medical service has no knowledge of the child's environment, its home, its heredity, its medical history at birth and in infancy. All these essential facts are usually known to the family doctor. Then if the family doctor is called in to help the school service the chances are he will be sent to the wrong school—to a school where he knows none of the children, and his whole personal value is destroyed."—*Daily Express.*

FACULTY OF OPHTHALMOLOGISTS

As announced in the *Journal* of Feb. 3 (p. 160) the Council of British Ophthalmologists has sponsored the formation of a Faculty of Ophthalmologists, which it is intended should be a body representative of all British ophthalmologists. The Council of the Faculty was elected by ballot and consists of regional and national representatives. The result of the election was as follows:

Regions	*Members*	*Associates*
1	George Black	—
2	Ida Mann	Doris Rose
3	W. Niccol	Moreen Whelton
4	Frank W. Law	J. A. Chivers Stewart Macky
5	W. J. B. Riddell	—

National Representatives (Members)

R. C. Davenport
P. G. Doyne
Sir Stewart Duke-Elder
O. M. Duthie
C. B. Goulden
F. A. Juler
E. F. King
Sir John Parsons
H. M. Traquair
F. A. Williamson-Noble

At its first meeting the council elected the following officers: President, Sir Stewart Duke-Elder; Vice-President, F. A. Juler; Hon. Treasurer, F. A. Williamson-Noble; Hon. Secretary, Frank W. Law.

The criteria of membership and other details were necessarily temporary. These will require modification, and with this in view a meeting has been arranged, under the chairmanship of the President of the Royal College of Surgeons, between four representatives each of the Faculty, the Ophthalmic Group Committee of the B.M.A., and the Association of British Ophthalmologists, for May 8, and the results of its deliberations will be published in due course.

At its first meeting the Council elected Standing Committees on medico-politics, education and research, and remuneration and emoluments.

H.M. Forces Appointments

ROYAL ARMY MEDICAL CORPS

The following officers holding Short Service Commissions have been appointed to permanent commissions: Capts. J. B. Neal, E. G. Wright, R. L. Marks, J. B. Evans, H. M. Rice, C. E. Stuart, P. H. Shorthouse, M. M. Lewis, P. C. Mitchell, R. M. Johnstone, T. P. H. McKelvey, W. R. W. West-Watson, J. M. Matheson, H. R. Miller, J. W. Spence, S. Boan, W. M. Owen, G. L. Ritchie, J. N. Hamill, C. Reburn, R. K. Pilcher, H. Pozner, G. F. Anderson, R. H. Baird, H. R. Hartnell, H. W. Whitcher, A. C. S. Hobson, J. G. S. Holman, S. J. Hepworth, L. Griffiths, C. F. Murison, R. I. Mitchell, D. B. Seymour-Price, R. J. Gray, S. Mackenzie, H. G. Skinner, J. P. Baird, T. A. Groves, E. L. O. Hood, S. M. P. Conway, and R. Paul.

Short Service Commission.—Lieut. (War Subs. Capt.) R. Waddell, and War Subs. Capt. A. C. S. Hobson, M.C., from Emergency Commissions, to be Lieuts., and to be Capts.

TERRITORIAL ARMY

ROYAL ARMY MEDICAL CORPS

Senior Training Corps.—Lieuts. J. Secker and J. Short, supernumerary for service with Durham Univ. Senior Training Corps, have resigned their commissions.

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs. Capt. J. J. Geany has relinquished his commission on account of disability, and has been granted the honorary rank of Capt. (Substituted for the notification in a *Supplement* to the *London Gazette* dated March 13.)

War Subs. Capt. S. F. Smith has relinquished his commission on account of disability, and has been granted the honorary rank of Capt.

To be Lieuts.: C. J. See, J. A. Kay, and G. E. Phillips.

WOMEN'S FORCES

EMPLOYED WITH THE R.A.M.C.

(Mrs.) Jessie A. T. Henry to be Lieut.

ROYAL AIR FORCE

Gp. Capt. (Temp. Air Cdre.) R. W. Ryan has retired at his own request, retaining the rank of Air Cdre.

ROYAL AIR FORCE VOLUNTEER RESERVE

Fl. Lieut. J. F. Cooper has relinquished his commission on account of medical unfitness fo Air Force service, retaining the rank of Squad. Ldr.

Fl. Lieut. (Temp. Squad. Ldr.) T. C. Wilson has resigned his commission, retaining the rank of Squad. Ldr.

Fl. Lieut. J. N. N. Robinson has resigned his commission, retaining his rank.

Flying Officers J. M. T. Adamson, J. A. Fewings, R. S. Hamilton, M. Harty, G. A. N. Horton, C. W. L. Lloyd, and G. H. M. Thornton to be War Subs. Fl. Lieuts.

INDIAN MEDICAL SERVICE

Lieut.-Col. H. J. Rice, C.I.E., M.C., has retire on account of ill-health, and has been grante the honorary rank of Col.

The notification relating to the retirement o Lieut.-Col. E. W. O'G. Kirwan, C.I.E., in the *London Gazette* of Feb. 2 has been cancelled.

EMERGENCY COMMISSIONS

Capt. D. Robertson to be Major.
Lieut. A. B. Philip to be Capt.

WEEKLY POSTGRADUATE DIARY

GLASGOW UNIVERSITY: DEPARTMENT OF OPHTHALMOLOGY.—*Wed.*, 8 p.m., Mr. J. S. Tough: Plastic Surgery of the Eyelids.

DIARY OF SOCIETIES AND LECTURES

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.—*Tues.* and *Thurs.*, 4.30 p.m., Croonian Lectures by Surg. Capt. Macdonald Critchley: Problems of Naval Warfare under Climatic Extremes.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.—Arris and Gale Lectures. *Mon.*, 4 p.m., Prof. F. Davies: The Early Development of the Human Embryo. *Wed.*, 4 p.m., Dr. D. V. Davies: The Synovial Membrane and the Synovial Fluid of Joints. *Fri.*, 4 p.m., Mr. Judson T. Chesterman: Some Alterations of the Neuromuscular Balance of the Intestine and their Clinical Significance. *Thurs.*, 4 p.m., Hunterian Lecture by Prof. R. Watson-Jones: Limb and Spine Injuries due to Flying Accidents.

ROYAL SOCIETY OF MEDICINE.—*Tues.*, 5 p.m., Section of Psychiatry. *Wed.*, 5 p.m., Section of Surgery.

CHADWICK TRUST.—At Royal Society of Tropical Medicine and Hygiene, 26, Portland Place, W. *Tues.*, 2.30 p.m., Mr. Eardley Holland: On the Importance of a Maternity Service in the Lif of the Nation.

ROYAL INSTITUTION, 21, Albemarle Street, W.—*Fri.*, 5 p.m., Sir Lawrence Bragg, F.R.S.: *X*-ra Analysis: Past, Present and Future.

B.M.A.: Branch and Division Meetings t be Held

LEIGH DIVISION.—At Boar's Head Hotel, Leigh Tues., May 8, 8.15 p.m. Agenda: Address b Miss E. M. Mills, F.R.C.S.: Female Sex Hormon Therapy in General Practice, etc. All medical me in the area of the Division are invited.

BIRTHS, MARRIAGES, & DEATH

The charge for an insertion under this head i 10s. 6d. for 18 words or less. Extra words 3s. 6d for each six or less. Payment should be forwarde with the notice, authenticated by the name an permanent address of the sender, and should reac the Advertisement Manager not later than first pos ***Monday morning.***

BIRTHS

ARTHURS.—On April 21, 1945, at Liverpoo Maternity Hospital, to Maureen (*née* Roche) wife of Surg. Lieut. G. Arthurs, R.N.V.R., daughter.

CATTO.—On April 24, 1945, at Rubislaw Nursin Home, Aberdeen, to Doe (*née* Spiby), wife o Capt. W. Dawson Catto, R.A.M.C.: a son.

MANDEL.—On April 27, 1945, at Guy's Hospita to Betty Joyce, wife of Dr. Sydney Mande a son (Morris Emeny).

MARRIAGE

MURRAY—SPENCER-SMITH.—On April 9, 1945, Aldershot, Robert G. Murray, Captain, R.A.M.C to Patricia Spencer-Smith, Q.A.I.M.N.S. (R)

DEATHS

PINHEY.—On April 23, 1945, after a short illne borne with great courage, Eustace Townl Pinhey, O.B.E., M.B., Ch.M., Medical Superi tendent of St. Pancras Hospital, and formerl of St. Clement's Hospital, beloved husband Free, of 96, Stansted Road, Bishops Stortfor Australian journals please copy.

ROSENKRANZ.—On April 6, 1945, at 87, Watfo Way, Hendon, Katharina Rosenkranz, M.D D.M.R.E., after long illness bravely borne.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY MAY 12 1945

British Medical Association

ANNUAL REPORT OF COUNCIL, 1944-5

Every member is asked to keep this Supplement, which contains matters referred to Divisions, until the subjects have been discussed by his Division.

PRELIMINARY

1. Again the membership of the Association shows a very satisfactory increase. The present figure is 49,323, representing a net increase of 3,186 during the year. Since 1939 the Association's membership has increased by 10,000.

The Roll of Honour includes the names of 52 medical officers killed on active service; 29 who have died on active service; and 4 civilian members killed by enemy action. In addition the Association has to deplore the loss by death of 502 members.

Dr. H. Guy Dain, Birmingham, has been re-elected Chairman of Council until the termination of the Annual Representative Meeting, 1946.

President of the Association

2. The Association deeply deplores the loss of its President, Viscount Dawson of Penn. Lord Dawson, who was President at the Association's Centenary in 1932, and was recalled to office in 1943, rendered outstanding service to his profession and to the Association throughout his long and distinguished career.

Under the by-laws, on the death of the President the duties of the office devolve upon the Immediate Past-President. Owing to the death of Sir Beckwith Whitehouse, there is no Immediate Past-President. Under the power conferred upon it under By-law 72 (2), the Council appointed Mr. H. S. Souttar as President of the Association until the next Annual Representative Meeting.

The Council recommends:

RECOMMENDATION.—That Mr. H. S. Souttar, C.B.E., D.M., M.Ch., F.R.C.S., F.R.A.C.S., be elected President of the Association, 1945–6.

Election of a Woman Member to the Council

3. The A.R.M., 1944, amended the by-laws to permit election to the Council of a woman member by women members of the Association. The first woman to be elected in this capacity is Dr. Janet K. Aitken (London).

Annual Representative Meeting

4. The Council has decided to hold the Annual Representative Meeting on Tuesday, July 24, 1945, at 2.0 p.m. The meeting will continue on Wednesday and Thursday, July 25 and 26, and, if necessary, on the following day.

International Relations

5. The A.R.M., 1944, referred to the Council for consideration a proposal that a Foreign Relations Committee should be created as one of the Standing Committees of the B.M.A. As a preliminary step the Council has appointed a small committee for the purpose of exploring the ways and means of promoting closer relationships between the B.M.A. and the organized medical profession in other countries. This committee is arranging a conference with medical representatives of Allied countries to discuss the subject.

Restoration and Development Fund of the R.C.S.

6. The Council has contributed 1,000 guineas to the Restoration and Development Fund of the Royal College of Surgeons.

Board of Registration of Medical Auxiliaries

7. The Council has expressed the view that the time has arrived for the Government to recognize the Board of Registration of Medical Auxiliaries as an approved body for the registration of medical auxiliaries in connexion with any comprehensive medical service.

Charter for Health

8. In the report of Council on the White Paper, published in the *Journal* of May 13, 1944, it was stated:

> "Health is not mainly a question of medical services. The public must not be misled into believing that good health depends chiefly upon hospitals or clinics or doctors, or bottles of medicine, or indeed upon organization. Among the principal factors which determine a people's health are sanitation, provision of public water, housing, nutrition, conditions in factory and office, facilities for recreation, and education."

It seemed to the Council that a comprehensive statement of the profession's views on the basic principles of health would be useful during the coming months of negotiation on a National Health Service. It therefore appointed an influential committee under the chairmanship of Sir John Boyd Orr to prepare an authoritative statement that could be termed "A Charter for Health." The central doctrine is that national policy should be directed towards the satisfaction of human needs and the promotion of human welfare, and the charter discusses various aspects of personal health. It is proposed to publish the charter in book form as early as possible.

Medical Schools

9. In 1943 the Association gave evidence to the Interdepartmental Committee on Medical Schools (the Goodenough Committee) on specific topics indicated by the Committee. The report of the Committee was published in July, 1944, and the Council was gratified to note that the Association's evidence had been substantially accepted. The report, however, covered a wider field than the Association's evidence, and the Council appointed a special committee to examine the Goodenough report and make recommendations. This special committee, under the chairmanship of Mr. Zachary Cope, has made a number of observations which the Council is submitting to the Ministry of Health.

During the course of the discussions on the Goodenough report it became evident that the medical curriculum is in urgent need of revision. It has become overloaded and ill balanced, and the student is burdened with a mass of unnecessary detail. Yet there seems to be a general unwillingness in the several departments of medicine concerned to initiate any reduction or modification in any subject. The Council has therefore appointed a small committee to review the Association's Report on Medical Education, 1934, in the light of later developments and the requirements of modern medicine.

The Future of Psychiatry

10. The Psychological Medicine Group Committee of the Association has co-operated with a Committee of the Royal College of Physicians and the Royal Medico-Psychological Association in the preparation of a Memorandum on the Future Organization of the Psychiatric Services. The memorandum is being submitted to the Negotiating Committee to assist the negotiations on a National Health Service so far as they relate to the mental health services.

Public Relations

11. During the year activities in the field of public relations have increased and developed. The services of the Public Relations Adviser are retained and contacts with Parliament and the Press have been increased in number and extended in scope. Many private interviews with editors and proprietors have taken place with results which are not always immediately apparent. A steady flow of material has passed to the Press. All available means of informing the public on medical matters are being used. Public meetings in different parts of the country have been addressed by the Chairman and members of Council, the Secretary, and other officials of the Association. Divisions are kept supplied with literature and suggestions for local publicity, and are encouraged to participate in local meetings,

debates, and discussion groups, and to keep in close touch with their Members of Parliament. An increasing number of requests for information and literature is received at Headquarters from laymen, including education officers in the Services, in connexion with discussions and lectures on post-war medical services.

Two Public Relations Conferences have been held, one in London and one in Leeds, to which Divisions in the surrounding districts were invited to send representatives. Each conference was addressed by a well-known public relations consultant and by well-known newspaper editors.

A pamphlet on the policy of the Association as determined by the A.R.M. in December, 1944, has been printed, and work is proceeding on other publications in book or pamphlet form. A short film depicting the work of the family doctor is under production. The services of a medical journalist have been engaged, and articles written by him have been published in national and local newspapers.

GENERAL PRACTICE

Post-war Financial Aid

12. The Council has examined the various schemes for the financial assistance of doctors in the purchase of practices, with special reference to the problem of younger Service doctors entering medical practice after the war. The Council recognizes that the average age of many entrants into general practice will be higher, and that high rates of taxation, which may well be expected after the war, will make it more difficult to repay a loan.

The existing financial and credit services to general practitioners fall short of what is required, and it has been the object of the Council to devise a scheme to enable a doctor without capital to purchase a practice and at the same time to retain, after the discharge of his commitments, a net income sufficient to maintain a reasonable standard of living. As a result of its discussions the Council has secured substantial concessions in the conditions under which loans are made for buying practices, with interest rates much lower than those now in operation. The Council hopes shortly to be in a position to publish a factual statement of the available schemes.

Certification

13. The Council has considered the following Minute 265 of the A.R.M., 1944:

> 265. Resolved: That the policy of this Association be to lessen the burden of certification, and, with this end in view, when a medical certificate is compulsory, to place the responsibility for payment on the authority demanding the certificate.

The suggestion embodied in this minute that where a certificate is compulsory the responsibility for payment of the fee should rest with the authority demanding the certificate appears to the Council to raise issues to which sufficient attention had not been given before the resolution was adopted. The Association has agreed in a limited number of cases—e.g., in respect of the completion of a form for the Ministry of Pensions to determine a pensions issue—that the responsibility for payment of the fee for the certificate should rest with the authority demanding the certificate. But to extend this arrangement to every "compulsory" certificate appears to the Council to be a far-reaching proposal. The resolution is doubtless intended to cover certificates of incapacity for work. If, in such cases, the employer is to be responsible for the doctor's fee for the certificate this might well be held to imply that the practitioner's obligation is to the employer and not primarily to his patient. In short, it is introducing a third party into the doctor–patient relationship. The Council holds that, in general, where the patient is required to produce evidence of incapacity he should be responsible for payment of the fee for the necessary certificate, and that it is undesirable that the Association should adopt any policy which might tend to weaken this position. Departure from this principle should be approved in exceptional cases only. Minute 265 of the A.R.M. carried to its logical conclusion would mean that only in exceptional cases would the patient pay a fee for a medical certificate; the acceptance by the Association of this principle is regarded by the Council as undesirable.

On the grounds stated the Council regards the proposal contained in Minute 265 as both impracticable and impolitic.

RECOMMENDATION.—That Minute 265 of the A.R.M., 1944, be rescinded.

Capitation Fee for Ex-regular Firemen

14. After protracted negotiations with the Fire Service Department of the Home Office, the Council has been able to secure a more satisfactory scale of fees for the treatment of ex-regular firemen. In 1942 the Department paid a capitation fee of 12s. 6d. for the treatment of ex-regular firemen irrespective of their income. The A.R.M. of that year expressed dissatisfaction with these arrangements. As a result of negotiations the following scale has now been agreed:

1. For treatment of firemen with incomes up to £420 per annum—a capitation fee of 13s. 6d.

2. For treatment of firemen with incomes above £420 per annum, the following itemized scale:

5s. 0d. for attendance at surgery	inclusive of medicine.
7s. 6d for visit	
15s. 0d. for night visit	

3. For firemen in need of attention, temporarily drafted away from home town, where the income does not exceed £420 per annum—3s. 6d. a visit, maximum 14s. a quarter.

4. Mileage in addition for distances above two miles (instead of three miles as at present): this to be regarded as a wartime measure.

Fees paid by Ministry of Pensions for Sessional Work

15. The Council has secured an improved scale of fees for sessional work under the Ministry of Pensions. The new rates, which became effective on Jan. 1, 1945, are as follows:

No. of Sessions per Week	Ordinary Members			Chairmen			Specialists		
	£	s.	d.	£	s.	d.	£	s.	d.
1. Up to and including five	2	2	0	2	12	6	3	5	0
Thereafter..	1	11	6	2	2	0	2	12	6

2. Where it is not possible to assemble a sufficient number of cases to occupy a specialist for a full session, or when the examination is carried out at the specialist's own residence, the specialist fee will be:

For one case only	£2	2	0
For two cases only ..	£2	15	0
For more than two cases ..	£3	5	0

Fees for Medical Witnesses

16. The Council is reopening discussions with the Home Office with a view to securing a new scale of fees for medical witnesses in both civil and criminal cases. The Scottish Committee is taking corresponding action in Scotland.

Certification in the North of England Branch Area

17. The Council has considered representations by the North of England Branch on the question of certification. The Branch has urged that the principle of certification should be investigated on a national basis, and that efforts should be made to bring about uniformity of action in charging for certificates. The Branch has urged particularly the replacement of Form E.D. 652 by another form, and that certificates for short-period incapacity should be discontinued.

The Council is not unmindful of the heavy burden which rests upon general practitioners in the matter of certification, but it does not agree with the Branch's suggestion that efforts should be made by the Association to bring about nation-wide uniformity of charges for medical certificates for incapacity for work. With the single exception of Form E.D. 652 it has been the deliberate policy of the Association not to make any recommendation to doctors as to the fee they should charge for such certificates. The Council is satisfied that this is a sound policy, as conditions of practice vary so much, and individual practitioners prefer to charge a fee for certificates which they regard as appropriate.

Concerning Form E.D. 652, the Council is satisfied that this form, which is widely used, is well designed for the purpose for which it was intended. The Council does not propose any modification of it. With regard to certificates for short-period incapacity, the proposal that these should be discontinued raises wide issues involving both employee and employer. The Council does not therefore propose to take any action. Upon the whole of the matters raised the Branch has full discretionary powers to make recommendations to the general practitioners in its area.

Occasional Attendance on Service Personnel and Italian P.O.W.

18. In the Council's opinion the scale of fees laid down for occasional attendance on Service personnel and Italian prisoners of war is inadequate. Discussions have been opened with the War Office and other Service Departments with a view to securing an increase in these.

Doctors' Cars

19. The Council has considered the serious situation arising from the difficulty of replacing worn-out cars, and this matter has been the subject of frank discussion with representatives of the Ministry of War Transport. No new cars are at present being issued for civilian users, but the Ministry has given an assurance that as soon as new cars are available the Association will be informed of the steps necessary to obtain priority delivery.

From time to time a limited number of cars which are surplus to Service requirements are available. These, after being reconditioned, may be made available to those whose claims for priority are accepted, at prices which are not unreasonable compared with those obtaining in the "used-car" market. The demand for these cars is likely to be greater than the supply, but the Ministry is willing to give a high degree of priority to doctors.

Election of Direct Representatives on the G.M.C.

20. It is possible that there will be an election for five Direct Representatives to the General Medical Council in the early part of 1946. It is the policy of the Association to select candidates for election by the general body of the profession and to use the machinery of the Association to secure the election of the selected candidates. The Council will take appropriate steps before the Annual Representative Meeting to invite nominations from the Divisions, and during the course of the A.R.M. five candidates to whom the support of the Association should be given in the G.M.C. election will be selected.

NATIONAL HEALTH INSURANCE

Standards of Payment for G.P.s

21. After consultation with the Association, the Minister of Health and the Secretary of State for Scotland have appointed an Interdepartmental Committee to recommend "what ought to be the range of total professional income of a registered medical practitioner in any publicly organized service of general medical practice." The committee consists of an independent chairman (Sir Will Spens, Master of Corpus Christi College, Cambridge), a Treasury representative, a solicitor, an accountant, a trade union official, and four general practitioners nominated by the B.M.A. The Association will give evidence before the committee, and this evidence is now being prepared. The committees responsible for the preparation of the Association's evidence will have in mind the view expressed at the 1944 A.R.M. that the present N.H.I. capitation fee is inadequate.

Sickness Benefit in Pregnancy

22. The Ministry of Health has been requested to take whatever action may be necessary to implement the view expressed at the A.R.M., 1944, that ample provision should be made to render it unnecessary for any woman to continue in remunerative work during the last six weeks of pregnancy and for the seven weeks following her confinement, and that independent medical opinion and examination within eight weeks of the expected date of delivery should be conducted at home.

Title to Medical Benefit

23. Among questions that are being discussed with representatives of the Ministry of Health is the view of the A.R.M., 1944, that responsibility for the investigation of cases of doubtful title to medical benefit should rest with insurance committees and approved societies, and not with the patient's doctor.

PUBLIC HEALTH

Askwith Memorandum

24. The Askwith Memorandum was agreed to at conferences held at the Ministry of Health in 1929 under the chairmanship of Lord Askwith, at which representatives of the County Councils Association, the Association of Municipal Corporations, the Urban District Councils Association, the Rural District Councils Association, the London County Council, the Association of Education Committees, the Mental Hospitals Association, the Metropolitan Boroughs Standing Joint Committee, and the British Medical Association were present. The agreed recommendations set out in the Memorandum were approved by the A.R.M. in 1929 (Minute 73), and were ratified by the associations of local authorities with the exception of the County Councils Association, although the individual county councils have since accepted the scale. The duration of the agreement is governed by Section XI of the Memorandum, namely:

> "This Agreement shall come into force on April 1, 1930, hereinbefore referred to as the 'appointed day'; and remain in force for five years and thereafter from year to year, subject to notice of one year from any of the bodies mentioned in paragraph (5) of Section X."
>
> (*Note:* The bodies mentioned in paragraph (5) of Section X are those named in the paragraph above.)

The Council has considered recommendations from the Society of Medical Officers of Health, the Royal Medico-Psychological Association, local Divisions of the Association, and medical officers in various branches of the public health service urging the Association to seek a revision of the present scales. It has been represented to the committee:

(1) That proposals for increases in salaries of medical officers to bring them into conformity with increases granted in recent years to other local authority officers have been rejected by local authorities on the grounds that the medical officers' salaries are in accord with the Askwith Memorandum.

(2) That since the adoption of the Rushcliffe salary scales for nursing staffs there is disproportion between the salaries of senior nurses and those of assistant medical officers of health and resident medical officers in municipal hospitals.

The Council has given the appropriate bodies the prescribed period of one year's notice as from April 1, 1945, of its intention to terminate the Askwith Agreement on March 31, 1946. The Council is seeking the observations of the Society of Medical Officers of Health on the question whether negotiations for future scales for the Public Health Service should be conducted on the same basis as those preceding the Askwith Memorandum—i.e., with representatives of local authorities and an independent chairman—or whether such negotiations should form part of the general negotiations between the Ministry of Health and the medical profession on the terms and conditions of service in the proposed new medical service.

Education Act, 1944

25. Section 48 (3) of the Education Act which was passed in August, 1944, imposed on local education authorities as from April 1, 1945, the duty of securing that comprehensive facilities for free medical treatment are available to school-children and pupils attending county colleges. "Medical treatment" as defined by the Act does not include treatment in the pupil's home except where the authority is providing education at home.

In March, 1945, the Ministry of Education issued a circular for the guidance of local education authorities in implementing their duties under the Act. The circular recommended that they should take such steps as were practicable in present circumstances and with their existing staff to develop their school clinic services and to make increased provision for hospital treatment. The circular also recommends that in rural areas

> "where frequent visits by the authorities' medical officers may be difficult to arrange and where clinic facilities have not been developed . . . authorities might, where necessary, arrange with local general practitioners for the treatment of pupils referred to them by their medical officers or nurses. Such treatment might be given either in the schools or other suitable places or in the doctor's own surgery. Payment for the treatment should be agreed between the authority and the practitioner on a suitable basis."

The Council has made written representations on the following points:

(1) To the extent to which medical care additional to that now available is intended, there arises the problem of additional medical, nursing, and other personnel. The plain fact is that additional doctors are not available. Over one-third of the medical profession is serving in His Majesty's Forces, and the Central Medical War Committee is experiencing grave difficulty in satisfying even the minimum needs of the Services without causing a serious deterioration in the medical facilities available for the civilian population. It is impossible at the present time to extend existing facilities without reducing recruitment to the medical services of the armed Forces below a level consistent with Service efficiency.

(2) By advising that in urban areas the form of development should be an elaboration of school clinic and allied services, a procedure is suggested which, even where it does not involve additional personnel, is open to the criticism that it may prejudice the initiation and development of a comprehensive medical service. The treatment provision for children under a comprehensive scheme will not be based upon a school clinic service. To advise development on these lines now may obstruct future development on lines acceptable to the Minister of Health and to the medical profession.

(3) For these reasons the Minister is urged, in order that local authorities may not continue to have imposed upon them duties they cannot carry out and in order that the public shall not be promised something which is unattainable at the present time, to take steps to reconcile the legal position with the hard facts.

26. The Minister has agreed to receive a deputation from the Association, and when the results of these representations are known a communication will be sent to the Divisions. If the Minister is unwilling to take steps to secure the postponement of the operation of Section 48 (3) he will be urged to advise local authorities to utilize existing general practitioner and consultant services, depleted though they are, for the purposes of the proposed extensions.

The Council has expressed the following views on the terms appropriate for this work:

(1) That for services provided for children covered by the Act, both by consultants and by general practitioners, payment should be made on an item of service basis, and that there should be no contract between the individual practitioners and the local authorities.

(2) That for the purposes of the arrangements to be made under Section 48 (3), the reference of patients to the practitioner should not ordinarily be by an officer of the local authority, but through the parent or guardian, provided that the school medical officer should not be precluded from referring children found needing medical care at the routine inspections to a medical practitioner at hospital, clinic, or surgery. The local authority should accept responsibility for payment of the practitioner's fee.

(3) That the fee for a general practitioner service for attendance at the

doctor's surgery should be not less than 5s., including medicine; and that the existing practices for payment for emergency attendance at schools should be preserved where these are satisfactory.

Local Government in England and Wales

27. The Council has considered the Ministry of Health White Paper on local government in England and Wales during the period of reconstruction. From the point of view of public health administration the Council regards the Government's proposals as a meagre contribution towards the solution of local government problems.

Institutional Accommodation for Tuberculosis

28. The Council has made representations to the Ministry of Health that the provision of institutional accommodation for tuberculosis should receive high priority as part of a comprehensive hospital service for the nation in the development of the Government's building programme.

Milk

29. Representations have been made to the Council expressing concern that there is no power to stop the sale of milk for human consumption which has been found to contain tubercle bacilli until the infected cow is discovered. The Council has brought this matter to the notice of the Ministry of Health and the Ministry of Food, and has urged that legislation should be introduced requiring milk for human consumption to be pasteurized.

Shortage of Trained Midwives in Hospitals

30. The Council has made representations to the Ministry of Health that in view of the present serious shortage of midwifery personnel every possible step should be taken to ensure that the available services of trained nurses with midwifery qualifications and midwives are used to the best advantage.

Payment of Part-time Medical Officers

31. In July, 1944, a conference was held at the Ministry of Health between representatives of the Ministry, the Association, and the associations of local authorities to consider the B.M.A.'s recommendation that, as a wartime measure, the remuneration of doctors employed in a part-time capacity by local authorities should be increased by 20%. The local authority representatives who attended the conference agreed to recommend to their constituent bodies that where a war bonus is given by a local authority to its whole-time officers a proportionate bonus should be paid to its part-time officers. It is understood that the recommendation of the local authority representatives has been accepted by the local government associations and by the L.C.C.

The Minister of Health has issued an order increasing by 20% the minimum fees payable to public vaccinators under the Vaccination Order, 1930. As regards fees payable to doctors called in by midwives, the Minister states: "These fees were fixed as recently as 1940, and it does not appear to the Minister necessary to amend the scale pending arrangements to be made in connexion with the new health service."

The Council is dissatisfied with the results of the conference with local authority associations.

A National Maternity Service

32. The Council has considered the report on a National Maternity Service prepared by the Royal College of Obstetricians and Gynaecologists. It will be recalled that the Association in 1929 and 1935 prepared a report on a National Maternity Scheme for England and Wales. The problem was dealt with in the Association's proposals for a General Medical Service for the Nation published in 1938. The report of the College includes a proviso that the general practitioner who desires to undertake midwifery *must* have special experience in order to take his place in the service in domiciliary midwifery, at an ante-natal clinic, or in advising during the post-natal period. It is this recommendation which is in direct conflict with the policy of the Association as set out in the report on a General Medical Service for the Nation as follows:

> "In the view of the Association, what is needed in the interest of the mother is the establishment of a national maternity service based upon the principle of continuity of medical and nursing care throughout pregnancy, labour, and the puerperium. The present system, under which it is frequently the case that a woman receives her antenatal care at the hands of one practitioner, is confined by a midwife, and, in the event of an emergency arising, is then attended by a practitioner who is without previous personal knowledge of the woman's pregnancy, should be replaced by one in which every woman is, throughout pregnancy, labour, and puerperium, under the care of her doctor and midwife, aided when necessary by a specialist and institutional service."

There are other parts of the report of the College with which the Council is not in agreement, and the Council is seeking an early opportunity of discussing the whole matter with the Royal College of Obstetricians and Gynaecologists.

Equal Pay

33. The Association was invited to submit evidence in relation to the medical profession to the Royal Commission on Equal Pay. The principle of equal pay for men and women practitioners was adopted by the Association as part of its policy many years ago, and it is generally operative in all branches of medical practice. A memorandum of evidence on the Association's experience was submitted to the Royal Commission. Attention was, however, drawn to the restriction of opportunities for women among the senior medical appointments in the public services. On the question of inequality in the matter of cost-of-living bonus the Association's evidence states:

> "Although local authorities and Government Departments pay medical women equal salaries and emoluments for equal work, they illogically discriminate between them in the cost-of-living bonus, the amount being 23s. per week for men and 18s. 6d. per week for women on salaries up to £1,500 (new scale of figures, Nov. 1, 1944). Though the Association realizes that the Commission is not primarily concerned with this matter, it is felt that such differentiation regardless of responsibility for dependants is an anomaly requiring consideration."

Owing to the paper shortage it has not been possible to print the whole of the memorandum in this report, but copies will be sent to any members applying to the Secretary.

SPECIAL PRACTICE

A National Eye Service

34. The Ophthalmic Group of the Association has prepared a scheme for a national medical eye service which, it is hoped, will take its place in the post-war National Health Service. The scheme has been carefully considered at two series of Regional meetings of the Group, at which all who practise ophthalmology, whole- or part-time, have had opportunities of expressing their views on the important matters of principle involved in it. The Council submits the scheme for the approval of the Representative Body. (See Appendix.)

RECOMMENDATION.—That the Representative Body approves the scheme for a National Eye Service.

HOSPITALS

Use of Hospital Beds by General Practitioners

35. In accordance with Minutes 288–290 of the A.R.M., 1944, the Council has under consideration the question of the preservation and development of the small general hospitals with a view to making these hospitals, staffed by general practitioners, the nuclei of one type of the future health service centres. A report on this subject will be made later.

Appointment of Medical Staffs of Hospitals

36. The Council has had under consideration the question of permanent appointments in wartime, and has decided to repeat its 1939 recommendation to all hospital authorities that appointments to the consultant and specialist staffs should be made on a temporary basis during the war and for one year thereafter. The Council has recommended also that, if there are very exceptional circumstances which are held to justify a permanent appointment, a period of at least four months should, whenever possible, be allowed for the receipt of applications to permit of candidates serving over-seas being considered.

Liaison between B.H.A. and B.M.A.

37. There has been a continued exchange of views with the British Hospitals Association on the White Paper in so far as it relates to voluntary hospitals. The chairman of the Hospitals Committee and the Secretary of the Association have been appointed members of the British Hospitals Association Deputation Committee which is discussing with the Minister the White Paper proposals.

FINANCE

38. It had been confidently expected that the income in the financial year ending Dec. 31, 1944, would be adequate to meet the growing expenditure of the Association, and the accounts prepared for the year show that this confidence was justified. Post-war plans, however, commit the Association to heavy expenditure, and the substantial surplus disclosed in the accounts of recent years should not be expected to continue.

Balance Sheet

39. The total liabilities diminished, as every opportunity was taken to meet accounts as they were presented. Substantial additions have again been made to the reserve funds; accruing surplus moneys have been invested in order to

provide cover for these funds. The following summarized balance sheet shows the general position:

	£
Sundry creditors	13,135
Reserve funds	170,664
Secured loans	7,100
Accumulated surplus	329,201
	£520,100
Sundry debtors	18,034
Leasehold premises	379,206
Investments and cash	112,897
Paper, stocks and fixtures	9,963
	£520,100

Income and Expenditure Account

40. At the close of 1944 the membership stood at a new record of 48,230 and for the first time the revenue from subscriptions exceeded £100,000. There was an increase in the number of members taking advantage of the Service subscription. As a result of the different rates paid by members, the average subscription received for the year was £2 4s. 6d. Rents collected from tenants in the Association's building exceeded £20,000. When the South Wing is completed the income from this source will be increased, but it is evident that the growing activities of the Association will necessitate increased accommodation with a consequent diminution in the rentals received.

Capitation grants paid to Branches would, in the ordinary course of events, increase in proportion to the rise in membership. Medical men and women serving with the Forces, however, form a considerable proportion of the new members, and for official purposes these are regarded as unattached to an organized Branch and no grant is payable in these circumstances.

There was little variation in the normal recurring items included in the Association general expenses, apart from an increase in Schedule D income tax, which was complementary to the increase in the revenue from investments. The Association, however, was involved in substantial expenditure by the issue to the whole of the profession of the White Paper and Questionary on the National Health Service, and the fees paid to the British Institute of Public Opinion for the analysis. The proportion of the Public Relations expenses borne by the Association increased during the year within the limit approved by the Council. The premises expenses increased slightly over the preceding year, although it was not possible to maintain a high standard of cleaning and repair throughout the building. Every opportunity, however, is taken to obtain licences to carry out urgent repair and decoration. The cost of printing, postage, and stationery increased during the year as a natural result of the development of the work of the Association in all departments.

The Balance Sheet and the Income and Expenditure Account will be published in a later issue of the *Supplement*.

Journal Account

41. The cost of producing the *Journal* materially increased during 1944. As a result of the growing membership, it was necessary substantially to increase the number of copies printed, the number rising from 2,392,050 in 1943 to 2,658,850 in 1944. Although the supply of paper made available was again strictly controlled, the number of pages produced during the year increased from 3,034 in 1943 to 3,260. The number of advertisement pages diminished from 1,144 to 1,129, but it is highly satisfactory to note an increase in advertisement revenue.

The accounts of the scientific journals include for the first time the *Annals of the Rheumatic Diseases*, recently taken over by the Association. In all cases the number of subscribers to these journals was increased in 1944.

Office Staff Superannuation Fund and Trust Funds

42. The quinquennial revaluation of the Office Staff Superannuation Fund has been made by the actuary and discloses that the financial position is highly satisfactory. None of the Prize Funds has made awards during the year. The amount of subscriptions and donations collected by the B.M.A. Charities Trust Fund shows a satisfactory increase.

Estimate for 1945

43. From figures already available it is estimated that the revenue of the Association during the coming year will meet the expenditure, even though this will be on a higher scale than in recent years. With an increase in revenue from subscriptions, it is likely that the total receipts for the year will be approximately £134,000.

BRITISH MEDICAL JOURNAL

44. The *British Medical Journal* has continued to appear regularly notwithstanding the difficulties of production and distribution in wartime, with severe rationing of paper and shortage of staff.

Since last year's report under this heading the obligatory circulation of the *Journal* has grown month by month in consequence of the large increase in membership of the Association, and the weekly printing order now approaches 53,000 copies. If that figure is not exceeded it may be possible with the present ration of paper to continue producing a *Journal* with an over-all size of 60 pages, and sometimes 64, compared with an average weekly total of 144 pages in the year 1938. Every means for economizing space has long since been adopted. From the early part of 1942 circulation outside the membership has been curtailed drastically, and new subscriptions are declined so long as the paper situation remains acute. The number of original articles and medical memoranda submitted for publication is far in excess of the space available under wartime conditions. Last year 946 signed articles were received in the Editorial Department, compared with 801 in 1943, 797 in 1942, 737 in 1941, and 667 in 1940. The total is now as large as before the war. Nor are there any signs of diminution in the number of letters sent for publication, and it is possible to print in the *Journal* or *Supplement* only a selection from the large volume of correspondence received from members at home and abroad on a great variety of subjects.

Throughout 1944 many additional pages were allocated to the *Supplement* for publication of matter concerning the Government's White Paper, including the Association's Analysis of the Government's Proposals, the Questionary to the Profession, and an abstract of the White Paper in nine parts; also much correspondence and many signed articles and addresses on a National Health Service.

The new feature introduced into the *Journal* early in 1943 under the heading "Any Questions?" has established its popularity with readers and is continued each week in response to a very widespread demand. A first selection of the queries and answers has been prepared for republication in book form, but authority for an allowance of printing paper for this purpose cannot yet be obtained from the Ministry of Supply.

Special Quarterly Journals

45. In spite of printing difficulties and heavy pressure of work on the editors of the special quarterly journals, these have continued to be published throughout the war—though in some instances at irregular intervals—and the Association has even been able to add to its list the *British Journal of Industrial Medicine* and the *Annals of the Rheumatic Diseases*. The former journal is published in conjunction with the Association of Industrial Medical Officers, and the latter with the Empire Rheumatism Council. The high standard set and maintained by the *British Journal of Industrial Medicine* is reflected in a rapidly increasing circulation, which, in fact, doubled itself by the end of the first year of publication. By sacrificing advertisement space and obtaining an increased ration of paper the Association has just been able to meet the demand for this periodical. On the recommendation of the Journal Committee the Council agreed that the Association should publish a *Journal of Social Medicine*, under the editorship of Prof. F. A. E. Crew, F.R.S., assisted by Sir John Orr, F.R.S., and Prof. Lancelot Hogben, F.R.S. The Paper Control unfortunately refused to issue a licence to publish, and the Government's action in refusing to allocate 1 ton of paper a year for this journal was criticized by Lord Buckmaster in a debate in the House of Lords in March. It is presumed that the end of the war will increase the supply of paper and that the *Journal of Social Medicine* will make its appearance next year. After consultation with the British Paediatric Association and the Editorial Committee of the *Archives of Disease in Childhood*, the Association decided to purchase the rights of the *British Journal of Children's Diseases*, which is now incorporated in the *Archives of Disease in Childhood*. The link between the British Paediatric Association and the *Archives* has been formally recognized by arranging that the editors and editorial committee of this quarterly are to be jointly appointed by the B.M.A. and B.P.A.

ORGANIZATION

Regional Organization of the Association

46. The A.R.M., 1943, passed a resolution to the effect that arrangements should be made now to appoint full-time Regional Secretaries so that these secretaries shall start to function as soon as possible after the war. The Council has considered this matter and has decided to appoint full-time regional secretaries as soon as national circumstances permit. It is proposed in the first instance that the regional organization should cover the following regions: I, North-Western, II, North-Eastern, III, Greater London, IV, South-Eastern, V, Wales, including South-Western. The actual areas of the regions and their administrative centres are still under consideration.

Regional Secretaries will be officers of the Council appointed by it and responsible to it; their status will be that of Assistant Secretaries to the Association.

Association Organization in Northern Ireland

47. The Council has considered a proposal made by the Council of the Northern Ireland Branch that a Standing Committee for Northern Ireland should be formed with duties and powers analogous to those of the Scottish Committee.

The chief reason for forming a Standing Committee for Northern Ireland is that there is a separate Government, and if the Northern Ireland Branch is to be recognized as the mouthpiece of the profession in that country it should have a representative committee with a status higher than that of the existing Branch Council. Such a proposal would have the added advantage that the Northern Ireland Branch would have direct access to the Central Council. The Branch Council has consulted the Divisions in Northern Ireland upon this proposal, and a unanimous wish has been expressed that there should be a Standing Committee for Northern Ireland. The project is one with which the Council is in complete sympathy.

The Council accordingly recommends:

RECOMMENDATION.—That the By-laws and the Schedule to the By-laws be altered in the following manner:

By-law 78

Sub-clause (1). By inserting the words "Northern Ireland" before the words "and Dominions."

By substituting the words "Except in the cases of the Insurance Acts, Scottish and Northern Ireland Committees" for the words "Except in the cases of the Insurance Acts Committee and the Scottish Committee.".

Sub-clause (2). By substituting the words "Each of them, the Insurance Acts Committee, the Scottish Committee and the Northern Ireland Committee" for the words "Each of them, the Insurance Acts Committee and the Scottish Committee."

The Schedule to the By-laws

By inserting the following immediately after the item "Naval and Military":

Under the heading "Name of Committee" the words "Northern Ireland."

Under the heading "Additional Members *ex officio*" the words "All the Members of Council who shall for the time being be resident in Northern Ireland."

Under the heading "Appointed Members. Otherwise appointed" the words "Members appointed by the Divisions in Northern Ireland grouped in such manner as shall from time to time be approved by the Council."

Under the heading "Duties, Powers, etc." the words "To consider all matters specially concerning Northern Ireland, and in conformity with the decisions of the Representative Body, deal with all such matters. It shall meet at such place and time as the Committee itself may direct. The Committee shall have power to add to its number not more than 3 Members specially qualified to assist in the business of the Committee."

Association Handbook

48. The Association *Handbook* has not been published since 1938. The Council has decided that as soon as practicable the *Annual Handbook of the B.M.A.* be revised and published, if necessary, in an abbreviated form.

Proposed Standing Industrial Medicine Committee

49. The Council has considered the following Minute of the A.R.M., 1944—

> 257. Proposed by Bromley: That in view of the increasing importance of industrial medicine this meeting recommends to the Council that it should consider the desirability of setting up a separate standing committee of the Association to deal with matters of industrial health.
>
> The motion was accepted by the Chairman of Council as a reference to the Council—

but has deferred consideration of the matter pending the reconstruction of the central committee machinery of the Association.

NAVAL AND MILITARY

Representation of R.A.M.C. and R.A.F.M.S. on the Council

50. RECOMMENDATION.—(*a*) That Major-Gen. R. W. D. Leslie, C.B., O.B.E., be elected to represent the R.A.M.C. on the Council for the period 1945–8.

(*b*) That Air Marshal Sir Victor Richardson, K.B.E., C.B., be elected to represent the medical branch of the R.A.F. on the Council for the period 1945–8.

War Gratuities

51. Dissatisfaction has been expressed by some members of the Association now serving with H.M. Forces with the scale of war gratuities recently announced by the Government. The gratuities to be paid on the termination of hostilities compare unfavourably in amount and in method of calculation with the sums paid at the end of the last war, and the Council is considering what practical steps can be taken in the matter. It will be appreciated that the issue is a general one affecting all branches of the Services. In the meantime, inquiry has been made of the Treasury on the following points:

(1) Will a medical officer who is released at the instigation of the Central Medical War Committee on grounds of civil needs be entitled to either the release leave of 56 days, or to the foreign service leave, or both?

(2) Will a medical officer be entitled to receive, if he so wishes, the outfit allowance of £12 in lieu of the outfit?

Retired Pay of Regular Officers

52. In 1938 the Council submitted to the Service Departments a statement on the inadequacy of the pension rates paid to regular serving officers. The Departments would not agree to revise the existing scale, and the Council decided not to press the matter. The Council is reviewing the matter afresh, and it is expected that renewed representations will be made to the Departments.

Disability Pensions for Medical Officers

53. Representations have been made to the Ministry of Pensions for an improvement in the rates of disability pensions for medical officers. It appears to the Council that the rates are inadequate, particularly in the case of officers in the junior ranks with a degree of disability of 70% and over.

The Ministry of Pensions replied that since the pension rates were reviewed by the Government in 1943 there have been no changes which would justify any further increase in the current rates of disability pension. The Department argued that there are other factors which should be borne in mind. Additional allowances may be payable subject to the fulfilment of certain conditions in respect of a wife and children, and an allowance up to a maximum of £80 a year may be granted towards a child's education. If the officer is in need of constant attendance, an allowance up to £100 a year may be granted. Special provision exists for the officer who is, in fact, virtually unemployable by reason of his pensionable disability. He may be granted a supplement of £26 a year together with an allowance, if necessary, for constant attendance and allowances for his wife and children, even if they would ordinarily be ineligible by reason of the date of marriage or birth.

PATENT LAW

54. The Council set up a Special Committee to prepare and submit evidence on behalf of the Association to the Patents Committee, 1944, appointed by the President of the Board of Trade to consider and report whether any changes are desirable in the Patents and Designs Act. The following memorandum of evidence, which was supported by verbal evidence, was submitted to the Board of Trade Committee.

I. *Endorsement of Medical Patents as Licences of Right*

(1) The committee has reached the conclusion that a system of compulsory licensing for medical patents is not necessary or desirable at the present time and would deprecate the automatic issue of licences as this would remove from the Controller his present power of refusing a licence to a manufacturer lacking the staff and facilities necessary to ensure satisfactory production.

II. *Amendment of Section 38A of Patents and Designs Act, 1907*

(2) The present position is that Section 38A of the Patents and Designs Act, 1907, places on the Controller the onus of granting or refusing an application for a licence to manufacture a food or medicine which is the subject of a patent. The Controller is required to grant a licence to any applicant "unless he sees good reason to the contrary." Any decision by the Controller under Section 38A is subject to appeal to the High Court. As the committee understands it the intention of Section 38A was to enable a licence to be obtained under this Section subject only to the condition that the applicant could show that he was suitably qualified and had appropriate facilities for production. The committee doubts whether Section 38A of the Act makes this position clear and recommends that it should be so amended as to ensure that a licence will be granted under that Section to any applicant who satisfies the two conditions mentioned.

(3) It has been suggested to the committee that foreign patentees enter into agreements with existing British firms or with firms founded in Britain for the purpose, who act as agents for the sale in this country of therapeutic substances and appliances the manufacture of which is carried out almost entirely abroad. Such a procedure results in the foreign firm obtaining a virtual monopoly. We recommend that consideration should be given to such alteration of the law as would provide a remedy for this practice.

III. *Patents and Trade Marks*

(4) It is appreciated that the Committee of the Board of Trade is not dealing directly with trade marks, but this point is one of great importance and inevitably arises when considering the patents question. In certain cases where a patent is in operation there is afforded to the patentee an opportunity of acquiring what amounts to a permanent monopoly by the registration of a trade mark which, by advertisement, he popularizes as the familiar name of the substance or appliance which is the subject of the patent. The committee recommends that a condition in the granting of a patent for a therapeutic invention should be that, if the patentee desires to call the substance or appliance so patented by a term other than its scientific name, he should adopt a name not protected by a trade mark but

approved by a Special Advisory Body nominated for this purpose. The committee is aware that the abuse of trade marks is by no means limited to therapeutic substances or appliances which are the subjects of patents and hopes that the Board of Trade will eventually undertake an inquiry into Trade Mark Law in addition to Patent Law.

IV. *Dedication of Patents to a Central Body*

(5) Arising out of the general and detailed discussion it appears to the committee that it would be advantageous if there could be set up a central body to whom medical patents could be dedicated by a patentee who wishes that his invention should be developed for the benefit of the public.

MEDICAL ETHICS

55. There are no new questions of ethical principle which the Council has occasion to bring to the notice of the Representative Body. The work of investigating complaints regarding professional conduct and advising members of the Association on ethical problems has been continued.

OVERSEA BRANCHES

56. The Council has considered a number of matters submitted by oversea Branches, mainly affecting remuneration and conditions of service in several sections of the Colonial Medical Service. A deputation has met representatives of the Colonial Office to discuss conditions in Malta, Trinidad, British Guiana, Jamaica, and the Windward Islands.

SCOTLAND

57. Dr. A. F. Wilkie Millar and Dr. George MacFeat were reappointed Chairman and Deputy Chairman of the Scottish Committee for Session 1944–5.

Scottish Divisions and Local Panel Committees Conference

58. The Chairman of Council authorized holding a conference of representatives of Scottish Divisions and Local Medical and Panel Committees in Scotland to consider the White Paper on a National Health Service, with particular reference to the section dealing with the service in Scotland, also the report of the Scottish Committee to the Council on the White Paper. This conference took place on October 24, 1944.

Discussions on the White Paper

59. The members of the Negotiating Committee resident in Scotland along with the chairman of the Scottish Committee and a representative of the Highlands and Islands Subcommittee were duly authorized to carry on separate discussions in Scotland with the Secretary of State and the Department of Health on those aspects of the White Paper which peculiarly affected Scotland.

Arising out of those discussions a copy of the proposals relating to the administrative structure of the comprehensive health service in Scotland has been sent to every practitioner in Scotland, also to secretaries of Divisions in non-Scottish areas, for their information.

Liaison with the British Hospitals Association

60. Joint meetings of representatives of the Scottish Branch of the British Hospitals Association and of the Scottish Committee have been held to consider the proposals for the future hospital service in Scotland. Agreement has been reached on all the main issues involved.

Highlands and Islands Medical Service

61. A letter was sent by the Scottish Secretary in October, 1944, to all practitioners taking part in the Highlands and Islands Medical Service, giving full details of the activities of the Highlands and Islands Subcommittee from 1931 till that date. This included particulars of the wartime increases in the grants to practitioners in 1941 and 1943, which were agreed to by the Department of Health as the result of representations made by the Subcommittee.

Maternity Services (Scotland) Act, 1937

62. During 1944 the Scottish Committee continued to make strong representations to the Department of Health on the subject of revision of the terms of service of practitioners under the above Act. In February, 1945, the hon. secretaries of Branches and Divisions and the Secretaries of Panel Committees in Scotland were informed that all the main amendments urged by the Scottish Committee had been agreed to.

These were that the basic fee be increased to £3 3s., with the consequential alterations in the fees payable when a woman changes her residence during her pregnancy, etc. There will be no differentiation in the fees paid for patients entitled to medical benefit under the National Health Insurance Acts, and mileage payments are to be increased as a wartime measure by 10%. This higher mileage grant and the increased fees will be payable in respect of confinements occurring on and after April 1, 1944.

The service has not yet been inaugurated by the local authority in Glasgow. The Glasgow Division and the Scottish Committee have taken action regarding the situation in that city. In Dundee the Division has meantime recommended practitioners not to accept service under the Act.

H. GUY DAIN,
Chairman.

APPENDIX

SCHEME FOR A NATIONAL EYE SERVICE

Preamble

1. The following scheme for a National Eye Service is submitted as a contribution to the discussion of an all-inclusive medical service for the nation. The scheme is based on the assumption that ophthalmology will continue to be an integral and co-equal part of the general plan for the future hospital services of the country. To meet the problem of mass ophthalmic work considerable extension of present facilities will be necessary. This will involve enlargement of hospital departments, the creation of satellite clinics, and the maintenance of any present-day clinics which serve local needs.

2. It is assumed that a national scheme will provide that all eye-examinations and treatment, including the prescription of glasses, will receive attention from qualified ophthalmic medical practitioners with special training and experience. This assumption is made the more readily because of certain official pronouncements which are quoted below.

3. In 1927 a body representing sight-testing opticians promoted a Bill seeking to obtain State recognition of its members. It proposed to restrict the right of prescribing glasses to members of the body concerned, and to oculists. It was strongly opposed by the medical profession on the grounds: (1) that the eye was much more than an optical instrument and that therefore its examination and subsequent treatment, if necessary, was a medical function; and (2) that it was undesirable to combine in one person the professional function of prescribing with the commercial function of selling spectacles. A Departmental Committee was set up to examine the question, and the following are extracts from its majority report:

> "It is generally agreed, however, that in the best interests of the patient the examination of his eyes should, if at all possible, be carried out by an oculist. . . . The oculist can bring to bear the whole of his medical experience either in deciding that it is possible to exclude the existence of disease or in diagnosing and treating any diseased condition should this be present."
>
> "It is common ground that diseases for which the provision of spectacles by themselves affords no relief can exist in the eye itself or can exist in other parts of the body and be detected through the eye, while at the same time an error of refraction may or may not be present. . . . We are satisfied that the cases in which there exist together with refraction error either diseases of the eye or some other disease evidence of which can be detected in the eye are too numerous to be regarded as negligible."
>
> ". . . We are satisfied that the number of cases in which the patient may miss the opportunity of remedial treatment if the case is not handled by an oculist is by no means negligible."
>
> "It seems to us impossible to escape from the conclusion that State recognition of sight-testing or optometry as above defined must carry with it the implication of ability to exclude the possibility of the existence of disease before prescribing glasses."
>
> "In so far as the ability to detect disease would be implied by admission to the Register we feel obliged to say that we are not satisfied that there is any training for opticians sufficiently thorough to avoid the danger which is involved in the possession of a little medical learning. We have heard evidence regarding the curricula of various bodies and we have seen in progress the examination of one of the bodies whose members are qualified for admission to the register of the Joint Council of Qualified Opticians. We have also considered very carefully evidence regarding post-diploma teaching which is given at the 'Refraction Hospital,' but for our present purpose this latter teaching is hardly relevant, since it admittedly applies only to a comparatively small number of opticians who for the most part already hold diplomas."
>
> "We are satisfied, however, that none of the teaching provides anything in the way not merely of general medical training, but of specialized medical training pertaining to the eye which is comparable to the training required of a medical practitioner."
>
> "We have seen that the functions of even the best-qualified opticians should be restricted to the use of mechanical means for the correction of errors of vision, and that in the best interests of the patient the responsibility for any examination of the eyes should be upon an oculist who, in addition to having access to all the resources of the skilled optician, can bring to bear the whole of his medical experience either in deciding that it is possible to determine the absence of disease, or, on the other hand, to recognize and to treat any diseased condition that may be present. Opticians cannot, therefore, provide more than at best a partial service."
>
> "In considering the nature of any possible register for sight-testing opticians we feel bound to pay attention to the effect it might have on the trade of opticians who only dispense prescriptions issued by oculists and abstain from sight-testing. We have been informed that oculists generally test the work of the opticians to whom they recommend their patients to go for the purpose of having spectacles made up, and we are not aware of any demand for a register of

> dispensing opticians by itself. If a register of sight-testing opticians were set up, however, the dispensing opticians would undoubtedly be prejudiced by a lowering of their status in the public estimation, and for this reason, if for no other, we should consider a concurrent register of dispensing opticians necessary."
>
> "While we have been forced to conclude that it is not in the public interest that a State Register of Opticians should be set up, we desire to emphasize that one of the principal reasons on which we base this opinion is our view that it is possible and probable that the medical profession will be able to provide insured persons entitled to ophthalmic benefit with the service of oculists at an early date, and at fees within the limit of the funds from time to time available to approved societies for this purpose. We hope, also, that such a service will be extended to the non-insured population. If, however, for any reason, these hopes are not fulfilled within a reasonable time, we do not wish our report to preclude the possibility of a reconsideration of the question in the light of the circumstances then existing."

The Bill was dropped.

4. For some years many approved societies have been giving ophthalmic benefit to their members, and many of them have insisted on, or have encouraged as far as possible, a medical examination. A certain amount of control over opticians who do insurance work is exercised by a committee—the Ophthalmic Benefit Approved Committee—and the Ministry of Health emphasized its preference for a medical eye examination wherever possible in the following quotation from the instructions given to the committee:

> "The Joint Committee attach great importance to the provisions in the Additional Benefit Regulations under which insured persons are allowed, subject to certain conditions, to have their eyes examined by ophthalmic medical specialists, and it must be understood that the Approved Committee will do nothing which will tend to discourage such examinations, but that, on the contrary, they will take such steps as may be open to them to encourage the development of a satisfactory and widespread service including the provision of examination by medical specialists."

5. In spite of this, a large majority of insured persons are still dealt with by sight-testing opticians. The reason is largely financial, as most of the societies grant only 5s. towards the cost of the examination, and the fee of the eye specialists employed by the National Ophthalmic Treatment Board (a body which provides an eye examination by specialists only) was, until January, 1944, 10s. 6d. and is now 15s.

6. The National Ophthalmic Treatment Board is a body consisting of representatives appointed respectively by the British Medical Association and the Guild of British Dispensing Opticians. It was set up because of the hint, or rather challenge, which is contained in the last paragraph taken from the report of the Departmental Committee quoted above. The Board can make no profits. It provides an examination by eye specialists who are approved by the Ophthalmic Group Committee of the British Medical Association, at a reduced fee. The glasses are supplied by dispensing opticians at prices fixed by the Ophthalmic Benefit Approved Committee. The Board has been in operation for over 15 years and has extended to many parts of the country. At the outset of the war it had over 450 centres in England and Scotland, Wales, and Ireland, and its list of eye specialists included nearly 900 practitioners who had been approved, after examination of their credentials, by the Ophthalmic Group Committee of the B.M.A. Of the total number, nearly 600 held hospital eye appointments and/or possessed a special diploma in ophthalmic medicine and surgery. During this war its services have been widely used by the Royal Air Force and the War Office in the examination of the eyes of recruits. This pioneer effort to provide an organized medical eye service, though only for a limited section of the population, has accumulated experience in organization which may prove useful in the inception of a national service.

7. A national medical service should give a complete general institutional and specialized service, and it should give it by means of properly qualified doctors. So far as the eye service is concerned, it would appear that it would not be possible at the present time to provide a service in which all the routine refraction examinations would be done by medically qualified refractionists. The number of these doctors at the present time would be insufficient to meet the demands of a general service for eye examination and treatment by the State. It is believed, however, that even now the supply of fully qualified men is sufficient to supervise the care of the eyes of the community. It is certain that at the end of this war large numbers of young and experienced registered medical practitioners will return home, and therefore special facilities should be arranged for such of them as desire to do ophthalmic work, so that they shall have adequate training at ophthalmic centres or in the medical schools in order that they may sit for the ophthalmic diploma and enter practice. To meet the situation it is proposed that the examination of all eye cases shall be the responsibility of a medically qualified specialist, but that he shall be assisted by selected refractionists. So far as is known, there has been little alteration in the educational curriculum of the optician since the report of 1927, and medical observers of this curriculum are of opinion that, though the technical training at the best schools is excellent, that part of it which deals with pathological conditions of the eye is quite inadequate and must necessarily be so if not associated with a regular medical training. This scheme therefore proposes that a medical specialist shall be responsible for every patient, but that he shall be allowed to use the technical skill of selected opticians in refraction work. The optician in such a scheme would have a recognized official status; would be on a State register; and would be encouraged to improve his knowledge and experience under medical direction.

8. The opportunity to join the service as a refractionist should be open to all opticians practising as such at the inception of the service and who can satisfy a standard to be fixed by a body on which ophthalmic surgeons and opticians should be represented.

Object of the Scheme

9. To co-ordinate the ophthalmic services of the nation in order to make an efficient medical eye service available to the whole community.

Essential Requirements

10. (1) Under the National Health Service, examination of the eyes and treatment of eye diseases and defects will be carried out only by, or under the supervision of, properly trained and experienced ophthalmic surgeons. It is most important that all children of, and below, school age who need ophthalmic attention should be examined and treated only by ophthalmic surgeons.

(2) The scheme should be easy to administer and adequately financed.

(3) The benefits of the scheme should be open, on the same basis as other consultant services, to all who come within the scope of the National Health Service.

Outline of Main Features of the Scheme

11. There will be four units in the scheme:

(1) The ophthalmic surgeon.
(2) The assistant ophthalmic surgeon.
(3) The clinical assistant.
(4) The medical auxiliary.

(1) THE OPHTHALMIC SURGEON

12. He will be in charge of a hospital unit and he may also perform duties at satellite ophthalmic centres. He must be one who by qualification and experience is competent to deal with any branch of ophthalmic surgery and medicine, including refraction, and to direct the work of his assistants.

(2) THE ASSISTANT OPHTHALMIC SURGEON, AND (3) THE CLINICAL ASSISTANT

13. These will be either (*a*) one of junior status who is qualifying for a senior post involving consulting and operative work, or (*b*) a medical practitioner of approved competence to do refraction work and to carry out ophthalmic diagnosis and treatment, excluding major operative measures. At the inception of the scheme all such practitioners now in practice would be entitled to admission. The ophthalmic surgeon or one of his assistants shall decide whether the case is one for examination of a refractive error or for some other form of treatment. All patients shall in the first instance be interviewed and examined by one of the ophthalmic medical staff and remain his responsibility.

(4) THE MEDICAL AUXILIARY

14. Auxiliary services include opticians and orthoptists. Opticians may be divided into two classes: (*a*) refractionists and (*b*) dispensing opticians. All opticians admitted to the service will possess a stated minimum of training and experience appropriate to their work.

The Refractionist

15. The part played by the refractionist will be to measure errors of refraction in cases referred to him and to perform any other technical duties required of him. He will not be allowed to practise independently of the medical profession. He will be under the disciplinary control of a statutory body upon which both the medical profession and opticians are represented. No refractionist working under the scheme shall be in a position in which he may be financially interested in the sale of spectacles.

The Dispensing Optician

16. Facilities for the dispensing of spectacles may be available at the centre, clinic, or hospital, but patients should be free to obtain their spectacles from a dispensing optician of their choice. Opticians recognized by the service as dispensing opticians shall be on a register which will guarantee their possession of a stated minimum of training and experience. They will confine themselves to dispensing, undertaking not to engage in the testing of sight. The spectacles supplied under the service arrangements,

which shall be of a price and standard and quality approved by the medical profession and shall include a full choice of frames within the price limit fixed by the service, will be dispensed by the approved dispensing opticians on the approved list. State grant will be paid only in respect of spectacles dispensed by approved dispensing opticians. All dispensing opticians must, if so desired, submit for the approval of the ophthalmic surgeon the spectacles he has prescribed.

The Orthoptist

17. Any orthoptist employed by the service must be in possession of a certificate of proficiency recognized by the Board of Registration of Medical Auxiliaries.

Regional Direction of the Scheme

18. In a few of the larger cities and/or university centres there will be established Ophthalmic Institutes at which research work will be done and higher education given. The absence of such institutes in this country has placed it at a disadvantage with some other countries; and the establishment of a National Health Service, including all specialized services, offers an opportunity for remedying this defect.

In general, a hospital of suitable status will be the centre of regional administration. Each region also will have a number of major ophthalmic hospital centres which will be autonomous units and part of the regional scheme. In these hospitals the beds and operative facilities for eye work should be segregated.

Some minor centres for ophthalmic work will be linked up with the regional and major ophthalmic hospital centres. These will be so located as to meet the convenience of the population. They will vary in size and importance according to local circumstances. The rural population will be served by periodical visits from the staff of the regional centre or major ophthalmic hospital unit.

A model centre would consist of: (*a*) Waiting room. (*b*) Consulting rooms. (*c*) Office for secretariat and records. (*d*) Theatre for minor oprations. (*e*) Room for orthoptic training or for other purposes. (*f*) Accommodation for dispensing optician. Other ancillary services will be necessary. There should be freely available laboratories for pathological investigation, with, in regions of suitable size, a special ophthalmic pathologist and bacteriologist. In addition, there must be the fullest co-operation with all the other medical activities of the service.

The personnel of the centre would include: (*a*) Ophthalmic and/or assistant ophthalmic surgeon. (*b*) Refractionist. (*c*) Dispensing optician. (*d*) Orthoptist. (*e*) Pharmacist. (*f*) Nurse. (*g*) Secretary-receptionist. (*h*) Social worker and/or health visitor.

Conditions of Service

19. In the National Eye Service ophthalmic surgeons will normally be employed on a part-time basis, although there may be, in addition, some whole-time appointments. The employment of part-time officers will be necessary in order to provide that those patients who desire to obtain their services privately shall be able to do so. There shall be no bar against such a person taking advantage of the institutional facilities provided by the National Service even if he should get his first advice outside the ordinary system and pay for it. If such a person enters a private ward or wing or block the surgeon in charge of the case should be at liberty to charge his private fee.

Fundamental Requirements

20. There are four requirements in negotiating the inception of such a service which need special emphasis as being fundamental to its success:

(1) The medical personnel who have to work the scheme must have adequate representation on any body which negotiates its inception.

(2) They must have adequate representation on all bodies which administer it after it begins work.

(3) Their remuneration and status must be equal to those of other consultants and specialists.

(4) Adequate compensation to all medical practitioners entering the service for loss of the capital value of the goodwill of their practices.

NATIONAL HEALTH SERVICE IN SOUTH AFRICA

COMMISSION'S REPORT WELCOMED BY PROFESSION

The recommendations of the National Health Services Commission in South Africa, which has lately reported, were summarized in the *Supplement* of April 7 (p. 52). The Commission, appointed in 1942, was charged with an inquiry into the provision of a service in conformity with the modern conception of health which would ensure adequate medical, dental, nursing, and hospital attendance for all sections of the people of the Union.

The report of the Commission has been received with great satisfaction by the medical profession in South Africa. The *South African Medical Journal*, the organ of the Medical Association of South Africa (B.M.A.), describes the report as "a solid piece of work and well worth waiting for," and says that "it is completely in accordance with the principles demanded by the medical profession." One of these leading principles is that the provision of more doctoring for the community is no solution to the problem of meeting its health needs efficiently, and that although more and better facilities for treatment are required, there is even greater need for cutting at the roots of the ill-health and disease in the population by drastic reforms in such fields as nutrition, housing, and physical education, rehabilitation, and social security generally. The Commission pays the Association the compliment of quoting verbatim from its memorandum of evidence in this connexion.

Another point on which the Association strongly insisted was that all health activities should be under a unified control, and here again the Commission has given it as its considered view "that, whether the present total expenditure on health services be adequate or not, the fundamental bar to effectiveness is a lack of unified direction and control of these which are at present operated independently or semi-independently by several central Government Departments, by four provincial administrations, and by numerous local authorities and voluntary organizations." Unfortunately, on this point, from a White Paper entitled "Outline of Post-war Construction," which the Government of South Africa has issued, it appears evident that the Government has no intention of providing a unified service, but rather of maintaining the present state of divorce between intra- and extra-institutional services.

The profession also welcomes in the Commission's report the suggested provision at all levels from the health centre right up to the central administration of representation of the various professional and technical groups in the service; also the proposed compensation of those who have given up their practice to join the service; and, generally, to preserve choice of doctor, the doctor-patient relationship, and the doctor's clinical responsibility to his patient.

The scheme which the Commission has proposed, says Dr. F. R. Luke, president of the Cape Western Branch, who was nominated by the Medical Association to serve on the Commission, "will, I feel sure, be welcomed by the public; [it] safeguards every legitimate interest of the profession involved, and constitutionally, financially, and administratively is possible of adoption by the Government."

A special meeting of the Federal Council of the Medical Association, which was called to consider the report, welcomed and supported the recommendations for the provision of personal health services in so far as these corresponded with the evidence given by the Association to the Commission, adding that such points of difference as existed were capable of adjustment by negotiation. The members of the Association "are prepared to co-operate whole-heartedly in a National Health Service for the prevention and treatment of disease provided the State for its part will demonstrate its earnest intention of dealing as radically with the causes of preventable ill-health." Attention is drawn to the fact that the profession has always considered it a moral obligation to provide medical assistance to all who may require it, irrespective of their ability to pay, and has hitherto fulfilled this self-imposed obligation to the best of its ability by providing services gratuitously or at reduced rates to large sections of the community. The Association hopes that the Government will put consideration of the urgent and serious health needs of the country above any legislative or political expediency and will implement in broad outline the recommendations of the Commission, after further consultation with interested bodies.

The Pharmaceutical Society of Great Britain, the National Pharmaceutical Union, and the Pharmaceutical Standing Committee (Scotland) have jointly submitted a statement on Pharmacy and a National Health Service to the Minister of Health and the Secretary of State for Scotland. It is urged that a patient should be free to receive from his doctor a prescription which he should be able to take to his own chemist's shop, and that medicines required at health centres should also be supplied to the patient from the chemist's shop. Other points in the memorandum are that an effective central body of pharmacists ought to be set up to advise the Minister of Health on the pharmaceutical side of the National Health Service and to administer it; that the payment be such that the service in each chemist's shop shall be self-supporting; that hospitals should have pharmaceutical departments staffed by pharmacists; that all medical supplies used in clinics and health centres should be under pharmaceutical control; and that all branches of the pharmaceutical services in an area should be co-ordinated.

HEARD AT HEADQUARTERS

The New President

At the meeting of the Council last week (the "Proceedings" of which will be published in our next issue) Mr. H. S. Souttar was, with general acclamation, appointed President of the Association in succession to the late Viscount Dawson of Penn, the appointment to run until the Annual Representative Meeting at the end of July, at which the Council will make a recommendation that he be elected President for the ensuing year. Mr. Souttar received an ovation when he entered the Council chamber and was informed of his appointment, and again when he was invested with the badge of office.

Not many former Presidents have had such a record of Association service behind them. Mr. Souttar has been a member of the Council since 1922; he has been Chairman of the Marylebone Division and President of the Metropolitan Counties Branch. On many central committees he has given generously of his time and his wisdom and experience. Association work with which he has been prominently connected includes the report of the committees on the treatment of fractures, on patents, on medical education, and on the reorganization of Association machinery. In recent years he has been Chairman of the Representative Body, Chairman of Council, and Chairman of the Medical Planning Commission. Towards the end of 1942 he undertook an important Government mission which necessitated a journey to India. His work on the Central Medical War Committee and on the Negotiating Committee has been of outstanding value.

From Chairman to President

In accepting the presidency Mr. Souttar said that he thought he was the first Chairman of Council to occupy that position. That, however, is not the case. The founder of the Association, Sir Charles Hastings, after he had been Chairman of Council for seventeen years, was made President in 1849 when the Association met in his own city of Worcester. Dr. R. W. Falconer, who held the chair from 1874 to 1877, became President the following year. Dr. J. Ward Cousins, who was Chairman of Council from 1892 to 1895, became President in 1899, and his successor in the chair of the Council, Professor Robert Saundby, became President much later, in 1911, when the Association met in Birmingham. Mr. Souttar is, however, the first London surgeon to be President since Sir Henry Butlin in 1910.

The S.R.M.

Reasons of State prevent publication of what was said and done at the two-day Special Representative Meeting, but some general impressions may be added to those recorded in a leading article elsewhere in this issue. The meeting made a record in agendas, with more than 400 amendments from Divisions, and yet it was all compassed within two days—solid sitting days, certainly, from early morning until early evening—and it would be surprising to learn that anyone in charge of an amendment went away with a grievance.

It is true, of course, that many amendments never reached the stage of being proposed. They were covered by similar amendments from other Divisions, so that progress through the agenda was by a series of kangaroo jumps, when it was discovered that twenty amendments were very like the one which had already been dealt with. Thus the meeting, whose programme, the Chairman confessed, made his heart sink when he first saw it, reached a series of decisions which, whatever history may say of them, were at least definite, consistent, and in logical sequence.

In spite of the absence of the constraint which the Press ordinarily imposes the meeting was friendly from start to finish. Only once had hands to be counted on a division, and that not because there was any doubt as to the way the vote had gone, but simply for the purpose of putting the numbers on record. Very few speakers transgressed the time limit, though quite early in the meeting a limit of five minutes for proposers and three for other speakers was imposed, and in no case was it extended. The movers of amendments were commendably brief. Some contented themselves with the words, "I move"; others would say, "The amendment is fully set out on the paper, and I have nothing to add to it"; and it was not noticeable that such amendments fared worse than those which were introduced with a lengthy speech.

The meeting was not without its humours. One frequent speaker—a surgeon—exhibited a large placard which he said had been worked for him by one of his patients—a signwriter—in gratitude for the removal of his appendix. The placard showed a diagram of the administrative structure as the last Representative Meeting had proposed it.

Two Chairmen

Dr. Peter Macdonald again furnished an example of first-rate chairmanship, always punctilious in preserving the utmost freedom of discussion, and yet ever mindful of the time-table. His autocracy—"I rule that it is so"—was exactly suited to such a meeting. Representatives in charge of motions had to keep a close vigil. A moment's absence from the hall and their amendment might be called, and in their absence the Chairman would move it, and again in their absence ask permission of the meeting to withdraw it.

Dr. Macdonald was ably assisted in the deputy chair by Dr. J. B. Miller, whose dry humour lightened the labours of the meeting. When one amendment was put to a meeting which had become a little lethargic, "I declare it carried," said Dr. Miller, "by about seven votes to two."

The Father of the Assembly

Dr. Guy Dain again scored a personal triumph at the meeting. He was ready to answer any point, and always concisely. Over and over again a hasty and unwise decision was averted by his intervention. Not often in Representative Meetings has the note of affection as well as of admiration been so conspicuous. Some of the great leaders of the past, like the late Sir Henry Brackenbury, inspired great respect and could sway decisions, but they hardly evoked the feeling which was evident in the singing of "For he's a jolly good fellow" in Dr. Dain's honour as the meeting ended. Dr. Dain, in reply, said that he hoped he might be strong and active enough to serve the Association "at any rate until this great business is through."

Press not Admitted

Meetings *in camera* are not the B.M.A. way. The Association would not merely have tolerated but would have welcomed publicity. Although medicine and medical affairs often need handling with more reticence than other subjects, few professional organizations or public bodies have been so open to the Press. Occasionally the Association has suffered from distorted reports in some of the less responsible newspapers, but it has adhered always to its policy of inviting the Press and giving them every assistance in reporting its meetings. If on occasion things have had to be said at the Representative Meeting which it would have been injudicious or premature to broadcast, the Press have not been asked to withdraw, but merely to refrain from publishing that part of the proceedings, and the request has always been respected.

The *Journal* is affected by the ban on publicity for the S.R.M. No report of the proceedings can be published, but steps are being taken to inform members of the profession of the trend of the discussion and the decisions.

A Local Document

A question involving the autonomy of Divisions came before the Council. In September last the Guildford Division issued to Divisions and Branches a leaflet entitled, "How the Proposed National Health Service will affect you." It was a leaflet intended for the general public. To this leaflet another Division took strong exception, holding that it put forward a policy concerning the White Paper which had not then, and has not now, been adopted by the Association, yet the words "British Medical Association," even though immediately qualified by "Guildford Division," would make the average member of the public suppose it to be a B.M.A. document. It also complained of money being spent by a Division on the propagation of a policy not yet the policy of the Association. The point is, of course, that the Association is really a federation of local units; that is its strength and its occasional weakness. A large amount of autonomy exists among these units, and if they are free to express their views on medical organization they should be entitled also to spend money out of their grant for the publication of such views.

On one point the covering letter issued with the Guildford leaflet was in error. It was stated that this local document had been approved by the Public Relations Officer of the Association. No endorsement had been given by that officer or by his department. The Council considered that in fairness to all concerned this should be made known. It also handed on to the Public Relations Committee the nice problem whether money provided for public relations work should ever be spent in furtherance of policy which, though approved by the Division, has not been approved—or has been disapproved—by the Association at its centre.

Correspondence

Postgraduate Training

SIR,—So now we know the scheme for postgraduate training of Service medical officers, and what a parsimonious scheme it is. As one of those in Class 1, I will confine my criticisms to this section only.

Six months' hospital training is not enough. Most Service doctors with long terms of service have been dealing almost exclusively with healthy young males, and have almost forgotten how to treat the more chronic diseases of the elderly and diseases of women and children, to say nothing of midwifery. I suggest six months in a general hospital, followed by three months each in a maternity hospital and children's hospital.

The proposed salary of £350 is grossly inadequate. After five or more years of service we are surely entitled to a decent wage for what will no doubt be a hard day's work. We ask for no charity, but only that our pay shall be commensurate with the work done. Of course we shall be told that in addition to our salary we shall be securing training, but this excuse for semi-slave labour conditions is wearing a bit thin. No doubt our munificent gratuity was in mind when the sum of £350 was decided upon!

What does it mean that for "those with family commitments assistance under the Further Education and Training Scheme may be available"? Why cannot we have details of this? Does it mean that in order to be able to continue to support our families we shall have to apply through the well-known channels of forms, petty officials, and delays? We all know how generously this assistance will be given, if at the end of 3 or 4 months we are lucky enough to qualify. Is the dignity of our profession to fall as low as this? I suggest that we should continue to receive our Service rates of pay and allowances for the training period.

There is still no indication that the authorities are alive to the need for providing married quarters for returning Service M.O.s. This point has been raised in your correspondence columns before. It should be realized that they are not dealing with a body of newly qualified practitioners with no responsibilities; but with men of five or more years' Service experience, who will be in no mood to tolerate any further unnecessary interruption of their domestic lives.—I am, etc.,

W. B. JAMISON,
Surg. Lieut.-Cmdr., R.N.V.R.

Medical Planning

SIR,—It is high time for someone to come forward and give the true facts regarding the root cause of such weaknesses as are present in our professional structure. I have waited in the hope that some more able pen than mine would perform this unpleasant duty, but I am afraid to wait any longer or it may be too late.

The fact is that, as a body, we behave like a disarticulated skeleton. We are tabetic in our attempts at co-operation, and we are so disorganized and dissatisfied among ourselves that we are prepared to hand the whole structure over to a quack in the hope of a brilliant cure. Before any cure can be started we must find out where the disease lies, and, in my opinion, this fault lies among the doctors themselves.

Doctors are, among themselves, a most extraordinary body. They are egotistical and inordinately jealous of each other. Judging from the number of letters so far published, they blame everything under the sun except themselves for their shortcomings. It is an extraordinary but true fact that soon after a man begins to practise he changes type. No one will deny that medical students as a body are excellent fellows and mix well together, but the effect of a little praise and "back-scratching" from a few patients causes a most remarkable metamorphosis, and the change in character becomes steadily more pronounced with years. The result of this is that most doctors become as busily occupied in making the right impression, for on that their livelihood depends, as in practising the true academic art of medicine. This is obviously wrong and the system needs uprooting.

The cure, however, is simple. Give the doctors a chance to play football together again. In other words, let them work together in health centres, where they will really get to know each other, learn to enjoy each other's company, have the opportunity of exchanging opinions and of knowing each other at first hand, instead of misunderstanding each other at second hand. We have heard too much lately about the importance of doctor–patient relationship. The relationship between doctor and doctor is infinitely more important, yet it has never been given the slightest consideration. How many doctors really know their colleagues intimately? I am sure that it is a disgracefully low proportion.

How should the health centres be run? By the doctors, of course. Each town should be divided into units of, say, 10,000 population, each unit having its health centre with a proportionate number of doctors. All the units are part of one big partnership run by a medical committee with the aid of a non-medical manager and a few clerks. I think the non-medical manager is very important. All fees are then pooled by the town partnership and divided in some pre-arranged proportion. This does away with all political control, and leaves the total medical income for each town as before. It also gives all the other advantages resulting from co-operation, regular holidays, opportunities for postgraduate study, and, what is most important, really friendly understanding among the doctors.—I am, etc.,

Porthcawl. R. HODKINSON.

A Workable Service

SIR,—The profession is being discredited by insidious centrally inspired propaganda, which has for its purpose the turning of public opinion against us and intimidating us so as to increase our vulnerability to attack. That this propaganda is having some success is shown by the vacillating attitude of those of our colleagues who have not yet decided on which side of the fence they wish to land. We have all met them and listened to the same argument: "If we press for the continuation of the panel system, even on an extended basis, public opinion, which is already critical, will turn against us completely."

We are well aware that the B.M.A. has for years been suggesting improvements to the existing system; but successive Governments have turned deaf ears to every approach. Why, then, knowing that we have right on our side, should we persist in modest silence, which is doing so much harm to our cause? Is it not time that we took our stand uncompromisingly, stating plainly that we will not be "hi-jacked" into a form of service we do not desire, and laying down the form of service we will work? If we have right on our side we need not fear public opinion; rather should we set out to educate it: that far from getting a first-rate service for nothing, the public will pay for it in the form of rates and taxes; and instead of being served by doctors as they know them to-day, they will be dealt with by civil servants who will treat them not as private individuals but as so many "cases."

There is no need for the extravagance of widespread health centres to replace doctors' surgeries. These would only have the effect of adding to the cost of the service without any benefit to doctor or patient. Would patients prefer to congregate at cold, impersonal centres rather than in the doctor's familiar waiting-room? I doubt it. And since it would not be possible to build a centre at every street corner, would patients mind the extra distances they would have to travel in order to see the doctor? However, we do need investigation clinics, where practitioners could admit their patients to beds for investigation and special treatment. These need not be numerous because they would be used only for special purposes. They would, however, lighten the work of hospital out-patient departments and give general practitioners the opportunity to do real clinical work. Add to that, extension of the N.H.I. system to dependants, and a panel of specialists who would be available for consultation and advice, and you have a perfect National Health Service. It is important that in time local hospitals should be developed with general-practitioner beds and specialists attached.

If the present system is extended to dependants it will mean, for the first few years at any rate, very full lists for all doctors engaged in N.H.I. But within a few years there will be a large influx of new doctors into the N.H. service, with consequently a more equable distribution of patients; when lists will become less crowded. If we accept a low capitation fee now, it will not be easy to get it increased when our lists diminish. We know from sorry experience that once a figure is fixed it tends to remain so. If it moves at all, it is in a downward direction. We must insist on the principle of payment for work undertaken, no matter how great our incomes as a result. I suggest payment at the rate of £1 per annum for every insured person on our lists. Later, as our lists reach more manageable proportions, our incomes will be consequently reduced, but still leaving us, however, with adequate returns. When this stage is reached we shall have a service difficult to improve upon, with all concerned getting a fair deal.—I am, etc.,

Stretford. MENDEL MARCUS.

The Public Health Services and the Profession

SIR,—After reading through the report on the negotiations by the Council of the B.M.A., I am reminded of a comment attributed to M. Clemenceau, who, after listening to a twenty-minutes speech by A. J. Balfour, looked at him perplexedly and said, "Is it finished—but are you for or are you against?" That is exactly the question I would ask; are we for or are we against a State-controlled profession?

In its White Paper analysis (March, 1944) the B.M.A. has laid down among the principles approved by the Association that "it is not in the public interest that the State should convert the medical profession into a salaried branch of central or local government service." Thus it would seem that these negotiations must break down. One need go no further than page 2 of the report to find that central responsibility to Parliament and the people is to rest with the Minister of Health. On this basis the Minister appears to have taken a firm stand, so that the question we have to face is whether we are prepared to accept State control. Those who have any hesitation in answering this question must realize that State control would govern their conditions of service, salaries, their relations with the public, the clinical exercise of their profession—in fact, they would be at the entire mercy of the State, the degree of control varying with the particular political party in power.

We in the Public Health Service have had a good deal of experience in serving the State, whether as officials of local or of central government. We know the fight we have had and indeed are having to maintain a standard of life collateral with that of our colleagues. It is part of the age-old struggle raging the world over—the struggle between "the haves" and "the have nots." If we surrender our freedom what would be the use of carrying on that struggle, when the ultimate decision must lie with those by whom we are employed, and there is no alternative but to accept that employment? Let me say emphatically that, however high the motive, whatever promises are held out, anyone who surrenders his freedom is a fool and a traitor to his profession.

In our particular case it may be said that conditions of service are not unreasonable; but that position we owe to our colleagues in private practice and not in any way to the generosity of our employers. As soon as private practice is eliminated new comparisons will be drawn, as in the case of the teaching profession. A graduate in an elementary school, for example, is no better off than a non-graduate. As soon as any question is asked concerning such a relationship the bogy of class distinction is brought forth and there it ends.

We who are content to pursue the even tenor of our way, to work quietly and conscientiously without uncorrupting thoughts of power or high reward, must take cognizance of the fact that we are but a section, a very small section, of the community, apt to lose sight of the influences gathering around us. We need not go outside the sphere of public health to realize that compulsion and dictatorship are at our very doors. The Vaccination Act is still with us, and, much as I appreciate the value of vaccination, I detest a compulsory Act which so infringes the freedom of the individual.

There is a first-class example of dictatorship in Form 1, Appendix 1, Ministry of Food Defence (General) Regulations, 1939, which sets out the authority to operate a milk heat-treatment plant "pursuant to para. (3), Regulations 55G, of the Defence (General) Regulations, 1939." Under this the Minister of Food may authorize the establishment of a pasteurizing plant subject to no alterations without consent; moreover, the authority may be revoked at any time without reason assigned, so that anyone setting up a pasteurizing plant involving considerable capital outlay may be called upon to close his business without being able to ask a single question about it. When we realize the extent to which power may be vested in the State, well may we become apprehensive, particularly when it is known that certain political parties seek to establish and extend such power. Thus I make no excuse for exhorting every medical man inside and outside the public health service to use his utmost influence in condemning the idea of a State-controlled profession. Truly is it said that State control is not in the public interest; more than that, it is the seed of bloody revolution, decay, and death.

The White Paper on a National Health Service is an integral part of Sir William Beveridge's scheme for social security, and no doubt some of us may have ideas on its value in a free society. The only road to social security of which I am aware is by way of industry and thrift. This applies generally, as much to one section of the community as to another, and I see no valid reason why those who will not have work, who are lazy, inefficient, or treasonable, should share the reward of those who are content to work faithfully and conscientiously and make their own provision for life's contingencies. "If a man worketh not, neither shall he eat," said St. Paul. We may not like it, but there is no escaping its truth, and to controvert the principle is sheer political chicanery.

This surge towards State control of which the medical profession is to be the spearhead must be withstood at any cost, and I hope if the Society of Medical Officers of Health is asked for its support, that support will be forthcoming unhesitatingly, ungrudgingly, and decisively.—I am, etc.,

Keighley. H. M. HOLT.

H.M. Forces Appointments

ARMY

Col. S. Arnott, C.B.E., D.S.O., late R.A.M.C., has been granted the local rank of Major-Gen.

ROYAL ARMY MEDICAL CORPS

Capts. R. J. G. Morrison, D. S. Cochran, and A. M. Pugh, and Capts. (War Subs. Majors) J. W. Orr, M.C., J. A. MacDougall, A. C. Cox, A. Gleave, J. H. Taylor, D. Wright, and G. C. Dansey-Browning to be Majors.

TERRITORIAL ARMY RESERVE OF OFFICERS: ROYAL ARMY MEDICAL CORPS

War Subs. Major A. N. Smith has relinquished his commission on account of disability, and has been granted the honorary rank of Lieut.-Col.

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs. Capts. I. M. Orr, O.B.E., and W. S. Gross have relinquished their commissions on account of disability, and have been granted the honorary rank of Major.

War Subs. Capts. J. P. Matthews and G. S. Robertson have relinquished their commissions on account of disability, and have been granted the honorary rank of Capt.

To be Lieuts.: G. L. Broderick, F. McNaughton A. D. Charters, G. K. Lloyd, and D. G. MacInnes'

WOMEN'S FORCES

EMPLOYED WITH THE R.A.M.C.

War Subs. Capt. (Mrs.) I. M. Y. M. Petrie has relinquished her commission on account of disability.

ROYAL AIR FORCE

RESERVE OF AIR FORCE OFFICERS

Squad. Ldr. (Temp.) J. D. Tonkinson has been granted the rank of War Subs. Squad. Ldr.

Fl. Lieut. (Temp. Squad. Ldr.) J. S. Richardson has relinquished his commission on account of medical unfitness for Air Force service, retaining the rank of Squad. Ldr.

AUXILIARY AIR FORCE

Squad. Ldr. (Temp.) I. R. Jones has been granted the rank of War Subs. Squad. Ldr.

ROYAL AIR FORCE VOLUNTEER RESERVE

Squad. Ldr. D. W. McLean has resigned his commission, retaining his rank.

Squad. Ldr. (Temp.) G. R. Gunn has been granted the rank of War Subs. Squad. Ldr.

Fl. Lieut. (Temp. Squad. Ldr.) W. Heath has resigned his commission, retaining the rank of Squad. Ldr.

Fl. Lieut. R. W. G. Grindley has relinquished his commission on account of medical unfitness for Air Force service, retaining the rank of Squad. Ldr.

Fl. Lieuts. J. E. E. Morgan, P. G. Swann, and I. A. MacDonald have relinquished their commissions on account of medical unfitness for Air Force service, retaining their rank.

Fl. Lieuts. G. M. Pringle and J. N. N. Robinson have resigned their commissions, retaining their rank.

To be Flying Officers (Emergency): R. D. T. Cape, T. M. Fraser, D. M. Jeffreys, J. Millar, W. Phillips, H. D. W. Powell, C. M. Ross, J. D. Sammon, C. W. Shearer, J. G. Sommerville, J. W. Sutherland, and L. R. Twentyman.

POSTGRADUATE NEWS

The Fellowship of Medicine announces: (1) Week-end course in thoracic surgery, at Harefield Hospital, all-day, Sat. and Sun., May 26 and 27: (2) Week-end course in diseases of women, at Elizabeth Garrett Anderson Hospital, all-day, Sat. and Sun., June 2 and 3 (women postgraduates only); (3) Week-end course in ophthalmology, at Royal Westminster Ophthalmic Hospital, all-day, Sat. and Sun., June 9 and 10; (4) General surgery at North Middlesex Hospital, all-day, Sat. and Sun., June 16 and 17; (5) Ear, nose, and throat, at Metropolitan Ear, Nose, and Throat Hospital, all-day, Sat. and Sun., June 30 and July 1. Further particulars can be obtained from the Fellowship of Medicine, 1, Wimpole Street, W.

WEEKLY POSTGRADUATE DIARY

GLASGOW UNIVERSITY: DEPARTMENT OF OPHTHALMOLOGY.—*Wed.*, 8 p.m., Miss D. E. Feather: Indications for Orthoptic Treatment of Squint.

DIARY OF SOCIETIES AND LECTURES,

ROYAL SOCIETY OF MEDICINE.—*Wed.*, 2 p.m., Section of Physical Medicine. *Thurs.*, 5 p.m. Section of Dermatology. *Fri.*, 5 p.m., Clinical Section; 5 p.m., Section of Obstetrics and Gynaecology; 6.30 p.m., Section of Radiology.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street W., *Mon.*, 5 p.m. General Meeting; 5.15 p.m. Annual Oration by Dr. F. M. R. Walshe; Integration of Medicine.

ROYAL INSTITUTION, 21, Albemarle Street, W.—*Fri.*, 5 p.m., Dr. H. D. Kay, F.R.S.: The Secretion of Milk.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.—At 26, Portland Place, W., *Thurs.*, 3 p.m., Col. H. E. Shortt, I.M.S.: Recent Work on the Transmission of Kala-azar in India. A discussion will follow.

B.M.A.: Branch and Division Meetings to be Held

HEREFORD DIVISION.—At Garrick A.R.P. Post Widemarsh Street, Hereford, Fri., May 18, 4 p.m. Prof. A. C. Frazer (University of Birmingham): Sulphonamides in General Practice.

BIRTHS, MARRIAGES, & DEATHS

The charge for an insertion under this head is 10s. 6d. for 18 words or less. Extra words 3s. 6d for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.

BIRTHS

HUTTER.—On March 3, 1945, to Mary (Squiggles), wife of Surg. Lieut. Duncan Hutter, R.N.V.R., a son—Christopher Duncan.

JOHNSON.—At Middlesex Hospital, London, on April 21, 1945, to Gréta (*née* Baxter), wife of Dr. Maurice W. Johnson, of Auckland, N.Z., a daughter (Ann).

KIDD.—On April 17, 1945, at Hexham, the wife of Surg. Lieut. J. D. Kidd, R.N.V.R., a daughter.

WHARTON.—On April 29, 1945, the wife of Dr. Christopher L. Wharton, of Kineton, Warwickshire, a daughter.

DEATHS

McCURDIE.—On April 30, 1945, at 76, Southfield Road, Middlesbrough, James Ronald, *M.C.*, M.B., Ch.B., beloved husband of Julia McCurdie, aged 56.

WRIGHT.—On April 29, 1945, at the Salford Royal Hospital, Garnett Wright, F.R.C.S., the beloved husband of Lucy J. Wright, of Thornfield, Broad Road, Sale.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL

LONDON SATURDAY MAY 19 1945

British Medical Association

PROCEEDINGS OF COUNCIL

A meeting of the Council was held at the B.M.A. House, London, on Wednesday, May 2, Dr. H. GUY-DAIN presiding.

Election of President

The first business of the meeting was to appoint a President in place of the late Viscount Dawson of Penn. Dr. Peter Macdonald proposed that Mr. H. S. Souttar be appointed President until the Annual Representative Meeting, and that the Council recommend the Representative Body to elect Mr. Souttar as President for the ensuing year. He mentioned Mr. Souttar's great services to the Association and his fitness for the office. The nomination was seconded by Mr. A. M. A. Moore, supported by Dr. J. W. Bone and Dr. S. Wand, and accepted with acclamation. On being called into the Council room Mr. Souttar said that it was impossible for him or anyone to fill the position of Lord Dawson, but he would do everything in his power to maintain the dignity of the Association.

Resolutions of the A.R.M.

The Chairman reported on the action taken on the resolutions passed by the Annual Representative Meeting last December. Many of these had been referred to the Negotiating Committee and had been taken into consideration in the negotiations so far as they had proceeded; a number of them related to matters which the Negotiating Committee had not yet reached. Some of the resolutions concerned the finding of employment for doctors demobilized from the Services. The Central Medical War Committee was considering what could be done for these doctors, but the essential phrase in one of the recommendations was "guarantee employment," and that was quite impossible. It was agreed by the Council that the Association could not "guarantee." The Secretary pointed out that it would be wrong to assume that there were dangers of serious unemployment, bearing in mind the gradual nature of demobilization, and it would be wrong also to assume that nothing was being done to place in jobs those who needed one on their return. The Local Medical War Committees had been used for this purpose before, and if these bodies were still in existence when this problem arose in its full form they would be used again.

The President said that the question of arranging for the support of men returning from the Services and undertaking a refresher course had been considered at a conference which he had attended. If the Ministry was going to take the responsibility of providing a medical service for the country it was essential that it should see to it that the men who took up this work were thoroughly competent, and it should be prepared to pay for ensuring competence.

At a later stage in the Council proceedings the Insurance Acts and General Practice Committees brought forward a report on schemes for post-war financial assistance for medical practitioners, the work of a subcommittee under the chairmanship of Dr. J. A. Brown. The report, which included a large amount of financial detail, was commended by the Council, and it was agreed that there be published for the information of the profession a factual statement of the available schemes.

The School Medical Service

Reports on the school medical service under the new Education Act were presented by the Public Health and General Practice Committees.

Dr. S. Wand, chairman of the General Practice Committee, said that the Minister of Education had at first declined to receive a deputation, but later, after the letter which had been published in the *Supplement* had been sent to him, he had agreed to do so. The deputation would urge the Minister to reconsider the position as set out in his circular to local education authorities (Circular 29, issued on March 12), having regard to the extreme shortage of doctors, dentists, and nurses available for civilian purposes. If the Minister did not see his way to introduce amending legislation, as he might not, he would be urged to discourage local authorities from extending their clinic services and to rely so far as possible on established general practitioner and specialist services on lines not antagonistic to the proposed new health service, so that treatment facilities provided under the Education Act could at a later stage be more easily integrated with the National Health Service when it was established.

In the course of some discussion in the Council Dr. J. A. Pridham described the action of the Ministry as "splinter medicine." It was a retrograde step to single out a part of the community and deal with them in the way proposed. He thought it called for strong remonstrance from the Council. The Secretary said that it would be made clear to the Minister that the present shortage of medical personnel applied not only to general practice but to the public health service.

The Council agreed to three recommendations. The first laid it down that for services provided for children covered by the Act payment should be made on an item of service basis, with no contract between the practitioner and the local authority; the second, that for the purpose of these arrangements the reference of patients to a practitioner should not ordinarily be by an officer of the local authority, but through parent or guardian, provided that the school medical officer should not be precluded from referring to a practitioner or hospital children who were found on routine inspection to need medical care, the local authority to be responsible for the practitioner's fee; and the third, that the fee for a general practitioner service for attendance at the doctor's surgery should not be less than 5s., including medicine.

National Maternity Service

The Council considered a report on a National Maternity Service, prepared by the Royal College of Obstetricians and Gynaecologists. Dr. James Fenton called attention to a statement in the report that it was essential that the practitioner should have "special experience" in obstetric work. This demand might be made in every range of medicine, so that there would be no purpose in having a general qualification. A point often overlooked in this connexion was that the medical student during the whole of his training was learning the principles of surgery and the principles of medicine, which applied to midwifery. This sectionizing was against the policy of the Association and not in the best interests of the profession.

Dr. Wand said that it was obvious that the report was prepared by a body of people who had no appreciation of the practical side of domiciliary midwifery. The suggestion that midwifery should be practised only by those who had special qualifications was ridiculous in country areas, and even in urban areas the idea that the midwife was going to wait when she had a case of post-partum haemorrhage until she could obtain the services of someone with special qualifications was also ridiculous.

The Chairman said that the B.M.A. policy for a national maternity service would be one of the subjects which would come up between the Minister and the Negotiating Committee if the negotiations went on. Dr. J. A. Brown criticized the Royal College report, which he described as a confession of failure.

It was agreed, on the suggestion of Dr. F. Gray, that the Association should get in touch with the Royal College of Obstetricians and Gynaecologists and put its views to them in the strongest possible way in the endeavour to get agreement.

Equal Pay

Dr. Fenton, in presenting the report of the Public Health Committee, referred to a question raised by the Medical Women's Federation concerning the difference in the cost-of-living bonus based on the Civil Service scale for men and women doctors in L.C.C. appointments. The Public Health Committee, he said, adhered to its opinion previously given that a cost-of-living bonus was granted, not for services rendered, but on account of increases in the cost of living.

Dr. Janet Aitken said that the women members of the Association were apparently unanimous in thinking that the Association should take action concerning this differentiation. The argument on the other side was that the bonus did not represent payment for services rendered, but she did not know what they were being paid for if not for services rendered. After the last war the cost-of-living bonuses were in many cases included in salaries, and the same thing was likely to occur again. Pensions were based on salary plus cost-of-living bonus. She appreciated that in many cases a higher bonus attached to lower salaries, but that might mean only that the lower posts were under-salaried. There were county authorities which were bold enough to go against the L.C.C. and the Civil Service, and pay equal cost-of-living bonus. She moved the reference back of this part of the report, and this was seconded by Dr. A. Beauchamp, who said that it involved an important matter of principle.

Dr. Fenton said that the committee was not lacking in sympathy with Dr. Aitken over this problem. It felt, however, that cost-of-living bonus was not payment for services rendered. This was not a sex differentiation; it was or should be based on the number of dependants a man (or a woman) had to maintain.

It was agreed that this part of the report be referred back.

Dr. N. E. Waterfield moved approval of the report of the Committee on Equal Pay. This committee, under Prof. Picken, had the task of preparing a memorandum of evidence on the subject, which was submitted to the Royal Commission last December. The report embodying the memorandum of evidence was approved.

Scheme for National Eye Service

Prof. A. H. Burgess, on behalf of the Special Practice Committee, presented the draft scheme for the provision of a national medical eye service. This scheme is the result of prolonged and careful consideration by the Ophthalmic Group Committee, and has been discussed at two series of regional meetings of the Group, to which all who practise ophthalmology, whole-time or part-time, were invited.

The Chairman congratulated those who had produced a workable scheme under great difficulties. Every line of it had been a matter of serious argument from different points of view. It might form a useful model for the setting up of other forms of service within the compass of the proposed National Health Service. It was a carefully constructed and very good document.

The Council gave its approval to the scheme.

Association Finance and Organization

Dr. J. W. Bone (Treasurer) presented the draft financial statement for 1944. It had been a year of great prosperity for the Association. The amount received from subscriptions had increased by nearly £9,000. Several of the reserve funds had been strengthened, and a balance of £3,819 had been transferred to the Balance Sheet.

Dr. J. C. Matthews pointed out that the cost of the *Journal*—that is to say, the amount brought from subscriptions to meet the cost of production and issue so as to balance the income and expenditure account—worked out at only 1s. 3d. per member annually.

The Council approved a recommendation from the Journal Committee to republish in book form a first selection from the series "Any Questions?" which have appeared in the *Journal*, the price to be fixed at 5s. (Paper is not yet available for this purpose.) It also approved in principle the formation of a centralized abstracting service for the use of the *Journal* and of the special quarterly journals published by the Association, and the setting up of a subcommittee to work out administrative details.

Dr. Matthews submitted, on behalf of the Organization Committee, a report on the proposed regional organization of the Association. It was proposed, he said, as soon as national circumstances permitted, to take steps to appoint full-time regional secretaries, giving effect to the resolution of the Annual Representative Meeting, 1943. The report before the Council, which was approved, concerned the functions, appointment, and status of such regional secretaries.

It was also agreed that a British Service Medical Officers Group be formed, and that the establishment of a standing committee for Northern Ireland, analogous to the Scottish and Welsh Committees, be formed. A proposal to have a Foreign Relations Committee, Dr. Matthews said, would be carried a stage further in the next few weeks, when a meeting would be held at B.M.A. House to which a member of the medical services of each of the Allied Forces in this country was invited. The Chairman hoped that this would be a permanent International Relations Committee of the Association.

Charter for Health

Dr. R. G. Gordon presented the draft for a "Charter of Health," the work of the special committee over which Sir John Boyd Orr had presided. He said that the Council should congratulate itself on the production of this document within so short a time. The committee was formed only in December, and it had produced this comprehensive draft of thirteen chapters, covering the subjects of preventable disease, nutrition, occupation, mental health, the family and home, the birth rate, and many others. The result was largely due to the most able chairmanship of Sir John Orr, but thanks were due also to the members of the committee who had produced the various memoranda which were the basis of the report. The report had been brought together and made into a readable and coherent document chiefly by a member of the office staff, Miss Saxby, who had done a remarkable piece of work. The Council was not expected to affirm its agreement with every line of the report, but to give it its general blessing. It was agreed that, subject to some final revision, the report should be published.

Committee on Medical Schools

Mr. Zachary Cope presented, for submission to the Ministry of Health, a report which, in the view of the special committee concerned, should constitute the basis of the Council's observations on the Goodenough report. It was gratifying to note that the Interdepartmental Committee on Medical Schools had substantially accepted the evidence presented to it by the Association. But the report covered a considerably wider field than the subjects on which the Association was invited to give evidence, and accordingly a number of observations were now submitted. Many of the comments were in the nature of endorsement, sometimes with a slightly different emphasis, but on certain points the B.M.A. committee dissented. For example, the B.M.A. committee believed that it would be a mistake to abolish the purely vocational examination, which would be the effect of the opinions expressed by the Goodenough Committee under "Final Examinations." It also dissented strongly from the recommendation that the examination for the D.P.H. should be conducted only by the university providing the training, and it did not agree that diplomas in public health should be awarded solely by the universities providing the courses of instruction in preparation for them. He added that Prof. Picken, who was not present, desired to dissociate himself from the comments on these particular points, and Prof. Picken and Prof. Sydney Smith dissented from another comment in which the B.M.A. committee, while approving the principle that every medical school should be an integral part of a university, held that this should apply only to any new schools that may be established, and that existing schools should be allowed to continue their present work and retain their present organization.

Mr. A. M. A. Moore thought it very important that the Association should support the proposals that the profession should continue to control certain of the qualifying examinations.

Co-educational Medical Schools

Some discussion took place on the question of co-educational schools. Mr. A. S. Gough considered that there were serious reasons why all schools should not be co-educational, and he protested against any discrimination against medical schools which did not make provision for co-education. Dr. Waterfield and Mr. Dickson Wright spoke to the same effect, the latter pointing out that to have some monastic schools in London was an asset to London as the centre of the Empire to which students from the Dominions and Colonies came. Dr. Matthews said that provincial schools were almost bound to admit women, and it seemed reasonable that some of the London schools should be allowed to have men only.

Dr. F. H. Bodman, on the other hand, deplored this regression to mediaeval thinking. Medicine was more than a science, it was a part of the art of living, and to separate men and women at an important stage of their development was to put back medicine. Dr. F. Gray said that they were all agreed that women should have adequate opportunities, as they had not at present. But it was not a case of forbidding co-educational establishments; it was a question under these proposals of making every medical school co-educational. It was a matter for experiment; let there be some schools for men only, some for women only, and some mixed, and then after twenty years it would be possible to decide the matter on the basis of experience. Dr. Martin Brodie said that the real issue was financial sanctions: unless a university was willing to take women as well as men it would not get its grant.

The President said that the question whether men's schools should admit women was a most complex one. At the London Hospital they did have women, and a more able set of women it would have been impossible to find. But what he objected to was the use of "sanctions." He did not think they should come to any conclusion on the policy of co-education, but they should object to the withholding of grants as a means of forcing men's schools to accept women. Mr. Cope said that it was the making compulsory of what might be brought about by persuasion and example to which they objected.

On the motion of Dr. Waterfield the following motion was adopted:

> That the Council, while welcoming steps to increase the opportunities for medical education for women, regrets the use of financial sanctions to this end and the policy of enforcing co-education in all medical schools.

It was also agreed to set up a small committee to review the Association's Report on Medical Education, 1934, in the light of later developments and the requirements of modern practice.

Organization of Psychiatric Services

Dr. R. G. Gordon presented a report of a joint committee on the future organization of the psychiatric services. He said that the document had the approval of three standing committees of the Association, the Psychological Group of the Association, a special committee of the Royal College of Physicians, and the Royal Medico-Psychological Association. Like all documents of mixed origin, it was somewhat of a compromise, and many people in all these bodies would probably find much to criticize, in both its inclusions and its omissions. The memorandum was approved as a provisional statement of the views of the Association.

Dr. Gordon added that the document had not taken into consideration the work of the Services psychiatrists, and he knew that there was some feeling among them that their new point of view had not had much opportunity of being expressed. It might be that this, with other documents, including one prepared by Dr. C. P. Blacker, would come up for consideration, and the Mental Health Subcommittee of the Negotiating Committee might perhaps be strengthened by certain people who had more knowledge of Service conditions.

The Chairman undertook that this should be considered by the Negotiating Committee.

The Royal College of Surgeons

The Council unanimously agreed that the Association should contribute 1,000 guineas to the Restoration and Development Fund of the Royal College of Surgeons of England.

A letter was received from the Royal College stating that Dr. H. Guy Dain, nominated by the Association, had attended the meetings of the College as representing general practice, and his present period of office ended in June. It invited renomination. Mr. R. L. Newell proposed that Dr. Dain be nominated for a further term of office, and in doing so said that the Council would feel great satisfaction in the relations now existing between the Royal College and the Association. The happy atmosphere, he believed, had been largely created by Dr. Dain himself. Mr. Zachary Cope seconded, and said that the Council would desire to place on record its high appreciation of the action of the Royal College, which had done honour to itself and to the Association by having a nominee of the Association on its Council. The motion was carried with applause, and the Chairman of Council was congratulated on the conferment upon him of the Fellowship of the College.

Miscellaneous Resolutions

On the motion of Mr. A. M. A. Moore, it was agreed that the British Hospitals Association be informed of the resolution of the Annual Representative Meeting, 1943, that there should be representation of the medical staff on the committee of management of all voluntary hospitals.

A further motion by Mr. Moore expressed the view that on retirement from their offices Chairmen of Council, Chairmen of the Representative Body, and Treasurers should remain members of Council for three years, instead of, as at present, for one year. It was agreed that this be referred to the Organization Committee.

The Council had before it a resolution from the Trowbridge Division deploring the failure of the Association to formulate schemes for the interchange of serving medical officers and for the rehabilitation of medical officers on release from the fighting Services. In reply it was stated that the Central Medical War Committee was fully alive to the point. It was also stated that, probably for the next twelve months, demobilization without replacement would not take place on any large scale; officers demobilized would be replaced by others from civil life.

Dr. J. G. Thwaites proposed that the Association should appoint a whole-time officer whose services would be available for demobilized doctors for the purpose of giving them personal advice and assistance in connexion with resettlement. The Secretary said that this would clearly be a job for the medical staff of the Association. If it became too much for them he would report to Council with a view to getting the medical staff augmented. One of the Assistant Secretaries, Dr. Potter, was already doing work along these lines.

Other Business

The Council appointed Mr. Dickson Wright as the Association's representative on the committee of management of the Royal Medical Benevolent Fund; Mr. Zachary Cope as representative on the Council of the Lister Institute of Preventive Medicine; and Dr. R. Gordon Simpson as representative on the National Ophthalmic Treatment Board. The last-named took the place of Mr. N. Bishop Harman, resigned, and an expression of appreciation of his long services in that capacity was conveyed to Mr. Bishop Harman, together with the Council's good wishes and sympathy in his illness.

It was decided to proceed with an application to the College of Arms for a Grant of Arms to the British Medical Association.

The Chairman was authorized to forward on behalf of the Council a suitable letter to twelve honorary secretaries of Divisions and Branches who have relinquished office and whose services were considered deserving of special recognition. Eleven of the twelve had been honorary secretaries of oversea Branches and Divisions. The twelfth was Dr. N. E. Waterfield (Surrey Branch), a member of the Council.

It was agreed to set up a new Building Committee to deal with all questions in connexion with the Association buildings.

After a discussion on the question of medical representation in Parliament and the possible revival of the fund created for this purpose, the officers of the Association and the chairman of the National Insurance Defence Trust were asked to look into the matter and report to the next meeting.

Reports by the Insurance Acts Committee, the Hospitals Committee, the Scottish Committee, the Naval and Military Committee, and the Central Ethical Committee were presented and approved. On the Central Ethical Committee, Dr. Waterfield, the chairman, reported that three old members, all of them former chairmen of the committee, had recently retired—Dr. C. O. Hawthorne, Dr. Langdon-Down, and Dr. A. Lyndon. The Council accorded them an expression of thanks for their long service in this capacity.

The Council passed a resolution expressing the view that the time had arrived for the Government to recognize the Board of Registration of Medical Auxiliaries as an approved body for the registration of such auxiliaries in connexion with any comprehensive medical service.

It was announced that the number of members of the Association was now over 49,000.

A committee was appointed to prepare evidence to be tendered to the Care of Children Committee recently set up by the Ministry of Health.

It was agreed that the Annual Representative Meeting should be held in London on July 24–6 and following days if necessary. The Secretary made a statement on the Special Representative Meeting to be held on the two days following the meeting of the Council. He said that it was at the express request of the Ministry that the *Journal* was not publishing an account of the proceedings, but that arrangements would be made to inform members of the medical profession individually of the course of the discussion and of the decisions of the meeting.

HEARD AT HEADQUARTERS

As Others See Us

Doctors are held in high esteem in this country; but the better liked the individual doctor the more sinister becomes his collective counterpart in the public mind—or at least the public newspaper. The latest example is an article in the *Daily Mirror*, headed in large bold type, "Butchers at the B.M.A.," with the figure of a surgeon armed with a chopper with which he is apparently about to mutilate the White Paper. The text purports to be a description of the recent "secret meetings" in London. Their conspiratorial character is subtly suggested, and there is no reference to the fact that the meetings were secret by instruction of the Ministry of Health and not by design or wish of the B.M.A., and that the same secrecy applies to the meetings of hospitals and of local authorities.

There is the rather surprising statement that "the majority of private practices are held by doctors on mortgages from insurance companies and banks," and this is held to explain why doctors must make money quickly, to pay their interest charges. Once again we have the "devoted service and self-sacrifice of thousands of doctors" pitted against the profiteering spirit of the Association which represents them; this, although the Association is now the virtual embodiment of all the doctors in the country who are in active practice, and their representatives are democratically elected. There is the overworked phrase "Harley Street" to describe the profession: "the B.M.A. is really saying, 'Hands off Harley Street.'"

Dr. Hill for Cambridge

Dr. Charles Hill is to stand as an Independent candidate for the University of Cambridge at the next election. On a recent occasion the Chairman of Council described Dr. Hill as the ablest debater in medical politics. Parliamentary election is always chancy, especially for the candidate who does not wear a party label. But in recent years the universities have shown a tendency to get away from party affiliations and to return Independent candidates. The most recent example is the return of Sir John Boyd Orr for the Scottish universities. Both the Members for Oxford are now Independents, so are both the Members for the English Combined, and the retiring Member for Cambridge prefixes the word "Independent" to his party name, as does the Member for the University of London. Universities have another distinction—that the issue on which the election is fought there is very often different from what it is in the rest of the country. When he first put up for Oxford a hundred years ago Gladstone discovered that, although the country was keen about the Corn Laws, in the university he had to fight his election on a religious question. If Dr. Hill were to join Sir John Orr in the House medicine would be better represented there than it has been for some time past.

A Newcomer

A noteworthy figure at the recent Special Representative Meeting was Lord Horder, who sat as one of the Representatives of Marylebone. Lord Horder has helped the B.M.A. in very many fields, but he has not identified himself closely with its medico-political work, and this was the first occasion, I believe, that he has attended as a Representative. His name was not on the printed list of Representatives, but as Mr. Dickson Wright is a member of Council and was at the meeting in that capacity there was a vacancy in Marylebone, which Lord Horder filled. He spoke twice in the debates: once on the general question of the acceptability or otherwise of the suggested administrative machinery, and again on the retention of the Central Medical Board. His speeches were brief and pointed.

Another representative who has not been heard for some years was Sir Malcolm Watson, who, after having represented Hong Kong and China and Malaya, appeared on this occasion as a Representative for Reading, and brought his long experience of the administration of tropical medicine abroad to bear upon the home problems under discussion.

Pension Disability Rates

The Central Medical War Committee and the Naval and Military Committee of the B.M.A. have been doing what they can to make the rates of retired pay for disabled medical officers more adequate. These rates are thought to be particularly low in the case of officers in the junior ranks with a degree of disability of 70% and upwards. The captain's pension, for instance, is only £168 a year, and the subaltern's £147. At the same time, there are some additional allowances which should be considered. In certain circumstances an allowance up to a maximum of £80 a year may be granted towards a child's education, and if an officer is in need of constant attendance an allowance up to £100 is made for that.

The Ministry of Pensions in its reply to representations from Tavistock Square states that there have been various improvements in the rates since the beginning of the war. The present scale was fixed in 1943. The representations of the Association have been carefully considered, but it is felt that the Ministry would not be justified in recommending any further increase in the rates.

No claim, of course, is being made that there should be any differentiation in the rates to medical officers as compared with officers in other branches of the Forces.

Fees of Public Vaccinators

A revised scale of fees for public vaccinators has been formulated for the West Riding administrative area and has been accepted by the Yorkshire Branch Council of the B.M.A. and approved by the Ministry of Health, which is amending the existing contracts with public vaccinators accordingly. For the guidance of other areas the standardized list is given below:

In respect of births—	
Child entered on list of vaccination officer	2s. 0d.
Not entered on list but vaccinated	2s. 0d.
In respect of vaccination—	
Successful primary vaccination or revaccination at surgery or elsewhere	5s. 0d.
Successful primary vaccination or revaccination at home of person	10s. 0d.
Successful vaccination or revaccination of each additional person at the same time ..	7s. 6d.
Medical officers of institutions who are public vaccinators to those institutions—vaccinations and revaccinations ..	3s. 6d.

Overheard

A Representative at the recent meeting: "All this talk about safeguards for private practice is simply eyewash and a red herring drawn across the track. If we are not careful it will sell the pass for us."

"Doctor"

Evidently a good many medical men have decided to keep the "Doctor" labels on their windscreens until the end of the Japanese war. Why wait?

Correspondence

Medical Training

SIR,—Mr. McCurrich (*Supplement*, May 5, p. 74) has a good deal to say with which I agree, but when he says, "At present G.P.s are trained entirely by consultants, who, as a rule, have never been in general practice," I consider he is quite wrong. All the successful doctors I know (I use the term in preference to that of G.P. preferred by specialists) have learned their job from doctors, or by the harder method of trial and error.

For myself I was assistant for three years to Dr. Holmes, of Heanor, Derbyshire, who taught me more about general practice than I ever learned in a medical school. Since then I have had about a dozen assistants, and none of them has left me without learning something—some of them a great deal. Anyone who thinks general practice can be learned in a hospital or postgraduate school has a great deal to learn about it.—I am, etc.,

Wrose, Shipley. H. S. RUSSELL.

Regional Medical Service

SIR,—Dr. A. W. Weston's reference (*Supplement*, April 28, p. 72) to the return of the inquisitions of regional medical officers deserves comment. Do the advocates of 100% State medical service know all about this inspection, which clearly would become more frequent (say, monthly) once we become completely dependent on the State? Do they know that even in pre-war days one was liable to be asked why one prescribed a little over "the odds"?—I am, etc.,

Chipping Norton. J. P. O'SHEA.

BRITISH MEDICAL ASSOCIATION

ANNUAL REPRESENTATIVE MEETING, LONDON, 1945

The Annual Representative Meeting of the B.M.A. will be held at B.M.A. House, Tavistock Square, London, W.C.1, commencing at 2 p.m., on Tuesday, July 24, and will continue on Wednesday, July 25, Thursday, July 26, and following days if necessary.

CHARLES HILL,
Secretary.

Branch and Division Meetings to be Held

EAST YORKSHIRE BRANCH.—At City Restaurant, Lowgate, Hull, Wed., May 23, 8.30 p.m., annual general meeting. Presidential address by Dr. C. Simpson: Beyond the Microscope.

WINCHESTER DIVISION.—At Nightingale Home, Royal Hampshire County Hospital, Winchester, Wed., May 23, 2.45 p.m., Dr. Harold Balme and Brig. T. H. Wand-Tetley: Rehabilitation and its Relation to Post-war Medical Services.

CONSULTANT AND SPECIALIST OPINION

Liverpool.—A joint meeting of the British Medical Association Consultants and Specialists Group and the Liverpool Hospital Staffs Association will be held at the Liverpool Medical Institution, Mount Pleasant, on Wednesday, May 23, at 4.30 p.m. All consultants and specialists in the area are invited.

POSTGRADUATE NEWS

The Fellowship of Medicine announces: (1) Week-end course in thoracic surgery, at Harefield Hospital, all-day, Sat. and Sun., May 26 and 27; (2) Week-end course in diseases of women, at Elizabeth Garrett Anderson Hospital, all-day, Sat. and Sun., June 2 and 3; (3) Week-end course in ophthalmology at Royal Westminster Ophthalmic Hospital, all-day, Sat. and Sun., June 9 and 10; (4) General surgery, at North Middlesex Hospital, all-day, Sat. and Sun., June 16 and 17; (5) Ear, nose, and throat, at Metropolitan Ear, Nose and Throat Hospital, all-day, Sat. and Sun., June 30 and July 1. Further particulars can be obtained from the Fellowship of Medicine, 1, Wimpole Street, London, W.

WEEKLY POSTGRADUATE DIARY

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W.—*Harefield Hospital:* All-day, Sat. and Sun., May 26 and 27, week-end course in thoracic surgery.

EDINBURGH POSTGRADUATE LECTURES.—At Edinburgh Royal Infirmary, *Thurs.*, 4.30 p.m.; Dr. C. E. van Rooyen: Infective Hepatitis.

GLASGOW UNIVERSITY: DEPARTMENT OF OPHTHALMOLOGY.—*Wed.*, 8 p.m., Dr. R. W. Pickford: A New Approach to Defects of Colour Vision.

DIARY OF SOCIETIES AND LECTURES

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.—*Fri.*, 4 p.m., Prof. A. Sorsby: Blindness in Great Britain: the Structure of the Blind Population and the Causes of Blindness.

ROYAL SOCIETY OF MEDICINE.—*Thurs.*, 4.45 p.m., Sections of Urology and of Obstetrics and Gynaecology; 5 p.m., Section of Psychiatry. *Sat.* (May 26), 3.15 p.m., Section of Disease in Children.

BIRTHS, MARRIAGES, & DEATHS

The charge for an insertion under this head is 10s. 6d. *for* 18 *words or less. Extra words* 3s. 6d. *for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.*

DEATH

DUNCAN.—On April 25, 1945, Cyril Duncan, *M.C.*, M.B., of "Lyndhurst," Chester-le-Street, aged 54 years, only son of the late David Duncan, M.B.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL

LONDON SATURDAY MAY 26 1945

MEDICAL DEMOBILIZATION AND RESETTLEMENT

The following letter is now being sent by the Central Medical War Committee to all medical officers serving temporarily in the Forces.

DEAR SIR OR MADAM,

This letter is written to you, and to all your medical colleagues serving temporarily in the Forces, with the object of explaining what we, in the Central Medical War Committee, are doing and planning in connexion with your release from service and resettlement in civil life.

What many of you are thinking and feeling about these things, especially those of you with long service over-seas, is fully appreciated. For years you have endured separation from your homes and families. For many of you the years have been largely wasted so far as gaining clinical experience is concerned. If you were recruited a few months after qualifying you may have to relearn your medicine before you start in practice. How, you ask, are you to do it? If you are now married, how can you afford to do it?

Perhaps you left a general practice which has dwindled sadly in your absence. You are anxious to get back to save what you can from the wreck, although you may well need a clinical "brush-up" first. You know that many G.P.s who are liable and fit for service, and perhaps younger than yourself, have never been called up. Now, possibly, you have received notice of posting to Burma. Does this mean that your hope of being released when your turn comes must be altogether abandoned? If so, what justice is there in this, when there are so many at home who could replace you?

If you had your foot on the first-rung of the ladder leading to consultant practice, how are you to get it back there? What prospects will you have in competition with those who have remained at home and taken the higher diplomas? And why cannot you be allowed to get on with your career now? Why not let the "stay-at-homes" in the E.M.S. and elsewhere get into uniform and give you a chance to get out of it?

You may have been in one of the public services and may have anticipated that in the normal course you would have secured advancement to a more important post. You may perhaps think that with increasing age your prospects of such advancement are diminishing. Will those who have remained behind have secured, or have a better chance for, all the good posts?

We realize that such questions have been troubling many of you, and although some of your criticisms seem based on insufficient information or even conjecture we want you to know that our sympathies are entirely with you and that it is our sincere intention to do everything we can to help you. We cannot solve all your problems. We cannot restore to you the lost years, nor even arrange equal shares of sacrifice for all. You will not expect that. What you rightly expect is that, so far as lies in our power, we shall prevent any avoidable addition to the hardship you have already suffered and see that you get a fair deal in regard to release, re-education, and re-employment.

Release

You know about the Government's re-allocation of man-power scheme, under which releases will be arranged in groups determined by age and length of service. These releases (Class A) will be possible partly owing to a reduction in the strength of the Forces, but partly also as a result of continued recruitment. The White Paper states that one of the objects of continued recruitment is "to increase the releases in Class A." In short, the release plan involves an element of replacement. The plan provides also for the retention of a member of the Forces, where necessary for military reasons, beyond the date on which his age-service group is due for release.

When a start has been made with Class A releases arrangements will be made for the transfer to civilian employment, out of their turn and with their consent, of a limited number of members of the Forces whose services are urgently needed for work of national importance (Class B). *The number of Class B transfers will be small in proportion to the number of Class A releases.* Persons transferred will not enjoy the same benefits as those released. They will be liable to recall to the Forces if they leave the work for which they were transferred, and they will receive only three weeks' leave with full pay in place of the eight weeks granted to those in Class A. Arrangements for compassionate release and for discharge on medical grounds will continue as at present.

No doubt hard cases will occur, but it is generally agreed that the reallocation scheme is as fair as any such scheme could be. We believe that if the Government's plan can be made to apply to doctors as to other members of the Forces you will not ask for more than that. Indeed, we think that, even if the plan could not work completely for doctors, you would accept that position without complaint if you were convinced that we had done everything possible to make it work.

The Difficulties

What, then, are the difficulties? First, the medical requirements of the Forces for the war in the Far East will be such as to make impossible a reduction in strength of the medical branches proportionate to the reduction in strength of other branches. It follows that the replacement element must enter more largely into the arrangements for the release of doctors than into the general release plan; otherwise, a disproportionate number of doctors will find their return to civil life delayed on the ground of military necessity. *In short, the key to the problem of releasing Service doctors lies in the recruitment of civilian doctors.* But it is not merely a question of finding a sufficient total number of new recruits. A large proportion of the medical officers with a high release priority in Class A are senior specialists. If they are to be released in their turn many junior specialists will be needed to replace them. We must therefore find recruits both sufficient in numbers and with the requisite experience in the various professional categories.

Finally, the problem is complicated by the Class B transfer arrangement, which will be a continuation of the present procedure for release on the ground of urgent civil need. We think that a number of medical teachers will have to be transferred in Class B in the interests both of undergraduate teaching and of postgraduate instruction of released Service doctors. There will be others whose transfer in Class B will be urgently necessary—general practitioners, for instance, and tuberculosis officers. And for each officer transferred a doctor will have to be recruited. Our task, then—apart from any necessary continuation of the ordinary recruitment now proceeding—will be to find a large number of recruits, including many junior specialists, to facilitate Class A releases; and still more recruits to compensate for Class B transfers.

Present Recruitment Policy

Meantime we are sending to the Forces every man and woman who can be spared. The main source of supply is the pool of young practitioners who have completed A or B2 posts[1] in hospitals. We are continually rejecting applications from these practitioners for further deferment. We rarely allow them, for example, to accept even short-term engagements in general practice, although we receive many urgent appeals for their services as assistants; nor do we grant deferment to enable them to take examinations for higher degrees or diplomas. Because of the importance of keeping up a sufficient flow of recruits to the Forces we examine with great care the applications from hospitals for additions to their establishments of house officers. For the same reason we refuse to sanction new appointments of other kinds, however important, unless they are absolutely necessary in the public interest. We keep a watch on appointments to medical posts over-seas. We are doing all this at the cost of very heavy strain on the already dangerously depleted civilian medical services. Many of your colleagues at home are carrying almost intolerable burdens, and there are some, both old and ill, who in truth are being worked to death.

We have spent much time in a laborious examination of the general practitioner position throughout the country, the results of which prove conclusively the impossibility of obtaining further recruits from this source until releases of general practitioners from the Services can take place. The public health medical services have been drastically curtailed. The Ministries of Health and Education, by control of appointments, have effected numerous economies in staffing, and these services are now operating under considerable difficulties. The E.M.S. unfortunately is not the limitless reservoir of potential recruits so often pictured in letters from the battle-fronts. It is staffed largely by part-time consultants—many of them above military age—with other important commitments.

It is true that in the hospital service as a whole, although not mainly in E.M.S. hospitals,[2] there is a considerable number of whole-time residents of the B1 category. Some of these are medically unfit; others are senior members of municipal hospital staffs, comparable in status with the visiting staffs of voluntary hospitals and irreplaceable at the present time; others again, although younger, have had to be retained because of the difficulty of finding sufficiently experienced substitutes, particularly for those engaged in more specialized work such as neurosurgery and plastic surgery. There has been, however, a continuous flow of B1 officers to the Services, and every effort is now being made to obtain additional B1 recruits; but there is no doubt that until the return of men from the Forces begins we must continue to depend mainly on the young practitioner pool. It should be recognized that medical officers retained in civilian practice have made a valuable contribution to the war effort in the treatment of Service sick and wounded and of air-raid casualties and in other ways, and that their retention in this country has for the most part not been a matter of personal choice.

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[1] "A" posts are occupied for 6 months by newly qualified practitioners, a proportion of whom then pass on to "B2" posts, which call for previous professional experience and are normally held for 6 months only. Similarly, a number of young practitioners, on completing "B2" posts, are appointed to senior resident posts—such as that of R.S.O.—designated "B1." The duration of "B1" posts varies. Some "B1" officers are recruited when they have held their posts for one year; the others are recruited, whenever possible, after two years.

[2] In the E.M.S. in England and Wales there are at present approximately 110 "B1" officers, liable and fit for military service, who have held their posts for two years or longer; and about half as many again who have held their posts for one year but less than two years.

Future Recruitment Policy

So much for the present position. What of the future? When the reallocation scheme comes into operation the regular supply of young practitioner recruits will still continue. Our aim then will be to arrange the necessary replacement of officers released and transferred by recruiting not only young practitioners but doctors in all forms of medical work whose continued deferment will be rendered unnecessary by the return of colleagues from the Forces. No class of practitioner will escape our attention. We shall call up younger general practitioners at present considered indispensable and younger consultants on the staffs of voluntary hospitals. So that this may be possible, it has been recommended to the Government that the limit of age for continued recruitment of doctors should be between 35 and 40, although the Government have announced that recruitment generally will proceed only up to the age of 25 or, if necessary, 27. We have every hope that the Government will accept this recommendation. The replacement of returning specialists will be arranged by the recruitment both of young consultants and of the B1 officers referred to above, many of whom are of graded specialist status.

Transfers in Class B will be recommended only in circumstances of urgent necessity. At present we reluctantly reject many appeals for release on the ground of civil need which we should much like to support. We shall continue to scrutinize all such applications with great care and approve them only when a very strong case has been established. Class A releases will be our first concern.

We are determined to do everything possible to ensure that retention of individual medical officers because of military necessity is kept minimal. We think that, even if you are now bound for Burma, you need not conclude that you will have to stay there beyond the proper date for your release. Our task is certain to be difficult, but we have no reason to believe that the difficulties will prove insuperable. We promise that, by every possible means of recruitment, we shall do our utmost to see that both repatriation and release take place at the appointed times.

Postgraduate Training

Credit is due to the B.M.A. for having urged the Government, so long ago as the autumn of 1941, to arrange suitable postgraduate training facilities for medical officers in need of professional re-education on release from the Forces. More recently we have done our best to reinforce the efforts of the B.M.A. The Government have now announced their proposals, and we understand that details are being issued through Service channels for the information of all serving doctors.

The plan provides for three classes of medical officers. Class I comprises those who joined the Forces within a year or so of qualification. If you are in Class I you will probably wish to obtain some further hospital training. We thought that you would welcome something more than a course of lectures and demonstrations or an opportunity of attending the practice of a hospital as a clinical assistant. We recommended that you should be given a responsible hospital appointment at a suitable salary. The Government's plan offers you a post of the junior B1 category for a period up to six months. If you were recruited after obtaining a diploma and wish to proceed to a university degree, you will be placed if possible in a teaching hospital. You will be paid at the rate of £350 a year, with board and lodging or an allowance in lieu at the rate of £100 a year. This is not generous pay for a man with family commitments, but such a man may apply for financial assistance under the "Further Education and Training Scheme" arranged by the Ministries of Labour and Education for ex-Service men and women generally. We tried to get a considerably higher salary for you, but we hope that this plan for supplementing the salary when necessary will mean that no man will be prevented from accepting one of these posts for financial reasons. A Class I officer studying for a qualification such as the D.P.H. and not holding a salaried post may apply for a grant under the Further Education and Training Scheme.

Class II consists of those who were established in general practice before joining the Forces. If this is your position you will be offered a refresher course, which you may take at any time within a year of your release. No fees will be charged; and travelling and subsistence expenses will be refunded by the Ministry of Health, together with the expense of paying a locum where necessary. The courses may be either concentrated into a period of two weeks or spread over a period of about three months on, say, two afternoons a week. Here again the plan falls short of what we wanted. We strongly recommended that you should be offered a longer course, but the length proposed is all that the Government consider practicable.

In Class III will be those medical officers who were training for a specialist career when they joined the Forces or are regarded as suitable for such training on their release. For them there will be posts of the "registrar" type in teaching and other hospitals. These will usually be posts in the senior B1 category at a salary of £550 a year with board and lodging or £100 in lieu. Many of them will be new posts, specially created to facilitate your specialist training.

All the arrangements will be made by the universities in accordance with the long-term policy for postgraduate medical education recommended in the Goodenough report. If you wish to avail yourself of the facilities offered you should apply, on your release, to your university or medical school, or to the university nearest to where you are living, or to one of two central offices to be set up in London and Edinburgh. Further details will be announced later. Some Class III officers gained higher diplomas before they were recruited or have done so while serving, but many have had no opportunity of taking the examinations. We are asking the Examining Bodies to consider the possibility of modifying the existing examination regulations for candidates now serving over-seas, and in particular to do everything possible in the way of recognizing a candidate's medical work on service as satisfying the requirements for admission to the examinations.

Senior Appointments

In 1939 the B.M.A. urged all hospital authorities to adopt the policy of making appointments to the consultant and specialist staffs on a temporary basis during the war and for one year thereafter. We believe that this is the right policy, although we are well aware of the fact that it does not completely protect the interests of the Service doctors. The B.M.A. recommendation has been adopted to a very large extent. So far as voluntary hospitals are concerned, even temporary appointments of younger men to the visiting staffs have been infrequent, for such appointments would usually be made by promotion of B1 officers, and our policy has been to recruit these officers on the termination of their B1 posts. It recently came to our notice that a considerable number of permanent appointments had been made to senior posts in the mental hospitals service. We have made representations about this to the Board of Control and the Mental Hospitals Association.

It has been the consistent policy of the Ministry of Health to encourage local authorities to make temporary appointments, and since May, 1943, the filling of vacancies in the public health and school medical services has required the approval of the Ministry of Health, which sanctions a permanent appointment only in the most exceptional circumstances and has not in fact sanctioned any permanent appointment of a senior nature during the past two years. A similar policy has been adopted by the Department of Health for Scotland.

While we think that a permanent appointment may be justified in exceptional circumstances, we have suggested to the B.M.A. the desirability of repeating its 1939 recommendation at this stage, and of urging that, when a permanent appointment is regarded as necessary, the time allowed for the receipt of applications should be such as to permit of candidates serving in the Forces over-seas being considered. The B.M.A. is acting on this suggestion. We have considered the possibility of recommending rejection of advertisements of permanent appointments not available to Service doctors, but we are advised that legal considerations make this impracticable.

Summary

To sum up—we believe that the fair way of arranging the release of medical officers is the way proposed by the Government for the Forces as a whole. In the special case of medical officers a disproportionately large number of new recruits will be required to enable releases to be effected in accordance with the Government's plan. For this reason we hope to obtain authority to continue recruiting civilian doctors up to a limit of age between 35 and 40. Our intention is to call up not only the recently qualified practitioners but also many older practitioners (including general practitioners, junior consultants, and B1 hospital officers) who cannot be spared at present but will become available in exchange for returning Service doctors. We shall do our utmost, by the widest possible measures of recruitment, to facilitate both repatriation and release at the proper times. We have tried to secure for you a generous provision of postgraduate facilities, and we hope that the Government's proposals will go a long way towards meeting your need for further professional training, although in some respects they fall short of what we asked for on your behalf. We are doing what we can to promote your interests in connexion with higher examinations and senior appointments. We shall welcome any practicable suggestion as to how we can do more.

Yours faithfully,
(Signed) CHARLES HILL,
Secretary.
Central Medical War Committee.

The Ministry of Health announces the re-establishment of the Insurance Regional Medical Service, though for the present this will be on a restricted scale. It is now open to insurance practitioners to refer cases for examination, and references should be sent to the appropriate insurance divisional medical officers, whose addresses are as follows:

North-Eastern Division: Century House, South Parade, Leeds, 1. (Tel.: Leeds 30464.)

North-Western Division: The Baptist College, Brighton Grove, Manchester, 14. (Tel.: Rusholme 3248.)

South-Eastern and South-Western Divisions: Queen Anne's Chambers, 28, Broadway, Westminster, S.W.1. (Tel.: Whitehall 7010.)

HEARD AT HEADQUARTERS

"Helots"

In delivering the annual oration to the Medical Society of London the other day Dr. F. M. R. Walshe permitted himself an observation on the external affairs of medicine as compared with the internal affairs—the changing thoughts and ideals —which were his main theme. He described the cause of the external "crisis" in medicine as the increasingly authoritarian trend of Government—a trend, he said, which might well, by the slowly acting weapon of economic starvation, direct them all into a State medical service. In his view this would be to deprive them of the full measure of civil liberty they had enjoyed under the Common Law, and at the same time to deprive them of some measure of intellectual liberty as well. He acknowledged that there had been great human achievements in the absence of liberty—he mentioned John Bunyan in gaol, Galileo in the custody of the Inquisition, and Ovid in penal exile—but, he said, he had yet to learn that a helot had ever contributed to human thought, and helots they would certainly be if what he had just foretold were brought to pass.

Dr. Walshe then turned to less disturbing themes, and the president, with a smile, said it was as well that he had done so, as otherwise he might, as the guardian of the Society's traditions, have had to rule Dr. Walshe out of order.

An Old Innuendo

It is regrettable to see in a paper of the type of the *New Statesman and Nation* the old familiar statement, which becomes no more true by repetition, that "the continuance and extension of the panel," which the writer of the article takes to be the result of the modified health scheme now shaping, "means the continuance of two types of patient—the private, who enter by the front door and are seen at once, and the public, who go in at the back and have to wait long periods." And "two types of patient," it is added, "mean two types of treatment."

This insinuation about the difference between the treatment of private and of "panel" patients has been made so often that it is really time those who make it should be asked for facts and figures in evidence. It is true that in the history of National Health Insurance there have been occasional complaints on this ground brought before insurance committees. Their rarity compared with the vast extent of insurance practice has been their distinguishing feature.

One emphatic statement was made from the platform at the recent Special Representative Meeting. "I cannot give my private patients a better service than I give my hospital patients." The speaker was the President of the B.M.A., and therein he spoke for its members, that it is against the conscience, the habit of mind, the instinctive reaction of the doctor towards his patient to make this distinction. As another speaker said, the patients should not be described as "public" and "private," for all of them are private in the important sense that the treatment is given privately, that it is the best treatment the doctor can give, and that the confidence of the doctor-patient relationship is respected.

The Proportion of Specialists

In the United Kingdom in the early part of 1944, according to figures got out by the B.M.A., there were 3,482 consultants and specialists in the United Kingdom and 16,937 general practitioners. These figures leave entirely out of account whole-time officers in the service of hospitals or of local authorities. It is curious that a country like Canada has a larger proportion of specialists. There are 1,437 whole-time consultants and specialists in private practice in Canada, and 5,894 general practitioners. This again excludes all those holding whole-time appointments in the public or hospital service. In Quebec there is one specialist to a fraction over three general practitioners. Of the 1,437 whole-time specialists in private practice in Canada the largest category (387) consists of ophthalmologists, otologists, and laryngologists; obstetrics and gynaecology account for only 121, anaesthetics for 43, and dermatology for 36.

In the United States, apparently, there has been in recent years an extraordinary increase in the number of specialists. A publication of the American Committee of Research in Medical Economics observes that in 1942 more than 50% of the doctors in the United States were engaged either whole-time or part-time in some specialty, compared with only 25% in 1928.

The Doctor's Influence

At a public meeting in London the other day a professor (not of medicine but of engineering), who was talking of the new respect paid to science, declared that eighty years ago when a doctor called at the house he was customarily shown in at the back door. He did not quote any authority for that statement, and I cannot think it is accurate, except perhaps in the case of a doctor called to attend the servants at the houses of the great. By the middle of the last century the family doctor—no longer spoken of as "the 'pothecary"—had become a most important and much-respected member of the local community and exercised a good deal of influence in local affairs. Nevertheless, it is true, as is pointed out in the Charter for Health which is shortly to be published by the B.M.A., formerly doctors had little contact with national life; they worked in isolation, and their influence in the shaping of legislation or of social custom was not great.

To-day, as the Charter says, they are in close and constant touch with the general affairs of the people, and the views of the medical profession on health matters carry weight in Parliament and in local councils, on the radio, in the Press, and in inquiries and reports on specific subjects. The doctor thus becomes the health adviser not only of his individual patient but of the community and of the nation.

This collective function of doctors as national health advisers is a recent development and promises to become an increasingly valuable asset to the people. Is it borne in mind by the ordinary citizen that doctors collectively by guiding medico-sociological developments can prevent the health of the people from being sacrificed to political interests?

The Association's House

It is twenty years ago this early summer that the B.M.A. building in Tavistock Square was opened by King George V and Queen Mary. The move from the Strand to Tavistock Square was considered a big venture at the time and some shook their heads over the financial responsibilities entailed. The building then, of course, was not as extensive as it is now. The Great Hall was there, on which Lutyens had spent his genius, and extensions north and south completing the main courtyard. But it was not until after the Association had settled in that the buildings west of the memorial gates were constructed, and the open quadrangle converted into a closed court approached by the archway under new buildings which now carry on the continuous alignment of Tavistock Square and Upper Woburn Place. Those who conceived this plan, the chief of them the late Sir Robert Bolam, then Chairman of Council, built not only for dignity and working efficiency but, as it proved, for financial prosperity.

This was shown in the financial statement presented by the Treasurer (Dr. J. W. Bone) at the last meeting of Council. The building has proved a good investment, bringing in an excellent dividend. The total revenue of the Association and the *Journal* now approaches a quarter of a million, and the income from members' subscriptions alone exceeds £100,000.

Correspondence

Health Centres and the Scientific Method

SIR,—Dr. L. Phillips asks the question (*Supplement*, March 24, p. 45) why I should single out health centres when the argument as to inconvenience to patients applies equally to grouped private practices (*Supplement*, Jan. 6, p. 1). Two reasons can be advanced: (1) that grouped private practices are not concerned in any way with morbidity data; and (2) health centres will be the development of a Government policy which will interfere with the freedom for research in general practice by the general practitioner.

The research worker requires to know the rules of the "scientific method." In a comprehensive service the scientific method of dealing with data and the experimental method of studying phenomena are essential. In social science those methods include the observation, the classification, and the interpretation of data for the purpose of prediction and the application of the derived knowledge for control. The general design is the same whether it is carried out by an individual or by an organization with functions delegated to different individuals.

I have been a student of the methods for many years, and latterly have utilized my panel as "a sample of a universe" for the investigation of social problems. Data have been collected, integrated by mechanical methods, and analysed; hypotheses have been developed, experiments have been designed, data collected, and hypotheses tested, and so on. This should explain why I have taken an interest in the intentions of the Ministry concerning this essential part of a National Health Service.

For the development of social medicine two schemes can be adopted. (1) The organization of investigations with general practitioners acting simply as field workers but with centralized control and direction. The integration and analysis would be functions of that "Institute of Statistics" which, in a memorandum to the Government, the Institution of Professional Civil Servants is urging should be founded at an early date. (2) The development of the panel as a statistical unit with general practitioners trained in the scientific and experimental methods. Those practitioners would fill the dual role of field workers and investigators. In this scheme the Institute of Statistics would act only in an advisory capacity, assisting the general practitioner in the design of his experiments, analysing his data, and generally co-ordinating the whole field of research. The second scheme must appeal to any general practitioner who, having been trained in the scientific method, wishes to investigate the problems of the routine work of his practice. The first scheme, however, would be the natural policy of a Government Department responsible for administration and familiar with the problems of a census.

Both schemes must be experimental, both can be justified scientifically, and both should be given a chance. It would appear, however, that it is only the first scheme which is receiving official support, and that health centres will simplify the administrative problems of such a scheme. The evidence for this intention will be found in the report of the Goodenough Committee. While it emphasizes the need for the student to be trained in the scientific method (p. 166, para. 54), it lends its full support to the first scheme by stipulating that medical students must become familiar with the M.R.C. coding of morbidity (p. 135, para. 29).

The success of either scheme depends on mechanical methods for the integration and analyses of data. The M.R.C. code (Spec. Rep. Ser. No. 248) has been prepared so that the Powers tabulating machinery can be used for this work, and the code will also be required in the experimental work of investigations. The system is already in operation in the Health Surveys of the Ministry (*M.O.H. Monthly Bulletin*, April, 1944). It is also that of the Oxford Bureau.

I would have used punch cards and the Powers tabulating method as early as 1920, but the cost of hire was, and still is, prohibitive. One or two of a specialized staff would have been required to code the data. It is not a method which a panel doctor can afford to use. Therefore, while the general practitioner must do the field work, he is not to be the investigator. The second scheme has had the advantage of enabling me to design my own experiments, to see the processes develop, and thus maintain an interest and enthusiasm which the mere "cog" in a State-controlled machine can never hope to have.—I am, etc.,

Halifax. A. GARVIE.

Medical Demobilization

SIR,—With the fixing of VE Day, we know that demobilization will commence in 42 days' time. All Army officers and other ranks are to be released according to their age and length of service; not so the doctors, dentists, chaplains, and certain specialists, who can only be released on the direct instruction of the War Office. As with the rest of the Forces, our releases will be under two classes—Class A, according to age and length of service, and Class B, who are the "special releases."

At first sight this appears equitable enough, and, in fact, will be so if the releases under Class B are the exception rather than the rule. However, the system under Class B is open to abuse, and unless definite restrictions are placed on the number of such releases it appears highly probable that most releases will be under this class for the following reason. We all realize that the civilian population are very short of doctors, with the result that almost every town and village through the Local Medical War Committee will be calling for the immediate release of the doctors previously practising in that area. If these requests are acceded to, the younger and generally longer-serving medical officers who have never been in practice will find themselves retained in the Services, while other medical officers with a much shorter term of service are released. To say the least of it, such an occurrence would be grossly unfair to the former. The silence maintained in this matter of releases of doctors by both the War Office and the B.M.A. has, to me at any rate, a slightly sinister significance, in that there is no hint or suggestion as to the length of time we may be retained after our age and service group has been released.

On behalf of the long-serving (and long-suffering) medical officers, many of whom have a wife and family but no home or practice to return to, may I plead that Class B releases be restricted to the barest minimum, and the very large majority of us are demobilized according to our age and length of service. For obvious reasons I must ask to remain anonymous.—I am, etc.,

"CAPTAIN, R.A.M.C."

⁂ As will be seen from the letter of the Central Medical War Committee which is published in this issue (p. 95) it is intended that the release plan on the basis of age and length of service shall apply to doctors as to other members of the Forces, and there can be no question of most releases being in Class B. As for the alleged silence regarding the position of doctors under the reallocation scheme, explanations have appeared repeatedly in the *Journal*.—ED., *B.M.J.*

H.M. Forces Appointments

ARMY

Col. (acting Major-Gen.) J. C. A. Dowse, C.B.E., M.C., late R.A.M.C., to be Temp. Major-Gen.

Lieut.-Col. E. G. S. Cane, D.S.O., has ceased to be employed on account of disability, and has been restored to the rank of Col.

Short Service Commission.—Capt. D. N. Parry has retired on account of disability, and has been granted the honorary rank of Major. (Substituted for the notification in a *Supplement* to the *London Gazette* dated April 3.)

REGULAR ARMY RESERVE OF OFFICERS

ROYAL ARMY MEDICAL CORPS

Capt. (Brevet Major) K. L. O'Sullivan has relinquished his commission on account of disability, and has been granted the honorary rank of Major.

WOMEN'S FORCES

EMPLOYED WITH THE MEDICAL BRANCH OF THE R.A.F.

To be Flying Officers (Emergency): Catherine P. Cathcart and Joan S. Deans.

INDIAN MEDICAL SERVICE

Lieut.-Col. S. L. Patney has retired.

Capt. D. P. Nath to be Major. (Substituted for the notification in the *London Gazette* dated June 14, 1940.)

EMERGENCY COMMISSIONS

Capt. O. J. S. Macdonald to be Major.

The initials of Capt. E. J. Rubra are as now described and not as stated in the *London Gazette* dated Feb. 18, 1944.

COLONIAL MEDICAL SERVICE

The following appointments are announced: A. McKelvie, M.B., Medical Officer, Nigeria; J. N. P. Davies, M.B., Medical Officer, Uganda Protectorate: J. C. Chartres, B.M., B.Ch., Medical Officer, Nigeria; E. G. Laurence, M.R.C.S., L.R.C.P., Ophthalmologist, Trinidad; A. J. Boase, M.R.C.S., L.R.C.P., Ophthalmologist, Uganda; J. C. R. Buchanan, M.D., Inspector-General of South Pacific Medical Services; H. C. Trowell, M.D., Physician, Uganda; V. L. Sutherland, M.B., Ch.B., Assistant Medical Officer, Jamaica.

POSTGRADUATE NEWS

The Fellowship of Medicine announces: (1 M.R.C.P. course in neurology, Mon., Tues., and Fri., 2.30 p.m., from June 4 to 29; (2) Week-end course in ophthalmology, at Royal Westminster Ophthalmic Hospital, all-day, Sat. and Sun., June 9 and 10; (3) Week-end course in general surgery at North Middlesex Hospital, all-day, Sat. and Sun., June 16 and 17; (4) Week-end course in ear, nose, and throat diseases, at Metropolitan Ear, Nose and Throat Hospital, all-day, Sat. and Sun., June 30 and July 1.

WEEKLY POSTGRADUATE DIARY

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W.—*Elizabeth Garrett Anderson Hospital:* all-day Sat. and Sun., June 2 and 3, Week-end course in general medicine (for women postgraduates only).

GLASGOW UNIVERSITY: DEPARTMENT OF OPHTHALMOLOGY.—*Wed.*, 8 p.m., Mr. W. B. Inglis Pollock: Arabian and Mediaeval Ophthalmology.

DIARY OF SOCIETIES AND LECTURES

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.—*Tues.*, 4 p.m., Prof. A. Sorsby: Penicillin and Gramicidin S in Ophthalmology: *Thurs.*, 4 p.m., Mr. James Patrick: A Study of Supination and Pronation, with Special Reference to the Treatment of Forearm Fractures.

ROYAL SOCIETY OF MEDICINE.—*Mon.*, 4.30 p.m., Section of Odontology. *Tues.*, 5 p.m., Section of Medicine; 5 p.m., Special meeting of Fellows. *Fri.*, 1.30 p.m., Section of Epidemiology and State Medicine: 10.30 a.m., Sections of Laryngology and of Otology.

B.M.A.: Diary of Central Meetings

JUNE

13. Wed. Council, 10 a.m.

B.M.A.: Branch and Division Meetings to be Held

HEREFORD DIVISION.—At Garrick A.R.P. Post, Widemarsh Street, Hereford, Fri., June 1, 4 p.m. Mr. F. Selby Tait (Birmingham): Ante-natal and Post-natal Care.

KENSINGTON DIVISION.—At British Postgraduate Medical School, Ducane Road, W., Fri., May 25, at 8.30 p.m. Annual meeting of the whole profession in the area to elect Local Medical War Committee. The annual meeting of the Division will follow at 9 p.m.

MACCLESFIELD AND EAST CHESHIRE DIVISION.—At Queen's Hotel, Alderley Edge, Wed., June 6, 8.30 p.m. Dr. G. Stewart Smith: Penicillin Treatment.

BIRTHS, MARRIAGES, & DEATHS

The charge for an insertion under this head is 10s. 6d. *for* 18 *words or less. Extra words* 3s. 6d. *for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.*

BIRTHS

GARDHAM.—On May 15, 1945, at 40, Acacia Road, St. John's Wood, N.W.8, to Audrey (*née* Carr), wife of John Gardham, F.R.C.S., a daughter.

HAMER.—On May 15, 1945, at Allington House Nursing Home, Ipswich, to Mary (*née* Carley) and Capt. J. M. Hamer, R.A.M.C. (Overseas), a son (Andrew Charles).

WARD.—On May 7, 1945, at Queen Elizabeth Hospital, Birmingham, to Dr. Elizabeth Ward (*née* Mackay) and Squad. Ldr. J. A. Ward, R.A.F.V.R., a son.

MARRIAGES

HERD—PATERSON.—At Edinburgh, on May 7, 1945, James Herd, M.B. (Aberdeen), to Edith Paterson, of Innerleithen.

SCOTT—GOUGH.—On May 9, 1945, at the Parish Church, Wincanton, Col. Ernest Scott, youngest son of the late Mr. and Mrs. J. B. Scott, of Caterham, Surrey, to Marguerite, second daughter of Mr. W. H. Gough and the late Mrs. Gough, of Dorlangoch, Brecon.

SUPPLEMENT TO THE

BRITISH MEDICAL JOURNAL

LONDON SATURDAY JUNE 2 1945

HEARD AT HEADQUARTERS

The Labour Party's Health Policy

The Labour Party, during its week's conference at Blackpool, dismissed the National Health Service proposals in less than half an hour. There were several resolutions and amendments on the paper, one of them, by the South Paddington division of the party, "viewing with great apprehension the recent activities of the British Medical Association," and declaring that all attempts to achieve a satisfactory National Health Service "will be defeated unless the vested interests of the medical profession are subordinated to the needs of the people."

This resolution, however, was not taken, and, following the usual procedure of the conference, a composite resolution was framed which secured unanimous assent. This resolution—one of the longest submitted to the conference—began by regretting that the Minister of Health was contemplating radical alterations in the scheme, violating democratic principles, and sacrificing the health of the people to the vested interests of the medical profession. It went on to declare that no scheme can be acceptable which does not give the local authorities control over municipal hospitals and medical services on statutory health councils and committees, which does not put an end to the National Health Insurance "panel" service "with its one standard of service for the poor and another for the rich," which does not give the local authorities the power of initiation and control of health centres, which does not abolish the buying and selling of practices paid for by public funds, which does not provide for the training of doctors by using the municipal hospitals and by making medical education free to all suitable candidates irrespective of sex, and which does not include the National Health Service as part of the comprehensive social security plan.

The conference called upon the Government to implement by legislation nothing less than the proposals of the White Paper. One would have thought that in a week's conference, concerned mostly with domestic and social questions, with an eye on the General Election and on Labour's programme for the new Government—which will be a Labour Government according to all the Blackpool forecasts—more time than half an hour would have been allotted to such sweeping proposals. The proposer of this omnibus motion, Dr. Stark Murray, was given no more than five minutes. He had time only to declare that the "Not for publication" document had completely destroyed all hope of a National Health Service. The whole episode of these secret negotiations, he said, was an example of how privilege would protect itself.

It was left to Dr. Edith Summerskill, M.P., who, as a member of the National Executive, was not subject to the time limit for speakers on the floor, to carry on from the point at which Dr. Stark Murray stopped. She described the procedure which had developed between the Minister of Health and the B.M.A. as a gross betrayal of the public interest. It was evident, she said, that the Conservative Party had no intention of implementing the promises embodied in the White Paper, and the "old guard" of the medical profession was obstructing progress just as it had done at the outset of National Health Insurance. This time it had had the advantage of dealing with a "spineless" Minister, weak-willed, and not possessed of the technical knowledge necessary for dealing with such a subject. The White Paper, said Dr. Summerskill, embodied to the extent of 75% the principles of Labour. Labour had been accused of wanting to take away the freedom of the medical profession. As herself a doctor, the wife of a doctor, the daughter of a doctor, and the sister of a doctor, she repudiated that. A salaried medical service would strike off the shackles, not bind them. As for the administrative proposals which Mr. Willink had offered the B.M.A., the medical profession would dominate at every level. At one level, she said, of 34 members only five would be representatives of the local authorities.

Rehabilitation

The B.M.A. has been extremely fortunate in securing 34 first-class men to serve on its Rehabilitation Committee, which has held its first meeting this week. The committee includes men who can speak with authority in orthopaedics, in various other specialties such as otology and ophthalmology, in industrial medicine, in hospital services, and in public health. One of the documents placed before the first meeting of the committee traced the work of the Association on rehabilitation, for the proposal of the Council last December to set up this committee was by no means the beginning of the chapter.

Ten years ago the Association's Committee on Fractures, which had been set up in 1933, reported, and an immediate result was the appointment by the Government of what is now known as the Delevingne Committee, an interdepartmental committee on the rehabilitation of persons injured by accidents. The Fractures Report had another outcome. A joint committee of the B.M.A. and the T.U.C. was set up, and the results of its discussions on rehabilitation were embodied in the evidence presented to the Royal Commission on Workmen's Compensation in 1940. The sittings of that commission were suspended during the early part of the war, and their resumption was made unnecessary by the Government's adoption of the principles of the Beveridge report.

A wider investigation into the whole problem of the medical aspects of rehabilitation seemed to the Council now to be necessary, and the new committee is the result.

Public Health Appointments

Some misgiving appears to have arisen among holders of public health medical appointments concerning the recent issue of Circular 62/45 by the Ministry of Health to local authorities. The circular states that the Minister has decided that further steps must be taken to secure that the limited resources now available for the medical staff of the public health services shall be used to the best possible advantage. All proposals for a new appointment—that is, an appointment additional to the existing establishment—are to be held for review at intervals, and such proposals, together with those for filling vacancies due to death or retirement, will not be approved until every effort has been made to arrange for the duties of the proposed or vacant post to be otherwise carried on. It is expected that the authority will consider the possibilities of postponing retirement, reorganizing duties, making arrangements with neighbouring authorities, and also of making increased use of the part-time services of private practitioners.

All this is really a following up of an earlier circular issued in May, 1943, but some who have written to the B.M.A. have supposed that it will prevent a medical officer from leaving an institution for a better post. What it seems to amount to is that each case must be put up to the principal regional medical officer for permission, and it is the experience at Tavistock Square that the Ministry does give careful consideration to such applications. So far as can be gathered, each case will continue to be given its due weight, having regard to the needs of the institution and the authorities.

FROM THE PRESS CUTTINGS

"It would be better to recognize frankly that in a society such as ours, where wide economic and other divisions still persist, a classless medical service cannot be swiftly introduced except by methods which would impose on doctors and patients alike a bureaucratic discipline liable to defeat its own ends. It may be wiser to proceed slowly, building on the existing system and improving it, with the willing co-operation of the great majority of doctors, by degrees; while at the same time pressing on with the campaign against those social evils of malnutrition, bad housing, and gross poverty which create more sickness than any medicines can cure."—*Observer.*

"Yet there is nothing outrageous in the fact that modifications of the original proposals have been discussed. . . . Great play has been made of the report that the general establishment of health centres would be postponed until experiments with different types of health centres in different areas had been carried out. But health centres are not a fundamental part of a National Health Service. The principle underlying such a service is that full medical, hospital, and rehabilitation services should be available to everyone irrespective of their means, and the criterion for judging the alternative proposals should be whether they would promote this objective more successfully than the administrative structure of the White Paper."—*Economist.*

THE MEDICAL AND SANITARY SITUATION IN INDIA

BY

M. N. PAI, M.R.C.P., D.C.H., D.P.H., D.T.M., D.P.M.

I crave the hospitality of these columns to draw once again the attention of the British medical profession to the medical and sanitary situation in India. As early as 1940 I pointed out (*B.M.J.*, Aug. 24, p. 168) how a nation-wide campaign on behalf of indigenous medicine (i.e., Ayurvedic medicine for Hindus and Unani or Arabic medicine for Moslems) was being organized, how public funds were being spent in opening schools of Indian medicine, and how everything was being done to discredit science and Western medicine. After five years one may be excused for taking stock of the situation, especially, in view of the large numbers of British and Allied Forces now stationed there.

Some Obvious Defects

For a population of 388 millions there are only 42,000 doctors, of whom only a few have the additional qualification of D.T.M. The number of medical colleges is hardly worth mentioning and the standard of teaching leaves much to be desired. Some of the professors have not even visited European or American hospitals, are not conversant with foreign languages (not even French or German), have no higher qualification than the medical degree of an Indian university, and do not even possess the D.T.M. This despite the fact that any number of my countrymen possessing the M.R.C.P. or the F.R.C.S. are available in India. The reason is simple. All appointments are made on a communal basis and on length of service in the Provincial cadre irrespective of additional medical qualifications, and merit is not infrequently sacrificed to feed the canker of communal representation.

The majority of the hospitals are ill equipped, and though in the Tropics microscopes are more essential than stethoscopes, it is doubtful whether in the whole country there are a thousand microscopes. In some schools as many as six students have to share one microscope. Medical books are scarce, those available often several years out of date, and there are no medical lending libraries.

As regards public health and preventive medicine there is nothing to be proud of, as epidemic and endemic diseases show no tendency to decline. In the Presidency town of Madras primitive methods of conservancy still exist. The number of doctors obtaining the D.P.H. and qualifying as health officers is totally inadequate because apparently there is no demand for their services. According to the report of the Central Advisory Board of Health for 1939 "nearly one-half of the districts and three-quarters of the municipalities in British India are still without qualified health officers."

Advances made in Britain and other countries in the knowledge of nutrition, endocrinology, chemotherapy, and immunology, as well as the application of these principles to the daily problems of life, have no serious meaning to Indians who obstinately insist that there is no higher knowledge than the wisdom of their forefathers.

Maternal mortality is still the highest in the world because, on account of the shortage of midwives, maternity services have not yet reached the masses, especially those in the villages. Recently the local authorities in Madras invited applications from fully trained and qualified persons in receipt of a midwives' certificate for appointment as midwives at a salary of Rs. 25 (£1 17s. 6d.) per month! Thousands of young would-be mothers are allowed to undergo the agony of painful childbirth and perhaps septic complications and chronic invalidism because the Government and Legislative Assemblies are not prepared to pay higher salaries to midwives and nurses. The spectacle of pregnant women unable to obtain medical or midwifery help slowly dying from difficult labour, haemorrhage, or exhaustion while the utterly helpless relatives stand around with folded arms praying for Divine intervention has to be seen to be believed.

Backward Propaganda

Meanwhile an incessant propaganda on behalf of Indian medicine is going on. Persons who in Britain would be scoffed at as charlatans have been glorified by the pompous title of "Practitioners of Indigenous Systems of Medicine," and admitted to a Medical Register. Some are in receipt of Government subsidies. In the Bombay Presidency, while there are only about 8,300 doctors, there are well over 12,000 names in the Register of Practitioners of Indigenous Systems of Medicine. There are also millions of unregistered practitioners in every walk of life. They are found among artisans and clerks, and even among persons holding high positions. The latter, of course, practise Indian medicine "as a hobby" and give medical advice gratuitously. In a leading daily newspaper of Madras one of the Indian doctors openly advertises his qualifications, quoting extracts from a testimonial given by a retired High Court judge (full name, titles, and address given in the advertisement), who, in the course of his certificate, says that his daughter's enlarged tonsils disappeared completely after a few applications of the advertiser's medicine.

About conditions in the Indian States the less said the better. In the "progressive" State of Travancore there are six State-aided schools of indigenous medicine. Not long ago (Nov. 25, 1944), during a discussion on the incidence of smallpox and vaccination in India at a meeting of the Section of Epidemiology of the Royal Society of Medicine, I pointed out how the absence of vaccination laws in certain Indian States was having an adverse effect on the health of the population of the neighbouring Provinces of British India. What applies to smallpox applies with equal force to other epidemic and endemic diseases.

The yearly toll from preventable diseases is grim evidence that the health of the dumb millions is being sacrificed to the selfish interests of quacks and magicians. It is true that in this atmosphere of ignorance, superstition, sickness, and sin a small band of missionary doctors—British, American, and Indian—are still carrying on with their labour of love, expecting neither reward nor recognition, and the large crowds which flock to the out-patient departments of hospitals and dispensaries should convince those competent to judge that the Indian masses demand medicine, not magic.

Some Proposals for Reform

Can anything be done to remedy this unsatisfactory state of affairs? If the British Governors who administer the Provinces (in the absence of Congress Ministers) have the courage of their convictions they can put down quackery with a firm hand, and abstaining from expressions of sympathy declare the practice of indigenous medicine a criminal offence. Secondly, the medical schools and colleges should be thoroughly overhauled with a view to raising the standard of teaching. Professors holding mediocre qualifications should be weeded out. It is false patriotism which asserts that Indian degrees are the highest qualifications in the world. Persons (preferably those with international reputation) irrespective of nationality, race, or religion, should be appointed (by invitation if necessary) to the teaching posts. Only those who have been trained in the great hospitals of the British Isles and possess higher diplomas granted here should be appointed to any of the chairs.

Though (except for the abnormal conditions created by the war) there is no statistical evidence that during the last several years there has been a falling off in the number of Indians coming to this country for postgraduate education, it is desirable to encourage more Indians to obtain higher medical qualifications in this country. A "change of heart" on the part of the Government and Legislative Assemblies in India is necessary, and those Indians in possession of additional British or European medical qualifications should be paid higher salaries than those possessing Indian degrees only.

Several other reforms are long overdue. The pay of medical licentiates and of those in the subordinate medical services (some of these get less pay than a private in the British Army) as well as the pay of nurses and midwives should be raised without delay. Promotion should be for merit only and not for cringing, fawning, or persistent begging.

Finally one cannot repeat too often that it is India's dependence on the bondage of magic, mediocrity, and mendicancy which has clogged the wheels of progress and made her a pariah among the nations.

BLUEPRINT FOR NATIONAL HEALTH

AN AUSTRALIAN PROGRAMME

Sir Raphael Cilento, who is Director-General of Health and Medical Services for Queensland, has written, in his personal capacity, what he calls a *Blueprint for the Health of a Nation* (Sydney: Scotow Press). His proposals, of course, are in the Australian setting, which is different in many respects from that of Great Britain, but he shows a close acquaintance with what is happening in this country and quotes extensively from our current literature. The fairness and lucidity with which he sets out all sides of the question, almost in the "handbook for debating societies" manner, makes this small volume a useful contribution to present controversies and very interesting to the reader in this country. On some points, such as his evident preference eventually for a whole-time salaried service under the State, he will not be in harmony with the majority opinion of the profession here, but again the difference between the conditions in the two countries must be remembered.

The first principle which the B.M.A. has adopted, that the best medical services, general and specialist, domiciliary and institutional, must be available for every individual, is peculiarly difficult to apply in Australia with its vast distances and its variable population densities. Half the people of Australia are established in the capital cities of the six States, and from these over-dominant centres the population thins away rapidly, with an occasional provincial city, through intermediate rural towns, most of them "one-doctor" places, to outpost sidings and small clusters of dwellings, which are unable to support a resident practitioner or even a nurse.

The Problem of Distribution

In aggregate Australia does not appear to be ill supplied with doctors. She has 6,000 practising medical graduates (including those for the time on active service), and it is expected that 1,700 more will graduate during the next five years. But the cities are over-supplied, while in the country there may be only one doctor to a population of 5,000. In Sir Raphael Cilento's opinion the necessary reorganization to make medical services available to every individual is not compatible with unrestricted competitive medical practice of the isolationist type hitherto familiar. Team work is essential. He suggests a consultative health centre or polyclinic in every town of 15,000 or more people and in every suburb of 15,000 to 50,000 people, with perhaps 15 or 20 practitioners attached. The health centre, however, can hardly be successful in the more scattered rural communities. In small towns, in his opinion, all the practising men in the district should be attached to the nearest hospital in capacities suitable to their individual ability and local needs. As for the outpost practitioners, they must be made part of the State organization and given access to adequate specialist aid.

For the control of such a service the author of this *Blueprint* favours a corporate body under the Government, but he is opposed to the demand which has arisen in Australia that the whole control of the scheme should be by a body predominantly medical from which even medical men with administrative training in the public service are excluded, so that the permanent majority on the controlling body would be private practitioners hitherto engaged in private competitive practice. He believes that this demand indicates a "blind spot"; it loses sight of the greater claims of the larger of the two contracting parties—namely, the potential patients, numbering 7,000,000, as against the doctors, numbering 7,000. But, worse than this, the positive action of any corporate body would be fatally hindered if some of its members were there for the express purpose of advancing the interests of the sections for which they were responsible.

In his view a central co-ordinating health corporation appointed by the Government for the provision and administration of a comprehensive medical service is necessary during a ten-year trial period. In this connexion another difference between Australia and Great Britain may be mentioned. In Great Britain we have local authorities which are autonomous, or nearly so, but in Australia the local authorities, which number nearly 1,000, have always, for reasons connected with history and geography, been excluded from major functions. In the new health service the administrative units will be the States, with, in each State, a health council supervising and directing the administration in the regional areas, and in the regions, other bodies representing the Government and the constituent local authorities, and with medical advisory and service units responsible for carrying out the health programme.

Paying the Practitioner

Sir Raphael Cilento believes that ultimately an almost entirely salaried service will emerge, though the process may be gradual, with trial and error, and a part-salaried service may obtain for some intermediate period. "Economic security is the compelling factor in all business transactions; it seems likely that it will be found, for most of the medical men, only in active association with the all-inclusive medical service provided by the Government." He criticizes the capitation method of payment, and suggests that in Great Britain it was this method embodied in National Health Insurance which proved so unpopular that it led to the present demand for change. That is a misreading of the position. There has always been complaint on the part of British practitioners that the capitation fee was too low, but no widespread objection has been taken to the method of payment, as was illustrated by the results of the recent Questionary. The National Health Insurance system has never appealed to the Australian public. Although a National Health and Pensions Insurance Act was rushed through the Commonwealth Parliament in 1938, it was based upon practice that was already obsolete, and it has never been proclaimed.

The author of this *Blueprint* brushes over, perhaps too lightly, the "bogy" of civil servant status, saying that it depends entirely on the medical men themselves to what extent it bulks in the final scheme. On the subject of "direction" of practitioners, he admits that Australian doctors are agitated by the possibility that under a State service, in view of the unequal distribution of practitioners in the Commonwealth, they might be sent at a moment's notice to Darwin in the Northern Territory or Marble Bar in Western Australia, breaking up their established home and other interests, but he adds that "nothing could be more ridiculous." The young graduate, after completing his hospital year, and electing to join the service, would spend a further year at a consultative health centre, with its "general practice atmosphere," and then might reasonably be required to go for two years to an outlying district. At the end of that period, in his fourth year after qualification, he should be free to make his decision as to specialty, general practice, or hospital work, and, having found his post, nothing could compel him to change it.

A very refreshing book, the work of a medical statesman, whether one agrees with its conclusions or not.

PUBLIC RELATIONS IN BRISTOL

Between September, 1944, and the end of March, 1945, the Public Relations Committee of the Bristol Division of the B.M.A. met five times, when plans were made for meetings to discuss the White Paper. The committee also, at the request of the Bristol Associated Discussions Clubs, dealt with criticisms of the plan for a national comprehensive State service drawn up by the latter body in co-operation with the Bristol Medical Study Group, and prepared a questionary on medical services for the Bristol Committee of Townswomen's Guilds. At the last meeting it was decided to report the following matters to the executive.

Report to Executive

Having decided last September that the most useful work it could do would be to get in touch with people in all walks of life, the time not being considered opportune for further articles in the press, the Bristol Public Relations Committee arranged some twenty-nine meetings in all parts of Bristol, including four Unionist district meetings, women's meetings of all kinds, gatherings of medical auxiliaries, nurses, religious bodies, youth organizations, of the Bristol Rotary Club, and of Civil Defence and factory workers. From these meetings and the sixteen held before September, 1944, the committee feels it has gained useful knowledge of the attitude of the public to the B.M.A., the White Paper, and doctors as a whole. It has been found that the public generally had many erroneous impressions about the B.M.A. They regarded the Association as antagonistic to reform and "anti-Beveridge." After discussing the White Paper and explaining the profession's criticism of the proposed administration, the majority in the audiences have been very largely in sympathy and agreement with the doctors, even going so far at one meeting as to wish to pass a vote of confidence in the B.M.A. The public want free choice of doctor and freedom to change their doctor. They do not want their family doctor to be a civil servant, nor to see professional secrecy endangered by the inclusion in the medical services of non-medical staff. Women want to attend their own doctor's surgery, and are very much opposed to health centres—an attitude which came as a surprise to all the committee; at one meeting—at the University Settlement—94% voted against health centres. Finally, the public do not want the State to have a monopoly in medicine; experience through the war seems to have taught them the value of individual enterprise.

The meetings have all been thrown open to discussion and questions. The committee has been able to correct many misunderstandings about the doctor's life and work. In its view, the public's interest in health services is steadily growing, and more intelligent questions are asked now than at earlier meetings. Most groups are to have further discussions and study among themselves and have asked the committee to visit them again later. The National Association of Townswomen's Guilds, which received the questionary drawn up at the request of its local division, has decided to arrange a campaign over the country to obtain the views and wishes of women generally. One particularly interesting meeting was a medical "Brains Trust" at Wills's factory. The committee thinks that a very useful part of its work has been the contacts made with the Associated Discussions Clubs of Bristol. It acknowledges with thanks and appreciation the help received throughout in arranging and addressing meetings, particularly from Drs. P. Phillips, H. M. Golding, Doris Heron, C. C. Morgan, and W. H. Hayes.

Correspondence

Safeguarding Private Practice

SIR,—It is obvious that we are fighting, and shall have to fight considerably more strenuously, for our professional independence. What our negotiators are doing, if anything, to safeguard the only alternative to State medicine—namely, private practice—is, unfortunately, far from obvious. The White Paper states that the Government has no desire to interfere with private practice. Whitehall is far too astute to incur the odium of a direct assault on private practice when it knows that the White Paper scheme will, in operation, automatically kill it stone dead. Here are some relevant facts.

The scheme is to cost £700 million a year; 75% of this sum, say, £500 million, is to come from the taxpayer. When inflated wartime wages in due course come to an end the number of direct taxpayers will drop, probably to about five millions, each of whom will have to shoulder a burden averaging £100 a year for this scheme alone, in addition to vast subsidies for housing, food, education, children's allowances, and so forth, not to mention the interest on the astronomical National Debt. The standard of living of the direct taxpayer—or rather "tax slave"—will be seriously reduced. He will have to look at every shilling before he spends it, and he will very quickly come to the conclusion that he cannot afford to pay fees to his old friend, the family doctor, when he is paying out on an average £100 a year, which entitles him to queue up for "free" doctoring. He will not have the money to pay for doctoring twice over. The private doctor will therefore, in accordance with the Machiavellian forecast of Whitehall, sooner or later be forced to come to heel.

I can see only one possible safeguard for private practice and our independence. The scheme must be voluntary, and that means, if "Mr. Smith" the taxpayer does not want to join he shall be absolved from paying not only weekly contributions but also all *ad hoc* taxation. In fact let him keep his £100 in his own pocket to pay his own doctor's bills. Is this going to be a free country or is the standard of living of tens of thousands of English homes to be drastically cut down to pander to the power lust of a handful of Whitehall bureaucrats?—I am, etc.,

C. J. NEPEAN LONGRIDGE.

London, W.2.

Social Insurance and Certification

SIR,—The question "Shall we nationalize medicine?" is bound up with another: "Shall we have a national social insurance plan—a Beveridge plan?" It must, I think, be agreed that impartial medical certification is essential to the success of the Beveridge plan; also that impartial certification, whether by doctor or layman, can be assured only if the income of the certifier is assured no matter what his decisions—i.e., if he is in receipt of a fixed salary. Opposition to a salaried medical service is tantamount, therefore, to opposition to the Beveridge plan. Are we justified in "torpedoing" this great plan by insistence on the type of medical service *we* prefer? I do not think so.

I would prefer a National Medical Service to a revival of regional medical officers—the medical "gestapo." With competition among doctors virtually unrestricted it is necessary, in my opinion, to certify indulgently in order to retain one's practice. I have lost many patients through correct certification. Indulgent certification tends, however, to bring one into conflict with the regional medical officer. We are between the devil and the deep sea, and a National Medical Service is the only solution. I am of the opinion, moreover, that the nation's health would greatly benefit.—I am, etc.,

Wallasey. LENNOX JOHNSTON.

"Doctor"

R. S. S. writes: I note a paragraph in "Heard at Headquarters" in which it is stated that "evidently a good many medical men have decided to keep the 'doctor' labels on their windscreens until the end of the Japanese war." I wonder if it is realized what a boon these labels have been to medical men on their rounds. It was only when I had to discard the sign (faded and torn) that I myself realized this. Since taking it off, troops in convoy, on the march, and on exercises have caused me much delay. For my part I do not wish to discard the label until troops have left our district, for there is no doubt that when they see it they realize the urgency and readily give the right of way without any query or delay. Much credit must be given to men serving in the Forces, who, in my experience, have done all possible to cause the minimum of delay to medical men on their rounds.

BRITISH MEDICAL ASSOCIATION

Election of 22 Members of Council by Grouped Branches in the British Isles; of 2 Public Health Service Members; and of 1 Woman Member

As a result of the nominations received for the election of twenty-two members of Council, the following have been elected for the session 1945–6: Weldon Watts (Newcastle-upon-Tyne); L. Dougal Callander (Doncaster); E. C. Dawson (Derby); C. M. Stevenson (Cambridge); J. A. Brown (Birmingham), J. A. Ireland (Shrewsbury); F. Gray (London); E. A. Gregg (London); A. M. A. Moore (London); H. H. D. Sutherland (London); F. H. Bodman (Bristol); J. A. Pridham (Weymouth); J. G. Thwaites (Brighton); John H. Otty (Aberdeen); P. Martin Brodie (Edinburgh); I. D. Grant (Glasgow); G. MacFeat (Lanark); G. J. A. Woodside (Belfast).

The following candidates have been nominated: For Group C (Isle of Man, Lancashire and Cheshire), R. Kennon, R. L. Newell, D. R. Owen, F. M. Rose, S. Laurie Smith. For Group L (Southern, Surrey), C. N. Binney, N. E. Waterfield. Voting papers will be issued to the members of these Groups on June 9, 1945.

No nomination has been received for Group H (South Wales and Monmouthshire).

Public Health Service

The following, being the only candidates nominated for election as members of Council for 1945–6 by Public Health Service members, are hereby declared elected for 1945–6: James Fenton (Kensington), R. M. F. Picken (Cardiff).

Woman Member

Janet Aitken (London), being the only candidate nominated for election by women members, is hereby declared elected as a Member of Council for 1945–6.

CHARLES HILL,
Secretary.

MEDICAL WAR RELIEF FUND

SIXTY-EIGHTH LIST

Amount previously acknowledged £56,675 19s. 4d. and £100 3½% Conversion Stock and £40 3% Defence Bonds.

Individual Subscriptions

£15.—Dr. W. Cliff Hodges, Godalming (2nd donation).

£532 5s. 9d.—Practitioners in City of Leicester—per Leicester P.M.S. (amount already sent £61 18s. 6d.): Dr. D. Anderson, Dr. D. Braham, Dr. I. Byer, Drs. Barker and O'Sullivan, Dr. D. S. Badenoch, Drs. Binns, Porteous and Bostock, Dr. F. L. Reardon, Drs. Bradley and Mackay, Drs. Bryce and Anderson, Dr. K. Chapel, Drs. Cooper, Greer and Thorp, Dr. R. T. Crawford, Dr. G. Collier, Dr. Denis Casey (2nd donation); Dr. R. Cairns (2nd donation); Dr. F. T. Doleman; Dr. A. W. M. Douglas (2nd donation); Dr. J. English; Drs. J. L. and H. M. M. Freer; Dr. B. Galandauer; Dr. E. B. Garrett; Dr. W. L. Glegg; Dr. C. C. Gibson; Dr. E. W. Goodwin; Drs. Holyoak, Waring Taylor and Buck; Drs. Howell, Davies-Jones and Carlton; Dr. P. Hughes; Dr. J. R. Larson; Dr. L. Levene; Dr. Z. T. Lovell; Dr. H. L. Lentin; Dr. D. D. McNeill; Drs. McMullan, Ballantine and Fleming; Drs. McLean and Wooderson; Dr. J. S. Mann; Dr. P. de R. Mason; Dr. M. L. Millard (2nd donation); Dr. Catherine Mitchell; Dr. R. Michell; Dr. A. Morrick; Dr. John Noble; Dr. A. W. H Noble; Dr. C. H. Parker; Dr. D. G. Pearson; Dr. I. Platt; Mr. J. S. Sloane; Dr. D. J. Smith; Dr. G. G. Smith; Dr. C. L. Somerville; Drs. Southan and Russell; Dr. A. J. L. Speechly; Dr. R. T. Todd; Dr. J. V. Tollington; Dr. H. Waterman; Dr. C. M. Williams; Dr. T. W. Allen (2nd donation); Drs. D. J. and L. S. Davies; Dr. D. K. Souper (2nd donation); Dr. E. M. Ward; Dr. D. Forbes; Dr. L. K. Harrison (2nd donation); Dr. C. W. C. Karran; Dr. L. A. Laventhall; Dr. J. C. H. Mackenzie; Dr. E. K. Macdonald (2nd donation); Dr. A. P. M. Page; Dr. F. E. Rosenthal; Dr. C. L. Summerfield; Dr. N. I. Spriggs (2nd donation).

£206 18s.—Lincoln Division (amount already sent £328 11s.): Mr. J. A. Hadley £5 5s. (3rd donation); Mr. A. H. Briggs, £3 3s. (2nd donation); Dr. M. L. Bery, £3 3s.; Dr. G. Lowe, £3 3s. (3rd donation); Dr. H. C. Barlow, £5 (3rd donation); Dr. W. F. Stiell, £3 3s. (3rd donation); Dr. E. C. Ritter, £2 2s. (2nd donation); Dr. C. E. Droop, £10 10s. (3rd donation); Dr. S. Wray, £10 10s (3rd donation); Dr. J. L. du Preez, £4 4s. (2nd donation); Dr. J. Goodlad, £5; Dr. C. M. Bridges, £3 3s.; Dr. T. O'Brien, £3 3s. (3rd donation); Dr. G. C. Wells-Cole, £10 10s.; Dr. L. T. Dean, £3 3s. (3rd donation); Dr. D. Lynch, £5 5s.; Dr. E. Gray, £3 3s.; Mr. E. J. Bilcliffe, £3 3s. (3rd donation); Dr. A. H. Hogg, £3 3s. (3rd donation); Dr. H. Wilks, £3 3s. (2nd donation); Dr. D. F. Torrens; £5 5s. (3rd donation); Dr. C. Newlyn Smith, £3 3s.; Dr. K. M. Monteith, £3 3s. (2nd donation); Dr. J. W. McFeeters, £5 5s. (3rd donation); Dr. J. D. Smith, £5 5s. (2nd donation); Dr C S. E. Wright, £4 4s.; Dr. F. W. Shegog, £2 2s. (3rd donation); Dr. C. H. Wilson, £5 5s.; Dr. W. S. H. Campbell, £3 3s. (2nd donation); Dr. H. G. H. Butcher, £1 1s.; Dr. A. F. Cowan, £3 3s. (2nd donation); Dr. S. Evans, £3 3s.; Dr. J. A. Hackett, £3 3s.; Drs. W. H. and W. Sharrard, £7 7s. (2nd donation); Dr. D. Taylor, £2 2s.; Dr. G. S. Deane, £5 (2nd donation); Dr. W. Brownlie, £3 3s. (2nd donation); Dr. J. Clutton-Brock, £3 3s.; Dr. E. K Blackburn, £1 1s.; Dr. W. P. Roe, £3 3s. (3rd donation); Dr. L. Boys, £1 1s. (3rd donation); Dr R. N. Kinnison, £3 3s. (2nd donation); Dr. J. M Barley, £1 1s. (2nd donation); Dr. M. Kent £3 3s. (2nd donation); Dr. H. W. Smith £3 3s.; Dr. W. V. Semple, £5; Dr. G. S. Levis £3 3s. (2nd donation); Dr. W. G. Millar, £3 3s. Dr. A. Davis, £3 3s. (2nd donation); Dr. G. Mc Gurk, £2 2s.; Mr. J. Lyons, £3 3s. (2nd donation) Mr. G. A. B. Walters, £10 10s. (4th donation).

Local Medical and Panel Committees

£80.—Stirling County (5th donation).

Total—£57,510 3s. 1d. and £100 3½% Conversio Stock and £40 3% Defence Bonds.

Sums for Books for Prisoners of War

Amount previously acknowledged, £216 14s 6d.

Cheques, payable to the Medical War Relie Fund, should be sent to the Hon. Treasurer of th Fund, British Medical Association House, Tavistoc Square, London, W.C.1.

POSTGRADUATE NEWS

The Fellowship of Medicine announces: (1) Week end course in general surgery, at North Middlese Hospital, all-day, Sat and Sun., June 16 and 17 (2) Week-end course in ear, nose, and throa diseases, at Metropolitan Ear, Nose, and Throa Hospital, all-day, Sat. and Sun., June 30 an July 1.

WEEKLY POSTGRADUATE DIARY

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W.—*West End Hospital for Nervous Diseases:* Mon. Tues., and Fri., 2.30 p.m., M.R.C.P. course i neurology. *Royal Westminster Ophthalmi Hospital:* All-day, Sat. and Sun., June 9 and 1C Week-end course in ophthalmology.

EDINBURGH POSTGRADUATE LECTURES.—At Edin burgh Royal Infirmary, *Thurs.,* 4.30 p.m., Di A. S. Johnstone: Dysphagia due to Causes othe than Malignant Disease.

DIARY OF SOCIETIES AND LECTURE

ROYAL SOCIETY OF MEDICINE.—*Tues.,* 5 p.m General meeting of Fellows; 5 p.m., Section Psychiatry. *Wed.,* 2.30 p.m., Section of Histoi of Medicine. *Fri.,* 5 p.m., Section of Ophtha mology.

BIOCHEMICAL SOCIETY.—At Glasgow Universit *Sat.* (June 9), 11.30 a.m. Communications an demonstration.

ROYAL INSTITUTION, 21, Albemarle Street, W.—*Fri.,* 5 p.m., The Lord Moran of Manton: Courag and Fear.

BIRTHS, MARRIAGES, & DEATH

The charge for an insertion under this head 10s. 6d. for 18 words or less. Extra words 3s. 6 for each six or less. Payment should be forward with the notice, authenticated by the name a permanent address of the sender, and should rea the Advertisement Manager not later than first p Monday morning.

BIRTHS

CARSON.—On May 18, 1945, to Doreen, wife Major D. M. Carson, R.A.M.C., of Nottinghar twin boys.

DUNCAN.—On April 27, 1945, at Queen Elizabe Hospital, Birmingham, to Joan (*née* Hyde), wi of Dr. Neil A. Duncan (C.M.S., St. Helen a son.

FRANCIS.—On May 24, 1945, at University Coll Hospital, to Pamela (*née* Spratt), wife of Su Lieut. R. S. Francis, R.N.V.R., a son—Gare Hugh.

MANSBRIDGE.—On May 19, 1945, at Holmwo Nursing Home, West Bridgford, Nottingham, Florence (*née* Craven), wife of Fl. Lieut. T. Mansbridge, M.B., Ch.B.Glas., a daughter (Fa sister for Drummond.

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY JUNE 9 1945

THE PURCHASE OF A PRACTICE

GENERAL CONSIDERATIONS

After the war the young doctor who wishes to buy a general practice may be confronted with great difficulties. Rates of taxation are likely to be high, the average age of many entrants to general practice will be above the normal, and a substantial proportion will be married. The repayment of a loan will present to many a serious problem. Notwithstanding these difficulties the B.M.A. believes that the facilities which have been secured after negotiation with the bodies concerned represent substantial improvement over existing schemes, and that a doctor without capital will be able to buy a practice and at the same time retain after discharging his commitments a net income sufficient to maintain a reasonable standard of living.

In the following factual statement it is assumed that the purchaser is unable to pay any part of the purchase price from his own resources and that the goodwill is valued at two years' purchase. Only the purchase of goodwill has been considered. The doctor's house and furniture, his car, his equipment, and stock of drugs, which are relevant and important factors, have been left out of account.

The Association recognizes that to embark upon a loan for the purchase of a practice may be a serious undertaking. This is true of any loan which has to be repaid out of income; but if the young doctor acts wisely in the choice of the practice he wishes to buy or of the partnership he proposes to enter, and if he can obtain competent advice from those who are accustomed to deal with the sale and purchase of practices, he may hope to acquire a valuable and realizable asset. In short, he will be making an investment the capital value of which may be increased by his own efforts.

Further, there are certain practitioners who, anxious to retire or to obtain help, are willing to act generously to young doctors by making available to them partnerships and practices, providing for the repayment on advantageous terms. At the appropriate time the Association will be glad to take such steps as are necessary to bring such practitioners into contact.

It may be asked: What will be the position of a doctor who has borrowed money to buy a practice under the proposed National Health Service? The Government has announced that it does not propose to make any alteration in the present custom of buying and selling practices in the Health Services Bill. A full inquiry into the whole question will be instituted after the new service has come into operation and experience of its working has been gained. If, as a result of the inquiry, the sale of practices is abolished or restricted by law the doctors affected will receive all proper compensation. This is the Government's decision communicated formally to the Association.

I. METHOD OF PURCHASE BY LOAN, REPAYABLE BY INSTALMENTS

Before the war the majority of loans for the purchase of practices were negotiated either through insurance companies or British Medical Finance Ltd. The volume of this class of business undertaken by insurance companies was considerable. When war broke out most insurance companies ceased to offer these facilities, and it may be assumed that, with few exceptions, they will not take an active part in this business as lenders for some time to come. The Medical Sickness, Annuity and Life Assurance Society, Ltd., has intimated that it is prepared to consider applications for loans for the purchase of practices.

British Medical Finance Ltd., Tavistock House, W.C.1, was established in 1936 as a result of action taken by the B.M.A. This company is prepared to grant loans for the purchase of practices, and also to make advances for the purchase of cars and equipment.

The Association has recently had conversations with the Medical Insurance Agency and the Westminster Bank with a view to introducing a new scheme in which these two bodies will collaborate, and which will offer to the borrower most advantageous terms. As a result loans may be arranged at a rate of interest of 1/2% above bank rate with a minimum of 4%. If the bank rate rises above 3½% the rate of interest payable on the loan will, of course, rise above 4%, and the terms of the loan must be altered to meet this situation.

In this scheme advances may be made in approved cases up to the full amount of the purchase price, the only security being a mortgage on the practice, together with a life insurance policy for the amount of the loan. Sickness or guarantee policy is not a condition of the loan. Repayment will usually be made by quarterly instalments including both principal and interest. These may be equal throughout the period of repayment, the proportion of principal increasing as the interest on the amount outstanding decreases; alternatively, the instalments of principal may remain constant, the amount of interest and therefore the amount of the instalment decreasing as the loan is paid off. Provided the instalments are paid regularly the loan cannot be "called in" before expiry of the full term.

The following example shows the annual cost of repayment by equal quarterly instalments over periods of 10 years and 15 years respectively of a loan on a practice estimated to bring in a gross income of £1,500 and bought at 2 years' purchase. Practice expenses in both cases have been estimated at 30%.

Expenses of Repayment over Period of

	10 years		15 years	
Rate of interest 4%	£	£	£	£
Gross income from practice		1,500		1,500
Net taxable income (after deduction for practice expenses)		1,050		1,050
Loan costs (per annum) ..	365		267	
Whole life insurance (without profit) on a first-class life aged 30 at entry ..	52	417	52	319
		633		731

In neither case has allowance been made in respect of income tax relief on the interest of the loan nor on the premium for the insurance policy (£9 approx.). At present (1945) as the amount of loan interest decreases relief will decrease from £65 to £5.

The low rate of interest makes a considerable reduction in the total cost, but the bulk of each quarterly instalment consists of capital repayment. In cases of difficulty the instalments may be reduced either (1) by extending the period of the loan; or (2) by leaving on long-term loan a proportion, say, one-third of the total sum borrowed.

As regards (1), it is to the advantage of the borrower to make the term of the loan as short as possible. A ten-year period has hitherto been considered the more suitable, but if the period of repayment is extended to 15 years this will have the effect of reducing the amount of the instalments by approximately one-quarter. In any case it is at all times open to the borrower to repay the whole or part of the outstanding loan at an earlier date.

As regards (2) a practitioner may wish to buy a practice bringing in a gross income of £1,500 at 2 years' purchase, thus incurring an expenditure of £3,000, but he may find it necessary to defer repayment of a proportion of the capital, thus reducing the amount of the annual charge on his practice. Under the scheme of the M.I.A. it has been agreed that in *exceptional cases* arrangements may be made to leave a proportion of the loan on long term by calculating the amount of instalments on the basis that two-thirds of the loan would be repaid within ten years. At the end of that period the remaining one-third would be dealt with on the usual principles applicable to a banking advance. This balance would not be regarded as a fixed loan but as one in which reasonable reductions will be made from time to time. Interest on the deferred amount would be paid throughout. The whole sum borrowed would be covered by an insurance policy or policies, and it would be open to the borrower to repay the capital outstanding at any time.

House Purchase

It has also been arranged that when the purchase of a practice also involves the purchase of a house advances may be made to cover the whole amount. Though this may mean two transactions the loan will be regarded as a single entity, subject to repayment by agreed instalments.

Assurance Policies as Security for Loans

In all forms of loan on the security of a practice some form of assurance cover on the life of the borrower is required as collateral security. An existing policy may be acceptable as security for the whole or part of the loan. Cover may be of three kinds: (*a*) whole-life insurance; (*b*) endowment insurance; (*c*) decreasing-term insurance.

(*a*) A *whole-life policy* for a first-class life aged 30 next birthday would cost about £52 a year; at the end of ten years the surrender value would be about £250. A whole-life policy can be converted at any time into an endowment policy by arrangement, with adjustment of premium.

(*b*) In the case of an *endowment insurance* for £3,000 taken out at the age of 30 and maturing at 65 the annual premium would be approximately with profits £87; without profits £71. In both cases if the premiums are paid quarterly there is a small extra charge. Rebate of income tax at the current rate (at present 3s. 6d.) can be claimed in respect of premium for life insurance.

(*c*) *Decreasing-term Insurance.* This form of insurance, although considerably cheaper than whole-life or endowment insurance, provides cover only for the outstanding amount of the loan at any given time; cover ceases at the end of the term to which it applies. The disadvantage of this type of cover is that the assurance comes to an end at the expiration of the term and provides cover only in case of death within that term, whereas a whole-life or endowment policy not only remains security while premiums are continued but is a means of saving and acquires in course of time a substantial surrender value. The total cost of a decreasing-term insurance to cover the outstanding amount of a loan of £3,000 repayable in 10 annual instalments of £300 (age of proposer 30) would be about £125.

	£	s.	d.
1st year	21	19	6
2nd "	19	19	6
3rd "	17	17	6
4th "	15	15	3
5th "	13	12	6
6th "	11	9	3
7th "	9	8	3
8th "	7	3	6
9th "	4	17	9
10th "	2	11	0
	124	14	0

II. THE ENDOWMENT INSURANCE METHOD

Loans for the whole of the purchase price (or for the amount that the practitioner cannot provide from his own resources) are necessary in all cases where the vendor requires immediate payment of the capital sum. In a death vacancy it may not be in the interests of the purchaser that the executors of the previous owner should continue to have a controlling interest in the practice.

There is, however, a group of cases—for example, partnerships—where the vendor may be prepared to accept deferred payment. In these cases the method described below gives the borrower advantages which cannot be obtained by the method of direct loan. One advantage is the greater relief from tax in proportion to the annual cost of the loan obtainable; another that no part of the practice need be mortgaged to a third party as security; this remains with the vendor. An arrangement of this kind may well be the method of choice in appropriate cases after the war. The suggested scheme is briefly as follows:

1. The purchaser takes out an endowment life policy on his own life for the full amount of the purchase price. This policy is assigned as security to the vendor and the assignment intimated. The purchaser remains liable for premiums, thereby obtaining income-tax rebate.

2. The proceeds of the policy on maturity will accrue to the vendor less any amount which may have already been repaid on account of capital.

3. The vendor receives interest on the purchase price at an agreed rate, say 4% less income tax at prevailing rates.

4. The payment of the insurance premium and the interest is a first charge on the practice or partnership share and can be assigned to the insurance company and the vendor respectively from the quarterly panel cheque or by a banker's order.

5. In the event of default of payments the practice would revert to the vendor, who would be entitled to keep the policy in force or take the surrender value. For example:

Purchase of a share estimated to produce a gross income of £1,500 at 2 years' purchase, expenses being estimated at 30%:

	£	£
Gross income		1,500
Practice expenses		450
Income subject to tax		1,050
Annual premium on endowment policy for £3,000 (without profits) payable in 10 years (first-class life aged 30 on entry)	288	
Interest on £3,000 at 4% (payable to vendor)	120	
	408	
		408
		642
Rebate of income tax at present rates on premium (£37) and interest (£60) ..		97
		£739

Provision must, of course, be made to meet a situation where the vendor dies before the expiration of the period contemplated in the arrangement, and where the executors would require early payment of the loan. It has been ascertained that in these circumstances there would be no difficulty in arranging a loan under one or other of the schemes already mentioned. It must be noted, however, that the endowment policy referred to in this section is in effect comparable with the decreasing-term arrangement mentioned above, in that the purchaser has no assurance remaining when his debt is paid off.

SUMMARY

The borrower has a choice of two methods.

He may approach the Medical Insurance Agency, B.M.A. House, Tavistock Square, W.C.1, who will collaborate with the Westminster Bank in investigating the security—i.e., the practice. If advantage is taken of the M.I.A. scheme it will be necessary for the borrower to open and maintain a current account with any branch of the Westminster Bank for the purpose of the loan, but this need not affect his private banking arrangements.

Alternatively, where the vendor is prepared to accept deferred payment receiving meanwhile interest on the amount owing, the purchaser should consider whether a short-term endowment assurance assigned to the vendor will meet the needs of the case. There is probably little difference in the cost of policies offered by the leading insurance companies, but again advice should be sought from the Medical Insurance Agency. The Medical Insurance Agency was founded for the essential purpose of providing for the medical profession a source of skilled advice on all insurance matters. It gives to its members a direct rebate on premiums and makes no profits, any surplus being allocated to medical charities.

GENERAL MEDICAL COUNCIL

SUMMER SESSION

The 164th session of the General Medical Council was opened at 44, Hallam Street, W., on May 29, with the President, Sir HERBERT LIGHTFOOT EASON, in the chair. The number of penal cases on the programme of business—twenty-five—constituted a record in the history of the Council, but the President intimated that the Council would not sit beyond Saturday morning, and that any cases left over might be dealt with at a later special session.

Prof. James Malachy O'Connor as the representative of the National University of Ireland, Dr. Andrew Davidson as Crown nominee for Scotland, and Dr. N. E. Waterfield, who under the Temporary Provisions Order had been appointed by the Council to fill the vacancy among the direct representatives for England occasioned by the retirement of Mr. Bishop Harman, were introduced and took their seats.

PRESIDENT'S ADDRESS

The PRESIDENT opened his address by saying:

"It is now six years since the Council met in times of peace. During that period the Council's house has received severe damage owing to enemy action. It is to be hoped that the authorities may as soon as possible permit such necessary repairs as may enable the Council to conduct their business with less expenditure of time and energy than has resulted from the restrictions on their accommodation here. I should like to take this early opportunity of thanking my colleagues on the Council for the unfailing regularity with which they have attended the meetings of the Council, even though they have incurred much discomfort and some danger in so doing. I am sure that the Council would desire also to express their appreciation of the services of their depleted staff during this difficult time. Neither air raids nor transport difficulties have been permitted by the registrar and his colleagues to prevent each and all of them from attending with the utmost regularity to carry out their duties, duties which have been far more onerous than in times of peace."

The President then referred with deep regret to the deaths of Dr. Denis Coffey, the "father of the Council," Prof. A. W. Sheen, who had been a member since 1927, and Prof. Harold Collinson, a former member of Council, and afterwards inspector of qualifying examinations in surgery; also to the retirement of Prof. D. F. Cappell, Mr. John Ritchie, and Mr. Bishop Harman. Of the last-named he said: "Mr. Bishop Harman's long service on the Council in these various capacities was of great value, not only from his intimate connexion with the British Medical Association and his knowledge of the views of the profession as a whole, but from the extremely logical and clear-sighted way in which he faced every problem that came before the council."

He then welcomed new members: Prof. Henry Cohen and Prof. W. J. Tulloch, who had taken their seats at the special session in February, and Prof. O'Connor, Dr. Andrew Davidson, and Dr. Waterfield, whose terms of office began with the present session.

Revision of the Curriculum

The President continued:

"Progress has been made with the revision of the curriculum which so far as the Council are concerned means the revision of their recommendations to licensing bodies, first, as to the education in general and in preliminary scientific subjects of persons desirous of entering the profession; secondly, as to professional education; and, thirdly, as to professional examination. The four special committees appointed by the Council to report to the Standing Committees on Education and Examinations on the revision have all met, and have probably carried their work as far as is practicable until observations by or on behalf of all the bodies are before them. A majority of the bodies, by hard work under war conditions, have already been so good as to furnish the Council at least with preliminary observations. Some of the others cannot be expected to depart from the procedure which their own organization normally requires them to follow in settling their views on a matter which should not be too hastily dealt with. I think it is already clear that, except perhaps in the field of social medicine and public health, the Council's task in the revision of the recommendations may be less heavy than we might have expected or feared. The object of the recommendations is, after all, no more than to indicate to licensing bodies the minimum curriculum which the Council, testing its results by visitation and inspection of examinations, are likely to be able to regard as sufficient to guarantee a proper standard of qualification. The larger, and the harder, task—to secure that doctors are not only qualified but are educated both in the general and in the professional sense—must always fall to the authorities of the bodies and of the medical schools, to the teachers, and to the examiners.

I ought to add that the Council may hope soon to have before them the general reports of the inspectors of qualifying examinations in medicine and in midwifery, whose arduous labours, begun in 1942, are now almost completed. We may be sure that we shall derive from these reports most valuable guidance in making any amendments to our recommendations as to professional examinations which seem called for by the public interest and by the progressive development of methods of medical education.

The number of practitioners on the *Medical Register* at the end of 1944 was 73,646, an increase of 1,764 over the number at the end of 1943. The total number includes 6,124 practitioners registered in the normal course, and 767 registered temporarily under Defence Regulation 32B, by virtue of qualifications granted in the British Empire outside the United Kingdom and Eire; and 603 practitioners registered in the normal course, and 3,169 registered temporarily, as foreign practitioners.

The great majority of the practitioners temporarily registered in what is still called, in the language of 1886, the list of Colonial practitioners, are serving in the armed Forces of the Crown, and only needed temporary registration because there happens to be no reciprocity between the Imperial territories where they qualified and the United Kingdom.

Of the foreign practitioners whose registration is temporary, many, and among them the first to be so registered, qualified in the United States of America, and they are for the most part engaged in military service. But the majority are graduates of universities in European countries which have never seen fit to enter into reciprocal relations with the United Kingdom.

We recognize, I am sure, the value of the services which these practitioners have rendered to the civil population here since the expansion of the armed Forces absorbed an increasing proportion of the practitioners of the United Kingdom. No doubt, however, as soon as some measure of order has been established in Central Europe it will be agreed that their own territories have the first claim upon them for assistance in the urgent task of restoring an efficient public and personal medical service for the benefit of their fellow-countrymen."

Vote of Thanks to President

Sir KAYE LE FLEMING, in moving a vote of thanks to the President, said that Sir Herbert Eason had been President since the beginning of the war. During his period of office he had had exceptional difficulties to face and had faced them in a spirit they all admired. He had earned not merely the respect and regard of the members but their affection. Dr. J. W. BONE expressed a similar feeling in seconding the motion, which was carried with acclamation.

Prof. Sydney Smith was re-elected Chairman of Business.

After a session *in camera* the President announced that John Holden Beckett and Ivor Llewellyn Edmunds had been restored to the *Dentists Register*.

COMMITTEE REPORTS

A report was made by the Education and Examination Committees on the progress of the qualifying examinations. The inspection of qualifying examinations in medicine has been completed. In surgery and in midwifery the only examinations remaining to be inspected are those of the Apothecaries' Hall of Ireland and the University of Dublin, and these it is hoped to complete during the present month.

The Pharmacopoeia Committee embodied a report of the British Pharmacopoeia Commission, which stated that the principal activities of the Commission during the past six months have been directed to the production of a new *Pharmacopoeia* as soon as possible after the end of the European war. Lists of suggested deletions from and additions to the present *Pharmacopoeia* and the *Addenda* had been issued for comment to the Governments of the Dominions, the medical services of the Colonies, Government Departments, and pharmaceutical and technical authorities. A new form of presenting the matter of the monographs with a view to greater precision and clarity has been approved. Collaboration with the Dominions and U.S.A. Committee of Revision continues actively.

DISCIPLINARY INQUIRIES

Convictions for Procuring Miscarriage

The Council considered the case of Delbert Evans, registered as of Park Lane, W.1, who had been summoned after a conviction at the Central Criminal Court of conspiring with other persons unlawfully to use an instrument with intent to procure miscarriage, and of unlawfully using an instrument or some other unknown means with intent to procure the miscarriage of eight women. He had been ordered to be imprisoned for two years in respect of the first offence and to be kept in penal servitude for five years in respect of the other offences (concurrent sentences).

The Council's solicitor, Mr. F. P. Winterbotham, said that in the case of six of the women mentioned Dr. Evans was charged jointly with another man whose name had been struck off the *Register* in 1942. The women went to the consulting-room in Cavendish Square and paid fees ranging from £25 to £150. These fees were shared between the two men. In the cases he dealt with by himself higher fees were charged, ranging from 100 to 350 guineas, plus nursing-home fees. All the fees were paid in cash, and the only entry in the books was three guineas for a consultation.

The Council found that Dr. Delbert Evans, who did not appear, had been proved to have been convicted, and directed the Registrar to erase his name.

The Council next considered the case of Francis Vincent Hanratty, registered as of Little Sutton, Birkenhead, who was summoned on the charge that he had been convicted at Chester Assizes on three counts, each concerning the use of an instrument on a woman with intent to procure a miscarriage. Dr. Hanratty had been sentenced to 21 months' imprisonment on each count, the sentences to run concurrently. A letter addressed from prison was read to the Council in which he stated that two of the women concerned showed every sign of impending miscarriage, and the third he did not remember. The evidence showed that in the first case he gave liquid extract of ergot, and this failing he inserted an instrument. The woman was later admitted to hospital in a hopeless condition and died. The other two women did not die. A fee of £5 was paid in each case.

The Council found the conviction proved, and directed the erasure of Dr. Hanratty's name.

Improper Behaviour to Patient

The Council considered the case of Richard Thorz, registered as of Cartwright Gardens, London, W.C.1, M.D.Prague, 1929, who was summoned on the charge that being in professional relationship with a married woman and her husband and children he behaved improperly to her and later committed adultery with her. The complainant in the case was the husband, described as Mr. A. B., who was represented by Mr. Harcourt-Williams. The respondent was represented by Mr. A. A. Pereira on behalf of the London and Counties Medical Protection Society.

Mr. Harcourt-Williams said that Mrs. A. B. and her husband were caretakers at a doctor's house where Dr. Thorz was locumtenent. Soon after coming to the house he became rather familiar with her, and on one occasion unsuccessfully endeavoured to have intercourse with her. He pestered her with his requests, and eventually she gave in and intercourse took place, as a result of which she became pregnant, but subsequently had a miscarriage in hospital. The evidence on behalf of the complainant was that on learning from his wife what had happened he had a stormy interview with Dr. Thorz, struck him, and secured an admission from him that adultery had occurred. The husband had been an insurance patient of the practice, and it was also alleged that Dr. Thorz had on occasion treated the woman and the children for minor ailments.

Dr. Thorz's defence was a total denial of the accusation. The whole incident, he said, was imagination on the woman's part. She had come to him, shortly after the date of the alleged adultery, and mentioned that she had a vaginal discharge. He had given her a prescription and some iron tablets, and told her that if in a day or two she was not better she would have to be examined. A few days later she reported herself better. He gave an entirely different account of the interview with the husband. The husband had accused him of committing adultery with his wife, and had said that he would report him to the General Medical Council: so far from admitting it he had simply said, "You can do what you like." He could suggest no reason why the husband and wife should have made such a serious accusation against him. There had been no quarrel.

The Council found the facts relating to improper behaviour and to an act of adultery proved to its satisfaction, and ordered the erasure of Dr. Thorz's name from the *Register*.

(*To be continued*)

HEARD AT HEADQUARTERS

The Negotiations

The General Election puts a full stop, or, at least a semi-colon, to many things, among them the negotiations with the Ministry of Health concerning the proposed new National Health Service. The Negotiating Committee held a meeting recently to receive the observations made by its constituent bodies on its report. These included the mass of resolutions forthcoming from the Special Representative Meeting. The three Royal Colleges in London, the Royal Faculty of Physicians and Surgeons of Glasgow, the Society of Apothecaries, the Society of Medical Officers of Health, and the Medical Women's Federation have also furnished the committee with observations, so that it will not want for a multitude of counsellors. On the following day the committee held a further discussion with the Minister, and then it was agreed to suspend the negotiations until after the General Election.

Rehabilitation Committee Gets to Work

The new Rehabilitation Committee of the B.M.A. at its first meeting invited Dr. Donald Hunter to be its chairman. Dr. Hunter was not present, and it is not known whether he will accept the invitation. If he does so the committee will be assured of very able leadership. Dr. Vaughan Jones of Leeds was elected to the deputy chair.

It is not intended that this committee, like some other special committees, shall devote itself to issuing a report. Perhaps there have been too many reports on this as well as on other subjects. Its job will be rather to watch rehabilitation from the point of view of the medical profession and to report to the Council when necessary. Several of the members were invited to submit memoranda to form the basis of discussions. The subjects included the consideration of facilities for rehabilitation, of medicine, surgery, psychology, and industrial medicine, each in relation to rehabilitation, and—an outstanding question—"What *is* rehabilitation?"

Progress in Australia

The health of the central Association is reflected even in its most distant Branches. The annual report of the council of New South Wales Branch is before me for the year ending last March. It shows a membership of 2,286—a gain of nearly 200 on the year. Twenty Branch meetings of one sort or another have been held, with an average attendance of 83, a very creditable figure, especially in view of the fact that many of the meetings were of a sectional nature. Then the Branch has nearly 40 representatives on outside organizations of one sort or another. Most of the members of the council made the full ten attendances during the year—again a good record, especially when it is remembered that New South Wales is not just Sydney and its environs, but that it covers an area six times the extent of England. The affiliated local associations of members bear such names as Blue Mountains, Broken Hill, and Far South Coast and Tablelands. The Branch has also fifteen special groups for the study of particular branches of medicine, the latest to be instituted being one for sociological medicine.

Erasure for Negligence?

On the programme of the General Medical Council at this session are two cases of a very unusual character in that the practitioners are accused of negligence in the treatment of patients. The Ministry of Health is the complainant, the patients concerned are insured persons, and the charge has evidently been brought after investigation by the local insurance committee. In the case of one of the practitioners the phrase is used in each instance "that you failed to visit or treat" and in the other "that you failed to exercise reasonable skill and care."

In my recollection of the G.M.C., which extends back for nearly thirty years, charges framed in this way have never been brought before it. There is, of course, a sense in which very many of the cases that come before the G.M.C. turn upon the question of negligence, though that word may not be mentioned. If a practitioner has been convicted of drunkenness the consideration which brings him before the Council is the neglect or possible neglect of his patients. Many certification cases may have the same background. But against negligence in the ordinary way the patient has his remedy in the courts, and, though many may think it extraordinary that it should be so, in the practice of the Council, as distinct from the possible use of its powers, a practitioner has not hitherto been liable to be struck off the *Medical Register* on account of negligence. Any negligence which justifies this action must, of course, be of such a degree as to merit the use of the words at the end of the charges, "and that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect."

Allied to the question of negligence is the question of incompetence, which is still more difficult. What standard is the Council or any other body to adopt in judging whether or not a practitioner is "incompetent"? Hitherto it has been assumed, for the purposes of ordinary administration, that admission to the *Register* is sufficient to indicate competence. It will be interesting to see by its action in these two cases what line the G.M.C. proposes to take and how it will assess lack of care and lack of skill. [Owing to the crowded state of the programme these two cases were not reached.]

Spain Waking Up

Industrial medicine seems to be going round the world. In Spain there has just been set up by the Government a National Institute of Industrial Medicine, Hygiene, and Safety. It forms a part of the Ministry of Labour and has eight sections, dealing respectively with general industrial hygiene and physiology, occupational diseases, psychophysiological classification, prevention of industrial accidents, industrial surgery and orthopaedics, a chemical-bacteriological laboratory, a statistics bureau, and a library. It has two secretaries, one for industrial medicine and one for industrial safety. Among the bodies which have the right to one representative on the board is the National Syndicalist Youth Shock Brigade!

LICENCES TO BUY NEW CARS

The Ministry of War Transport announces that it is now possible to start a small allotment of new cars to persons engaged on work of vital national importance and who cannot carry on that work without a car. The number available will be very limited, and deliveries, which should begin towards the end of June, will be made only against licences issued by the Ministry. Existing cars can only be replaced if they are bey
repair.

Applications for licences should be m
to the Ministry of War Transport
Fitzmaurice Place, London, W.1, on
V.C.1 (P.C.), which can be obtained
that address. Particulars should be
of the purpose for which the car is w
and of the car to be replaced. The Regi
Petroleum Officer's reference numbe
the present monthly petrol allowance
be quoted. Delivery of cars will be
through the normal trade channels
prices which will be notified by th
facturers.

HOSPITAL STAFF APPOINTM

The following is the text of a letter
has been sent by the Secretary of the B.
to all hospitals—voluntary, county,
municipal:

DEAR SIR,—

You will recall that in July, 19
Association submitted the following
mendations for the sympathetic co
of all hospital authorities:

(i) No new appointments to the
and specialist staffs of municipal a
tary hospitals should be made
manent basis during the period o
for a period of twelve months
Where it is necessary to make a
ment, it should be temporary and
within twelve months of the con
hostilities.

(ii) It is desirable that the period o
service of an "absentee" practitioner s
be added to the age of retirement in res
of his hospital appointment(s).

(iii) It is desirable that hospital appo
ments of "absentee" practitioners w
would normally be terminated due to a
limit should be continued, the period of
service being added to the age limit in e
case.

The first of these recommendations
been adopted to a very large extent, and the Association wishes to express to hospital authorities its appreciation of their co-operation. The policy of temporary war-time appointments has been endorsed by the Ministry of Health, which normally refuses to sanction a permanent appointment in the public health and school medic services

Now that the European war is over there
may be in some hospitals a desire to
to the practice of making senior h
appointments on a permanent basis.
Association feels strongly that, in f
to medical practitioners absent on n
service, the policy of temporary app
ments should be continued. The same view has been expressed to the Association by the Central Medical War Committee and the Committee of Reference of the Royal Colleges, which have received representations on the subject from doctors serving in the Forces. The words "period of war" in the first of our 1939 recommendations should be regarded as referring to the war with the Axis Powers and not merely to the war with Germany.

There may be *very exceptional circumstances* which may be thought to justify a
permanent appointment. Should such
course be decided upon it is hoped that th
time allowed for the receipt of applications will whenever possible be at least four months in order to permit of candidates serving over-seas being considered, and that real consideration will be given to the applications of Service candidates. It is
able that advertisements of such a
ments should state explicitly that ap
from Service candidates are invite
practice has already been adopted
number of cases. Its general ad
would give much satisfaction to the ser

doctors and would, we suggest, be in the interests of the hospitals. We commend the ractice for favourable consideration by all ospital authorities.

We recommend also that appointments ich it is proposed to make on a per- nent basis should be notified to the edical Directors-General at the Admiralty, ar Office, and Air Ministry in order that ey may be brought to the notice of medical cers through Service channels.

Yours faithfully,
(Signed) Charles Hill,
Secretary.

PLANNING FOR SOCIAL SECURITY

A PEP BROADSHEET

E P (Political and Economic Planning) has sued a broadsheet on certain aspects of e Government's social security proposals h, in the view of the unnamed authors, erve more close-grained discussion than y have yet received." The particular sub- are sickness and unemployment bene- ntributions, pensions, aid for children, ance and administration. On the t of maternity benefits it is pointed hat the suggested maternity grant of £4 ot err on the side of generosity. It not, indeed, cover the cost of a l layette. The inadequacy of this compares oddly with the death grant , which suggests that it costs five times much to get out of this world as it should cost to get into it. In the view of P E P e death grant should be accompanied by the nationalization of industrial assurance, with provision for compensating those who now carry it on and for safeguarding the holders of existing policies against financial loss.

On pensions the authors hold that an improvement on the Government proposals would be to postpone retirement, except in cases of disability, for two years, making pensions available at 62 for women and 67 for men and at the same rates as working age benefits—namely, 24s. for single and 40s. for married persons. But the principle of employing older people, the broadsheet points out, represents a new experiment in emplc nent policy and will call for very careful planning; human beings, after all, annot be treated as obsolescent machinery.

The family allowance of 5s. for each child ter the first is regarded as satisfactory, but 6d. should be paid for the first child. the subject of school meals and free ilk it is assumed that the case of the under-fives will receive further consideration, and the problem of the provision of school meals during holidays might be most economically solved by free milk being delivered at the children's homes.

The new approach in workmen's compensation is welcomed, though attention is drawn to some anomalies in the Government scheme. The method of calculating industrial injury benefit rates gives an advantage to the single man. The provision of a life pension for a childless widow irrespective of her age is also criticized.

Three White Papers

These criticisms apart, P E P considers that a great advance in social security is assured if there is legislation on the three White Papers—those on a National Health Service, Social Insurance, and Workmen's Compensation. "Great Britain will thereby ice herself in the van among the nations his particular field of planning." The cial proposals, P E P continues, are not meticulous copy of the Beveridge plan; ey differ from it in certain important detai , sometimes for the better and sometimes for the worse. But viewing the plan as a whole (children's allowances, medical care for all, and full employment) the Government has adhered pretty closely to the plan to achieve freedom from want with which, two and a half years ago, Sir William Beveridge captured the imagination of the world. The same bold conception is there: social insurance for all, the integration of the various services, and reform along the line of logical evolution from the past—that is to say, from the considerable structure of social insurance and assistance built up by the Governments of all parties since the beginning of the present century. P E P holds that *welfare* is the keynote and the basic principle underlying all the new administration; a Ministry of Welfare would have been a better title than the Ministry of National Insurance.

AS THE NURSE SEES IT

GENERAL NURSING COUNCIL ON HOSPITAL PLANNING

The nurse is often disregarded in hospital planning, yet she is likely to suffer more than the patients or the medical staff if there is bad planning, and her usually practical mind ought to be consulted in the details of construction and equipment. The General Nursing Council for England and Wales has accordingly produced a memorandum on this subject—a highly detailed document. Some of the suggestions might be regarded as obvious, as, for example, that doorways should permit the transit of beds to and from wards, balconies, and single rooms, but, no doubt, in putting these down, some of the nurses speak from sad experience.

On construction of the hospital itself the memorandum urges that soft wood should not be used for floors, such wood being absorbent and therefore dangerous as a source of infection; that turning-points on corridors and stairs should permit easy passage; that lift-shafts should be enclosed to reduce noise; and that wall surfaces should be designed to avoid the accumulation of dust. In the ward an overall unit for one sister should contain not more than 25 beds, however divided; wards should be provided with balconies, adequately lighted and heated, and they should be used solely as balconies, not as an extension of the ward; the absolute minimum distance between bed centres should be 10 ft.; every bed should be provided with a detachable light; suitable flooring, furniture which is easily moved, self-closing doors, and "buffering" between wards and annexes should be installed to eliminate avoidable noise. To prevent cross-infection soiled linen should be removed immediately without being sorted by nurses; and there should be closed, built-in bedpan washers and sterilizers, liberal provision for hand-washing in wards and annexes, and electric light switches which can be turned on and off otherwise than by hand.

The ward annexes should include a treatment unit (minimum 400 sq. ft.), a sister's room, a ward kitchen (minimum 300 sq. ft.), a milk room and feed-storage room in connexion with the children's ward, a linen room, a hot-air cupboard, a patients' wardrobe room, a staff cloakroom, a patient's sitting-room, and waiting-room for visitors. The sanitary annexes should include a clinical room for carrying out tests, an adequate sluice room, a room for storage of sanitary equipment, bathrooms for patients (at least two baths for 25 patients), and w.c. accommodation, at least three for 25 patients, with hand basins in proximity, and more accommodation than this for wards where the majority of patients are up.

Nursing Staff Accommodation

The General Nursing Council also has its views on the structure and furnishing of the nurses' quarters. The nurses' home should have a complete north aspect, proximity to wards, kitchens, boiler-house, and mortuaries being avoided. Single bedrooms should have a minimum of 100 sq. ft., with running hot and cold water and adequate heating and lighting, and there should be bed-sitting-rooms (minimum 140 sq. ft.) for trained nursing staff, with flats or adequate units for senior administrative nursing staff. A nurses' sick bay should include single bedrooms, sitting-dining-room, consulting-room, and treatment room. There should be a minimum of one bathroom to every five bedrooms, and of one w.c., separate from the bathrooms, also to every five bedrooms. Other requirements are separate accommodation for hair washing and drying, with the services of a hairdresser; an incinerator on each floor; a washing and ironing-room and adequate cupboard space; one or more service rooms or kitchenettes on each floor; large well-lighted dining-rooms, with hot-plates, water boilers, tea and coffee urns, and service wagons; sitting-rooms in the vicinity of some green space or garden, separate for sisters, trained staff, and student nurses; a recreation room and facilities for outdoor games, and a visitors' room in which nurses can entertain their friends. There are yet other recommendations for the teaching unit, including large and small lecture rooms, laboratories, a kitchen for the demonstration of cookery, and a practical demonstration room equipped as a ward, none of them to be in a basement. It is obvious that the nurses, if they have their way, will give hospital planners and designers enough to think about.

Correspondence

Physiotherapists and the Board of Registration of Medical Auxiliaries

Sir,—The Council of the Chartered Society of Physiotherapy would not have thought it necessary to comment on the article in the *Supplement* of April 14 (p. 56) had it not been that many medical practitioners are now under the impression that the Chartered Society has withdrawn from the Board of Registration of Medical Auxiliaries as the first step towards repudiating its present relationship with the medical profession, by which its members work only under medical direction.

That impression has been created by the memorandum which the Board sent to the Council of the B.M.A., in which the Board says that, as one of the consequences of the Chartered Society's withdrawal: "At any time the members and Council can amend a condition now existing among their rules, that physiotherapists must treat patients only under a doctor's direction and control. The effect of this action would be that physiotherapists would be in a position similar to osteopaths."

This suggestion is entirely false and unfounded, and in my submission should never have been made. The Chartered Society had entered into this undertaking of its own accord long before either the Board or the Register of Biophysical Assistants were thought of. Its willing acceptance of medical direction is fundamental to its professional ideals, and it values most highly the assistance which medical practitioners give it, both in the deliberations of its council and in the day-to-day performance of its members' work. Secondly, the Society cannot amend its by-laws without the consent of the Privy Council, under whose supervision it works as one of the conditions of its Royal Charter. The mischievous suggestion that physiotherapists could or would place themselves in a position similar to that of osteopaths can only have been made for the purpose of arousing prejudice.

Finally, I would take this opportunity to state shortly the real reasons why the Society seceded from the Board. State registration of physiotherapists is practically certain to come before long. The Council of the Chartered Society is convinced that physiotherapy is a distinct and autonomous profession, and that physiotherapists ought not to be registered by a Board representing other classes of auxiliaries. The Board's register is very incomplete; the Chartered Society's own register is complete. It is not content with a minority representation on the governing body of its profession, and it desires a one-portal system of recruitment, which would not be secured under a composite board. The policy of the Chartered Society is simply to secure an independence of precisely the same kind as that now enjoyed by nurses, pharmacists, solicitors, and the medical profession itself.—I am, etc.,

Herbert L. Eason,
Chairman of the Council,
Chartered Society of Physiotherapy.

A Footnote to "Heard at Headquarters"

Sir,—There are two paragraphs under "Heard at Headquarters" (*Supplement*, May 26, p. 97) which prompt me to comment. "The Proportion of Specialists" refers to their higher proportion in Canada as compared with this country. When Sir Jenner Verrall and I were on a mission to Canada for the B.M.A. in 1924 we called on a friend of his in Toronto, a clergyman's wife, who had been in Canada only a few years, and found the situation when she required a doctor both disconcerting and very expensive. She said it was difficult, if not impossible, to get a family doctor as *she* understood the term, for she was so often told by the doctor she had first employed that she ought to see somebody "who specialized." Her baby, who had been born in hospital (though she would rather have had him at home, but her doctor did not do any midwifery), developed some infantile malady and her doctor said she must call in some man who specialized in that line. The complaint turned out to be measles. There were other episodes which led her to the conclusion that the all-round family doctor as she had known him was almost an extinct species in Canadian cities. I found the same tendency in South Africa, where, I think, the proportion of specialists must be very high. As an old ex-family doctor I cannot think this tendency is a healthy one. Even in London during my official B.M.A. days I found it growing —a tendency by general practitioners to send off to hospital cases which seemed to my untutored mind to be well within their capacity. This largely accounts for the steady growth of the hospital out-patient department among the poorer section, and the liability of the better-off section to ask their friends to recommend "a good man in Harley Street" for complaints which I, and my like, would cheerfully have tackled in my time. The general practitioner must look to his laurels if he does not want to become merely a unit (and one of the low grade) in a team. After all, he is supposed to have had an education which fits him to deal with all branches of his profession and which ought to have made him well aware when he and his patient require a second opinion.

The other point was in the paragraph "The Association's House," where a richly deserved tribute is paid to Sir Robert Bolam for conceiving the plan whereby the new house was to become a beautiful and worthy home for a great Association. I feel, however, that the name of Mr. Bishop Harman should be bracketed with his, for I remember well how useful (if sometimes provocative) he was when the building operations were under discussion. With a keen appreciation of the artistic possibilities of the building he had great ambitions for its future with which he inspired all of us. But, after all, Bolam *was* the master mind which carried the great scheme through, and if ever anyone could say, "If you want to see my monument, look around," it would be Bolam if he could revisit the scene.—I am, etc.,

London, S.W.7 Alfred Cox.

Organization of Psychiatric Services

Sir,—In the *Supplement* of May 19 (p. 93) it is stated that Dr. R. G. Gordon, in presenting to the Council of the B.M.A. a report of the Joint Committee on the Future Organization of a Psychiatric Service, said that "the document had not taken into consideration the work of Services psychiatrists, and he knew that there was some feeling among them that their point of view had not had much opportunity of being expressed." It would be very unfortunate if men in the Services were encouraged to think that their views were disregarded. It is a sufficient answer to state that the Psychological Committee of the Royal College of Physicians, one of the three bodies which jointly produced the report, includes the following Service members: Surg. Capt. D. Curran, Air Cdre. R. D. Gillespie, Major Emanuel Miller, Col. A. A. W. Petrie, Brig. J. R. Rees, Major J. Rickman, Brig. G. Riddoch, Lieut.-Col. J. Ivison Russell, and Air Vice-Marshal C. P. Symonds.—I am, etc.,

W. Russell Brain,
Joint Secretary,
Committee on Psychological Medicine.

The Electorate and the Decisions of the S.R.M.

Sir,—The general report in the *Supplement* of May 12 (p. 88) on the Special Representative Meeting makes sad reading for those who have the independence of the profession at heart. We are told that the Chairman of Council gained much success in his interventions, and that some of the proceedings were humorous. Yet at this very important meeting firm resolutions that were passed by large majorities at the last A.R.M. were thrown away lightly by the enthusiastic State worshippers. Obviously the Minister of Health will have autocratic powers, as he can discriminate in his choice of advisers and disregard their advice. In the future we shall probably get some bad Ministers of Health as in the past we have had some bad kings. In the 17th century there was a long struggle in England to overthrow the "divine right" of kings; now the "State" is claiming a "divine right" (with no popular mandate) to meddle in affairs about which it knows very little.

If the profession would unite to defend the most important bastions of their liberties while they still have political bargaining power all would be well. Once the Bill is passed we lose for ever all effective political weight, and will be at the mercy of successive Governments. But, as a Representative, I saw no chance of unity. We are not selfish nor are we obstructionist, as certain horrible press articles have insinuated with all the blatanc that goes with untruth; the interests o our patients are dear to us; they are pu before our convenience by day and b night. No one, not even one among those of our own profession who a inebriated by political passions, has broug out a reasoned thesis as to just how th chaotic scheme will benefit the health Mr. or Mrs. Everyman. Many of us loo on it as a political racket.

There is a very strong feeling of oppos tion to State control of medicine in t Divisions, which is well shown in th agendas of the last few meetings of t B.M.A.: nearly all the amendments a of a critical or hostile nature. But t feeling is not accurately reflected in t voting on those amendments, as so ma voters were always swayed by speak with great ability, adroitness, and p suasive powers. Future generations servile doctors will fail to see that th was anything humorous about the p ceedings of May 3 and 4, 1945. O negotiating body, which started off w such good work, will now miss the *a tergo* and have a harder task.

In financial matters, which have been slurred over in a most gentlemanly manner, our unhappy young men are trusting entirely to that generosity of the Treasury towards the medical profession of which there has been no sign in the past and there is no likelihood in the future.—I am, etc.,

Hastings. Harry Gabb.

Medical Demobilization

Sir,—During the later years of the last war men as soon as they qualified had to join one of the Services, but their calling-up was postponed for three months provided they held a house appointment. In the present war all those qualifying hold A posts in the E.M.S. for six months and a fair proportion pass on to B2 or even to B1 posts.

It is clear that the release of medical officers in the Forces is in the main dependent on the recruitment of newly qualified men. Many of those who have been in the Forces for several years feel that at the present time no newly qualified practitioner who is medically fit for service should be allowed to remain in any form of post, whether in an E.M.S. hospital or elsewhere, for longer than six months. At the end of that time he should at once join one of the Services and thereby effect the release of a serving medical officer. This policy may for a time cut down the number of men available for house appointments; but this shortage would soon be remedied by those returning from the Services, who would avail themselves of the scheme for holding appointments of the B1 category. In addition, the larger hospitals can dilute their qualified house officers with an admixture of final-year students, a system which to some extent has already been put into practice with success.—I am, etc.,

J. J. Conybeare.

⁂ The Secretary of the Central Medical War Committee states: It is *not* clear that the release of Service doctors will depend mainly on the recruitment of newly qualified men. Such men could not in any case replace the many specialists in the early release groups. As has been explained, the Central Medical War Committee expects to continue recruiting doctors up to an age limit between 35 and 40, though the Government has not yet decided the upper limit. The recruitment of all newly qualified practitioners after six months in A posts is impracticable because released Service doctors will not wish to accept B2 posts. Indeed, in the early release groups there will be few if any Service doctors interested in obtaining B1 posts. Final-year students cannot occupy B2 posts; they can only be allowed limited responsibilities in A posts, and their employment is necessarily confined to hospitals associated with the medical schools.

Proposed Modification of Policy

SIR,—In the planning of the future service certain main considerations are obviously of critical importance. These include the administrative set-up, the conditions and terms of service, security of tenure of practice, and the vexed question of compensation for the loss of goodwill or for loss of market for it. It is felt that these issues, though distinct, are inseparably related, and no plan can be finally acceptable to the profession unless all are agreed in some form or other.

A recent forecast by the Chairman of the Council that there may be a post-war boom in the market for practices gives no assurance as to the more distant future. We know that an extended health service will need a greater number of doctors, and if the services of every available doctor are to be brought into operation in the public interest, it must be decided sooner or later whether entry into such service is to be governed by capacity *to serve* or capacity *to buy*. Only by restricting entrance into established practice to those with capacity to buy can the market for practices be maintained. It must be perfectly clear to the public that no necessary relation exists between capacity to buy and capacity to serve, and that a "good market" for practices can only mean that there are numbers of doctors wanting to enter certain spheres of professional activity but unable to do so unless prepared to expend capital.

Is it likely that the public will for long continue to accept such an arrangement, especially if represented by a Socialist Government? Will not openings ultimately be developed which will absorb any doctor willing to serve? Will not this collapse the market for goodwill by eliminating purchasers? No bolstering of the present system by providing loans at low interest can reconcile the criteria of capacity to serve and capacity to purchase. Moreover, the borrowing of capital mortgages the goodwill to the lender, and if the lender should be the Government this is a matter which should itself excite the attention of the profession.

The Minister of Health has referred to the compensation of doctors for the loss of goodwill in the event of their entering whole-time public service, but no assurance has been given regarding possible loss resulting from a fading market. Further, there is no precedent for compensating loss of market, and to establish such a precedent would lead to all manner of complications. Any business firm might then apply for compensation on the ground that the market for its goods had fallen as a result of some Government decision. Surely it is inevitable that, as was forecast by the Medical Planning Commission, the custom of buying and selling practices will gradually disappear with the introduction of a truly comprehensive service.

Could anything be more disastrous to the profession than such a "gradual" disappearance—the insidious melting away of capital value? It has been suggested that the total valuation of the capital value of practices throughout the country comes to approximately £60,000,000. Whatever the amount may be it represents *a loss that must be met* in the setting up of any comprehensive service which will ultimately obliterate the capital value of the practices. Is it the Government's intention that such a loss should be met by the doctors themselves—that, in effect, the cost of establishing a new service should be met by what would amount to a "capital levy" raised from one section of the community only, not, perhaps, the least worthy section, but, curiously enough, the very section invited to operate the service?

It must be emphasized that this problem cannot be separated from other issues—administrative machinery, security of tenure of practice, etc.—but it is here suggested that provided agreement be reached in these matters, it is essential to the interest of the profession, and only equitable and just, that the custom of buying and selling practices should be abolished at the outset, and compensation granted upon an agreed basis. It is not suggested that such an abolition could be agreed separately from guarantees regarding security of tenure and the other points mentioned above. The question may be asked how vacancies could be filled. This might be achieved by a system of invitation and selection in accordance with a detailed scheme acceptable to the profession as a whole. Space does not here permit more than the statement of a *prima facie* case for abolishing the custom of buying and selling practices, but I urge Divisions to give this whole matter their most earnest reconsideration before the coming Representative Meeting, and it is hoped that opportunity will then be afforded to consider a resolution on the subject.—I am, etc.,

Wrexham. RAYMOND S. BROCK.

The "Home" Hospital

SIR,—The Representative Meeting has ended. Many will be thinking over the arguments and weighing up the results. The future of the health centre, its structure and purpose being still experimental, is vague. Several have suggested to me that now is the moment to put forward again to the readers of the *Journal* the home hospital as the type of health centre which, combined with the home doctor, will help the patient as a member of the family and preserve the integration of the home.

The patient is always in the forefront in our planning; his paramount interest is rather taken for granted in our discussions; the public and the Press do not appreciate this fact. The patient—man, woman, and child—has a body, mind, and soul; he is a social animal with a family and a home, a cultural being with art, science, and leisure for recreation; employable, he gives some service, whether it be advice of profession or products of agriculture, industry, or commerce; and as a political, economic, and ethical man he is the citizen in a community or nation. *Homo sapiens* is a life, but through his course here needs health of body, harmony of mind, happiness of soul. Planning must supply these needs with the greatest foresight, so that the future shall not be sacrificed to present expediency.

It has been well said that foundations must be well and truly laid whatever the architecture or building to be erected thereon. The home, the home doctor, and the home hospital form the primary and right foundations of a National Health Service. The administrative structure is the architecture; the soundness of the building is dependent upon ourselves. Is the present planning topsy-turvy?

The right foundation consists of home as the primary unit of the served, the home doctor as the unit of the server, and the home hospital as the unit institution. The home doctor sees his patient in the home. Its environment of personalities and conditions is observed by him. The patient at his leisure comes to the home doctor's consulting-room to give his history and to undergo an ordinary examination. He is sent, still under the care of the home doctor, for a complete examination if necessary at the home hospital: the home hospital has beds, operating theatres, an *x*-ray department, a pathological department, and consultative clinics for all specialties, including particularly the orthopaedic with physiotherapy and rehabilitation departments. The ambulance service is centred on it. Exceptional cases are taken to the larger hospitals where extraordinary apparatus and especially highly technical knowledge of specialists and various departments are available. Further details of the home hospital might be varied by the demands of different areas. Home hospitals would be placed obviously under the area planning councils or, better, regional plannings council.

It should be clear that if the home doctors and the home hospitals (staffed by family doctors), with consultants readily available, were displaced further by a collateral State service, with their disappearance would vanish the key to a rational health service. Medical personnel require more years for training than great buildings require for their erection. It is not impossible under a State medical service to picture health visitors calling at the homes and driving the cases like robots to clinics (health centres) or larger hospitals.

Readers may be interested to hear that such a home hospital was erected, in which the interest of the local community was such that 85% of the homes contributed towards its erection by natural pride in the development of their own district, that the institution has grown to the value of £60,000, and will expand still more when building can take place. Will such a spirit survive under the new planning?—I am, etc.,

Teddington. P. W. L. CAMPS.

At the annual meeting of the Medical Insurance Agency on May 23 allocations to the medical charities by which they will profit in all to the extent of £5,113 7s. 6d. were authorized. This amount is larger than has been possible during any of the war years, and satisfaction was expressed that the Agency was able to give such help to the charities. Sir Robert Hutchison was re-elected chairman of the Agency, and the following were elected members of the committee of management for the ensuing three years: Mr. N. Bishop Harman, Sir Ewen Maclean, Sir Francis Fraser, Sir Robert Hutchison, Mr. H. S. Souttar, and Dr. G. Roche Lynch.

BRITISH MEDICAL ASSOCIATION

ANNUAL GENERAL MEETING

Notice is hereby given that the Annual General Meeting of the British Medical Association will be held in the Great Hall, British Medical Association House, Tavistock Square, London, W.C.1, on Wednesday, July 25, 1945, at 12.30 p.m. Business: (1) Minutes of the last meeting; (2) appointment of auditors; (3) report of election of President for 1945–6.

CHARLES HILL,
Secretary.

Meetings of Branches and Divisions

NORTH OF ENGLAND BRANCH

Spring Meeting

At the first of a course of scientific meetings held in Newcastle in March, Major-Gen. W. H. OGILVIE chose as his subject the applications of the lessons of war to the surgery of peace. Man, he declared, was a conscious and habitual planner, and it was to be expected that he would attempt to apply the lessons learnt in the vast clinical trial carried out under the more or less standardized conditions of Service life, with access to large numbers of cases, to peacetime conditions. In the treatment of infected wounds primary suture had been tried and found wanting. The method of choice was delayed primary suture when the primary oedema had subsided, after excision of grossly damaged and infected tissue, followed by free drainage. Skin grafting could be practised later when necessary. Chemotherapy was invaluable in the treatment of infected wounds, but it must be remembered that sulphonamides and penicillin were bacteriostatic rather than bactericidal. Early and adequate restoration of blood loss was one of the essentials of first-aid treatment and the plasma-protein level must be maintained.

Speaking on the medico-legal aspects of artificial insemination at the second meeting. Dr. ROBERT FORBES said that allegations of negligence, adultery, or conspiracy to defraud heirs had to be guarded against. The registration of the birth of a child conceived in such circumstances presented certain difficulties, especially when the alien source of the semen was known. Dr. Forbes then outlined the precautions he recommended in the selection of a donor, in the documents to be signed by the donor, his wife when applicable, the recipient and her husband, and in the arrangements to be made for witnessing and recording the operation.

At the third meeting Dr. RAYMOND GREENE described the mechanism of endocrine disorder. He stressed the importance of the hypothalamus as a connecting link between the cerebral cortex and the autonomic nervous system on the one hand and the endocrine organs on the other. This interrelationship between the nervous and endocrine systems was of first importance when considering the cause or treatment of disease of either. To make a true endocrine diagnosis it was not only necessary to determine the gland chiefly affected but also the level of the primary lesion, which was not infrequently in the cerebral cortex. In the study of disease it was more rational to consider the patient as a whole, including the mind, rather than to ascribe the disease to a lesion of a particular organ.

Dr. JOHN INGRAM, in an address on "The Seborrhoeic Problem," said the major seborrhoeic disturbances—pityriasis, the eczema group, and infective eczema with sycosis—should be looked upon not as clinical entities but as manifestations of a well-defined general state. Not only was seborrhoea associated with cutaneous changes such as hyperidrosis, diminished skin and vasomotor tone, chronic minor oedema, increased sensitivity to irritants and decreased resistance to infection, but it was reflected in the patient as a whole. Such a patient, for example, was liable to develop oedematous, catarrhal, and easily infected mucosae, especially in the nose, nasal sinus infection, pyorrhoea and "soft" teeth, gastro-intestinal upsets, debility, evidences of avitaminosis B, and an unstable mentality and nervous state. All these conditions reacted upon the general make-up of the patient and formed the background of the seborrhoeic diathesis.

Before the lectures clinical demonstrations were given by Dr. A. A. McIntosh Nicol, Mr. W. A. Hewitson, Mr. C. Gordon Irwin, Mr. J. Kenneth Stanger, Dr. D. Sage Sutherland, Mr. Weldon Watts, Dr. H. H. Markham, Dr. W. J. Phillips, Dr. E. Walkinshaw Osselton, Dr. P. Ayre, Dr. Winifred M. Houston, Dr. Joan Miller, and Dr. M. Goldston.

H.M. Forces Appointments

ARMY

Col. G. F. Allison, C.B.E., M.C., late R.A.M.C., has retired on retired pay on account of disability, and has been granted the honorary rank of Brig.

Col. J. G. Gill, C.B.E., D.S.O., M.C., late R.A.M.C., having completed four years in the rank, is retained on the Active List supernumerary.

Lieut.-Col. F. Harris, C.B.E., M.C., from R.A.M.C., to be Col.

ROYAL ARMY MEDICAL CORPS

Lieut.-Col. J. T. McConkey, having attained the age for retirement, is retained on the Active List supernumerary.

Major (War Subs. Lieut.-Col.) C. E. Eccles, O.B.E., to be Lieut.-Col.

Major F. McL. Richardson, D.S.O., to be Lieut.-Col.

War Subs. Major J. D. Cruickshank to be Major.

Short Service Commission.—Capt. A. Crook has been granted a permanent commission.

Short Service Commissions.—War Subs. Major J. Duguid and War Subs. Capts. A. Grieve, D. E. S. Steele, F. Lanceley, and I. N. Darbyshire, from Emergency commissions, have been granted Short Service commissions in the rank of Lieut. and to be Capts.

TERRITORIAL ARMY

Cols. P. J. Gaffikin, M.C., T.D., A. M. Johnson, M.C., and C. H. Budd, M.C., having exceeded the age limit have retired, retaining the rank of Col.

ROYAL ARMY MEDICAL CORPS

Lieut.-Cols. H. V. Leigh, O.B.E., and R. G. Gordon, having exceeded the age limit, have retired, and have been granted the honorary rank of Col.

Lieut.-Col. W. W. Hallchurch, T.D., having exceeded the age limit, has retired, retaining the rank of Lieut.-Col.

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs. Major D. R. Allison has relinquished his commission on account of disability, and has been granted the honorary rank of Lieut.-Col.

War Subs. Capts. E. C. Jones and F. L. Cane have relinquished their commissions on account of disability, and have been granted the honorary rank of Major.

War Subs. Capts. B. R. Cumbo, A. E. Brewer, J. W. Bradbury, G. A. Clark, J. Sleigh, H. Macpherson, M. Shalet, D. F. Ross, D. J. Fraser, J. A. M. Robertson, A. E. Delgado, and C. D. Gun-Munro have relinquished their commissions on account of disability, and have been granted the honorary rank of Capt.

Lieuts. H. R. Blades and P. O'F. Boyle have relinquished their commissions on account of disability, and have been granted the honorary rank of Lieut.

To be Lieuts.: L. A. Gibbons, M. K. Fleischer, J. T. C. Sims-Roberts, A. T. D. Whitfield, H. D. Strebrny, A. Attwood, J. T. Blois, D. B. Bradshaw, D. Cappon, I. McC. Carmichael, K. R. J. Coates, T. G. Crombie, E. W. W. Ellis, A. G. Ensor, A. B. A. Evans, D. Goodwin, W. S. Hamilton, E. V. Henton, C. C. Kennedy, G. Kohn, K. W. Leech, M. R. Liver, J. D. M. Lytle, J. W. McConachie, R. S. Monro, W. S. Morgan, D. G. Munro, T. R. Nelson, T. C. Noble, T. Parkin, J. H. Randall, J. M. Scott, J. F. N. Sidebotham, P. J. Spencer-Phillips, R. M. C. Tyner, J. M. Wilson, H. W. Woolner, R. J. Last, J. J. Seide, and T. A. Don.

WOMEN'S FORCES

EMPLOYED WITH THE R.A.M.C.

War Subs. Capts. (Mrs.) A. English and (Mrs.) M. P. Paterson have relinquished their commissions.

War Subs. Capts. (Miss) C. R. C. Maclean and (Miss) E. H. Williams have relinquished their commissions on account of disability.

Lieut. (Miss) F. R. Hendeles has relinquished her commission on account of disability.

The following M.O.'s have been granted commissions in the rank of Lieut.: Audrey M. Dealler, Sheila D. Lee, Katherine I. Liebert, Margaret W. Macgregor, Mona Mitchell, Isabella M. Pinkerton.

ROYAL AIR FORCE

Wing Cmdr. T. J. X. Canton has retired and has been re-employed.

Wing Cmdr. W. F. Wilson, M.C., has reverted to the Retired List at his own request.

Fl. Lieut. (Temp. Wing Cmdr.) J. R. R. Jenkins to be Squad. Ldr.

RESERVE OF AIR FORCE OFFICERS

Squad. Ldr. (Temp.) J. D. Milne has been granted the rank of War Subs. Squad, Ldr.

Fl. Lieut. (Temp. Squad. Ldr.) R. A. W. Kerr has relinquished his commission on account of medical unfitness for Air Force service, retaining the rank of Squad. Ldr.

AUXILIARY AIR FORCE

Squad. Ldr. C. W. Kidd has resigned his commission, retaining the rank of Wing Cmdr.

Fl. Lieut. (Temp. Squad. Ldr.) J. E. La Frenais has relinquished his commission on account of medical unfitness for Air Force service, retaining the rank of Wing Cmdr.

ROYAL AIR FORCE VOLUNTEER RESERVE

Wing Cmdr. J. G. Stewart has resigned his commission, retaining his rank.

Squad. Ldr. (Temp. Gp. Capt.) R. D. Gillespie has relinquished his commission on account of medical unfitness for Air Force service, retaining the rank of Air Cdre.

Squad. Ldr. (Temp.) J. A. Lennox has been granted the rank of War Subs. Squad. Ldr.

Fl. Lieut. (Temp. Squad. Ldr.) G. A. Strain has resigned his commission, retaining the rank of Fl. Lieut.

Fl. Lieut. A. C. Turner has relinquished his commission on account of medical unfitness for Air Force service, retaining his rank.

Fl. Lieuts. W. L. Hardman and J. R. Colville have resigned their commissions, retaining their rank.

H. A. C. Chalmers to be Fl. Lieut. (Emergency).

POSTGRADUATE NEWS

The Fellowship of Medicine announces: (1) Week-end course in ear, nose, and throat diseases, at Metropolitan Ear, Nose, and Throat Hospital, all-day, Sat. and Sun., June 30 and July 1; (2) Week-end course in obstetrics and gynaecology at South London Hospital for Women, all day, Sat. and Sun., July 14 and 15; (3) Week-end course in medicine and surgery at Hampstead General Hospital, all-day, Sat. and Sun., July 21 and 22; (4) Primary F.R.C.S. course: lecture-demonstrations in anatomy, physiology, pathology, and immunology, Mon., Wed., and Fri., from 6 p.m. to 8.15 p.m., Aug. 13 to Oct. 12. Full particulars from the Fellowship of Medicine, 1, Wimpole Street, London, W.

WEEKLY POSTGRADUATE DIARY

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, London, W.—*West End Hospital for Nervous Diseases:* Mon., Tues., and Fri. 2.30 p.m., M.R.C.P. course in neurology. *North Middlesex County Hospital:* all-day, Sat. and Sun., June 16 and 17, Week-end course in general surgery (limited).

EDINBURGH POSTGRADUATE LECTURES.—At Edinburgh Royal Infirmary, *Thurs.*, 4.30 p.m., Mr. W. Quarry Wood: Treatment of Duodenal Ulcer.

DIARY OF SOCIETIES AND LECTURES

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.—*Thurs.*, 4 p.m., Hunterian Lecture by Col. Elliott C. Cutler: Military Surgery, U.S. Army, 1944-5 (amended title).

ROYAL SOCIETY OF MEDICINE.—*Tues.*, 5 p.m., Section of Experimental Medicine and Therapeutics; 5 p.m., Section of Psychiatry. *Fri.*, 5 p.m., Section of Obstetrics and Gynaecology.

CHADWICK TRUST.—At Chelsea Physic Garden, Swan Walk, Chelsea, S.W., *Thurs.*, 4 p.m., Mr. C. J. Layton: Health and Horticulture.

BIRTHS, MARRIAGES, & DEATHS

The charge for an insertion under this head is 10s. 6d. for 18 words or less. Extra words 3s. 6d. for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.

BIRTHS

McCALL.—On May 25, 1945, at Stoke-on-Trent, the wife of Dr. A. J. McCall, a daughter.

McDOUGLE.—At Edinburgh, on April 18, 1945, to Margo, wife of Capt. H. A. McDougle, R.A.M.C., B.L.A., a daughter.

PIERCE.—On May 11, 1945, at Keighley, to Nancy (*née* Whitaker) and Fl. Lieut. H. L. Pierce, R.A.F.V.R., a son.

MARRIAGE

HUNT—KIRK.—On June 2, 1945, at Nottingham, Arthur William Maurice Hunt (Lieut., R.A.P.C.) to Ursula Mary Kirk (Lieut., R.A.M.C.).

DEATHS

GRANT.—On May 31, 1945, at Craigleven, Ballachulish, Argyll, Lachlan Grant, M.D., D.P.H., F.R.F.P.S., J.P., in his 74th year, beloved husband of Catherine Clark.

O'BRIEN.—On May 23, 1945, at "Brierfield," 49, Pollard Lane, Bradford, Yorks, P. M. O'Brien, M.B.Lond., M.R.C.S., aged 83. R.I.P.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY JUNE 16 1945

MEMORANDUM ON THE FUTURE ORGANIZATION OF THE PSYCHIATRIC SERVICES

PREPARED JOINTLY BY

THE ROYAL COLLEGE OF PHYSICIANS
THE BRITISH MEDICAL ASSOCIATION
AND
THE ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION

The Royal College of Physicians, the British Medical Association, and the Royal Medico-Psychological Association have each been concerned during the past year with the formulation of their views on the future of psychiatry. The views expressed by each of them followed such similar trends of thought that it was considered that a single memorandum would be of more practical use to the medical profession generally and to other persons concerned with the organization of psychiatric services in a National Health Service. The present memorandum has accordingly been prepared jointly by the three bodies.

I. THE LINKS BETWEEN PSYCHIATRY AND GENERAL MEDICINE

1. During recent years psychiatry has been brought into an increasingly close relationship with general medicine. There are many reasons for this. Historically, psychiatry developed as the method of treatment of those individuals whose mental illness necessitated their segregation from the rest of society. It is now recognized that this distinction, however important socially, is medically irrelevant, for there is only a difference of degree between the majority of patients in mental hospitals and the far more numerous sufferers from less severe mental disorders. For one case of major mental illness there are many cases of minor mental illness. In terms of the numbers of patients involved much more psychiatry therefore needs to be done outside than inside the mental hospital. At the same time psychiatry has shown that it has much to contribute to research into the causes and treatment of many forms of illness formerly regarded exclusively from the medical or surgical standpoint. It has thus a double justification for its presence in the general hospital.

2. Moreover, the historical association of the mental hospital with severe forms of illness and with legal restraint has undoubtedly made the public reluctant to avail themselves of these institutions and has militated against the early treatment of mental illness. Although modern developments in mental health services are doing much to lessen such fears and prejudices among the public, they are still a factor to be reckoned with. It has happened that the movement to open psychiatric departments in general hospitals has coincided with the development of methods of treatment which have made it possible to treat successfully as out-patients some mentally ill persons who a few years ago would have become ill enough to need in-patient treatment. Events have thus lent their support to the movement to emphasize the links between psychiatry and general medicine to the advantage of both. It is desirable that this process should continue, and though in certain important respects, described in the next section, psychiatry requires special conditions, it is vital that in any future organization of medicine psychiatry shall not remain segregated. It should take its place in the general scheme and be subject to the same central direction as all other branches of medicine, even though a special internal organization may be necessary.

II. THE SPECIAL FEATURES OF PSYCHIATRY

3. The argument for treating psychiatry in all essential respects like other branches of medicine is in our opinion strong and conclusive. We ought to consider, however, whether there are special features in psychiatry which might weaken this opinion and necessitate some departure in the case of psychiatry from the general pattern of medical services. Although there are special features in psychiatry, it is not certain that they are of this essential kind. There are, for instance, the vagueness and extent of the territory covered, the large number of chronic sick needing hospital care, the reluctance of some patients to seek treatment, and the cost and risk or uncertain application of some current methods of treatment. These are likely to persist for so long a time that they seem almost inherent in the subject. There are other characteristics that need not influence the future place of psychiatry in the medical services, except during a transition period.

4. Where psychiatry begins and ends has not been settled. With the development of preventive medicine, its borders will become less rather than more definite. The study and treatment of delinquency, for example, has given psychiatry an active share in criminology, and the existence of the maladjusted and the poorly endowed child is the obvious but not the only reason why education is as closely linked with psychiatry as psychology is with both. It is true that no branch of medicine has sharply defined boundaries. The surgeon may encroach on the physician's sphere; the public health expert has to concern himself with engineering and housing. But psychiatry has less definite boundaries and marches with more non-medical territories than any of these. It follows that psychiatry must make even fuller provision for liaison than other branches of medicine, though its problem in this respect is fundamentally the same as theirs.

5. The psychiatrist's work is bound up with ancillary services. He requires the professional aid of the psychiatric social worker and the psychologist (in addition to the occupational instructors, speech therapists, and other auxiliaries whom his colleagues may also employ). But here, too, the difference between him and his medical colleagues in other branches is only one of degree; although he is more dependent than they on knowledge of the patient's history and surroundings and on skilled assistance in making the necessary changes in the environment, it is being increasingly recognized in all branches of medicine that social, familial, and industrial factors must be taken into account and appropriate trained help be invoked.

6. More significant differences derive from the attitudes of mind taken up by the mentally ill, the limitations of the mentally defective, the protracted nature of much mental illness, and the unalterable incapacity of the imbecile and idiot. In no other branch of medicine are there so many patients who are unwilling to accept or incapable of seeking suitable advice, who do not co-operate in treatment, and who continue for many years—decades or even a lifetime—to require special care and medical supervision. It is thus harder and yet more essential to ascertain illness early and to retain the patient's trust, once it has been won, than in most other branches. Otherwise the illness will not come under notice until it is grossly manifest or inveterate, and the patient may have to be forced, for the sake of others if not his own, to submit to treatment which he distrusts or resents. Hence the legal enactments (which at some cardinal points have outlived their usefulness); hence also the need for psychiatrists, when undertaking such non-therapeutic functions as certification for insurance purposes or expert testimony in courts of law, to do everything possible to safeguard the patient's belief that his confidence will not be abused.

7. There are an exceptionally large number of mentally sick who require continued hospital treatment. A large number of patients in mental hospitals will have been there for more than three years; some will have been there for ten years or more and some for twenty years or more. The proportion of the general population requiring treatment in mental hospitals is 3.9 per 1,000. It is important to note that mental hospitals cannot get rid of their failures. In institutions for mental defectives the average stay is even longer than in mental hospitals. This long duration of treatment constitutes a major peculiarity of mental illness. It becomes even more striking when chronic neurotics and psychopathic criminals are also taken into account, but since these do not require large hospitals, the chronicity of their illness does not create so evident a problem as faces the huge hospitals, usually some distance from the centres of population, in which are housed and treated those requiring continued treatment, "institutional" defectives, and the more acute, remediable, or trainable patients. If it were not for these long-standing cases, the peculiar problem of the mental hospitals would have been far less with us. Comparable statistics about the relative numbers of chronic and acute cases needing hospital care for other than mental illness would illustrate this, but unfortunately such data are not accessible, except for certain special conditions—e.g., tuberculosis. Too much can be made of the special attributes of the mental hospital problem; it is not its dimensions

that differentiate it somewhat from other hospital problems, but its necessary emphasis on the chronic patient and on the unwilling patient. Chronicity is a difference only of degree; the problem of the unwilling patient is steadily diminishing, although not to vanishing point, with the increasing number of voluntary patients.

8. The number of doctors with the standing of specialists in the psychiatric field is greater than in other special branches of medicine. This is because the number of mentally ill persons who have to be treated in special hospitals is large and the doctors treating them have devoted themselves to this special work for many years. Most of them hold the appropriate diploma. Nevertheless, many of these practitioners do not possess the status and experience which would justify the description of consultant in the ordinary usage of that word. The difficulty is not inherent in psychiatry but is rather due to the present unfortunate cleavage between those treating the psychoses and those treating the neuroses and physical illness. It is a remediable situation which will disappear with the disappearance of that cleavage.

9. Reference has been made to those attributes which are relics of a period now lying behind us in which the extremes represented by the psychiatrists of the mental hospitals and psychotherapists were as far apart in methods, outlook, and experience as could well be. On the extra-institutional side of the rift there were also the public with their fears and beliefs about "nerves" and madness, the neurologist long accustomed to take a share in dealing with psychiatric problems, and the rest of the medical profession scantily educated in the broader aspects of psychological medicine. Hence there are two main differences which arise in considerable measure from the old partition between mental hospital psychiatry and the rest of psychiatry. First, the public still regard the mental hospital with unwarranted dread and the psychotherapist with unwarranted derision or awe. Secondly, many doctors who are not psychiatrists are insufficiently informed about good psychiatric practice and the extent to which they can apply useful psychiatric principles in their daily work. Further, the bulk of the nurses in mental hospitals have not had an all-round nursing training, nor general nurses any training in the psychiatric side of their work. The nursing problem is of great importance, but it need not be discussed further here.

10. Two other obvious differences of the same origin need no emphasis. First, the medical staff of psychiatric hospitals are in many instances full-time employees of a local authority, whereas the non-institutional psychiatrists have been wholly or largely engaged in private practice. This cleavage has been unfortunate. Secondly, psychiatrists in the mental hospitals do their work under the general supervision of the Board of Control, which has had comparatively little to do with psychiatrists working in out-patient and in-patient departments of teaching hospitals, in nursing homes, neurological hospitals, psychotherapeutic clinics, and consulting-rooms.

III. THE FUTURE ORGANIZATION OF PSYCHIATRY: GENERAL PRINCIPLES

The General Practitioner

11. Since we wish to emphasize the close connexion between psychiatry and other branches of medicine it is natural to begin with the general practitioner who is the first to see most patients suffering from mental illness. As elsewhere in medicine patients may be seen in the routine of practice or as acute clinical emergencies.*

(i) *The Routine of Practice.*—Psychiatric education of the medical student such as is recommended in the first interim report of the Royal College of Physicians Committee and the report of the British Medical Association Committee on Mental Health will enable him to treat a considerable proportion of the cases of minor mental illness in his practice on his own responsibility. In other cases he will seek further advice concerning (*a*) diagnosis, (*b*) treatment, or (*c*) disposal. These patients he will refer as he does others to the nearest out-patient consulting centre.

(ii) *The Emergency Case.*—With better education of the general practitioner and better diagnostic facilities fewer patients will first be seen in a condition requiring immediate admission to mental hospitals, but such cases will always arise. For these a domiciliary psychiatric consulting service should be available, linked with the local out-patient consulting centre and/or psychiatric unit. Suitable admission wards will still be required.

Other Sources of Patients

12. Brief mention must be made of other channels through which patients suffering from mental illness may be brought to light. They include industrial medical officers, school medical officers and educational psychologists, psychiatrists attached to courts of law and prisons, the psychiatrists of child guidance clinics and centres, etc. These raise no special problems since it should not be difficult to link them with the proposed consulting centres, though in some cases the actual consulting units may more conveniently be situated elsewhere.

The Out-patient Consulting Centre

13. In all general hospitals of more than 100 beds with recognized consultants on their staffs there should be out-patient consulting centres staffed in much the same way as that recommended in the first interim report of the Royal College of Physicians Committee for the psychiatric department of the teaching hospital. Where a mental hospital is readily accessible this may be used in addition. In very large centres special psychiatric hospitals should be available, and it may sometimes be thought desirable to set up consulting centres under their own roofs.

In these out-patient centres there should be facilities for diagnosis, and for such treatment—psychological and other—as can suitably be given to out-patients.

In-patient Treatment

14. (i) *Emergency Cases.*—Emergency cases will need to be admitted to special wards either in mental hospitals or in general hospitals specially equipped for the purpose.

(ii) *Other Patients.*—In-patient accommodation for other patients will be provided as hitherto in mental hospitals and mental deficiency institutions and in special neurological and psychiatric hospitals, and should be provided without delay in the psychiatric departments of all teaching hospitals and in the larger non-teaching provincial hospitals.

(iii) *Protracted Cases.*—Much in-patient accommodation will always be required to deal with the irrecoverable case. Protracted cases of this sort should be reviewed at regular intervals more systematically than has hitherto been customary, in order to see whether the patient can be socially rehabilitated by means of the increased use of boarding-out methods and of the "colony" system in vogue in Belgium, provided that these can be adequately forthcoming with suitable safeguards.

IV. THE ADAPTATION OF EXISTING FACILITIES

15. Apart from private mental hospitals, "licensed houses," approved homes, nursing homes, and pay-beds in voluntary hospitals, the provision for mental illness may fall under the following heads:

In-patient:
(i) Public and State mental hospitals and mental deficiency institutions.
(ii) Registered hospitals and in Scotland the Royal Mental Hospitals.
(iii) Acute reception hospitals (early treatment units).
(iv) University clinics as in London and Edinburgh.
(v) Special neurological and psychiatric hospitals.
(vi) Units in teaching hospitals.
(vii) Beds in some non-teaching hospitals.
(viii) Accommodation for children.

Out-patient:
(i) At teaching, voluntary, and municipal hospitals.
(ii) At health centres, if and when they are established.
(iii) At special neurological and psychiatric hospitals, including mental hospitals or clinics dealing with child-guidance, psycho-analysis, the treatment of delinquency, and other special psychotherapy.
(iv) As part of other large services—e.g., prison medical service, school medical service, industrial medical service.

16. In the matter of staffing and organization there are two main divisions. Usually the doctors engaged specially in psychiatry are either full-time officers of local authorities or part-time members on the honorary staffs of voluntary organizations. The two groups have dealt in the main with different types of illness in different types of hospital. In spite of many demerits and handicaps this arrangement presents a less formidable problem of integration than would a duplicated system, for the existing services are complementary rather than parallel. The difficulty is to ensure that psychiatrists who have been limited hitherto to one or other field shall be enabled to work in both. Whatever steps are taken to link municipal and voluntary hospitals they will be adequate in respect of psychiatry only if the arrangements allow psychiatrists in mental hospitals to engage actively in out-patient and domiciliary work, preferably in the psychiatric departments of voluntary and municipal general hospitals, and allow psychiatrists in voluntary hospitals to hold appointments on the staffs of mental hospitals. It is suggested that in the case of a teaching hospital a good working arrangement would be to appoint the physician in charge of the psychiatric department to a senior post at the mental hospital, where he would hold, say, two regular half-day clinics a week and supervise a special unit. At the same time the senior clinician in the mental hospital should have a comparable post at the teaching hospital. More junior mental hospital doctors should be appointed as registrars or clinical assistants in general hospitals, where they would take part in

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* Although it is fully recognized that the part played by the general practitioner in the diagnosis and treatment of mental illness is becoming increasingly important, the subject is not dealt with in detail in this report.

the work of the psychiatric out-patient department. Such an interchange between psychiatric staffs of mental and general hospitals would be less difficult if all hospital medical staffs were remunerated and if domiciliary work became a recognized part of the hospital service. Unless arrangements on these lines are made there is a danger that psychiatrists on the staffs of general hospitals, both voluntary and municipal, will ignore or be unaware of the opportunities offered by mental hospitals and the progress in therapy and research being made in them.

17. It is suggested in the White Paper that consultants and specialists should normally be based on the hospital. This may conflict with the customary tenure of full-time mental hospital posts under the local health authority. It need not, and there is no reason why in this matter the appointment of members of mental hospital staffs should not, be put on all fours with that of consultants and specialists in all other branches of medicine. The strongest efforts should be made to prevent caste differences developing, or being perpetuated, between the "specialists" of what are at present local authority services and the "consultants" of the "voluntary" services, irrespective of whether these are controlled by the same local or regional health authority or not. Such mingling of staffs as is here advocated can be attained only if the organization and mode of appointment is modified, especially in the direction of making the hierarchial structure of local authority staffs less rigid and pyramidal.

18. For this to be effected it might be necessary to amend the law. If, however, psychiatry is to progress and take its place with the other branches of medicine, legal changes going beyond those incorporated in the Mental Treatment Act, 1930, are imperative. In our proposals we assume that such changes would be realized, in addition to those already implemented.

19. In the foregoing no special consideration has been given to the university clinic. It is assumed that in most university centres this will be either a unit of the teaching hospital, of adequate size, or a special hospital contiguous to and closely associated with the main undergraduate teaching hospital. It will then not differ in its staffing arrangements from other special departments of the hospital. An appointment as house-physician in it should be as much part of the first year's work after qualifying as an appointment in the department of medicine, surgery, or obstetrics. It is not assumed that every such psychiatric department will undertake advanced postgraduate teaching and research. Experience has shown that there are many objections to combining undergraduate and advanced postgraduate instruction in the same hospital. If advanced postgraduate work in other branches of medicine is concentrated in a few main centres, this should obtain also in psychiatry. This does not in any degree preclude the carrying out of research work in any psychiatric hospital or clinic, any more than it would in other branches of medicine.

V. ADMINISTRATIVE ARRANGEMENTS

20. There is everything to be said for making the administrative structure of psychiatry exactly the same in principle and even in major detail as that of other branches of the health services. As has been pointed out in the discussion of the peculiarities of psychological medicine, no radical divergency is warranted. Where it exists it must be eliminated. The prominence of the prolonged need for treatment is paralleled in kind by other forms of illness prone to persist; the number of unwilling patients who have at present to be certified by a strict legal procedure is diminishing, and if the law in regard to mental illness were to be modified, they would become a minor problem not necessitating any main departure from ordinary medical administrative structure. We emphasize, however, that the attitude of the public to the psychiatric services is an urgent problem calling for much educational activity. Safeguards for ensuring that the public shall have full confidence in this medical service will have to include the approximation of mental hospital nursing and other features to those of other hospitals. Adequate care is necessary to ensure that the psychiatrist shall not be required to act as a functionary giving certificates, pronouncing on mental state, fitness for work, etc., in such circumstances as would conflict with his therapeutic functions and the patient's confidence in his discretion and reticence. By the nature of his clinical task the psychiatrist needs the complete trust of his patients, who must entrust to him intimate details of their lives; he would be hampered immeasurably, and the good repute of medicine as well as of psychiatry would suffer, if he were compelled to disclose such confidences. The matter will require a close consideration of the balance that must be preserved between the psychiatrist's obligation to the community at large and his obligation to his individual patient; the principles will be the same as apply to other branches of medicine, but their application in psychiatry raises delicate issues.

21. In the White Paper on a Comprehensive Health Service it is proposed that the central administrative structure should be responsible for all civilian health services and that there should be an advisory committee (Central Health Services Council) to represent *inter alia* specialist medical practice and hospital organization; similar advisory bodies are proposed for local health areas. In psychiatry, perhaps more than elsewhere, an active and independent professional advisory body is a vital need; and on this body academic and consultant opinion should be adequately represented as well as other branches of the specialty.

22. There should be a special department of the central health authority which would have to deal with and administer all branches of mental health, and this should be represented, for administrative purposes, throughout the local organization. In the past the Board of Control has provided a separate organization for co-ordinating mental health matters. The new department now suggested would include many of the present functions of the Board of Control, especially in so far as it will be necessary indefinitely to keep a watching eye on the legal aspects of psychiatry. Whilst the head of this department should be a psychiatrist, there will have to be also legal members for reasons similar to those which will no doubt operate in other branches of medicine in which forensic problems frequently arise.

23. This special arrangement for the co-ordination and direction of psychiatric work is necessary because of the many intricacies of the subject—technical, sociological, and legal. Until there has been a radical change for the better in medical education it will be quite impossible for the development of psychiatry to be undertaken by those without special knowledge. If the mental health services of the country were to be directed and administered by those without specialized training the integration of psychiatry into the whole medical structure which we so much desire would be frustrated.

24. Presumably, the principal medical officer of the National Health Service who will be advising the Minister will himself be advised by various senior officers concerned with clinical services, preventive medicine, etc., and it is at this level that the directorate of mental health fits in. At the periphery the administrative officers of mental health would have direct access to this senior medical officer of mental health in the central administration as well as the necessary relations with the area authorities. In this way the social and preventive aspects of psychiatry will be given full opportunities for development.

VI. RECOMMENDATIONS

We submit the following recommendations:

Scope of Psychiatry

1. Psychiatry is not a limited specialty. It permeates and influences general medicine, surgery, and obstetrics and gynaecology. In particular, psychiatrists should be appointed to the staffs of general hospitals with status equal to that of other physicians and surgeons.

2. The mental health department of the health service of the future should be responsible for the organization of all medical work which is essentially psychiatric. This will necessitate certain legal changes.

3. The psychiatrist is not concerned only with fully developed mental disorders. The mental health service should include provision for prophylaxis of mental disorder over the widest field.

4. In the educational sphere psychiatric advice is essential for children showing neurosis, behaviour disorder, or mental defect.

5. In industry a full and efficient consultative psychiatric service should be available, which should work in close co-operation with the patient's doctor and the industrial medical officer. Psychiatrists should co-operate with industrial psychologists in the investigation of industrial fatigue and ill-health, working hours and conditions, incentives, personnel management, etc.

6. Psychiatrists should co-operate in the work of vocational guidance and selection, an essential part of which is the assessment of personality and temperament.

7. Psychiatrists should take part in the rehabilitation of patients after accident or illness. This work should be carried out in close liaison with employers, workers' representatives, and patients' doctors, and any necessary adjustment should be made in the patient's employment on his return to work.

8. There are many other fields in which the psychiatrist should play his part, such as sociological investigations and education in sexual matters.

Administration and Staffing

9. The main factors which retard progress in the treatment of mental disorder at the present time are: (1) the law, which lags behind enlightened public and medical opinion; (2) the mental hospital buildings, many of which are quite out of date, having been designed for detention and safety without sufficient vision regarding curative treatment; (3) the association of public assistance with mental hospital

treatment; and (4) the numerical inadequacy of the medical staff and the numerical and professional inadequacy of the nursing staff in mental hospitals. Improvement is necessary also in the status, pay, and conditions of service of the medical staff, with greater freedom in regard to professional matters and the formation of medical committees. Increased opportunities for purely clinical work should be developed.

10. There should be formed a mental health authority with appropriate statutory powers in each area throughout the country as may be decided hereafter by the Government, such authority to be responsible for all aspects of mental health—i.e., to take over the work of committees of visitors, the committees under the Mental Deficiency Acts, and child psychiatry (including child guidance). Mental health authorities should consist of elected and co-opted members. Close co-operation should be maintained between these authorities and the public health and education committees and those responsible for the voluntary hospitals.

11. On any local advisory bodies, such as the local health services council, there should be adequate psychiatric representation. No doubt such councils will appoint special mental health subcommittees with power to co-opt.

12. Large areas are preferable to small areas. Each area should be of sufficient size to warrant the setting up of a complete mental health service.

13. All matters appertaining to mental health administration should be removed from public assistance.

14. There should be a special psychiatric department of the central health authority to deal with and administer all branches of mental health; this arrangement should be reproduced for administrative purposes throughout the local organization. In the past the Board of Control has provided a separate organization for co-ordinating mental health matters. The work of the new central department now suggested would include in general the present functions of the Board of Control, especially in so far as it will be necessary indefinitely to keep a watching eye on the legal aspects of psychiatry. Whilst the head of this department should be a psychiatrist, there will have to be also legal members of the staff, for reasons similar to those which will no doubt operate in other branches of medicine in which forensic problems frequently arise.

15. A special medical officer should be appointed in each area as adviser and executive officer to the mental health authority of whatever body co-ordinates all branches of mental health. He should be an officer of senior status with clinical and administrative psychiatric experience. He should have reasonable security of tenure.

16. Unless and until the mental hospitals and mental deficiency institutions are organized on the same lines as the voluntary hospitals there should be a medical superintendent in charge of each hospital who should be in continual touch with the clinical aspects of the hospital and its patients. The position which imposes complete legal responsibility on medical superintendents for all patients in the institution under their care should be reviewed.

17. In each hospital there should be a medical committee composed of members of the staff, including visiting consultants. The views of the medical committee on medical and administrative matters should be transmitted to the controlling lay authority, normally through the medical superintendent, who should have a duty to convey them.

18. The facilities for out-patient treatment of adult mental illness require much extension. Clinics should be available in every part of the country. Most cases of psychoneuroses can be treated in well-organized out-patient clinics.

19. Observation wards should be upgraded into early treatment units, which should be departments of, or readily accessible to, general hospitals, voluntary or municipal.

20. There are a number of cases of psychoneurosis which need more intensive treatment and/or closer supervision than can be arranged at a general hospital. For these special hospitals should be provided under psychiatric direction, with nursing staff of special training and experience. For chronic psychoneurotics provision should be made in special hostels, not in the psychiatric wards of general hospitals.

21. It is essential for the proper understanding of all cases, including those of somatic disease, for medical students to be taught a suitable psychology in the intermediate stage as well as the principles of psychological medicine in the final course. At least one question on psychological medicine should be asked in the general medicine examination. Clinical psychiatry should form a definite part of the clinical examination. Teaching and examining bodies should be urged to raise the standard in clinical experience of psychiatry to the level of the kindred subjects of medicine, surgery, obstetrics, and gynaecology. (See first interim report of the Royal College of Physicians Psychological Medicine Committee.)

22. There should be a co-ordinated system of psychiatric social service. All psychiatric social workers should receive such training as will fit them for service in all branches of the specialty. They should take an active part in adjusting environmental difficulties, especially in relation to industry and education.

23. Non-medical psychologists should be employed more extensively and should work in the closest possible co-operation with psychiatrists, but they should not carry out psychotherapy.

24. Facilities for adequate grading should form a basic principle in future administrative arrangements for the treatment of psychiatric patients of all types (including mental defectives), bearing in mind the disadvantages that may accrue from the segregation of chronic patients, except possibly for senile cases, in a separate institution. Patients certifiable under the Mental Deficiency Acts should not be admitted to mental hospitals unless there are overriding psychotic symptoms.

25. The patient should be enabled to use the financial benefits to which he is entitled under insurance legislation, in order to supplement his private means so that he can obtain the treatment of his choice.

26. The status of mental nursing should be equal to that of general nursing. All general nurses should receive some training in psychiatric nursing.

Psychoses and Psychoneuroses

27. Dependent on the area and density of the population to be served, mental health services other than those provided by the general practitioner should be supplied by means of the mental hospital and psychiatric units. That part of a general hospital, whether in- or out-patient department, which is set aside for the treatment of mental disorders, with or without any legal formality, should be known as a psychiatric unit.

28. An adequate number, generally 5%, of beds should be available in general hospitals where a psychiatric out-patient clinic is held regularly, provided that the hospital makes adequate provision for suitable nursing.

29. In larger centres (especially university towns) special psychiatric units should be established, with facilities for both out-patient and in-patient treatment, teaching, and research. The immediate establishment of such units is urged as being eminently practicable.

30. The mental hospital will continue to be the main unit for the provision of in-patient services and must be maintained at the maximum efficiency in staff and equipment. Both the medical and nursing staffs should be materially increased, in some cases by 100%, over the low pre-war standards. Adequate laboratory and other services should be available and liaison should be maintained with general hospital services. All the members of the appointed medical staff should take some part in extra-mural duties—e.g., out-patient, convalescent (rehabilitation) homes, and in a consultative capacity at health centres. There should be posts for house-physicians at all mental hospitals. These should be taken up after the usual house officer appointments have been held in a general hospital. Some experience in general practice is a valuable preliminary to training in psychiatry.

31. All suitable existing hospitals, such as registered hospitals, licensed houses, and, in Scotland, the Royal Mental Hospitals, should continue to be used either for patients under the National Health Scheme or for private patients, and advantage should be taken of all material for teaching and research.

32. The amendment of the Mental Treatment Act (1930) is urged so that under Section 5 all non-voluntary admissions may be received for the purpose of treatment and detained for a period not exceeding six months, with possible extension by the department of mental health, without a Reception Order. This involves the omission of all reference to "willing or unwilling to receive such treatment."

33. While it is desirable that the great majority of psychoneurotics should not be treated in mental hospitals, a certain number may be admitted, dependent on the degree of disorder and abnormality of behaviour and the sensitiveness of the patients to their surroundings. With due regard to the foregoing, this would entail that the mental hospitals should be so reorganized as to provide suitable facilities for in-patient treatment for all types and degrees of mental ill-health, including neuroses, by the provision of suitable separate units (where necessary of new units) to guarantee adequate grading. This would also involve appropriate training of medical and nursing staff.

34. Legislation and accommodation are required so that drug and alcoholic addicts and other antisocial psychopaths may be detained under some form of order for periods sufficient to permit of adequate treatment.

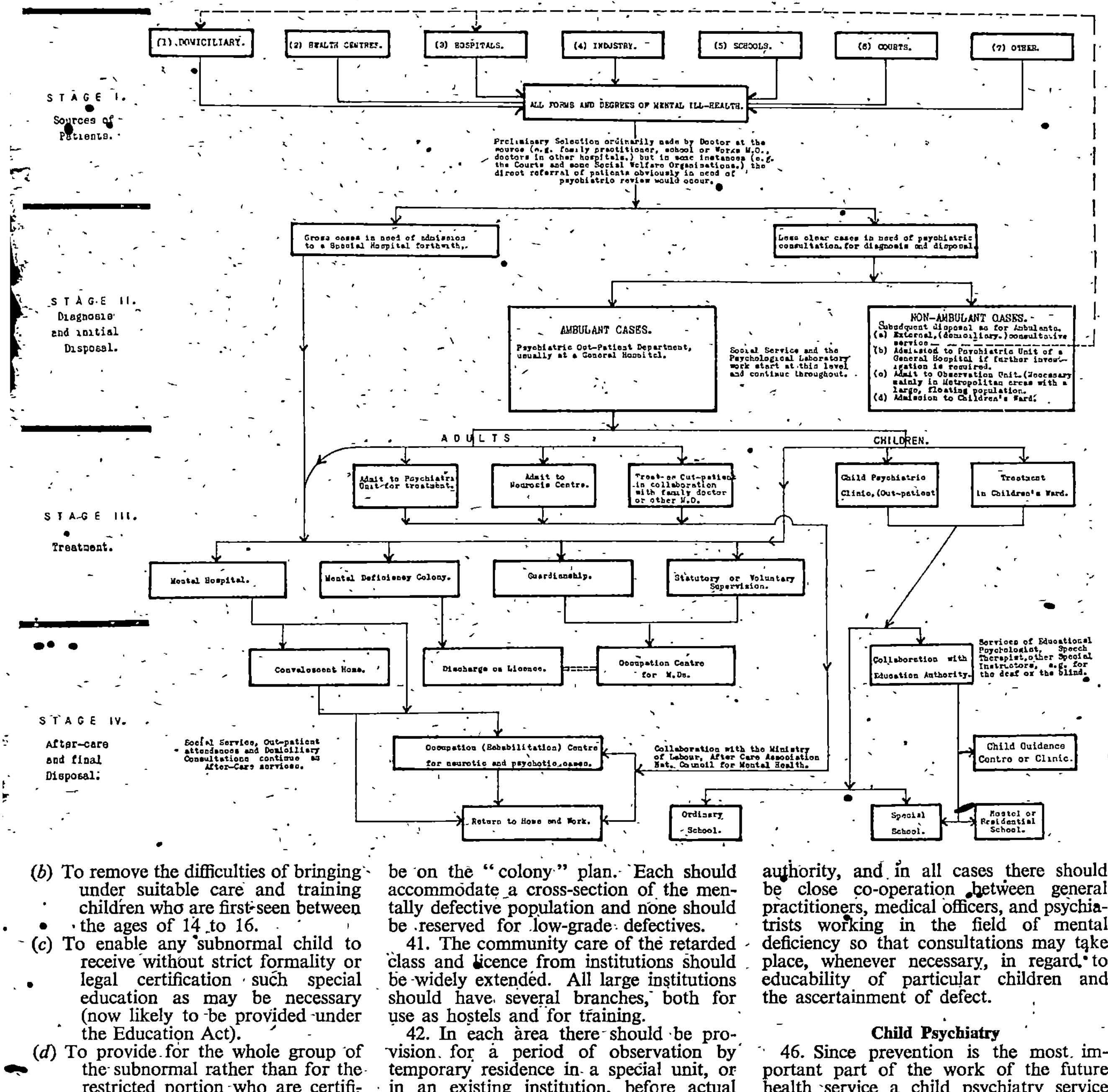
Mental Subnormality, including Mental Deficiency

35. It should be recognized that mental subnormality and its social consequences undoubtedly provide a very wide problem.

36. The present legal and administrative procedures need revision:

(a) To remove the existing confusion and anomalies whereby defective children are dealt with in several different ways under four different authorities.

A CO-ORDINATED MENTAL HEALTH SERVICE


(1) DOMICILIARY.
(2) HEALTH CENTRES.
(3) HOSPITALS.
(4) INDUSTRY.
(5) SCHOOLS.
(6) COURTS.
(7) OTHER.
STAGE I.
Sources of Patients.
ALL FORMS AND DEGREES OF MENTAL ILL-HEALTH.
Preliminary Selection ordinarily made by Doctor at the source (e.g. family practitioner, school or Works M.O., doctors in other hospitals,) but in some instances (e.g. the Courts and some Social Welfare Organisations,) the direct referral of patients obviously in need of psychiatric review would occur.
Gross cases in need of admission to a Special Hospital forthwith.
Less clear cases in need of psychiatric consultation for diagnosis and disposal.
STAGE II.
Diagnosis and initial Disposal.
AMBULANT CASES.
Psychiatric Out-Patient Department, usually at a General Hospital.
Social Service and the Psychological Laboratory work start at this level and continue throughout.
NON-AMBULANT CASES.
Subsequent disposal as for Ambulants.
(a) External, (domiciliary.) consultative service
(b) Admission to Psychiatric Unit of a General Hospital if further investigation is required.
(c) Admit to Observation Unit. (Necessary mainly in Metropolitan areas with a large, floating population.
(d) Admission to Children's Ward.
ADULTS
CHILDREN.
Admit to Psychiatric Unit for treatment.
Admit to Neurosis Centre.
Treat as Out-patient in collaboration with family doctor or other M.O.
Child Psychiatric Clinic, (Out-patient
Treatment in Children's Ward.
STAGE III.
Treatment.
Mental Hospital.
Mental Deficiency Colony.
Guardianship.
Statutory or Voluntary Supervision.
Convalescent Home.
Discharge on Licence.
Occupation Centre for M.Ds.
Collaboration with Education Authority.
Services of Educational Psychologist, Speech Therapist, other Special Instructors, e.g. for the deaf or the blind.
STAGE IV.
After-care and final Disposal.
Social Service, Out-patient attendances and Domiciliary Consultations continue as After-Care services.
Occupation (Rehabilitation) Centre for neurotic and psychotic cases.
Collaboration with the Ministry of Labour, After Care Association Nat. Council for Mental Health.
Child Guidance Centre or Clinic.
Return to Home and Work.
Ordinary School.
Special School.
Hostel or Residential School.

(b) To remove the difficulties of bringing under suitable care and training children who are first seen between the ages of 14 to 16.

(c) To enable any subnormal child to receive without strict formality or legal certification such special education as may be necessary (now likely to be provided under the Education Act).

(d) To provide for the whole group of the subnormal rather than for the restricted portion who are certifiably defective.

(e) To provide that a certified institution may, when advisable, admit patients on a "voluntary" basis on the application of a relative and one medical recommendation as in Section 1 of the Mental Treatment Act, 1930, and also in conformity with Section 5 of this Act on a temporary basis.

37. The medical adviser to the mental health authority, if not sufficiently experienced in mental subnormality, should be advised by a recognized specialist in this field.

38. The entire service of the subnormal should be transferred from the public assistance authorities to the mental-health authority.

39. For the retarded group an increased number of special schools, both residential and day, is required. More occupation centres should be established.

40. Mental deficiency institutions should be on the "colony" plan. Each should accommodate a cross-section of the mentally defective population and none should be reserved for low-grade defectives.

41. The community care of the retarded class and licence from institutions should be widely extended. All large institutions should have several branches, both for use as hostels and for training.

42. In each area there should be provision for a period of observation by temporary residence in a special unit, or in an existing institution, before actual certification in the case of a high-grade defective. Admission to such units should be on a "voluntary" basis in the case of minors or on the order of a magistrate or other official approved for the purpose by the department of mental health, and should be for a period not exceeding six months. Special experience and qualifications should be possessed by at least one of the practitioners who certifies the fact of mental deficiency in any case.

43. All doctors employed in mental deficiency colonies or institutions should have opportunities for extra-mural duties in order to provide the essential specialist advice in schools, clinics, and hospitals, and to maintain and promote their own general efficiency by a wider range of medical practice.

44. The ascertainment of mental deficiency should be entrusted to psychiatrists with appropriate experience.

45. It is desirable that a psychiatrist should be appointed to every education authority, and in all cases there should be close co-operation between general practitioners, medical officers, and psychiatrists working in the field of mental deficiency so that consultations may take place, whenever necessary, in regard to educability of particular children and the ascertainment of defect.

Child Psychiatry

46. Since prevention is the most important part of the work of the future health service a child psychiatry service must be an integral part of any adequate mental health services. Child guidance clinics with associated in-patient facilities are required in every area, and should be under the management of the mental health committee working in close co-operation with the education authorities.

47. As an important prophylactic measure there should be systematic psychological examination of every school child. These examinations should be primarily the function of the educational psychologist, but all cases showing emotional instability or serious intellectual subnormality should be referred for full psychiatric examination.

48. Residential school treatment under psychiatric direction should be made

available for maladjusted children, preferably by "voluntary" admission.

Delinquency

49. Psychiatric advice should be made more widely available to the courts so that greater use of it could be made by them. There should be collaboration with the legal authorities at all stages in the ascertainment, treatment, and rehabilitation of offenders.

50. A mental health service should cover at least the psychiatric requirements envisaged in the Criminal Justice Bill of 1939, and the powers of the central health authority should include at least the provision of psychiatric advice to approved schools, Borstal institutions, remand homes, and the special hospitals proposed in the Criminal Justice Bill.

51. In-patient facilities, of the "colony" and hostel types, are urgently needed for delinquents, and out-patient facilities require expansion in all parts of the country.

GENERAL MEDICAL COUNCIL

DISCIPLINARY INQUIRIES

Improper Conduct with Patients

The Council on May 31 and June 1 and 2 considered the case of Arthur Henry Hennessy, registered as of Limpsfield Road, Sanderstead, who was summoned on the charge that being a registered medical practitioner, and standing in professional relationship to a certain lady who was described as Miss A. B., he on Sept. 26 last attempted to commit adultery with her, indecently assaulted her, and assaulted, or was party to an assault upon, her. The complainant was Miss A. B., who was represented by Mr. H. Heathcote-Williams. Mr. Oswald Hempson appeared for the respondent on behalf of the Medical Defence Union. Mr. Heathcote-Williams, having regard to the nature of the evidence in this case, asked that it be heard *in camera*, and Mr. Hempson raising no objection, strangers were required to withdraw.

After a hearing which extended in all over eleven hours, the decision of the Council was announced in public by the President as follows:

> Mr. Hennessy, I have to announce that the Council have found that the facts alleged against you have been proved to their satisfaction. In respect of the facts so proved, the Council have judged you to have been guilty of infamous conduct in a professional respect, and have instructed the Registrar to erase from the *Register* the name of Arthur Henry Hennessy.

The Council considered the case of Alfred Herbert Bartley, registered as of Woodbourne Avenue, Streatham, S.W., who appeared on the charge that, standing in professional relationship to a married woman, her husband, and her cousin, he between February, 1944, and March, 1945, behaved improperly to her, that between the same dates he frequently committed adultery with her, and that having undertaken to the husband to cease seeing or having any contact with her, he continued secretly and in breach of such undertaking to meet and improperly to associate with her.

Dr. Bartley appeared and was represented by Mr. Geoffrey Howard, counsel, instructed by W. R. Bennett and Co. The complainant, the husband, was represented by Mr. H. Heathcote-Williams, instructed by Waterhouse and Co. For the purpose of the proceedings the complainant was referred to as Mr. A. B.

Mr. Heathcote-Williams, in outlining the case, said that on Feb. 7, 1944, Mrs. A. B. telephoned a doctor concerning a cousin of hers who was ill, and to her surprise the telephone was answered, not by the expected doctor on whose insurance list her cousin had placed herself, but by Dr. Bartley, who said that the practice was his. It was arranged that Mrs. A. B. should see him on the following day, and it appeared that he was immediately attracted by her. During the next fortnight he telephoned about six times, asking her to call at the surgery, but when she did so he made only slight remarks about the case of her cousin and talked about general matters. On Feb. 21, when she again visited the surgery, he, after some short conversation, kissed her, made love to her, and committed adultery with her. Thereafter an association developed, entailing secret meetings, and adultery at hotels, at Dr. Bartley's house, and at various other places, including Battersea Park and Wimbledon Common in the doctor's car at night. Love letters from the doctor were also read, one of them containing the sentence, "I shall be alone from the 16th to the 19th." In August the husband became suspicious, and his wife admitted that there was another man, and later that the man was Dr. Bartley. He interviewed Dr. Bartley, who admitted being in love with his wife, and agreed to terminate the association, but in spite of this and later undertakings, he continued to commit adultery. In November, 1944, Mrs. A. B. started a course of treatment with Dr. Bartley for loss of weight, and on each occasion on which she had the treatment—an electrical treatment—adultery, it was alleged, took place.

Mr. Howard, on behalf of the doctor, said that it would shorten the case and cut out the necessity for much unpleasant evidence if he at once admitted the adultery; but he contested the professional relationship.

The President: If the adultery is admitted —we are not a court of morals—the question before the Council is solely the professional relationship.

Mrs. A. B. then went into the box and confirmed the story which had been related by counsel. She said that the first occasion when she herself was treated by Dr. Bartley was in July, 1944, when she had a rash; he gave her three bottles of an arsenic mixture, and also a cream which he made up. She admitted that she had been in love with him, but her feelings had entirely changed since she found him to be a man without any scruples. She could no longer care for a man whom she could not respect.

Dr. Bartley, in evidence, said that acts of adultery took place, beginning in February, 1944, and continuing until February, 1945, when the relationship ceased. At the time when this association began he did not stand in any professional relationship with Mrs. A. B., nor were any of these acts brought about by any abuse on his part of his professional position. About nine months after the intimacy began Mrs. A. B. asked for his professional help on account of underweight, and he prescribed certain treatment for her. There were six of these professional visits, which ceased within a month. He produced his attendance cards relating to this treatment. In cross-examination, he agreed that the lady was his patient—"If I treat a friend, I suppose, I being a doctor, she becomes my patient." Pressed on the point that he had not honoured the undertaking he had given to the husband, he said that he was thoroughly ashamed of the episode, but in his view it had no bearing on the question of professional conduct.

Are you suggesting that Mr. A. B. threw you together in order that you should continue the adulterous association?—That is a matter of opinion.

Is it your opinion?—It is my opinion.

This reply led cross-examining counsel to read a letter which Dr. Bartley had written to Mr. A. B. on April 14 last in which he referred to his (Mr. A. B.'s) generosity in the past, and his regret that what was a last-chance meeting with the lady should have been regarded by the husband as a breach of the undertaking.

After further evidence and speeches by counsel, the Council deliberated *in camera* and later the President announced that th Council had found the facts to have bee proved, and in relation to those facts ha judged Dr. Bartley to have been guilty o infamous conduct in a professional respec and had instructed the Registrar to erase h name from the *Register*.

Convictions

The Council considered the case of Za Risk, registered as of Sheldon, Birmingha who, at Birmingham assizes in Decemb 1944, had been convicted, in the case of women, of having caused to be take poison or other noxious thing, with in to procure miscarriage; also of supplyin poison or noxious thing knowing that it intended to be unlawfully used with int to procure miscarriage in the case of anoth woman, and of unlawfully inciting anoth person to supply a poison or noxious thi to this same woman knowing that it w intended to be unlawfully used with inte to procure miscarriage. On each of th counts he had been sentenced to be imprisoned for two years, the sentences to run concurrently.

The respondent went into the witness-box and denied that he had at any time administered this poison with intent to procure abortion. The Legal Assessor reminded him and other respondents who came up in consequence of convictions that the Counci was not a court of appeal, and that it mus accept the conviction, while prepared to listen to anything which might be said in extenuation on the respondents' behalf. Asked why he had accepted sums of £20, £8, and £5 in these cases, he said that the were more than ordinary consultations.

It was mentioned that the respondent h done excellent work in Birmingham in formation of a detachment of the Red Cro

The Council, after private deliberatio found the conviction proved, and instructe the Registrar to erase the name.

The next case was that of Mohammed Farid, registered as of Acock's Green, Birmingham, who appeared on the charge that at Birmingham Assizes in December last he had been convicted of unlawfully killing one of the women mentioned in the case of Dr. Risk reported above. He had been sentenced to four years' penal servitude, which sentence was affirmed on appeal.

Dr. Farid said that he did not intend to take up the time of the Council in contesting the conviction, but he felt that he had not had a fair trial.

The Council in this case also instructed the Registrar to erase the name.

The next case was that of John Nei Leitch, registered as of Crescent Wood Road, Sydenham Hill, London, who was summoned on the charge that at the Central Criminal Court in January, 1945, he was convicted of certain misdemeanours—namely, with intent to defraud, of attempting to obtain a sum of £99 from the War Damage Commission by false pretences, and of obtaining £50 from the Commission by false pretences, also of obtaining credit to the extent of £33 from one person and £63 from another without disclosing the fact that he was an undischarged bankrupt.

The Council instructed the Registrar to erase the name.

The case was also considered of Annie McCrorie, registered as of Queen's Drive, Crosshill, Glasgow, against whom there were wo convictions of driving and being in charge of a motor-car while under the influence of drink to such an extent as to be incapable of having proper control of the car. One of the convictions, both of which were at the Sheriff Court of Lanarkshire, dated from July, 1941, and the other from ecember, 1944. It was stated on behalf of Dr. McCrorie that she was almost a totaller, and that a small amount of cohol upset her unduly.

The President said that the Council found e convictions proved, but would not pro- ed to judgment upon them. No doubt at had happened would be a sufficient rning.

Adjourned Case

The Council further considered the case James Kirkness, registered as of Warren- Park Crescent, Edinburgh, against whom Council in May, 1944, had found cer- facts proved—namely, that on an sion in November or December, 1942, had been so far under the influence of k as to be incapable of properly carry- out his professional duties towards ients who were waiting to consult him his surgery.

Dr. Kirkness now appeared and produced timonials as to his conduct in the inter- l. The Council did not see fit to proceed erasure.

Fraudulent Entry

The President announced that the Council had found that an entry in the *Medical Register* on Oct. 4, 1943, in respect of Mrs. Doreen Warren, M.D.Berlin, had been proved to its satisfaction to have been fraudulently made. In pursuance of the Act of 1858 the Council had directed the Registrar by order in writing to erase from the *Medical Register* the entry in question.

The Council's session lasted for five days, during a large proportion of which time it sat in private. Several cases were postponed.

EARD AT HEADQUARTERS

International Relations

The B.M.A. has made many friends during the war with members of the medical profession from other countries who have served with the Allied Forces, or have worked here with their Governments in exile during the German occupation of their countries, or have helped to relieve the heavy burden on British doctors in civilian practice. It would be a pity not to continue into peacetime the friendly relations that have been formed under the stress of war. A report of an informal conference on the subject appeared in the *Journal* of Dec. 2, 1944.

On June 6 a further conference, under ne chairmanship of Dr. J. C. Matthews, Chairman of the Association's International Relations Committee, was held to discuss the practical problems involved in the establishment of organized international medical relationships, if such were considered desirable, in the field of what are known in this country as medical politics. There were present doctors from Belgium, the Netherlands, Poland, U.S.A., and Yugoslavia, who have been in Great Britain during the war; Dr. Decourt, Secretary of the Association Professionnelle Internationale des Médecins (A.P.I.M.), and Dr. Cibrie, Secretary of the Confédération des Syndicats Médicaux, who came from Paris specially for the conference; and a representative of the International Labour Office; as well as members of the Association's International Relations Committee.

The French representatives were apprehensive lest the proposals to be made should destroy the A.P.I.M., which had been in existence since 1925 and which they insisted was still alive and had been suspended only during the war. Other speakers thought that an international organization which did not include the U.S.A. or Russia could not be truly international. The Netherlands representative hoped that, as the national organizations in the liberated countries re-established themselves, they would be afforded an opportunity of learning what the other national organizations were thinking and doing. He thought that the only country which was in a position to undertake the collection and dissemination of information was Great Britain, and all countries would certainly want to know of the B.M.A.'s experiences during the war and its activities in connexion with the National Health Service.

After an interesting discussion the conference passed a resolution to the effect that, although it could not speak officially for national medical organizations, it believed that an international organization of national medical organizations was desirable. It was decided that a conference of national medical organizations should be held in London during the early months of 1946. The B.M.A. will co-operate with the A.P.I.M. in the preparation of the agenda. It is hoped that by that time the national medical organizations in Europe will be able to take part.

The Medical Students at Belsen

Everywhere praise is being given to the hundred or so British medical students who at the end of April went from London to work in the Belsen horror camp. The results of their energy and drive were manifest at once in the fall of the death rate in one week to half of what it had been the week before, and in the following week to half of that again. Twice within a few days, once at an inter-allied medical conference at the Royal Society of Medicine, and again at a meeting held under the auspices of U.N.R.R.A., high commendation was given for the cheerfulness and initiative and enthusiasm of these students in the presence of tragedy and horror and filth and stench. Dr. A. P. Meiklejohn, to whom was assigned the task of supervising the work of the students, declared that in a similar desperate situation he would care for nothing better than to have the help of medical students, and that he was convinced that no other body of men could possibly have carried out this difficult job.

Overworked G.M.C.

It looks as if there will have to be four sessions of the General Medical Council in a year. For many years there were two sessions, one in May and one in November, each lasting for about a week. In the last year or two so many cases had to be left over from the November sessions that it was necessary to hold a special one in February, and this year, at the May session just concluded, several cases had to be postponed, and it seems likely that yet another extra session will have to be held.

Has the G.M.C. ever considered the practice followed by assizes and quarter sessions in the presence of a heavy calendar of splitting into two courts sitting simultaneously? It is true that this would necessitate the appointment of a deputy president and of a deputy legal assessor, but the economy in money, not to speak of time, would more than justify the course. Is there any legal tribunal in which as many as forty members, all of them occupying important positions, are called upon to listen day after day to petty evidence concerning alleged misdoings of particular persons? Surely a much smaller tribunal could deal with the situation with equal justice to all the parties. After all, it requires no more than twelve people to try a man on a capital charge, and no more than seven to try cases of the type which ordinarily occupy the G.M.C.

Homoeopathy and the Association

The Organization Committee of the B.M.A. is recommending the Council that no case has been made out for a separate Group of Homoeopathy in the Association. This is the answer to a petition signed by 87 members of the Association who are engaged in the study and practice of homoeopathy. The committee was led to its decision by a memorandum by the Secretary, of the B.M.A., which, it is to be hoped, will be communicated to the Faculty of Homoeopathy as well as to the members interested, in order to show on what grounds the recommendation has been based.

The whole matter is innocent of any prejudice against homoeopathy as such. Indeed, the proposed refusal is not on the ground that homoeopathists are in any sense separate from the rest of the profession, but, on the contrary, that they are so much a part of it that they cannot be said to have distinctive professional interests. One of the arguments of the petitioners was that in any one Division of the Association the number of homoeopathists would be so small that they could not adequately present their problems, but in answer to this it is pointed out in the memorandum that the Divisional work of the Association is mainly professional and medico-political, not scientific in character, and that it is only in the scientific field that homoeopathy begins to diverge from the rest of the profession.

With great care and courtesy the memorandum advances the view that homoeopathy cannot properly be called a specialty in the usual meaning of the term, as it is applied, for example, to practitioners of physical medicine or of psychological medicine, who already have their Groups. Homoeopathy is not so much a specialty as a general system of medicine running parallel to the system adopted by the majority. There is no criticism of homoeopathy; it is simply a question of the logic of the situation.

Cost of Treatment of School-children

It is estimated by the L.C.C. that the cost of the medical treatment of school-children in its county hospitals will be at least £600,000 a year. This is apart from the cost of cases of infectious disease, for which free hospital treatment has always been available. From April 1 last, by the provisions of the new Education Act, the pupils attending schools assisted by the council at which no tuition fees are charged, or pupils in respect of whom the council pays the whole or part of the fee, are receiving free medical and dental treatment at the school treatment centres and at the council hospitals. It is stated that the general position of the treatment of children at the London voluntary hospitals is under consideration, and negotiations are proceeding.

Correspondence

Organization of Psychiatric Services

SIR,—We learn from the *Supplement* of May 19 (p. 93) that a report on the future organization of the psychiatric services has been prepared which does not take into consideration the views of Service psychiatrists. Such a report can scarcely remain unchallenged. Is the country not to benefit by the new views of Service psychiatrists who, if asked, would willingly discuss various aspects of their work in the Forces which they consider could be applied to civil life to the advantage of the community?

Several branches of medicine and surgery have benefited and will benefit in civil life as a result of the experiences and findings of its Service personnel. Is this not to apply in the case of our own specialty? Psychiatry was in its infancy before the war. It is now on a firmer and broader footing, especially in the Forces, and I very much doubt whether all psychiatrists who have been carrying on in civil practice for the past five years realize the greatly increased range of activities of their colleagues in the Services.

Obviously, the majority of us in the Forces are the younger psychiatrists, and it is we who will be taking an active part in the future civil organization. We undoubtedly have many new views, and it is only right that an opportunity should be given to us to express them. What steps have been taken so far by the committees who approved of this report to ascertain the views of Service psychiatrists? If we have been represented on the committees or any of them, has that representation been adequate? From Dr. Gordon's remarks it would seem that the answers to these questions will not be satisfactory.

Those of us in the United Kingdom are in a position to speak for our colleagues over-seas who have even less chance of knowing what is happening in the homeland, and we fail in our duty to them if we allow new views of a younger generation of medical men to be ignored. As a first step I suggest that a copy of this report be sent to every Service psychiatrist whether at home or over-seas, and with it a questionary; that no plans should be put forward until there has been time for the new views to be submitted; and that there should be immediate and reasonably proportionate representation of the Service psychiatrists on the committees concerned. Only thus can the population be assured that it is to benefit to the fullest by all the experience and knowledge of civilian and Service psychiatrists during the war.—I am, etc.,

Sutton, Surrey. J. ALAN HERD, Major, R.A.M.C.

Medical Demobilization

SIR,—In the last few issues of the *Journal* there have been many controversial letters about the Army Services and the E.M.S. I well realize that most R.A.M.C. officers are very eager to get out of the Army and return to civil life, for no one has greater desire to do that than I. The disappointment is that the medical authorities allow this differentiation between one Service and another. The work done in the Army does not differ ideologically from that in the E.M.S. in a medical sense. Of a certainty there are advantages and disadvantages in both, but that one essential service to the country should have any advantage over another is beyond comprehension and is not just. Without an E.M.S. it would have been necessary to put many hundreds more doctors into the Army; instead these M.O.s served in the E.M.S. doing no more or no less than the doctor serving in a military hospital, but at a lower remuneration. During my own service in the E.M.S.—two years and one month —I looked after none but Service cases. This controversy would not have arisen if the authorities had mobilized medical man-power on an equal standard and not forced doctors already called to the Army into the E.M.S. in 1940.

The hardest part of Army life is being over-seas, not seeing wife or children for years. Medical knowledge and experience can be made up later, but every day that passes without one's family has gone for ever. Service in the Army and the E.M.S. must count equal for release; but the main duty of the authorities is to see that oversea service is cut to an absolute minimum. Men in the British Army, medical and otherwise, have had to serve over-seas much too long; it is now time this was rectified and the wives and children were considered.—I am, etc.,

C.M.F. B. O. PORCHETTA.

SIR,—In view of the increasing number of applications being received for the release of medical practitioners from the Services by the various Local Medical War Committees, my committee think that a definite number of doctors should be requested from the Services by the Central Medical War Committee, and that in the same way as local committees were asked for a quota of their practitioners for Service requirements, so a quota might now be given to those committees to enable them to get back to their areas the doctors who in their opinion should be the first to return. The local committees would bear in mind the various reasons for such return—as, for example, the inability of older practitioners to carry on for another winter without more assistance, or the grounds of hardship on the part of doctors who have been in the Services for a considerable time. Also, the claims of older men in civilian practice should be taken into consideration so that not only military and civilian needs should be considered but also the actual needs of the doctors themselves, with particular reference to the older men. While there was a double war on, many of these older doctors were prepared to do far more than a day's work, but now that the war in Europe is over it does not seem fair to press them to do so much in the future. Moreover, the civilian population might now be given a better deal as regards their medical needs. The Local Medical War Committees would be in a better position than anyone else to judge of the needs of their particular districts.—I am, etc.,

Harrow Local Medical War Committee. N. P. JEWELL, Hon. Secretary.

*** We are informed that when re-allocation begins on June 18 the Central Medical War Committee will consider applications for release in Class B on the ground of urgent civil need, but in the view of the committee such releases must be kept at a bare minimum so as not to impede the release of practitioners in Class A on the age and length of service formula. Such releases, which will shortly start, will themselves begin to ease the burden of civilian doctors. Release on compassionate grounds cannot be considered by the committee, but will continue to be granted in suitable cases on the application of the individual officer through Service channels.—ED., *B.M.J.*

Medical Demobilization and Resettlement

SIR,—Security is the catchword of the moment. The *Supplement* has been filled with letters of varying degrees of acrimony, a leading article in the *Lancet* has advocated interchange between doctors in civil life and those now in the fighting Services, and eloquent pleas are made that there shall be no division in our ranks over the merits or demerits of our professional lives since 1939.

Insecurity, however, looms large in the outlook of the serving doctor; most have lost clinical experience to a greater degree than ourselves, but many have also lost their practices. These latter are anxious to know what prospect awaits them on their return to civil life. Do they polish their plates and face (with two months' pay and a pitiful gratuity) the uphill rebuilding of a living where once they had a flourishing practice? Do they feel that immediate re-establishment and a reasonable outlook await them? Is a State medical service to follow immediately on demobilization or is it not?

At a recent meeting of the Division in which we are stationed we were heartened by the unanimous approval given by our civilian colleagues to a resolution deploring the lack of any scheme of rehabilitation sponsored by the B.M.A. Since that time a scheme of clinical rehabilitation has been published; it falls woefully short of any suggestion as to how men who once had established practices are to live during their rebuilding years, or how they are to save something from the "wreck."

The Central Medical War Committee's recent circular to serving medical officers puts all the questions which we have been asking for a year or more; unfortunately it supplies few of the answers. What is more, this letter throws grave doubt upon the assurance given in the *Supplement* of March 17, 1945, that the group releases of doctors would receive neither more nor less than just treatment in accordance with the provisions of the Government's White Paper. Service doctors do not wish prior treatment in the matter of demobilization, but their resentment will be intense if their personal group release passes them by.

The C.M.W.C. obviously does not know the remedies, or it would not ask for suggestions. Let the B.M.A. give a lead to our colleagues in civil life telling them how essential it is for them, in their Divisional areas and by every means in their power, to assist the returning men to regain their practices. Let the B.M.A. indicate that anyone who has contravened the spirit or the letter of the Protection of Practices Scheme is unwelcome as a member of the B.M.A., or would the defection be too great for even the B.M.A. to stand? Above all, let the C.M.W.C. press on the Government the recruitment of sufficient medical men, even up to the age of 50 or more, to ensure release in our groups. Let us have assurance on all these points, so that we may have some idea of how to manage our civil commitments.

These problems are now more urgent to us than that of a State medical service; secure us in these and whether we wore uniform or not will soon be forgotten.—We are, etc.,

The Entire Medical Staff of an R.A.F. Hospital.

*** The Secretary of the C.M.W.C. writes:

(1) The Central Medical War Committee has endeavoured in its circular not only to state the questions which are known to be in the minds of Service doctors but to state the answers. It invites suggestions in order that no opportunity for helping Service doctors shall be missed. *The committee is doing and will do all in its power to secure the release of doctors upon the age and length of service formula.* It is being supplied by the Service Departments with the names of those who fall to be released in their order, and it will proceed with any necessary recruitment for replacement to the extent to which it is necessary. Class B releases on the ground of civilian need will be kept at a bare minimum. Release, group by group, at the highest possible rate is its objective.

(2) There will soon be issued a memorandum of advice to Divisions of the B.M.A. on the help civilian doctors should afford to returning practitioners in the re-establishment of their practices. Issues raised by the Protection of Practices Schemes will be frankly dealt with.

(3) Recruitment of doctors will continue until further notice up to an age yet to be decided by the Government.

(4) I can assure these R.A.F. medical officers that the men in uniform are not being forgotten.

* * *

Medicine in India

SIR,—Dr. M. N. Pai, writing in the *Supplement* of June 2 (p. 100) on the medical and sanitary situation in India, although justly impatient at the slow rate of progress, makes so many sweeping statements of an erroneous kind that it is in the public interest to point them out.

He speaks disparagingly of the standard of teaching, of "professors who have no higher qualification than the medical degree of an Indian University, and do not even possess the D.T.M.," and doubts whether there are a thousand microscopes in the whole of India. The truth is that the university standards of medical education (as apart from those of certain licensing bodies) are as high as anywhere else, the teaching hospitals are staffed almost everywhere by Indians and Englishmen possessing either higher qualifications or exceptional experience (for which latter, compared to diplomas, your correspondent apparently finds no use), and that in view of the extreme popularity of biology courses at the universities and the advanced course in bacteriology *normally* included in the Indian curriculum, he will find a thousand microscopes at many Indian universities. I suggest, for example, that he visits the Punjab University at Lahore, where he will find such extensive and nobly built laboratories, so much scientific equipment, and so many microscopes as to rival any institution abroad. There are, besides, well-known research institutes at Bombay and Calcutta and other university towns, and the number of medical schools in India is assuredly not so small as "hardly worth mentioning."

The absence of a D.T.M. and D.P.H. is not such a serious matter for Indian practitioners because the ordinary bacteriology course is so arranged as to include all that is needed. When Dr. Pai implies that scientific medicine is only being practised by "a small band of missionary doctors" he is less than fair to the large body of university-trained private practitioners in all the Indian towns who have extensive practices, and many of whom are men of great experience, skill, and humanity without being "missionaries." They practise unobtrusively, and invariably their clientele is irrespective of any religious bias. Such evils as advertising are bound to crop up on occasions in any country, and the only remedy is some legally constituted Indian body, such as the General Medical Council here. Proposals for such a body have already in recent years been discussed by the Indian Government.

I come to the main grievance of Dr. Pai—namely, the "indigenous system of medicine": i.e., Ayurvedic and Unani. He is wrong in writing the latter as synonymous with Arabic as it really stands for Greek, from *Ionian*, and the Sanskrit for Greek, *yavana*. It is true that these systems are in the modern world quite out of date and inadequate, but in a country like India where there is much poverty, and where there are vast rural areas without doctors, one must be a little circumspect before dubbing all practitioners of such systems as "charlatans," "quacks," and "magicians." Let us reflect for a moment on the historical fact that modern medicine in Europe is based on Arab medicine as introduced in Southern Europe, and that Arab medicine was itself based on Greek and Indian medicine as studied and synthesized at Baghdad. The therapeutics of the "indigenous systems," as investigated by many able doctors, are still perfectly sound within their limited scope, and for many everyday and minor ailments of poor people afford great relief and even excellent cures. Provided ultimately the aim is to modernize these systems and to bring all medical education to the same high level, there is no harm in making a register of the genuine old-style physicians so as to control their activities in the interim period, and, indeed, during the inevitable phase of short medical personnel, to use them as auxiliaries. Another virtue of such registration is that the real "charlatans," etc., can be excluded.

Many of these earlier physicians were, according to the standards of their times, skilful clinicians and honourable men, and always gave a high place in their studies to diagnosis. Nowadays, faced with any difficult case, they gladly refer them to the nearest doctor or hospital. In cases where it was a family profession their children to-day, as a matter of course, go to the university medical schools.—I am, etc.,

RASHEED AHMAD, M.R.C.S., L.R.C.P.

Dagenham, Essex.

Time for a Change

SIR,—To surgeons serving in Italy, Mr. T. B. Layton's letter (*Supplement*, March 24, p. 44) was encouraging as a reminder that a few at least of our civilian colleagues appreciate the conditions under which we have worked, and his remarks about an exchange system sounded admirable to our ears, especially those of us who have been separated from wives and families for upwards of 3 years. It seemed to us only fair that, having done our share of oversea service, we should be replaced by colleagues from the E.M.S.

Dr. Clifford Parsons's letter (*Supplement*, April 21, p. 63) in answer to that of Mr. Layton's, contains the usual misconceptions about the Services held by those who have been in many ways more fortunate than us over-seas. I feel sure he writes with his tongue in his cheek when he states his post cannot be relinquished until a successor has been trained. For how long has this startling procedure been the custom in England? Does a house-surgeon, an R.S.O., a registrar, an honorary surgeon, or the occupant of a professional chair now retain his job for 3 months longer while he trains a successor? If this is so our rehabilitation to civilian medicine will most certainly be delightful if we are to be groomed for our jobs. Three months is a long time, and I think Dr. Parsons would find if he did decide to join the R.A.M.C. that he would be "pulling his full weight" to the R.A.M.C.'s satisfaction, if not to his own, in a very much shorter period. After all, the initial training course for R.A.M.C. officers is 2 to 3 weeks, and after that the R.A.M.C. officer may find himself on board ship bound for Burma or Italy in a shorter period than 3 months. Many M.O.s found themselves in France in '39 a fortnight after joining the Army. In North Africa I worked with men who found themselves on an invasion force 1 to 2 months after joining the Army.

Mr. Layton's letter cheered us up immensely, but seeing a letter like that of Dr. Parsons soon after we have been informed here that only 6% of the C.M.F. Forces are likely to be demobilized by the end of this year (*re* release groups 1–17) has done nothing to dispel our increasing gloom at the prospect of another 1 to 1½ years abroad.—I am, etc.,

C.M.F. "F.S.U. SURGEON."

An Absent Doctor Asks

SIR,—I have read with interest the correspondence in the *Supplement* dealing with demobilization problems of doctors. I venture, however, to raise two points which I have not seen referred to; and would like to know whether the B.M.A. or the Central Medical War Committee has any views or policy regarding them.

First, is there any protection for an absentee doctor against squatting in his area by another doctor? This is particularly important for those doctors who are likely to be released late and who ran single-handed practices. As you are no doubt aware, most tradesmen are protected from this type of competition.

Secondly, I note that the Central Medical War Committee is negotiating with the Government as to ways and means by which young doctors released from the Services may be enabled to purchase practices without involving themselves in unduly heavy commitments. I entirely agree with such action, but is any assistance contemplated for those doctors who purchased their practices before the war, who have been unable to reduce their commitments—in some cases have found these increased—whilst on Service, and who now contemplate the return to an almost non-existent practice to which they are tied financially, and payment for which must be completed before any change can take place?—I am, etc.,

SERVING MEDICAL OFFICER.

H.M. Forces Appointments

ARMY

War Subs. Major J. C. Hawksley, R.A.M.C., to be a Consultant, and has been granted the local rank of Brig.

ROYAL ARMY MEDICAL CORPS

Short Service Commission.—War Subs. Major L. E. C. Davies, M.B.E., to be a Consultant, and has been granted the local rank of Brig.

Lieut.-Col. W. D. Newland, M.C., having attained the age for retirement, is retained on the active list supernumerary.

Major (War Subs. Lieut.-Col.) J. W. Eames to be Lieut.-Col.

Capt. J. P. Weir to be Major.

Short Service Commission.—P. A. T. Wood to be Lieut.

REGULAR ARMY RESERVE OF OFFICERS

ROYAL ARMY MEDICAL CORPS

Major F. C. Atkinson-Fleming, M.C., having attained the age limit of liability to recall, has ceased to belong to the Reserve of Officers.

TERRITORIAL ARMY

Col. D. Dougal, M.C., T.D., late R.A.M.C., having attained the age limit, has retired, retaining the rank of Col.

ROYAL ARMY MEDICAL CORPS

Lieut.-Col. J. B. Scott, M.C., T.D., having attained the age limit, has retired, retaining the rank of Lieut.-Col.

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs. Capt. J. W. E. Ord has relinquished his commission on account of disability, and has been granted the honorary rank of Major.

War Subs. Capts. A. Anderson and G. H. Pickering have relinquished their commissions on account of disability and have been granted the honorary rank of Capt.

J. Tillman to be Lieut.

WOMEN'S FORCES

EMPLOYED WITH THE R.A.M.C.

War Subs. Capt. (Mrs.) E. J. McBryde has relinquished her commission.

War Subs. Capt. (Miss) E. J. B. Orr has resigned her commission.

ROYAL AIR FORCE

Flying Officer S. C. Farman to be War Subs. Fl. Lieut.

ROYAL AIR FORCE VOLUNTEER RESERVE

Flying Officers H. B. Brown, M. S. Burke, R. H. C. Conynham, D. J. Gracie, J. J. O'Callaghan, D. E. Coyle, M. M. Garrey, and M. Sheridan to be War Subs. Fl. Lieuts.

To be Flying Officers (Emergency): R. W. Barter, B. N. Cook, B. V. Earle, W. A. Eggeling, G. W. Garland, F. G. Grant, R. K. Hay, D. T. Kay, M. S. Miller, W. A. Robson, and A. B. Sclare.

WOMEN'S FORCES

EMPLOYED WITH THE MEDICAL BRANCH OF THE R.A.F.

Fl. Lieut. R. Walford has resigned her commission.

INDIAN MEDICAL SERVICE

Major W. T. Taylor to be Lieut.-Col.

ARMY IN BURMA RESERVE OF OFFICERS

EMERGENCY COMMISSION

D. J. Lapping to be Lieut.

A circular from the Ministry of Health states that in the administration of National Health Insurance benefits certain insured persons are referred to divisional medical officers of the Ministry for independent medical examination; and it has become apparent that in some instances, as a result of this examination, it is advisable for the divisional medical officer, where a tuberculous condition is diagnosed or suspected, to refer the case, for specialist investigation and report, to the tuberculosis officer of the area in which the person concerned is entitled to the facilities of the tuberculosis service. It is not expected that such cases will be numerous in any one area, and it will be left to the tuberculosis officer to arrange the time and place of examination. The divisional medical officer will communicate the findings of the tuberculosis officer to the insurance practitioner concerned in the case.

BRITISH MEDICAL ASSOCIATION

ANNUAL GENERAL MEETING

Notice is hereby given that the Annual General Meeting of the British Medical Association will be held in the Great Hall, British Medical Association House, Tavistock Square, London, W.C.1, on Wednesday, July 25, 1945, at 12.30 p.m. Business: (1) Minutes of the last meeting; (2) appointment of auditors; (3) report of election of President for 1945–6.

CHARLES HILL,
Secretary.

Branch and Division Meetings to be Held

EAST SOMERSET DIVISION.—At Weston-super-Mare Hospital, Sunday, June 24, 3 p.m. General meeting open to all practitioners. Dr. A. C. Hincks: Report of Special Representative Meeting; election of representative and deputy representative in Representative Body; instruction of representatives.

EAST SUFFOLK DIVISION.—At East Suffolk and Ipswich Hospital, Wednesday, June 20, at 8.15 p.m. Agenda: Report of Representative on Representative Meeting; Lecture on "Female Endocrinology" by Mr. F. R. Stansfield.

ISLE OF WIGHT DIVISION.—At Osborne House, Shanklin, Friday, June 22, 3 p.m. Annual meeting. Agenda: Consideration of Annual Report of Council; etc. B.M.A. members, including Service medical officers, are requested to attend. 3.30 p.m., lecture by Surg. Rear-Admiral C. P. G. Wakeley: D-Day Surgery. All island medical practitioners are invited.

MID-CHESHIRE DIVISION.—At Altrincham General Hospital, Sunday, June 24, 3.30 p.m. Annual meeting. A meeting of the whole profession will also be held on that date to elect the Local Medical War Committee.

MONMOUTHSHIRE DIVISION.—At Royal Gwent Hospital, Saturday, June 16, 3.30 p.m. Annual meeting. Election of officers and discussion of Annual Report of Council.

SURREY BRANCH.—At Warlingham Park Hospital, Warlingham, Wednesday, July 4, 2.45 p.m. Annual general meeting. President's address: Eugenics and Post-War Reconstruction; followed by cinematograph performance.

WESTMINSTER AND HOLBORN DIVISION.—At Westminster City Hall, Charing Cross Road, W.C., Thursday, June 21, 8 p.m. General meeting. Agenda: Report of representatives to Special Representative Meeting; Consideration of Annual Report of Council 1944–5; Consideration of motions for Annual Representative Meeting and instruction of representatives, etc.

B.M.A. LIBRARY

The following books were added to the library during January and February, 1945:

Anderson, W. A. D.: Synopsis of Pathology. 1942.
Bates, W. H.: The Bates Method for Good Sight without Glasses. 1944.
Brend, W. A.: Foundations of Human Conflicts. 1944.
Brown, W.: Psychology and Psychotherapy. Fifth edition. 1944.
Cameron, A. T.: Recent Advances in Endocrinology. Fifth edition. 1945.
Colson, J. H. C.: The Rehabilitation of the Injured. 1944.
Craig, R. N., *et al.*: Mental Abnormality and Crime. 1944.
Currie, J. R., and Mearns, A. G.: Hygiene. Second edition. 1945.
Cyriax, J.: Deep Massage and Manipulation Illustrated. 1944.
Dodson, A. I.: Urological Surgery. 1944.
Flagg, P. J.: Art of Anaesthesia. Seventh edition. 1944.
Garland, J.: The Youngest of the Family. 1943.
Gelfand, M.: The Sick African. 1944.
Gray's Anatomy: Descriptive and Applied. Twenty-eighth edition. 1944.
Hale-White, W.: Materia Medica. Twenty-sixth edition. 1944.
Harrower-Erickson, M. R., and Steiner, M. E.: Large Scale Rorschach Techniques. 1945.
Hathaway, W.: Education and Health for the Partially Seeing Child. 1943.
Hurst, Sir Arthur: Medical Diseases of War. 1944.
Jamieson, E. B.: Companion to Manuals of Practical Anatomy. Sixth edition. 1945.
Jellinck, E. M.: Alcohol Addiction and Chronic Alcoholism. 1942.
Kuhn, H. S.: Industrial Ophthalmology. 1944.
Lewin, P.: Backache and Sciatic Neuritis. 1943.
Love, R. J. McN.: Minor Surgery. 1944.
McDowall, R. J. S.: Handbook of Physiology and Biochemistry. Thirty-eighth edition. 1944.
Mackintosh, J. M.: The War and Mental Health in England. 1944.
Marshall, J.: Venereal Diseases. 1944.
Moore, J. E.: Modern Treatment of Syphilis. Second edition (1941), 3rd printing. 1944.
Oberling, C.: Riddle of Cancer. 1944.
Piney, A., and Wyard, S.: Clinical Atlas of Blood Diseases. Sixth edition. 1945.
Rogers, Sir Leonard, and Megaw, Sir J. W. D.: Tropical Medicine. Fifth edition. 1944.
Rycroft, B. W.: A Manual of Ophthalmology. 194
Schrödinger, E.: What is Life? 1944.
Walker, K.: Meaning and Purpose. 1944
Williams, H., and Harbert, I.: Social Work Tuberculous. 1945.
Young, J.: Textbook of Gynaecology. edition. 1944.
Zoethout, W. D., and Tuttle, W. W.: Textbo Physiology. Eighth edition. 1945.

POSTGRADUATE NEWS

The Fellowship of Medicine announces: Primary F.R.C.S. course: lecture-demonstra in anatomy, physiology, pathology, and bacterio Mon., Wed., and Fri., from 6 p.m. to 8.15 Aug. 13 to Oct. 12. (2) Week-end course in nose, and throat diseases, at Metropolitan Nose, and Throat Hospital, all-day, Sat. and S June 30 and July 1. (3) Week-end course in obs rics and gynaecology, South London Hospital Women, Sat. and Sun., July 14 and 15; (4) We end course in medicine and surgery, Hampst General Hospital, all-day, Sat. and Sun., Ju 21 and 22.

WEEKLY POSTGRADUATE DIARY

EDINBURGH POSTGRADUATE LECTURES.—At Edinburgh Royal Infirmary, *Thurs.*, 4.30 p.m., Dr. C. Kelman Robertson: Post-operative Pulmonary Complications.

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W.—*West End Hospital for Nervous Diseases*. Mon., Tues., and Fri., 2.30 p.m., M.R.C.P. course in neurology.

DIARY OF SOCIETIES AND LECTURES

ROYAL SOCIETY OF MEDICINE.—*Wed.*, 2.15 p.m., Section of Comparative Medicine. *Sat.*, 2.30 p.m., Section of Orthopaedics.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.—At 26, Portland Place, W., *Thurs.*, 3 p.m., Annual general meeting; 4 p.m., reception and tea in library and Fellows' room.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—At Kensington Town Hall, *Tues.*, 8.30 p.m., Cavendish Lecture by Lord Moran: The Art of Command.

BIRTHS, MARRIAGES, & DEATHS

The charge for an insertion under this head is 10s. 6d. for 18 words or less. Extra words 3s. 6d. for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.

BIRTHS

RICHARDS.—On June 7, 1945, at Bristol, to Dr. Megan Richards (*née* Evans), wife of Capt. R. O. Richards, F.R.C.S., R.A.M.C., a daughter.

WATTS.—On June 3, 1945, at the Hill Nursing Home, Reading, to Joan (*née* Inwood), wife of Major J. C. Watts, R.A.M.C., a son.

FORTHCOMING MARRIAGE

MAJOR W. K. S. MOORE—MISS D. M. BROWN.—The engagement is announced between Majo. W. K. Stevenson Moore, R.A.M.C., S.E.A.C., son of Mr. and Mrs. W. L. Stevenson Moore, 7, South Meade, Timperley, Cheshire, and Dorothy Margaret, younger daughter of Mr. and Mrs. J. Hastings Brown, 25, Frederick Street, Edinburgh.

MARRIAGES

LANGE—GILES.—On June 1, 1945, at Lymington, Squad. Ldr. M. J. Lange, M.R.C.S., R.A.F.V.R., to Joyce Giles, of Fawley, Hampshire.

MACLEAN—HAUPT.—On May 31, 1945, at Christ Church, Friern Barnet, George Todd Maclean M.A., M.B.Glas., to Mrs. Edith Nina Haupt.

DEATH

MOIR.—On June 7, 1945, at Swadlincote, shire, John Hay Moir, D.S.O., M.C., M.D., D.P.H., husband of Elizabeth McDiermid, Edinburgh.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY JUNE 23 1945

British Medical Association

SUPPLEMENTARY ANNUAL REPORT OF COUNCIL, 1944–5

y member is asked to keep this Supplement, with the earlier one of May 12, until the subjects have been discussed by his Division

Negotiating Committee

[illegible]. The report of the proceedings of [illegible] Special Representative Meeting held [illegible] May, which, at the request of the [illegible]istry of Health, was not made public, [illegible] been sent to every member of the [illegible]fession. The Council has considered [illegible] resolutions referred to it by the meeting [illegible] has passed a number of them to the [illegible]gotiating Committee. The Negotiating Committee has met to receive observations from its constituent bodies and has had another meeting with the Minister. Further progress must now await the result of the General Election.

Relationship of Parent Association to the Medical Association of South Africa

64. During the past year there has been correspondence between the Council and the Federal Council in South Africa on the relationship of the Medical Association of South Africa with the parent Association. The Medical Association of South Africa is an Incorporated Group of Branches with the powers defined in Article 13 of the Articles of Association, and it has entered into an Agreement with the parent Association in conformity with Article 13 (7) and Bylaw 21. It will be remembered that a desire for separation was expressed before the war by members in South Africa, and that conversations on the subject were suspended after the outbreak of hostilities. The matter has now been reopened, and, as a result of representations received from South Africa, the Council cabled that if the majority of members in South Africa desired to abrogate the existing agreement preparatory to affiliation, the Council would unhesitatingly meet their wishes. The Federal Council consulted the members in South Africa by means of a referendum, asking all members: (1) whether or not they wished the Federal Council to take the necessary steps to achieve independent and self-governing status instead of remaining as a corporate group of branches of the B.M.A.; and (2) whether they were in favour of the Association in South Africa with an independent and self-governing status being affiliated to the parent body. The result of the voting in the referendum was 700 in favour and 201 against. The membership of the Medical Association of South Africa is 2,500.

The Council, in conformity with the promise made to the Federal Council that it would give effect to the wishes of the members in South Africa, has taken [illegible]e necessary steps to abrogate the existing [illegible]reement between the Medical Association [illegible] South Africa and the parent Association [illegible] to initiate discussions for a form of [illegible]ion.

Medical Representation in Parliament Fund

65. In 1919 the Association established a Medical Representation in Parliament Fund with as its main object the provision of financial assistance to prospective Parliamentary candidates who were likely to prove effective in presenting the profession's point of view in Parliament.

The Fund was not widely supported, though no one doubts the advisability of having in Parliament medical men and women who can present the point of view of the organized profession. A number of practitioners have come forward as candidates at the General Election, and in several cases an appeal has been made to the Association for contributions towards their election expenses. The Association's own funds cannot be used legally for this object, and the Council has decided that steps must be taken to revive the Medical Representation in Parliament Fund, and to invite voluntary subscriptions from members. The Council believes that doctors generally are more alive than formerly to the need for such a Fund, and that the response to an appeal for subscriptions may now be more successful. It proposes to make the first appeal in the autumn. A Parliamentary Elections Committee has been appointed to administer the Fund on behalf of the Council.

Regional Organization of the Association

66. The Council has given further consideration to the proposed regional organization to which reference was made in para. 46 of its Annual Report. The Council has come to the conclusion that the time has not yet arrived to set up a full-scale regional organization. To do so would involve the appointment of six whole-time regional secretaries with offices and staffs in various parts of the country, at a cost at the outset of about £12,000 a year. The Council fully recognizes the need to promote close and continuous contact between the central body and the periphery, and to help local secretaries in their work in developing Association activities in the Divisions and Branches.

The development favoured by the Council as an immediate step, without prejudice to future development in the light of experience, is the appointment to the Association's medical staff of additional assistant secretaries who would spend a large proportion of their time visiting Divisions and Branches to stimulate and help local activities.

If the Representative Meeting approves, immediate steps will be taken to make such appointments, allowing sufficient time for Service candidates to apply.

Cost-of-living Bonus

67. Since the submission of the Association's evidence to the Commission on Equal Pay, which was referred to in para. 33 of the Annual Report, the Council has learnt that local authorities which discriminate between the sexes in the payment of cost-of-living bonus include the bonus in the assessment of remuneration for purposes of superannuation. This means that the lower rate of bonus paid to women retiring during the period of bonus award might result in their pensions being permanently less than those of men receiving the same salary. The Council has expressed the opinion that the cost-of-living bonus should be the same for medical women as for medical men, and this opinion is being circulated to the Ministry of Health and the Associations of Local Authorities.

Care of Homeless Children

68. The Association has been invited to submit evidence to the Interdepartmental Committee on the Care of Homeless Children. The Council has accordingly appointed a committee to prepare a memorandum of evidence on the medical aspects of the problems involved.

Vaccination

69. The Ministry of Health invited the observations of the Association on the general question of continuing the existing compulsory system of vaccination. It will be remembered that the Association's Committee on Immunization, which issued its report in 1935, expressed the view that there was no reason why compulsion as regards vaccination should be continued permanently in its present unsatisfactory form. Immunization against infectious diseases involved a common scientific principle and called for a co-ordinated practical effort.

The Council has informed the Ministry of Health that it is of the opinion that the present compulsory system of vaccination should be terminated, but the Government should have powers which could be enforced immediately in the event of smallpox becoming endemic or epidemic. The Government should make itself responsible for acquainting the public with the value of vaccination. The Council believes that more children would be vaccinated if parents were encouraged to take them to their own doctors, who should receive a fee from local authorities for each vaccination. The Council also considers that the Government should be responsible for the preparation, provision, and immediate availability of lymph.

H. GUY DAIN,
Chairman.

Subject to Audit.

Balance Sheet, December 31, 1944

1943 £	LIABILITIES	1944 £ s. d.	£ s. d.
	Creditors for:		
	Subscriptions paid in advance	2,046 17 2	
	Advertisements ditto	1,110 14 2	
	Publishing ditto	2,790 5 10	
	Contributions to Journal	196 16 6	
	Capitation Grants	5 2 0	
	Production of Journal, Establishment expenses, etc.	7,399 0 8	
	Library—Prepaid cards in hands of borrowers	57 9 3	
	Suspense Account	56 1 2	
14,307			13,662 6 9
	Reserve to meet Dilapidations and Redecorations:—		
	Balance at December 31, 1943	37,927 16 7	
	Less expenditure during year	1,034 18 8	
		36,892 17 11	
	Add Transfer from Income and Expenditure Account	10,000 0 0	
37,928			46,892 17 11
	Sinking Fund for redemption of Leasehold Premises:—		
	Balance at December 31, 1943	36,045 14 7	
	Add Transfer from Income and Expenditure Account	3,488 6 8	
36,045			39,534 1 3
	Reserve to meet loss on transfer of Colonial Subscriptions:—		
	Balance at December 31, 1943	1,753 5 1	
	Less cost of transferring Colonial Subscriptions during 1944	1,788 2 3	
	(Under-estimated)	34 17 2	
	Add transfer from Income and Expenditure Account	2,000 0 0	
1,753			1,965 2 10
	Reserve to meet cost of War Damage Insurance:—		
	Balance at December 31, 1943	3,662 8 0	
	Less net cost of premiums paid during year	2,390 2 6	
		1,272 5 6	
	Add Transfer from Income and Expenditure Account	1,000 0 0	
3,662			2,272 5 6
	General Contingency Reserve:—		
	Balance at December 31, 1943	45,000 0 0	
	Add Transfer from Income and Expenditure Account	5,000 0 0	
45,000			50,000 0 0
	Regional Development Reserve:—		
	Balance at December 31, 1943	15,000 0 0	
	Add Transfer from Income and Expenditure Account	10,000 0 0	
15,000			25,000 0 0
5,000	**Journal Reserve**		5,000 0 0
7,100	**Loans from outside bodies**		7,100 0 0
	Surplus Account:—		
	Balance at December 31, 1943	325,482 5 0	
	Add Balance transferred from Income and Expenditure Account for year ended December 31, 1944	3,784 1 7	
325,482			329,263 6 7
			£520,693 0 10

Note.—*The accounts of the Scholastic, Clerical, and Medical Association are separately kept and audited. The dividends received have been brought into account under Interest on Investments; the remainder of the profits of that Company have been carried forward in its own accounts. In respect of the year ended March* 31, 1945, *the remuneration payable by the above-named Association to those of its Directors who were also Members of the Council of the British Medical Association amounted to* £256 5s. 0d.

1943 £	ASSETS	1944 £ s. d.	£ s. d.
	Leasehold Premises (at cost less amounts written off):—		
	Tavistock Sq. and Upper Woburn Place—		
	Balance at December 31, 1943 ..	248,043 5 2	
	Less amount written off for depreciation	3,000 0 0	
248,043			245,043 5 2
	Extension of Premises:—		
	Total sum expended to December 31, 1943, less amounts written off	133,416 13 3	
	Add expenditure during the year certified by the Architect	2,425 15 11	
		135,842 9 2	
	Less amount written off for depreciation.	5,000 0 0	
133,416			130,84[illegible]
	Premises held by Fen Charter (at cost less amounts written off):—		
	Nos. 6 and 7, Drumsheugh Gardens, Edinburgh, and Contents	3,620 0 0	
	Less amount written off for depreciation	300 0 0	
3,620			3,320 [illegible]
	Investments:—		
	(a) *Representing Reserve*		
	£48,500 3% Savings Bonds 1960–70 (at cost)	48,500 0 0	
	£10,000 3% Savings Bonds 1967–75 (at cost)	10,000 0 0	
	£1,000 3% Defence Bonds	1,000 0 0	
	(b) *Representing reserve against Loans as per contra*		
	£7,100 3% Savings Bonds 1960–70 (at cost)	7,100 0 0	
31,600			66,600 0 [illegible]
	(c) *Shares in Subsidiary Company*		
6,083	598 Shares of £10 each fully paid in the Scholastic, Clerical, and Medical Association, Ltd. (at cost) ..		6,083 10 0
	Sinking Fund Insurance Policies:—		
	Balance at December 31, 1943	36,045 14 7	
	Add Premiums paid during 1944 ..	3,488 6 8	
36,045			39,534 1 3
	Library:—		
	Balance at December 31, 1943	1,402 6 1	
	Add Purchase and Binding of Books during 1944 (less sale of second-hand books)	260 18 9	
		1,663 4 10	
	Less amount written off for depreciation	500 0 0	
1,402			1,163 4 10
	Furniture and Office Equipment:—		
	Balance at December 31, 1943	3,689 7 2	
	Add Purchases during 1944 (less sales) ..	572 3 4	
		4,261 10 6	
	Less amount written off for depreciation at 15%	639 4 6	
3,689			3,622 6 0
	Stocks —		
	Journal Paper	4,924 6 4	
	Sundry Publications	160 6 9	
	Journal Wrappers	93 2 0	
3,883			5,177 15 1
	Sundry Debtors for:—		
	Advertisements	7,860 11 6	
	Less Reserve for Bad Debts	2,500 0 0	
		5,360 11 6	
	Publishing	1,513 17 4	
	Rates, Rents, etc.	5,289 6 5	
	Subscriptions in arrear	6,462 15 6	
22,206			18,626 10 9
1,289	**Cash in Hand**		679 18 7
			£520,693 0 10

Expenditure and Income Account for the Year ending Dec. 31, 1944

EXPENDITURE	£ s. d.	1943 £ s. d.	£ s. d.	1944 £ s. d.
Central Meeting Expenses		7,187 3 3		4,983 2 8
Capitation Grants and Direct Expenditure on Local Organization		14,413 4 3		14,776 1 10
Library Expenses		2,106 11 6		2,203 16 2
Association General Expenses		5,266 10 8		10,225 10 8
Central Staff Expenses		25,321 8 11		26,974 10 7
Premises Expenses		20,350 8 9		21,341 10 2
Printing, Stationery and Postages Expenses		3,718 9 1		4,613 16 1
Journal Account		—		3,119 0 4
Special Journals Account		240 2 1		—
Subscriptions written off for Deaths and Arrears		2,816 4 6		3,582 0 5
Bad Debts and Allowances written off ..		236 13 3		117 3 8
Architects, Quantity Surveyors and Clerk of Works Fees and Expenses		844 2 0		2,461 18 9
Provision for War Risks Insurance		1,000 0 0		1,000 0 0
		£83,500 18 3		£95,398 11 4
Less Grant towards Cost of Central Medical War Committee	7,000 0 0			7,000 0 0
,, Transfer from Abstract H	5,987 5 8	12,987 5 8		
		£70,513 12 7		£88,398 11 4
Depreciation written off:—				
Leasehold Premises, Tavistock Square, W.C.1 ..	3,000 0 0		3,000 0 0	
N. and S. Wing Extensions	5,000 0 0		5,000 0 0	
Leasehold Premises, Scottish House, Edinburgh ..	300 0 0		300 0 0	
Library	500 0 0		500 0 0	
Furniture and Fittings ..	651 1 3		639 4 6	
	9,451 1 3		9,439 4 6	
Less Proportion of Cost Chargeable to Journal and transferred to Abstract H ..	300 0 0	9,151 1 3	300 0 0	9,139 4 6
Reserve Funds:—				
Sinking Fund for Redemption of Leasehold Premises		3,488 6 8		3,488 6 8
Reserve for Dilapidations & Redecorations		10,000 0 0		10,000 0 0
General Contingency Reserve		5,000 0 0		5,000 0 0
Regional Development Reserve		15,000 0 0		10,000 0 0
Journal Reserve		5,000 0 0		—
Reserve for Loss on Exchange on Dominion Currency		1,500 0 0		2,000 0 0
Balance Transferred to Balance Sheet ..		1,555 15 1		3,784 1 7
		£121,208 15 7		£131,810 4 1

INCOME	1943	1944
Subscriptions for year	98,597 6 4	107,050 13 3
,, ,, previous year	2,219 10 10	1,378 4 4
,, ,, former years previously written off	457 16 4	375 5 2
Rents	18,850 2 7	20,594 2 3
Interest on Investments	1,044 13 4	2,303 11 5
Transfer from Special Journals Account ..	—	106 6 8
Sundries	39 6 2	2 1 0
	£121,208 15 7	£131,810 4 1

PROCEEDINGS OF COUNCIL

A meeting of the Council was held on Wednesday, June 13, with Dr. H. GUY DAIN, Chairman of Council, in the chair.

Preliminary

A message was read from the B.M.A. South Australian Council expressing to the parent Association the deep regret of the Council on learning of the death of the President, Viscount Dawson of Penn. "The loss of one who has achieved world fame, especially coming at a time like the present, is a very heavy one, and a great blow to the medical profession throughout the world."

A letter was read from Sir Alfred Webb-Johnson, President of the Royal College of Surgeons of England, acknowledging the donation by the Association of one thousand guineas to the Restoration and Development Fund of the Royal College. The letter continued:

> "It is a great encouragement to us in our work to receive the support of your great Association, which is representative of the whole medical profession. The gift is welcome not only for the substantial help which it will give towards the objects we have in view, but also as a further evidence of the cordial relations between the Association and our College. It has been one of the happiest experiences of my period of office as President of the College to have had such friendly relations and such fruitful co-operation with the British Medical Association."

At its last meeting the Council agreed to the appointment of a Medical Curriculum Committee. The personnel of the committee was now agreed to; it consisted of the officers of the Association, eleven other members of Council, four other members of the Association who are concerned with medical education, and one representative of the British Medical Students' Association.

A memorandum which has been sent to the Lord President of the Council by the Royal College of Physicians and the Royal College of Surgeons suggesting that at the moment there is no need for, and no possibility of, establishing a statutory list of consultants and specialists was laid before the Council. On the motion of Dr. J. A. Ireland, seconded by Dr. Peter Macdonald, the Council concurred with the view that the time was not opportune for the establishment of a statutory list.

The Negotiating Committee

The Chairman said that the Council had next to receive the resolutions passed by the recent Special Representative Meeting. These had been divided into two categories—namely, those directly proposed as instructions to the Negotiating Committee and those referred for action by the Council. The Negotiating Committee had met once since the Special Representative Meeting, and had met the Minister, and the main points which emerged from the Representative Meeting had been put to the Minister. On the previous day the Minister had made his statement in Parliament, and as far as appeared from reports in the Press he had not committed himself to anything. He had left the matter quite open, and had observed what the Negotiating Committee had impressed upon him—that the profession did not wish to be embroiled in the parliamentary elections or to see the question of a National Health Service made a party issue. Mr. Willink had not said anything in his statement in Parliament which would provoke any kind of political wrangle. He had made a general and in no sense a detailed statement, and only to the extent to which he was pressed did he refer to the discussions on the White Paper.

Concerning the various resolutions, the Chairman said that those which took the form of instructions to the Negotiating Committee would be used by that committee as a background for its further work.

The Council then considered in detail the resolutions which had been referred to it, as distinct from the Negotiating Committee. Some of these were also sent to the committee with the Council's endorsement; in a small number of cases it decided that it could take no action. Others had been anticipated, or the proposals were already being explored.

Practitioners' Right of Appeal

One resolution of the Special Representative Meeting and a number of others from the Annual Representative Meeting, held in December last, concerned the right of appeal to the courts by a practitioner in the event of any case of dispute arising within the scope of his contract under a National Health Service, and on this some discussion took place in the Council.

Dr. R. Forbes said that it would be well to exercise some caution concerning this right of appeal. Not infrequently a complainant, having succeeded against the practitioner on the ground of negligence in a complaint laid before the insurance committee, took the matter to the courts, thereby creating a situation which was particularly difficult for the practitioner to defend. Had the practitioner been in a position to appeal against the decision of the committee he might have succeeded in getting it reversed; but the practitioner had to appear by himself, or with friends, without paid legal aid, and was at a distinct disadvantage. Cases which came before Medical Service Subcommittees were mainly of one of two categories—either technical breaches, or of a major order imputing negligence. With regard to the latter the question of appeal was pertinent, and was one which should be pursued; but, on the other hand, there were many matters of a domestic character which ought to be settled without recourse to the courts.

It was agreed after some further discussion that the Insurance Acts Committee should be requested to furnish the Negotiating Committee with a complete outline of the present disciplinary machinery with a view to a consideration by the Negotiating Committee of the whole question.

The Association and Science

On the recommendation of the Science Committee, brought forward by Mr. Zachary Cope, it was agreed that the award of the Association's scholarships, grants, and prizes should be resumed at the earliest possible moment—probably, it was stated, early next year. Dr. R. G. Gordon suggested that the Association might well increase its scientific activities. The scientific work of the Association, which was considerable, was rather masked at present by the immense amount of medico-political activity. An increase of £500 in the budget for scientific work would not straiten the Treasurer.

It was also agreed that the regulations as to research scholarships, which provide that a scholar shall not receive from the Association a sum greater than the amount required to bring the total sum received during one year to £400, should be amended by the deletion of that provision, and the insertion of: "A scholarship of the British Medical Association may be held concurrently with another scholarship." It was felt that candidates for research scholarships at this stage might be older than in pre-war years and would consequently in most cases have greater responsibilities.

On a suggestion by Dr. H. B. Morgan it was agreed that arrangements should be made for a lecture to be given under the auspices of the Mackenzie Industrial Health Lecture Fund. This is one of the Association's trust funds, formed in 1940, when the Industrial Health Education Society, on its liquidation, transferred its surplus funds, amounting to £350, to the B.M.A. for the purpose of founding a memorial lecture.

Compulsory Vaccination

Prof. R. M. F. Picken, chairman of the Public Health Committee, said that the committee had considered a letter from the Ministry of Health proposing, on the advice of the Minister's Medical Advisory Committee, that the existing compulsory system of vaccination should be terminated, and asking for the observations of the Association. At the present time about one-third of the infants born in this country were vaccinated. This meant that a very small proportion of the whole community could be regarded as immune from smallpox. The Public Health Committee had, after consideration, recommended that the following observations be submitted to the Ministry of Health:

> The proposals now being made by the Ministry of Health are in accordance with the recommendations made by the Association's Committee on Immunization, published in 1935. This committee concluded its report with the following opinion:
>
> > It is extremely unlikely that immunization against each disease, as it becomes practicable, could be made compulsory in this country. There appears to be no reason why compulsion as regards vaccination, which is evidently unwelcome to a large proportion of the people, should be continued permanently in its present unsatisfactory form. Immunization against infectious diseases involves a common scientific principle and calls for a co-ordinated practical effort. The first thing essential is that the public should be informed as to what can be achieved by immunization, and that it is the controlled application, with infinitesimal risk, of a process which is going on continuously in a haphazard fashion, so far as endemic diseases are concerned, leaving behind it a trail of suffering and death.
> >
> > The individual practitioner, who is constantly consulted on such matters, can take a leading, perhaps a predominant, part in public education of this kind. The organization, however, of the necessary machinery for placing immunization at the disposal of the public and bringing its benefits prominently before them is a function of the local authorities under the co-ordinating influences of the Ministry of Health. Such an organization should be of a kind which can readily undertake the advertising and carrying out of immunization against each disease as it becomes widely applicable, and also the enforcement of compulsion if it should remain, in the case of vaccination, or become necessary from time to time under regulations directed to that end.

The Council is of the opinion that the present compulsory system of vaccination should be terminated, but the Government should have powers which could be enforced immediately in the event of smallpox becoming endemic or epidemic. The Government should make itself responsible for acquainting the public with the value of vaccination, and the Council believes that more children would be vaccinated if parents were encouraged to take them to their own doctors, who should receive a fee from local authorities for each vaccination. Finally, the Council considers that the Government should be responsible for the preparation, provision, and immediate availability of lymph.

The committee, Prof. Picken added, wanted to emphasize its view that the Minister should take powers to ensure that compulsory vaccination was applied if necessary in any part of the country where serious need arose for it to be carried out. Personally he did not think that this would be necessary, because, even in areas where vaccination was most disregarded, should there be any threat of smallpox there was immediately a rush of persons anxious to have themselves and their children vaccinated.

The Council agreed to the recommendation.

Salaries of Whole-time Public Health Medical Officers

On the recommendation of the Public Health Committee the Council gave general approval to a proposed revision, by the Society of Medical Officers of Health, of the Askwith scale relating to salaries of whole-time public health medical officers. It was agreed that the proposed scale be transmitted to the body in charge of the negotiations, together with certain observations by the Public Health Committee. The observations had to do with relatively minor matters of detail concerning grading and titles.

Prof. Picken said that the committee had borne in mind the possible repercussions on professional remuneration generally of any recommendations which might be put forward at the present time. The scales now proposed represented a substantial but not an inordinate increase on the existing scales, but it was difficult to say what was the percentage of increase because new types of scale and gradations were suggested, and therefore the lists were not comparable. The negotiating body would be the B.M.A., and he hoped that the new scales would be pressed for very hard.

Discussion took place on the comparison between the proposed remuneration for public health medical officers and that which a general practitioner might expect. It was pointed out that in any comparison certain differential factors must be taken into account, such as the assurance of a pension in the case of a medical officer employed by an authority, his security of occupation, and, perhaps most important of all, the deduction for practice expenses to which the total remuneration received by the general practitioner was subject.

It was also mentioned that the first results of the inquiry into general practitioners' remuneration were now available and would come during the following week before the committee which was engaged in preparing evidence.

The Medical Association of South Africa

Dr. J. C. Matthews, chairman of the Organization Committee, brought forward a report on the relationship of the parent Association to the Medical Association of South Africa. At a previous meeting it had been agreed to send a cable to the secretary of that Association stating that if the majority of his members firmly desired to abrogate the agreement entered into in 1926 and preferred some form of affiliation the parent Association would unhesitatingly meet their wishes. A referendum had taken place in South Africa, as a result of which 700 were in favour of abrogation and 201 against. The proposal submitted to this referendum included the arrangement for the South African Association to act as an independent and self-governing body in affiliation with the B.M.A., on such terms and conditions as might be found mutually acceptable to the Representative Body of the B.M.A. and to the Federal Council of the South African Association.

Dr. Matthews said that the Organization Committee had felt that there was no alternative but to proceed to discover whether South Africa would agree to affiliation somewhat on the lines of the existing relationship with Canada, though some of them felt that certain improvements might be made upon that. The committee had had the advantage of conferring with Brigadier A. J. Orenstein, a former president of the Federal Council and a vice-president of the B.M.A., and with Dr. Alfred Cox, who took a prominent part in the negotiations twenty years ago. He moved a recommendation which had been drawn up by the solicitor giving effect to the wishes expressed in South Africa.

This recommendation was agreed to, and it was understood that six months' notice would be given by cable to terminate the agreement as from Dec. 31 next. The Council also agreed to refer it to the Organization Committee to prepare proposals for affiliation between the Association in this country and the profession in South Africa. It was mentioned that affiliation would require the approval of the Representative Meeting.

In reply to Dr. Gregg, Dr. Matthews said that it would be possible to arrange for the affiliation with the Association of individual members in South Africa as well as the affiliation of their Association itself. Such members on visiting this country would have the privileges of membership, and in South Africa they would, of course, receive the *Journal*.

Proposed Group of Homoeopathy

Dr. Matthews said that his committee had given consideration to a petition signed by 87 members of the Association that a Group of Homoeopathy be established within the B.M.A. The committee had been assisted by an excellent memorandum on the subject prepared in the office. It reviewed the whole problem, dealing entirely with the medico-political aspects of the matter and not touching on questions of scientific theory. After considering this memorandum the committee recommended that the Council should express the view that no case had been made out for the establishment of a Group of Homoeopathy.

Dr. F. H. Bodman said that he was physician to a homoeopathic hospital, for twenty years he had served on the Board of Management of that hospital, he had also served on the council of the British Homoeopathic Society, and he was a Fellow of the recently organized Faculty of Homoeopathy. Speaking, therefore, to some extent as representative of homoeopathists in the Association, he regretted that he had not had the opportunity to study the memorandum, which had been placed before the members only on the day of the Council meeting. It was a closely argued statement, but it contained one or two misconceptions. Perhaps the petitioners had weakened their case by including members who already belonged to other Association groups, but this affected only three or four out of the 87. Perhaps it might be argued that homoeopathy, notwithstanding what was stated in the memorandum, could be considered as a specialty. It was not a subject which could be picked up quite easily; it was a long and difficult art as well as a science. The homoeopathist had not only to diagnose the patient in the terms of his disease but also in the terms of the drug to which he was susceptible. Homoeopathic medicines were different and administered in a different way from the drugs used by the orthodox profession. It had been argued that the treatment of patients by medicines was going to be a diminishing part of the doctor's work, but personally he saw no evidence of that at present. The homoeopathist, like his orthodox colleague, was interested in preventive medicine and would claim that by his methods of treatment he was able to prevent disease as well as anybody else. The petitioners had stated definitely that their professional interests, as distinct from their scientific interest, were different from those of the general body of the profession. If a National Health Service came in it would involve special difficulties for homoeopathists; as, for example, in connexion with appointments to hospitals and with prescriptions. In reply to a question, he said that the total number of active homoeopathic practitioners in this country was approximately 200, including 34 practitioners who were engaged in National Health Insurance and were prescribing National Health Insurance medicines. He moved the reference back of the recommendation.

Dr. R. W. Cockshut, in supporting the reference back, asked what would be the position of homoeopathists in a comprehensive health service. Their practices were scattered, and they drew their patients usually from quite a large area. He foresaw difficulties which might arise under any new national organization. As himself an "orthodox" doctor, he also viewed with misgiving a situation in which homoeopathists might come to be considered by the public as a different sort of doctor, so that people would increasingly go to them on that account. He was therefore in favour of forming them into a group within the Association, although he could not say that they were specialists in the true sense of the word.

Dr. J. A. Pridham pointed out that the recommendation simply said "no case has been made out." It would be open to their homoeopathic brethren to make out a further case, and no doubt the Organization Committee would duly consider it.

The recommendation was carried by a majority.

Regional Organization

Dr. Matthews reminded the Council that at its previous meeting it had agreed that a regional organization of the Association should be set up covering five regions in England and Wales. The Organization Committee had now given further consideration to this matter, and had come to the conclusion that as a whole-time regional secretary must be appointed for Wales, in conformity with the decision of the last Annual Representative Meeting, it would be necessary for the regional organization to cover six regions instead of five. The six regions would be the North-Western, centred in Manchester, the North-Eastern, centred in Leeds, the Greater London, the South-Eastern, also centred in London, the South-Western, centred in Birmingham or Bristol, and the Wales and Monmouthshire region, centred in Cardiff.

Dr. S. Wand suggested that the Association was moving a little too fast. There would be a regionalization of the country under the new National Health Service. Could the present proposal not be held over until it was seen what form these regions would take? Dr. Matthews agreed that the plan might want modification when it was known what the regions under the National Health Service were to be. Dr. Cockshut said that he was rather concerned at the optimistic view they were taking of the Association's future income. Each of these regional organizations would cost the Association not less than £2,000 a year. Dr. O. C. Carter said that he failed to understand the necessity for decentralization in view of the comparatively small area of this country.

The Chairman pointed out that the Representative Meeting had instructed the Council to go on with regional organization. He also suggested that one of the results of appointing regional secretaries might be expected to be increased membership, which would go some way to meet the additional expenditure. Dr. Wand wondered whether they were wise in jumping from a temporary experiment in one area (the appointment of a regional secretary in the Metropolitan Counties area before the war) to the complete regionalization of the country. Prof. Picken said that, while he had never been an enthusiastic supporter of regionalization for this purpose, he was quite clear that the Representative Body had been determined about it, and decisions must not be put off for too long. Dr. C. N. Binney thought that the Representative Body had not appreciated what the plan would entail financially, and might change its opinion if this were explained.

Dr. H. H. D. Sutherland suggested three major divisions instead of six—namely, Midland and North, West and South-West, including Wales, and London and the Southern and Eastern counties. The Chairman said that he thought Greater London and the South-Eastern might well be one region.

The Secretary (Dr. Hill) said that the stimulus for this scheme came year after year preceding the war from the Representative Body. If the Council had doubts on the subject he thought it should put forward a reasoned statement to the Annual Representative Meeting. But it was important to ensure a larger measure of support for the honorary secretaries in the Divisions, and to have more medical man-power in the form of secretariat to help in local activities at the request of Divisions. The issue was whether it was preferable to have additional officers working from London or to have such officers stationed in the regions.

Dr. E. A. Gregg suggested that some of the activities of the Association in the future might be of such a character that it would be very important to have as strong an organization as possible in the outer areas. Dr. F. Gray said that probably the best solution for the moment would be to appoint additional members of the staff centred in London, and then later, if considered desirable, to decentralize the organization.

After further discussion it was agreed that as a preliminary step certain necessary additions be made to the central medical secretariat in order to make possible the extension of the work and the assistance of local units. In reply to Dr. Vaughan Jones, the Chairman said that he did not regard this as a direct negative; the Council was not deciding against regionalization altogether, but it considered that the most effective way was to start at headquarters.

Medical Representation in Parliament

Dr. Guy Dain, as Chairman of the Medical Representation in Parliament Committee, said that the newly appointed committee had again gone into this difficult question of medical representation in Parliament, and it now came to the Council to ask approval of the re-establishment of the Medical Representation in Parliament Fund, which had been allowed to fall into disuse. It thought that if a proper effort were made after the general election they might get the Fund re-established and well supported by members of the Association.

This was agreed to, and it was also agreed to put the Parliamentary Elections Committee on a permanent basis with the following members: The officers of the Association, Mr. Zachary Cope, Dr. E. A. Gregg, Dr. H. R. Frederick (or other representative of Wales), Dr. J. B. Miller, Dr. J. G. Thwaites, Dr. S. Wand, and a representative of the Medical Women's Federation.

Other Business

A report of the Building Committee, mainly concerning tenancy agreements, rentals, and accommodation at B.M.A. House, was presented by Mr. A. M. A. Moore and adopted.

Dr. G. MacFeat introduced the report of the Scottish Committee, the principal matter in which concerned alternative proposals for the National Health Service applying to Scotland only, on which the Secretary of State had sought the views of those concerned.

The Council decided that the election of oversea members of Council should be resumed next year. Members representing oversea Branches were last elected in 1938.

On the proposition of Dr. Peter Macdonald, the retiring Chairman of the Representative Body, it was agreed that, in addition to railway fare, subsistence and other out-of-pocket expenses of the Chairman of the Representative Body, when engaged on B.M.A. business, should be paid by the Association as from August next.

A report was made by Dr. Matthews on the conference on international medical relations, arranged by the International Relations Committee, which took place on June 6, when doctors from Belgium, the Netherlands, Poland, Yugoslavia, and the United States were present. Dr. Decourt, Secretary of the A.P.I.M., and Dr. Cibrie, Secretary of the Confédération des Syndicats Médicaux, came from Paris specially for the conference. Dr. Matthews said that his own feeling was that the calling of the conference was somewhat premature, because the medical organization in recently occupied countries had not yet been re-established. But it was decided to call a conference, in which the B.M.A. would co-operate with the A.P.I.M., during the early months of 1946, and it was hoped that by that time the national medical organizations in Europe would have sufficiently revived to take part.

The Council gave further consideration to the question of the differentiation in the cost-of-living bonus for men and women officers of public authorities. Prof. Picken said that one new fact had emerged—namely, that local authorities regarded the bonus as being part of remuneration and included it for the purposes of superannuation; therefore the lower rate of bonus paid to women retiring during the period of bonus award would result in their pensions being permanently less than those of men receiving the same salary. The Council agreed to a recommendation expressing the opinion that the cost-of-living bonus should be the same for women as for medical men, this opinion to be forwarded to the Ministry of Health and to local authorities.

The last business of the Council was to elect as members of the Association 75 candidates who are serving with His Majesty's Forces.

POSTGRADUATE EDUCATION OF SERVICE MEDICAL OFFICERS

A brief outline of the Government's scheme for the postgraduate training of medical officers on release from the Forces was published in these columns on April 21 (p. 61). In it medical officers were told that they should, on release, apply personally or in writing to their university or medical school, or to the university nearest to where they are living, or to a Central Office to be set up by the University of London, which would act not only for all the London medical schools but also as a clearing house for England and Wales. There would also be an associated Scottish clearing house set up c/o The Dean of the Faculty of Medicine, The University, Edinburgh. At each university a committee for postgraduate medical education was being formed, with a dean or director, to assist officers on release from the Forces.

The Ministry of Health now announces the addresses at the universities or medical schools to which doctors on release from the Services should apply for all information and advice about postgraduate facilities. They are as follows:

Birmingham : Prof. W. H. Wynn, M.D., F.R.C.P., Director of Postgraduate Studies, The Medical School, Hospital Centre, Birmingham, 15. Telephone: Selly Oak 1162.

Bristol : Prof. C. Bruce Perry, M.D., F.R.C.P., Department of Medicine, Canynge Hall, Whatley Road, Bristol, 8. Telephone: Bristol 35828.

Cambridge : Dr. A. C. D. Firth, F.R.C.P., Trinity Hall, Cambridge. Telephone: Cambridge 5047, Ext. 17.

Durham : Prof. R. B. Green, F.R.C.S., Dean of Medicine, Medical School, King's College, Newcastle-upon-Tyne, 1. Telephone: Newcastle-upon-Tyne 21601.

Leeds : Mr. George Armitage, F.R.C.S., School of Medicine, Leeds, 1. Telephone: Leeds 20071 (asking for the secretary of the medical school).

Liverpool : Prof. T. B. Davie, M.D., F.R.C.P., Dean of the Faculty of Medicine, University of Liverpool. Telephone: Royal 5460.

London (Central Office): The Director, Central Office, British Postgraduate Medical School, c/o London School of Hygiene and Tropical Medicine, Keppel Street, W.C.1. Telephone: Museum 3041.

Oxford: Major-Gen. Sir Robert McCarrison, M.D., F.R.C.P., 41, St. Giles', Oxford. Telephone: Oxford 47582.

Manchester: Dr. G. J. Langley, F.R.C.P., Dean of Postgraduate Medical Studies, The University, Manchester, 13. Telephone: Ardwick 2681.

Sheffield: Prof. E. J. Wayne, M.D., F.R.C.P., Department of Pharmacology and Therapeutics, The University, Sheffield, 10. Telephone: Sheffield 20540.

Wales: The Secretary, Welsh National School of Medicine, 10, The Parade, Cardiff. Telephone: Cardiff 3280.

Scotland (Central Office): Prof. Sidney Smith, M.D., F.R.C.P.Ed., Dean of the Faculty of Medicine, University New Buildings, Edinburgh, 8. Telephone: Edinburgh 41001.

DECLARATION OF HEALTH POLICY BY MR. CHURCHILL

Mr. Churchill, in his declaration of policy to the electors, outlines a four-year plan for Britain. The section on health is as follows:

Health

The health services of the country will be made available to all citizens. Every one will contribute to the cost, and no one will be denied the attention, the treatment, or the appliances he requires because he cannot afford them. We propose to create a comprehensive health service covering the whole range of medical treatment from the general practitioner to the specialist, and from the hospital to convalescence and rehabilitation; and to introduce legislation for this purpose in the new Parliament.

The success of the service will depend on the skill and initiative of doctors, dentists, nurses, and other professional people, and in its designing and operation there will be full scope for all the guidance they can give. Wide play must be given to the preferences and enterprise of individuals. Nothing will be done to destroy the close personal relationship between doctor and patient, nor to restrict the patient's free choice of doctor.

The whole service must be so designed that in each area its growth is helped and guided by the influence of a university. Through such a service the medical and allied professions will be enabled to serve the whole nation more effectively than they have yet been able to do. At the same time medicine will be left free to develop along its own lines, and to achieve preventive as well as curative triumphs. Liberty is an essential condition of scientific progress.

The voluntary hospitals, which have led the way in the development of hospital technique, will remain free. They will play their part in the new service in friendly partnership with local authority hospitals.

Motherhood must be our special care. There must be a large increase of maternity beds and convalescent homes, and they must be provided in the right places. Mothers must be relieved of onerous duties which at such times so easily cause lasting injury to their health. The national insurance scheme will make financial provision for these needs. All proper arrangements, both voluntary and State-aided, must be made for the care of other young children in the family, in order that the energies of the male breadwinner or the kindness of neighbours and relations, which nevertheless must be the mainspring, should not be unduly burdened. Nursery schools and nurseries such as have grown up during the war should be encouraged. On the birth, the proper feeding, and the healthy upbringing of a substantially increased number of children depends the life of Britain and her enduring glory.

HEARD AT HEADQUARTERS

The Medical Association of South Africa

A desire has arisen in South Africa for a completely independent Association, affiliated with the B.M.A., but no longer functioning, as at present, as a corporate group of B.M.A. branches. A number of causes have encouraged this trend of opinion. One of them is the fact that the medical profession in South Africa is now largely educated in South Africa and not in Great Britain as in the past. Another cause is the growth of the nationalist spirit, evident in South Africa as in other parts of the world, and affecting the relationship of professional as well as political bodies. The strength of this feeling in South Africa is shown at a medical school opened not long ago in Pretoria in which, notwithstanding textbook difficulties and the like, the teaching is to be entirely in Afrikaans, ability to teach in that language being a condition of appointment even to the lower posts in the faculty. A third reason is an economic consideration—the existence of two medical journals. There are other reasons—such as a desire on the part of a few to introduce trade unionism into the profession—but the three given above seem to be the governing ones.

A referendum has recently been taken on the proposal to abrogate the agreement with the parent Association, and to have a body independent and self-governing, in affiliation with the B.M.A., and the result showed 700 in favour and 201 against. The number of members in South Africa is about 2,500. The total number on the *Register* is 3,700, but this includes many not practising there, and the effective practising strength of the profession is believed to be just under 3,000.

Proposals for Affiliation

A meeting of the Organization Committee, under Dr. J. C. Matthew's chairmanship, was attended by Brigadier A. J. Orenstein, of Johannesburg, a former president of the Federal Council, who was made a Vice-President of the parent Association at the Centenary Meeting, and was largely responsible with Dr. Alfred Cox (who was also present) for bringing about the reorganization of the Association in South Africa twenty years ago. Brigadier Orenstein sketched the position in South Africa, and made some useful suggestions for the basis of the new affiliation. He thought that the request for abrogation should be accepted, although for his own part he would have preferred the present arrangement to continue. He assumed that it would be open to any in South Africa who desired to do so to continue as individual members their association with the B.M.A., but without forming branches. At one time there were in South Africa independent branches of the B.M.A. and of the Transvaal Medical Association, and that position must not be repeated. Such individual members would receive the *Journal*, and on coming to this country would have all the privileges of membership. In Canada, where an affiliation arrangement has existed for many years, the B.M.A. has some thirty or forty unattached members.

The whole of the correspondence on this subject has been conducted in the most amicable spirit, and it was in that spirit that the discussion was continued in the Organization Committee. Brigadier Orenstein said that nowhere, except from an isolated individual or two, had he heard any expression of a desire to break off co-operation. The committee decided to recommend the Council to consent to abrogation of the agreement and to the formulation, under legal advice, of a new agreement of affiliation. It is understood that the agreement with the Canadian Medical Association will be studied as a model. The relation between the London and the Canadian secretariats is continuous and friendly, but the Association out there runs its own affairs without any administrative or financial ties with this country, and there is no obligation upon its members to receive the *Journal*. As Dr. Cox pointed out, the fact that the bond was one only of affiliation did not prevent the Canadian Association from extending a warm invitation to Winnipeg in 1930 and making the visiting Association extraordinarily welcome. Brigadier Orenstein said it was still hoped that when the war was finally over the long-postponed meeting in South Africa, originally projected for 1940 or 1941, would be possible.

Tavistock Square Itself Again

At the time when London seemed likely to be the favourite target of the enemy, and even the Lords and Commons were thinking of evacuating to the Midlands—every official of Parliament, under instruction, keeping a bag ready packed—the B.M.A. wisely took a house at Buxton for use in the event of need, so that there should be no interruption in the necessary business of the Association or the issue of its *Journal*. It is another welcome sign of the return to normal that the house in Derbyshire should now be given up, and the equipment stored there should be finding its way back to London.

Tavistock Square did not escape attention; there was much destruction in its neighbourhood, and on one occasion, but for the promptitude of one of the staff, fire might have destroyed Lutyens's Great Hall. But no occupied part of the house was rendered uninhabitable, and it is now a more brisk centre of activity than ever. There is a long list of organizations desiring tenancy agreements as soon as space is available, but the Association itself also wants more room, especially for the production of the *Journal* and the ever-increasing activities of the Secretarial Department. It is also suggested that there should be a reception room for the use of all departments—a noticeable lack until now—a suitable room for the use of the President and other high officers in which distinguished visitors to the Association's House can be received, and other facilities and amenities.

Too Fast or Too Slow

Those who are wise after the event are said to make the best critics, though not necessarily the most helpful ones or the ones whom it is easiest to tolerate. A certain amount of criticism has been reaching the Association to the effect that the matters on which the Negotiating Committee has been engaged have been unduly rushed. Fortunately this is countered by critics on the other side who say that they have been unduly prolonged. But it is urged in particular that the Special Representative Meeting which was held at the beginning of May should have been postponed until after the General Election.

The fact is, of course, that when the meeting was arranged, and even when it was held, a General Election in the early summer was no more than a possibility. No doubt had it been certain that an election was imminent the meeting would have been postponed until it could be seen what sort of new Government was likely to take shape. But those responsible cannot condemn themselves for having been too precipitate. Had the election been delayed—as it might have been—until the end of the war with Japan, or even for not so long, some social legislation, as the Prime Minister has said, would have been on its way towards the statute book. But even with a prospect of Dissolution not too far away there were distinct advantages in getting on as far as possible with the matters under discussion in view of the possibility of a National Health Bill being read for the first time.

Medical Candidates

A scrutiny of the first list of candidates in the General Election shows that thirty members of the medical profession are standing. No doubt there will be some additions to and withdrawals from the list by nomination day. Of those at present listed, more than half—16—are Labour, five are Independent, three Liberal National, two Conservative, while the Liberal, Common Wealth, Scottish Nationalist, and Welsh Nationalist parties have one each. Labour has its candidates well distributed in England—five are putting up for London constituencies, five for English boroughs, and five for English counties—though there is only one Labour doctor putting up for a Scottish constituency (this number is likely to be increased). Three of the five Independent candidates are standing for university seats. They are Dr. Charles Hill, Secretary of the British Medical Association, for Cambridge; Sir Ernest Graham-Little, who has been the sitting member, for London; and Sir John Boyd Orr for the Scottish seat which he won at a recent by-election.

Correspondence

Postgraduate Education of Ex-officers

SIR,—The proposals for postgraduate education of ex-officers have come to me as a severe shock. Panel practitioners' refresher courses, as provided pre-war and as presumably will be provided post-war to men continuously in practice, for Service doctors! This makes one (and not a few others) think that it is desired that practitioners in general and ex-Service men in particular should be degraded, and that midwifery and child welfare should be taken out of the hands of G.P.s for good.

The least that is needed is a series of separate courses made available for all ex-officers who desire them, including those who were called up within a year or so of qualifying. Midwifery and diseases of women, diseases of children, and the care of the aged are three titles of courses obviously needed. Non-tropical medicine, anaesthetics, and other specialties taken out of the hands of G.D.O.s could be added with evident advantage.

It must be presumed that the cost of such courses together with the delay involved in return to general practice has deterred the planners of the miserable proposed provision. This must be overcome, if necessary, by Service doctors getting together and providing for themselves what is so badly needed.—I am, etc.,

Bombay. WILLOUGHBY CLARK.

Medical Demobilization

SIR,—Dr. J. J. Conybeare suggests (*Supplement*, June 9, p. 108) continuing the dilution of qualified house officers with final-year students, a system which he states has already been used with success. Speaking on behalf of the public, so long under-doctored and with inadequate hospital facilities, I do hope that this system of student house officers will be dropped as soon as possible. Admittedly under supervision it may work up to a point, but there are actual dangers to the public inherent in it. The system is well known to patients, and, owing to the youth of many of the qualified personnel, they have the impression that the junior staffs of teaching hospitals are largely, if not entirely, composed of students.

The class that comprises hospital patients has been more hardly hit by the war than any other. They have borne great suffering with bravery and without complaint. Death has taken many of the old and frail, often while alone and uncared for, owing to dearth of hospital accommodation, nursing facilities, and medical men. With this in view and the hoped-for coming of better hospitals surely every effort should be made to give them as good service as lies in our power and not leave them in charge of the student house officer.—I am, etc.,

London, S.W.1. A. HARBOUR.

SIR,—With reference to the editorial comments on my letter which you published in the *Supplement* of May 26 (p. 78), the point I wished to make was as follows. To the best of my knowledge there has been no hint given as to how long we may be retained in the Services *after our corresponding age and service group has been released.* I can definitely restate that the is no help to be had from the demobilization pamphlet issued by the War Office, and if there have been any explanations in the *Journal* I have not seen them. For all we know this period may be one of weeks, months, or even years. Although I fully realize that it will be impossible to state definitely how long this period will be, I feel that some guidance might be given, so that we can make some sort of plans when we are due for release.

Speaking only for myself, I am very pleased to learn that Class B releases will be few in number, but I am sure that most medical officers of long service will feel considerably relieved by this statement. —I am, etc.,

CAPTAIN, R.A.M.C.

*** The Secretary of C.M.W.C. replies: It is hoped that it will rarely be necessary for medical officers to be retained beyond the dates of release of their age-service groups.

Medical Demobilization and Resettlement

SIR,—With reference to the Central Medical War Committee's letter to temporary serving medical officers, the problems and implications are noted and understood and the letter is timely in allaying a few of our anxieties. Two points, however, not referred to I wish to raise for sincere consideration. One is the question of over-manning, or to put it bluntly "window dressing." The medical requirements of the Forces could be appreciably and practicably reduced if the man-power situation at various Service medical establishments was investigated. On numerous occasions have I indicated to authorities concerned that the work on hand could bear the loss of a percentage of the staff (nurses, attendants, etc.), yet an unrequired relief invariably arrives in the place of one appointed elsewhere.

Secondly, your attention is drawn to the innumerable and unnecessary medical examinations and concomitant documentation enforced upon Service personnel. One rating informed me that he had been through seventeen medical examinations in a year, and others have similar tales to tell, yet they were all "fit for general service" at all times and in the best years of their life. One can only suspect that these superfluous duties are instituted to justify the retention of medical officers where their usefulness is blatantly redundant in their own minds and in the minds of others.

I wish to assure you that my criticism is based upon sufficient information and permits but an element of conjecture: inspection is invited. I trust these two points will be borne in mind if release and repatriation are to be facilitated. —I am, etc.,

R. ALEXANDER,
Surg. Lieut., R.N.V.R

SIR,—It was perhaps unfortunate that the statement in the *Supplement* of March 17 should have reached Service medical officers in the Far East after the first steps of the national demobilization scheme had been put into action. When Service medical officers saw that they were *not*, in fact, being sent home with other members of the Services of the same a/s groups they were justified in feeling some "anxiety lest the release plan for doctors should place them in a less favourable position than other members of the Forces," which your statement was attempting to dispel. They could hardly be blamed for treating the statement with some scepticism.

The simple truth is that the Service medical officer wants fair play and only fair play as compared with other men in the Forces and with doctors in civil practice. If he cannot be given that, he wants to be told why not. He cannot understand why any Service medical officer should be retained after he is due for release under the national scheme so long as there is a doctor in civil practice whose place he could take, and who, after a minimum amount of military training, could replace him.

Much has been written in your columns recently on the ability of the profession to manage its own affairs better than a Government Department. The Service medical officer will be quick to draw conclusions if he finds himself less favourably placed than those demobilized under arrangements made by a Government Department. It is up to the Central Medical War Committee to show the profession that not only will it "spare no effort" but it can "produce the goods."—I am, etc.,

India Comand. MAJOR, R.A.M.C.

Demobilization of Medical Students

SIR,—The question of speed of demobilization of medical students would seem to be of importance to the medical profession and in need of some special consideration. This applies particularly to that small but valuable group of young men who had started their medical studies before the outbreak of war, and after two or three years of study had felt the call to combative service in the Forces so strongly that they *voluntarily* surrendered their reserved status and joined the fighting Services.

In the last war such men were "combed out" in the later stages of hostilities, and many of them have since demonstrated in their medical careers that they were not the least valuable type of recruit to the profession. In the present war such men have relatively high demobilization numbers, because of their low age group, and their return to the study of medicine is likely to be delayed, with real loss to the profession, unless they receive some special consideration. Might not the Central Medical War Committee give some recommendation on this question?—I am, etc.,

WILLIAM BROWN,
Wilde Reader in Mental Philosophy,
London, W.1. Oxford.

*** The Secretary of the Central Medical War Committee states: The committee has already made representations on this matter, which is understood to be still under consideration by the authorities concerned.

Organization of Psychiatric Services

SIR,—Further to Dr. Russell Brain's letter (*Supplement*, June 9, p. 108) I feel with him that Dr. Gordon was suffering under a misapprehension when he stated at the Council meeting that the report of the Joint Committee on the Future Organization of the Psychiatric Service had not taken into consideration the work of Service psychiatrists, and that he knew that there was some feeling among them that their point of view had not had much opportunity of being expressed.

I would like to point out, as chairman of the Psychological Medicine Group Committee of the B.M.A., that the leading psychiatrists from all the three Services took part in the group conference at which they discussed the preparation of the report and also took part in the conference at which the final report was ratified. I would also say that the Planning Committee of the Royal Medico-Psychological Association which dealt with the report had as its chairman Brigadier J. R. Rees, consulting psychiatrist to the Army, and included leading psychiatrists in all the three Services.

It would therefore appear that they had plenty of opportunity to make their feelings known and to have their point of view represented in the report.—I am, etc.,

Bournemouth. DORIS M. ODLUM.

Dr. STEPHEN PASMORE (London, W.8) writes: The members of the Kensington and Hammersmith Division of the B.M.A. are sure they are expressing the feelings of all doctors, when they desire to record in the *Journal* their unbounded admiration for the way in which their wives helped them to carry on their practices throughout the war against Germany.

BRITISH MEDICAL ASSOCIATION

Election of Member of Council by South Wales and Monmouthshire Branch

Notice is hereby given that owing to the failure to elect, a vacancy exists on the Council for the South Wales and Monmouthshire Branch (Group H). Nomination of candidates must be forwarded in writing so as to reach me by July 2, 1945. Candidates must be nominated by either (*a*) a Division or (*b*) not fewer than three members of the Branch.

If more than one candidate is nominated voting papers will be issued on July 14 to each member of the Branch.

CHARLES HILL,
Secretary.

Meetings of Branches and Divisions

READING DIVISION

At a meeting of the Reading Division held on June 7 the following resolution was passed: That this meeting is dissatisfied with its relationship with Birmingham as regards representation on Council and would like to refer the matter to the Branch Council to discuss the election of representatives on B.M.A. Council for smaller areas of the country.

H.M. Forces Appointments

ARMY

War Subs. Major R. R. Bomford, R.A.M.C., to be a Consultant, and has been granted the local rank of Brig.

ROYAL ARMY MEDICAL CORPS

Major A. Hendry has ceased to be re-employed on account of disability, and has been restored to the rank of Lieut.-Col.

Short Service Commission.—Lieut. (War Subs. Capt.) A. M. Buchanan, from Emergency Commission, has been granted a Short Service Commission in the rank of Lieut., and to be Capt.

TERRITORIAL ARMY

ROYAL ARMY MEDICAL CORPS

Lieut.-Col. W. H. Marston, O.B.E., T.D., has relinquished his commission on account of disability, and has been granted the honorary rank of Colonel.

Lieut.-Col. R. A. Lennie, T.D., having exceeded the age limit, has retired, and has been granted the honorary rank of Colonel.

War Subs. Majors W. M. Nichols and L. C. Bousfield to be Majors.

War Subs. Capt. F. T. Shadforth has relinquished his commission on account of disability and has been granted the honorary rank of Major.

Senior Training Corps.—Major J. M. Smith, M.C., supernumerary for service with St. Andrews Univ. Senior Training Corps (Medical Unit), has resigned his commission and has been restored to the rank of Lieut.-Col.

Lieut. J. F. Goodwin, supernumerary for service with Univ. of London Senior Training Corps (Medical Unit), has resigned his commission.

TERRITORIAL ARMY RESERVE OF OFFICERS:
ROYAL ARMY MEDICAL CORPS

Major J. L. Menzies, M.C., having exceeded the age limit, has relinquished his commission, and has been granted the honorary rank of Lieut.-Col.

Majors J. H. Jordan, M.C., T. R. Kenworthy, M.C., and A. M. Jones, T.D., having exceeded the age limit, have relinquished their commissions, retaining the rank of Major.

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs. Capt. H. M. Symons has relinquished his commission on account of disability, and has been granted the honorary rank of Major.

War Subs. Capt. St. G. E. Harris, O.B.E., has relinquished his commission and has been granted the honorary rank of Major.

War Subs. Capts. T. B. D'Costa, D. W. Stuart, A. E. W. Sandelson, H. V. Sansom, J. H. Redding, and S. C. Mitchell have relinquished their commissions on account of disability and have been granted the honorary rank of Capt.

Lieuts. (War Subs. Capts.) L. A. Daly, A. D. Cassidy, and H. Holden have relinquished their commissions on account of disability, and have been granted the honorary rank of Capt.

Lieut. E. F. Thomas has relinquished his commission on account of disability, and has been granted the honorary rank of Lieut.

To be Lieuts.: R. H. M. Baines, C. G. Ball, A. L. W. Bell, J. A. Blackwood, A. M. Boyd, F. D. Chandler, H. A. Crouch, J. S. Crowther, F. O'N. Daunt, V. Freeman, C. Grant, R. A. Hall, J. A. Hanraty, F. H. Hedges, F. L. Holroyd, L. G. Jackson, H. P. Jones, G. M. A. Lynch, J. McAllister, J. A. McConachie, A. Y. Mason, E. T. G. Meade-Waldo, P. J. Murphy, D. S. Ramsay, A. Sommerville, J. M. Starks, J. M. Stewart, J. Stone, and D. C. Wright.

WOMEN'S FORCES

EMPLOYED WITH THE MEDICAL BRANCH OF THE R.A.F.

Flying Officer A. R. Burrows to be War Subs. Fl. Lieut.

To be Flying Officers (Emergency): Gwenth J. E. Jordan and Madeline K. Keech.

INDIAN MEDICAL SERVICE

Lieut.-Col. G. A. Hildreth has retired.

Capts. A. W. Sampey, J. Reidy, C. L. Greening, and C. B. Jones to be Majors.

POSTGRADUATE NEWS

The Fellowship of Medicine announces: (1) Primary F.R.C.S. course: lecture-demonstrations in anatomy, physiology, pathology, and bacteriology, Mons., Weds., and Fris., from 6 p.m. to 8.15 p.m., Aug. 13 to Oct. 12. (2) Week-end course in obstetrics and gynaecology at South London Hospital for Women, all-day, Sat. and Sun., July 14 and 15, (3) Week-end course in medicine and surgery at Hampstead General Hospital, all-day, Sat. and Sun., July 21 and 22.

On Thursday, July 5, at 2.30 p.m., a demonstration of the technique of a variety of contraceptive methods will be given at the C.B.C. Mothers' Clinic, rear Tottenham Court Road. Medical practitioners and senior students who wish to attend should apply in writing (not telephone) to the hon. sec., 108, Whitfield Street, London, W.1.

WEEKLY POSTGRADUATE DIARY

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W.—*West End Hospital for Nervous Diseases:* Mon., Tues., and Fri., 2.30 p.m., M.R.C.P. course in neurology. *Metropolitan Ear, Nose, and Throat Hospital:* all-day, Sat. and Sun., June 30 and July 1, week-end course in ear, nose, and throat diseases.

DIARY OF SOCIETIES AND LECTURES

ROYAL SOCIETY OF MEDICINE.—*Wed.*, 4.30 p.m., Section of Physical Medicine. *Thurs.*, 5 p.m., Section of Urology.

BIRTHS, MARRIAGES, & DEATHS

The charge for an insertion under this head is 10s. 6d. *for* 18 *words or less. Extra words* 3s. 6d. *for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.*

BIRTHS

GELL.—On June 12, 1945, to Albinia Susan Roope, wife of Dr. P. G. H. Gell, a son—Antony Francis.

MAHER.—On June 8, 1945, at Selly Oak Hospital, to Dr. Mary Veric Maher (*née* Howie), wife of Dr. J. P. Maher, a son.

MARRIAGE

PRIOR—GORONWY.—On June 6, 1945, at Pontypridd, John Renison Prior, Fl. Lieut. R.A.F.V.R., of Grimsby, to Eileen Mary Goronwy, M.R.C.S., L.R.C.P., of Pontypridd.

DEATHS

DONALD.—Lost with H.M.S. *Boadicea*, in the liberation of Europe in June, 1944, Surg. Lieut. William H. C. Donald, R.N.V.R., beloved younger son of the late Robert Donald, *M.C.*, M.D., D.P.H., and of Mrs. Helen Donald, Donachai, Bishopton, Renfrewshire.

HEMPSON.—On June 2, 1945, Geoffrey Oliver Hempson, late of St. Lawrence, Isle of Wight, beloved husband of Dorothy.

TYRRELL.—On June 16, 1945, at 84, Station Road, Sidcup, Edgar J. Tyrrell, M.B., B.S., M.R.C.S., L.R.C.P., D.P.H., D.M.R.E., aged 66. R.I.P.

SUPPLEMENT TO THE

BRITISH MEDICAL JOURNAL

LONDON SATURDAY JUNE 30 1945

MEDICAL CANDIDATES FOR PARLIAMENT

The following, so far as can be ascertained, is a list of the 30 medical men and 3 medical women who are standing at the General Election. The names of those who were members of the last Parliament are indicated by an asterisk. It is not possible in all cases to give the age of the candidates, but the year of their qualification affords some guidance, and this has been inserted, in parentheses, in the few appended biographical notes.

Reginald F. B. Bennett, Woolwich E., Conservative.

(1937). Surg. Lieut.-Cmdr., R.N.V.R. Formerly demonstrator of anatomy at Oxford, later assistant medical officer, Maharaja and State of Rajpipla.

L. Graham Brown, Luton, Liberal National.

(1915). Born in Brisbane. Served throughout 1914–18 war. Now surgeon, Ear, Nose, and Throat Department, Charing Cross Hospital, and president, Section of Otology, Royal Society of Medicine. Early prowess in athletics; captain, England Rugby XV.

Leonard F. Browne, Penrith and Cockermouth, Labour.

(1909). Served in R.A.M.C. as specialist in psychological medicine. Physician, Tavistock Clinic. Closely associated from beginning with Toc H.

Louis Comyns, Silvertown, Labour.

(1932). Received medical training in Scotland. Practises in East London.

*James Douglas Cooke, Hammersmith S., Conservative.

(1902). Received medical training in Australia, and held appointment in Melbourne Hospital. Served in R.A.M.C. in France in first European war. Formerly practised at Stanmore, now retired. Member, Middlesex County Council. Represented Hammersmith S. in Parliament since 1931. Knighted in recent honours list.

*Rt. Hon. Walter E. Elliot, Kelvingrove, Conservative.

(1913). Was Minister of Health 1938–40, and had previously been Secretary of State for Scotland and Minister of Agriculture. Served first European war, gaining *M.C.* and bar. Has represented his Glasgow division since 1924.

G. A. D. Gordon, Richmond, Liberal.

(1931). Major, R.A.M.C.

*Sir Ernest Graham-Little, London University, Independent.

(1892). Consulting physician, Skin Department, St. Mary's Hospital. Member of Senate, University of London, since 1906, and of Court since 1929. Represented the University in Parliament since 1924.

*Leslie Haden Guest, Islington N., Labour.

(1909). Served in South African and first European wars (*M.C.*). Has travelled much as a member of inquiry commissions and in other capacities. Founder of Anglo-French Committee of Red Cross and Order of St. John. Formerly member for Southwark N., and has represented Islington N. since 1937.

Bernard Guyster, Leyton W., Liberal.

(1926). General practitioner in Leyton. Member, Essex County Council and Insurance Committee.

Somerville Hastings, Barking, Labour.

(1902). For many years surgeon-in-charge, Ear, Nose, and Throat Department, Middlesex Hospital. Lately chairman of London County Council and previously chairman of its Hospitals and Medical Services Committee. Has been president, Section of Otology, Royal Society of Medicine. Formerly represented Reading in Parliament. A leading figure in the Socialist Medical Association.

Joseph John Hayward, Abertillery, National.

(1942). Surg. Cmdr., R.N.V.R. Formerly house-surgeon, obstetrical and gynaecological unit, and junior resident anaesthetist, Cardiff Royal Infirmary.

Charles Hill, Cambridge University, Independent.

(1927). Secretary, British Medical Association, since January, 1944, previously Deputy Secretary. Vice-president and formerly chairman, Central Council for Health Education. Member, Minister of Health's Medical Advisory Committee and Minister of Labour's Industrial Health Advisory Committee. Formerly deputy M.O.H., Oxford. Well-known broadcaster.

Elizabeth Jacobs, St. Marylebone, Labour.

(1925). Practising in West London. Formerly clinical assistant, Elizabeth Garrett Anderson Hospital.

Santo Wayburn Jeger, St. Pancras S.E., Labour.

(1923). Practises in North London and has taken a prominent part in local government in Shoreditch; chairman of Public Health Committee.

Eric Frederick St. John Lyburn, Tonbridge, Independent.

(1930). Practises at Tunbridge Wells. Active member, East Sussex Medico-Chirurgical Society.

*Robert Douglas MacIntyre, Motherwell, Scottish Nationalist.

(1938). Practises in Edinburgh. Entered Parliament after recent by-election.

Guy Chandler Milner, Orpington, Independent.

(1926). Practises in the Orpington and Sidcup area of Kent. Lecturer and examiner, British Red Cross. Medical officer to several insurance companies.

*H. B. Morgan, Rochdale, Labour.

(1909). War service 1914–19. Advisory medical officer, Union of Post Office Workers, and adviser and consulting specialist, industrial diseases, Trades Union Congress. Member B.M.A. Council and has served on many headquarters committees. Member for Rochdale since 1940; previously sat for Camberwell N.W.

*Sir Henry Morris-Jones, Denbigh, Liberal National.

(1906). For more than 20 years a general practitioner at Colwyn Bay. Former chairman of the local B.M.A. Division. M.P. for Denbigh since 1931. Former Junior Lord of the Treasury and Government Whip.

David Stark Murray, Richmond, Labour.

(1925). Pathologist, Kingston Laboratory E.M.S., and honorary pathologist, Royal Hospital, Richmond, and associated hospitals. Prominent in Socialist Medical Association. Editor, *Today and Tomorrow*.

*Basil H. H. Neven-Spence, Orkney and Shetland, Conservative.

(1911). Served much abroad, in Egypt and the Sudan and in Palestine. Formerly specialist physician, Aldershot Command. Retired 1927. M.P. for Orkney and Shetland since 1935.

*Sir John Boyd Orr, F.R.S., Scottish Universities, Independent.

(1912). Director, Rowett Institute, Aberdeen, and Imperial Bureau of Animal Nutrition. Chairman of B.M.A. Charter for Health Committee. Joint Editor *Nutrition Abstracts and Reviews*. Author of works, including *The National Food Supply* and *Food, Health, and Income*. Member of several Government Committees. Entered Parliament at recent by-election.

William Bernard Joseph Pemberton, Bermondsey W., Liberal National.

(1920). Received medical training and held early appointments in Dublin. Now practises in Bermondsey. Public vaccinator in that borough. Now candidate for the seat from which Dr. Alfred Salter (Labour) has retired.

Samuel Segal, Preston, Labour.

(1927). Squad. Ldr., R.A.F. Formerly on junior staff of Westminster Hospital.

Dorothy Anderton Sharpe, Chelsea, Common Wealth.

(1930). Assistant gynaecological surgeon, Elizabeth Garrett Anderson Hospital, and assistant obstetrical surgeon, Royal Free.

R. Scott Stevenson, Fife W., Liberal National.

(1912). Served during the war as otologist to a military hospital, major, R.A.M.C. Surgeon, Metropolitan Ear, Nose, and Throat Hospital; consulting laryngologist, L.C.C. Hospitals. Formerly Joint Editor *Practitioner*. Has served on B.M.A. Council and many headquarters committees.

Malcolm Stoddart-Scott, Pudsey and Otley, Conservative.

(1926). Educated at the University of Leeds. Col., A.M.S.(T.), A.D.M.S., 48th Division, Territorial Decoration. Assistant medical officer, V.D., Department, General Infirmary at Leeds.

Barnett Stross, Hanley, Labour.

(1925). General practitioner, Stoke-on-Trent. Medical adviser, Pottery Workers' Society and North Staffordshire Miners' Federation.

*Edith Clara Summerskill, Fulham W., Labour.

(1924). Medical director, Birth Control Clinic, West Fulham. M.P. since 1938. Prominent member of Socialist Medical Association.

Halliday Sutherland, Scottish Universities, Labour.

(1906). Ex-president, Tuberculosis Society. Author, *Pulmonary Tuberculosis in General Practice* and several other works, including two volumes of autobiography.

Stephen J. L. Taylor, Barnet, Labour.

(1934). Head of Home Intelligence, Ministry of Information. Neuropsychiatric specialist. Formerly hon. secretary, Osler Club, and assistant editor, *Lancet*.

*William Stanley Russell Thomas, Southampton, Liberal National.

(1919). Barrister-at-law, Lincoln's Inn. Formerly assistant medical officer, West Riding Asylum, Wakefield. M.P. for Southampton since 1940.

HEALTH POLICY OF LABOUR AND LIBERAL PARTIES

In his "Appeal to the People" last week-end Mr. C. R. Attlee made no specific reference to health services, but reaffirmed his Party's acceptance of the principles and policy set out in its declaration of policy entitled *Let Us Face the Future*, published earlier this year. This declaration contained the following under the heading "Health of the Nation and its Children":

> "By good food and good homes much avoidable ill-health can be prevented. In addition the best health services should be available for all. Money must no longer be the passport to the best treatment.
>
> In the new National Health Service there should be health centres where the people may get the best that modern science can offer, more and better hospitals, and proper conditions for our doctors and nurses. More research is required into the causes of disease and the ways to prevent and cure it.
>
> Labour will work specially for the care of Britain's mothers and their children—children's allowances and school medical and feeding services, better maternity and child welfare services. A healthy family life must be fully ensured and parenthood must not be penalized if the population of Britain is to be prevented from dwindling."

The Liberal Party, in its 20-point manifesto to electors, sets out its views on health in the following terms:

> "People cannot be happy unless they are healthy. The Liberal aim is a social policy which will help to conquer disease by prevention as well as cure, through good housing, improved nutrition, the lifting of strains and worries caused by fear of unemployment, and through intensified medical research. The Liberal Party's detailed proposals for improved health services would leave patients free to choose their doctor, for the general practitioner is an invaluable asset in our social life."

POSTGRADUATE EDUCATION OF SERVICE MEDICAL OFFICERS

The Department of Health for Scotland announces the following addresses to which medical officers on release from the Services should apply for information and advice about postgraduate facilities in Scotland:

St. Andrews: Prof. Tulloch, Dean of the Faculty of Medicine, Medical School, Dundee. Tel. No. Dundee 3686.

Aberdeen: Prof. R. S. Aitken, Department of Medicine, Foresterhill, Aberdeen. Tel. No. Aberdeen 6060.

Edinburgh: Prof. Sydney Smith, Dean of the Faculty of Medicine, University New Buildings, Edinburgh, 8. Tel. No. Edinburgh 41001. (Also acting as central office for Scotland.)

Glasgow: Prof. J. Hendry, Department of Obstetrics and Gynaecology, The University, Glasgow. Tel. No. Glasgow Western 3991.

The corresponding addresses for England and Wales were published on June 23, p. 125.

HEARD AT HEADQUARTERS

Increased Litigiousness

Are patients becoming more litigious? It appeared so from the analysis given by the treasurer, Mr. W. M. Mollison, at the annual meeting of the London and Counties Medical Protection Society the other day. Last year the legal costs in defence of members were equivalent to 4s. 11d. per member, an increase of one shilling on the year before, and adverse costs and damages 6s. 4d. per member, an increase of 2s. 8d. These figures fluctuate from year to year, and one big case may make a great deal of difference, but they gave point to the terse counsel which the new president of the society, Sir Ernest Rock Carling, gave to the members.

One thing on which he insisted was that directly a case appears, so to speak, above the horizon the society should be informed. Many matters are referred to local solicitors before the society is consulted, and however well intentioned the solicitors may be, the subsequent action by the society may be prejudiced. He also deprecated settlements against the society's advice, saying that their experience was that such settlements were just as likely to prejudice a man's practice as an unsuccessful defence. Another point made by Sir Ernest was that if a practitioner saw occasion to vary the treatment he had proposed or discovered that he had made a mistake, he should frankly explain his action or his mistake to the relatives at once. Many actions, he said, would have been avoided if a simple explanation had been given at once. One thing brought out in the experience of the defence societies is that the practitioner of the greatest competence and skill, who takes the utmost care over his cases, is by no means exempt from peril. In two cases which the London and Counties has recently defended, and which cost it a great deal of money, Sir Ernest said that nothing but sympathy could be felt for the practitioners concerned, for the same misfortune might have happened to any one of themselves.

"The Family Doctor"

A "short," in film language, depicting the work of the family doctor, has lately been completed by Everyman Films, Limited, by arrangement with the Public Relations Committee of the B.M.A. It was shown to some members in the small theatre at the Ministry of Information on the day after the recent meeting of Council. It is restrained and dignified in its presentation, and both script and picture have been prepared with care so as to avoid the possibility that mischievous persons might hold it up to ridicule.

The question whether the film will be generally shown rests with the cinematograph trade houses, which determine how the greater part of the British public shall be entertained and instructed. The trade has, however, shown that it appreciates that in addition to its ordinary millionfold clientele, who would be faithful to their weekly pictures in any event, there is another world of infrequent cinemagoers who are attracted by serious and purposeful films. The welcome given to such films as that on the work of Madame Curie, and the earlier one depicting the achievements of Pasteur, shows that there is a public for such presentations. "The Family Doctor" is not as ambitious as these, but it is a sympathetic depiction and an accurate one, not overlaid with sentiment, but really informing.

"Volims"

We live under the tyranny of initials, encouraged now more than ever by Army usage. Such monstrosities as U.N.R.R.A. and N.A.L.G.O. are pretty well understood, but what is V.O.L.I.M.S.? A booklet is before me, the product of the Volims Committee, and it deals with a plan for a regional consultant and specialist medical service based on university medical centres. "Volims" turns out to be a word made up from the arbitrarily selected initials in the phrase "Voluntary hospitals Of London, which are Independent of undergraduate Medical Schools." But whether the name be happy or not, the plan propounded is one well worth studying. It proposes that the country be divided into university regions and that there shall be one or more university medical centres in each region based on a central hospital. The university centre is to be the pivot for clinical units in all departments of preventive and curative medicine, but there is also to be a co-ordinator of research and a clinical co-ordination department. There are many other proposals much too big to be dismissed in a paragraph, but there is also a scheme, with which the name of Mr. H. E. Griffiths is associated, for a whole-time industrial medical service centred on the university. This is to be under the control of a director of industrial medicine and to comprise a team of industrial medical officers (and nurses) to be responsible for the supervision of the industrial health of the community. The director of industrial medicine, in collaboration with the dean of the medical school, would also be responsible for the teaching of industrial medicine. The address of the Volims Committee is 28, Portland Place, London, W.1.

Publicizing Local Government

A very interesting report by the Nalgo (National Association of Local Government Officers) Reconstruction Committee has come into my hands. It is full of ideas for making the proceedings of local authorities, including public health committees, of more general interest. It urges the appointment of public relations officers and the holding of press conferences. It is often complained that local authorities transact their important business in committees, and matters come before the council in public only for the rubber stamp. Nalgo does not exactly suggest that committee meetings should be open to the Press—it would not be advisable, for example, to have open meetings at which the claims of officers for promotion were discussed—but it does recommend that the minutes should be available for the Press, and that such minutes should be phrased with the Press and public in view.

In this connexion the practice of the L.C.C. seems to be admirable. The agenda of the council meeting contains reports of committees so extensive and complete that the Press has no difficulty in constructing a "story." Another suggestion is that more use should be made of the cinematograph film, both to inspire civic patriotism and to inform the public of the services available.

Correspondence

Medical Demobilization

SIR,—I am at present on a month's leave from over-seas, and have just received the Central Medical War Committee's circular letter, D. 11, of May, 1945.

I have been away from England for over three years; during these years I have worked nearly as hard as I would have in civilian life; the work has been interesting and, I think, useful (in this respect I have been luckier than some of my colleagues). Now, however, after taking three months to reach England for my leave I have before me the prospect of a return to my Army duties for a few more [illegible]ore I *should* be demobilized [illegible] I am posted to U.K. under the "Python" scheme. In other words, I, like thousands of others, am facing an immediate future of comparative idleness in the performance of duties which could well be carried out by a man twenty years my senior. Not unnaturally this becomes increasingly irksome when the local population of the district in which I practised for two years before the war is crying out for more doctors, and when my practice is, inevitably after so many years' absence, disintegrating before my eyes.

I do not write this letter, however, for any personal reasons. I merely mention my own circumstances so that, multiplied thousands of times, they may serve to impress upon the committee in particular and non-Service doctors in general that a tide has been reached in the affairs of Service medical personnel which, if not taken now, must lead very shortly to extreme financial misfortune and general discontent.

Doctors in the Services, and especially those over-seas, have had the subject of demobilization very much in mind in the last six months or more. We have wondered what was being done on our behalf to make this as speedy as possible; what arrangements were being made to replace us (if necessary) and to help us with the post-war training which we so sorely need. We are not unreasonable or unduly impatient, and we are content to carry on with our Service duties, however unnecessary and irksome they may appear to us (and most of them could be quite adequately performed by third-year medical students in four hours' work a day, or by non-medical administrative officers), providing we are assured that arrangements for our demobilization are well in hand, adequate, and just.

Regrettably I must confess that, so far as I am concerned at any rate, the committee's letter has given us no such assurance. On the contrary, six years after mobilization and one month after the cessation of hostilities in Europe, we are given no concrete and established policy, no facts or figures relating to the mobilization of our colleagues in civilian life, and no final answers to the questions with which we are most concerned. In their stead we have intentions and promises with regard to mobilization and demobilization, and apologies for the inadequacy of the present postgraduate training scheme. In other words, we still would seem to be in the stage of words and not deeds. I do not wish to be unfair to the committee, whose work on our [illegible]alf has been and is appreciated; may [illegible]efore, give some detailed reasons [illegible] views which I have expressed

First, about demobilization: one of the main queries of Service personnel has been, "Does the Government's scheme for the reallocation of man-power apply also to doctors?" The committee gives no answer. One may presume that it does not, for the committee *believes* that if the scheme could be made to apply to doctors we would ask no more than that. Such an assumption is, I think, correct, but surely after six years we have a right to expect more than the belief in a possibility.

Next we ask the committee, "Since demobilization under Scheme 'A' is not expected to be as satisfactory or prompt for medical officers as for those employed in other branches of the Services, what alternative or additional measures are suggested?" This question is answered, for we are told that the key to the problem lies in the recruitment of civilian doctors. Hopefully we look for evidence of action in this respect, and we find that this, too, is in the "intention" stage.

May we be forgiven if we find it difficult to let this matter rest? Doctors in the Services consist in the main of young men recruited from hospitals immediately after qualification, a restricted period "on the house," or a year or two in general practice, together with the younger consultants and those who were training for a specialist career. Almost without exception these men have given what are usually considered to be the best and most important years of their lives to the Services in return for a mere pittance of a salary compared with what they would have earned had they not joined up; in addition they have seen their practices dwindling sadly and their clinical knowledge and experience neglected; some have been permanently disabled and others have given their lives. These do not ask for the sympathy of the committee or to be told that the difficulties and hardships they have suffered are well known, but they have the right to compare their lot unfavourably with that of their colleagues who have remained in civilian life. These latter may have been carrying "almost intolerable burdens" and been "worked to death" (in the words of the committee), but they have also (not in the words of the committee) lived their lives with their wives and families and in their own homes, earned salaries in excess of their peacetime incomes, and maintained or increased their practices (one hesitates to say that this latter has been at the expense of their Service colleagues, but the well-intentioned B.M.A. Protection of Practices Scheme seems, almost inevitably after so many years, to have had disappointing results). In addition, there are those among them who did not join the Services because of "local requirements," which, being interpreted, means that some of their colleagues, of like age or younger, joined up before them.

The committee is right when it assumes that we have never expected equal sacrifices for all; it is now for the committee to prove that we are wrong in our assumption that the sacrifices have been to date, and will be in the future under present arrangements, mainly one-sided. It is our contention that young (or once young) medical officers who now spend idle hours in static units or in the military administration of occupied territories, whose practices are "dwindling sadly" in their absence (a mild term, one feels), whose clinical experience has been seriously yet unavoidably neglected, and whose families and homes know them only as strangers, should be replaced by their colleagues in civilian life under, say, 45 years of age. These latter are more suited for the sedentary employment now offered by the Services, and should be prepared to spend a few months away from their practices and their families. The committee may rest assured that Service doctors are only too willing and anxious to bear the intolerable burdens of civilian practice and know that their only chance of survival lies in working themselves to death after demobilization.

No civilian doctor and no Service medical officer is irreplaceable; let each, therefore, replace the other. This, then, is our next question to the committee: "How many civilian doctors have *already* been mobilized as replacements for Service medical officers? What action (in detail) is being taken to obtain these replacements, and is the selection being made purely on the advice of committees composed of local practitioners and consultants? Why does the committee 'intend' to call up these practitioners: has it not had time to put its intentions into practical effect?"

So much for mobilization and demobilization. I would refer now to a further problem to which the committee does not give a satisfactory answer—the general dissatisfaction felt by Service medical officers at the conditions attached to demobilization under Class "B." Is it not grossly unjust that doctors released from the Services at the request of local committees and because of local needs should be expected to sacrifice the leave with pay which is their due? I refer here especially to those with oversea service who, in addition to the eight-weeks normal grant of leave on demobilization under Class "A," receive one day's leave for every month of service abroad—few would take the leave but many would be grateful for the pay when settling into their practices again or starting on a post-war career.

The committee appears to accept this exploitation as a necessary evil; is action already being taken to modify or remove this injustice?

On the subject of postgraduate training one can only join with the committee in deploring the inadequacy of the two-weeks "refresher" course offered to Class 2 medical officers. Most of us reckoned that the first three months after demobilization would have to be set aside for postgraduate training (we owe it to our patients, and the Government owes it to us), and it is only fair to suggest that the cost of such a course should be borne by the Government. Presumably, if such a course is persisted in under present arrangements the cost, as usual, will have to be borne by the individual. The idea of giving up two days a week from one's practice is, of course, laughable. The salary offered to Class 1 medical officers (who are now six or more years older than when they enlisted) will drive many of them into practice without any postgraduate training; few with families and homes to maintain will be able to afford such a course under post-war conditions.

Finally, those over-seas and thousands of miles from their practices would feel more satisfaction if the local requirements for doctors were assessed and applications for demobilization judged in the first place by committees consisting not only of local practitioners and consultants but also, in part, of medical or non-medical officers from outside the district. Similarly, one would like to be assured that the Services are represented on the Central Medical War Committee (and I do not mean only by specialists in uniform).

and that it is not entirely civilian in its representation.

I have given my views as frankly as I am able; they have been modified or extended as a result of conversations I have had with all classes of medical officers during my long journey home. If I have been guilty of under- or over-statement or of any serious omissions I hope that my Service colleagues will correct me without delay (and in this respect I fully realize that I have glossed over the consultant's point of view, and he may be the worst sufferer of us all). I would repeat that we are grateful for the Central Medical War Committee's efforts on our behalf, and are not unmindful of the difficulties it has had to overcome and with which it is still faced. I hope we shall not be considered guilty of ingratitude or impatience if, in desperation at this stage in the war, we ask for results and not promises, just treatment and not apologies.

If, in fact, this letter appears to be petulant or over-critical in its nature, may it please be regarded as a direct result of the perturbation and dismay aroused in a "foreigner" by the contemplation of an immediate future represented by mere hopes and intentions as outlined by the Central Medical War Committee's letter under discussion.—I am, etc.,

RONALD GIBSON,
Lieut.-Col., R.A.M.C.

*** The Secretary of the Central Medical War Committee writes: The Central Medical War Committee is still awaiting complete information as to the medical officers in the earlier release groups whose release will or will not depend on replacement. It is necessary to know which officers will be returning, with or without replacement, to the various localities and which have elected to serve for a further period. As this information is received the committee will carry out with the least possible delay the intentions stated in its recent circular. Meantime, the recruitment of younger practitioners, including men of graded specialist status in B1 hospital posts, is proceeding continuously.

As regards sacrifice of benefits when an officer is released out of turn, the committee is advised that it is not possible to alter, in the special case of medical officers, a policy which affects members of the Services generally. Often a man will gain by earlier release, and in no case will a man be released out of turn without his consent. As the circular explained, the salary in Class 1 of the postgraduate scheme will be supplemented when necessary by a grant under the Further Education and Training Scheme. There should be no question of a released officer with family commitments being unable to take advantage of the scheme through lack of means.

The C.M.W.C. is necessarily a civilian committee, and the only Service representatives are members of the staffs of the Service Departments, who attend as observers. Serving soldiers take no part in the recruitment of non-medical personnel. It is not clear why there should be a different rule in the case of doctors; nor what advantage would be gained at this stage by altering the composition of Local Medical War Committees.

Demobilization of Final-year Students

SIR,—When called up a year ago I was a final-year medical student at a London hospital, within ten months of qualification. My progress was considered by my tutors to be satisfactory and promising. I was nevertheless called up, the reason being that I had been de-reserved *two years* previously for failure to pass one of my examinations within the prescribed time-limit. I was, however, successful in this examination at the next attempt.

The present shortage of doctors in the country is apparently causing concern to the medical profession. Would it not, therefore, appear to be sound policy to release final-year students under Class "B" and so enable them to qualify and, if necessary, return to the Forces in their true and more useful capacity in about twelve months' time? I myself am no longer of medical category A1, and there is, therefore, no job in the Army for me which could give greater service to the country than that of completing my qualification as a doctor.

There must be a considerable number of fairly advanced students in the Forces, most of whom will not obtain their release under Class "A" arrangements for at least another year, or perhaps two. By that time the majority will have decided that the difficulties of returning to study are too great after so long an enforced abstinence therefrom, and will be lost to the ranks of the profession for ever.—I am, etc.,

"INFANTRY PRIVATE."

H.M. Forces Appointments

ARMY

Lieut.-Col. H. A. Sandiford, M.C., from R.A.M.C., to be Col.

ROYAL ARMY MEDICAL CORPS

Major (War Subs. Lieut.-Col.) T. F. M. Woods to be Lieut.-Col.

Cap[illegible] W. D. Reeves has retired on account of disabi[illegible] nd has been granted the honorary rank of M[illegible]

[illegible] MY RESERVE OF OFFICERS

Maj[illegible] G. G. Fitzgerald, C.B., D.S.O., late R.A.M.C., having attained the age limit of liability to recall, has ceased to belong to the Reserve of Officers.

SUPPLEMENTARY RESERVE OF OFFICERS: ROYAL ARMY MEDICAL CORPS

War Subs. Capt. A. L. Thorburn has relinquished his commission on account of disability, and has been granted the honorary rank of Major.

TERRITORIAL ARMY

ROYAL ARMY MEDICAL CORPS

War Subs. Majors J. B. Morrison, T.D., S. P. Wilson, C. H. Johnson, and R. H. B. McCrae to be Majors.

Capts. N. B. Benjafield and J. S. Lyle have relinquished their commissions on account of disability, and have been granted the honorary rank of Major.

War Subs. Capt. E. J. Richardson has relinquished his commission on account of disability, and has been granted the honorary rank of Capt.

TERRITORIAL ARMY RESERVE OF OFFICERS:
ROYAL ARMY MEDICAL CORPS

Lieut.-Col. T. E. A. Carr, T.D., has relinquished his commission on account of disability, and has been granted the honorary rank of Lieut.-Col.

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs. Major I. M. Orr, O.B.E., has relinquished his commission on account of disability, and has been granted the honorary rank of Lieut.-Col. (Substituted for the notification in a *Supplement* to the *London Gazette* dated April 27.)

War Subs. Capts. M. G. Langdon, N. Cowley, and P. Tytler have relinquished their commissions on account of disability, and have been granted the honorary rank of Capt.

WOMEN'S FORCES

EMPLOYED WITH THE R.A.M.C.

Lieut. (Mrs.) F. Frenkiel has relinquished her commission.

(Miss) Lilian M. Witter and (Miss) Elizabeth H. Williams to be M.O.s, and have been granted commissions in the rank of Lieut.

BRITISH MEDICAL ASSOCIA

Election of Council of B.M.A.

The following is the result of the electi[illegible] members of Council by those Groups w[illegible] there were contests:

Group C (Isle of Man, Lancashire [illegible] Cheshire):

F. M. Rose (Preston) ..	316	
R. L. Newell (Cheadle) ..	473	Elec[illegible]
D. R. Owen (Chester) ..	278	
S. Laurie Smith (Blackpool)	110	
R. Kennon (Liverpool) ..	352	Ele[illegible]
No. of voting papers issued	[illegible]754	
No. returned	850	
Spoiled papers	4	

Group L (Southern, Sur[illegible]

C. N. Binney (Walton-[illegible] the-Hill)	[illegible]	
N. E. Waterfield ([illegible] Bookham)	281	Elect
No. of voting papers issued	1,528	
No. returned	561	
Spoiled papers	3	

CHARLES HILL,
Secretary.

Branch and Division Meetings to be H[illegible]

EDINBURGH AND SOUTH-EAST OF SCOTLA[illegible] BRANCH.—At Broomieknowe Golf Club Hou[illegible] Wednesday, July 4, 5 p.m. Annual meeting. Preceded by a golf competition for the Guthrie Troph[illegible] and the President's prizes in the morning and afternoon, and a visit to Dalhousie Castle and Newbattle Abbey (party assembling at 2 p.m.) Lunch and tea provided by reservation with th[illegible] Hon. Secretary, Dr. C. R. D. Leeds, 1, Moray Place, Edinburgh.

MACCLESFIELD AND EAST CHESHIRE DIVISION.—West Park Hospital, Macclesfield, Sunday, July [illegible] 11.30 a.m. Agenda: Report of Representative [illegible] Special Representative Meeting and Instructions [illegible] Representatives.

WILLESDEN DIVISION.—At Willesden Gene[illegible] Hospital, Harlesden Road, N.W., Sunday, July 1, 11 a.m. Annual meeting. Agenda: Consideration of Annual Report of Council, etc.

POSTGRADUATE NEWS

The Fellowship of Medicine announces: [illegible] Primary F.R.C.S. course: lecture-demonstratio[illegible] in anatomy, physiology, pathology, and bacteri[illegible]logy: Mon., Wed., and Fri., 6 p.m. to 8.15 p.[illegible] Aug. 13 to Oct. 12. (2) Week-end course in obstetri[illegible] and gynaecology at South London Hospit[illegible] Women, all-day, Sat. and Sun., July 14 an[illegible] (3) Week-end course in medicine and sur[illegible] Hampstead General Hospital, all-day, Sat. [illegible] Sun., July 21 and 22.

DIARY OF SOCIETIES AND LECTU[illegible]

ROYAL SOCIETY OF MEDICINE.—*Tues.*, 2[illegible] Annual meeting of the Society.

BIRTHS, MARRIAGES, & DEATH[illegible]

The charge for an insertion under this head [illegible] 10s 6d. for 18 words or less. Extra words 3s. 6d for each six or less. Payment should be forwarde[illegible] with the notice, authenticated by the name an[illegible] permanent address of the sender, and should re[illegible] the Advertisement Manager not later than first [illegible] Monday morning.

BIRTH

BERGH.—On June 15, 1945, at Elmsleigh, Stai[illegible] to Molly, wife of Dr. Henry Bergh, a daughter.

MARRIAGES

HANRATTY—BELTON.—On May 26, 1945, Jam[illegible] Francis Hanratty, Surg. Lieut., R.N.V.R., to Irene Mary Belton, Q.A.R.N.N.S./R.

HUTT—CHAPPEL.—On June 8, 1945, at St. Mar[illegible] in-the-Fields, London, Fl. Lieut. Charles Hu[illegible] M.B., B.Chir., R.A.F.V.R., of Bournemouth, to Jill Chappel, B.M., B.Ch., of Oxford.

MUGGOCH—MARSDEN.—On May 12, 1945, [illegible] Ibadan, Nigeria, Lieut. J. Wilson Muggoch, R.A.M.C., of Heriot, Midlothian, to Betty Marsden, of Shepton Mallet, Somerset.

RAEBURN—MARTIN.—At Malone Presby[illegible]ian Church, Belfast, on June 7, 1945, Major [illegible] Ian Raeburn, R.A.M.C., nephew of [illegible] MacElwee, 3, Alexandra Place, Arbroath, to Joan Mabel, daughter of Mr. and Mr[illegible] Martin, Ulster Bank House, Lo[illegible]

DEATH

CLARKE.—On June 18, 1945, [illegible] Avenue, Highgate, N., Dr. Le[illegible] a short illness.

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